

**INDUSTRIAL RELATIONS
RESEARCH ASSOCIATION SERIES**

**Proceedings of the Thirty-
Sixth Annual Meeting**

**DECEMBER 28-30, 1983
SAN FRANCISCO**

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EDITED BY BARBARA D. DENNIS

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INDUSTRIAL RELATIONS RESEARCH ASSOCIATION

7226 Social Science Building, University of Wisconsin
Madison, WI 53706 U.S.A. Telephone 608/262-2762



PREFACE

San Francisco has its charms at any time of the year, but it was especially attractive in December to those IRRA members from the East and Middle West who were eager to escape the sub-zero temperatures at home. Equally attractive was the program for the 1983 gathering.

Our Distinguished Speaker was Californian Clark Kerr. From his perspective as one of the Association's founders and a former president, he reviewed the contributions of industrial relations research—in his words, a specialized and applied field—over more than three decades. He concluded, “[A]lways in the midst of less than perfect knowledge, each new generation of industrial relations scholars must answer for itself what problems are most worth solving, what methods are most likely to be effective, and what efforts are most worth making.”

Jack Stieber, in his Presidential Address, “Employment-at-Will: An Issue for the 1980s,” discussed one current problem “most worth solving,” listing, as alternative solutions, unionization, voluntary employer action, court-established precedents, or federal or state laws to protect employees against unjust discharge. He saw the most hope in the latter approach, recognizing that there currently exists little or no organized pressure group support for such legislation.

Other topics on the San Francisco program were immigration and employment, the use of economic and statistical analysis in employment discrimination cases, technological change, industrial relations methodology, international trade and employment, economic appraisal of the value of a human life, collective bargaining in higher education, social security in transition, and urban transit labor relations. Labor economics, collective bargaining, and personnel and organizational behavior were the subjects of Contributed Paper sessions.

The Association is grateful to the San Francisco chapter and to members of the local arrangements committee—Magdalena Jacobson, chairperson, Robert Begley, Walter Slater, Larry Corbett, Harry Polland, Diane Reynolds Ravnik, Ben Leal, and Walter Johnson—for their generous contributions to the success of the 1983 Annual Meeting and to the National Office staff for their help in all facets of planning and management.

Barbara D. Dennis
Editor

You are invited to become a member of

THE INDUSTRIAL RELATIONS RESEARCH ASSOCIATION

The Industrial Relations Research Association was founded in 1947 by a group who felt that the growing field of industrial relations required an association in which professionally-minded people from different organizations could meet. It was intended to enable all who were professionally interested in industrial relations to become better acquainted and to keep up to date with the practices and ideas at work in the field. To our knowledge there is no other organization which affords the multi-party exchange of ideas we have experienced over the years—a unique and invaluable forum. The word “Research” in the name reflects the conviction of the founders that the encouragement, reporting, and critical discussion of research is essential if our professional field is to advance.

In our membership of 5,000 you will find representatives of management, unions, government; practitioners in consulting, arbitration, and law; and scholars and teachers representing many disciplines in colleges and universities in the United States and Canada, as well as abroad. Among the disciplines represented in this Association are administrative sciences, anthropology, economics, history, law, political science, psychology, and sociology as well as industrial relations. Membership is open to all who are professionally interested and active in the broad field of industrial relations. Libraries and institutions who are interested in the publications of the Association are also invited to become members, and therefore subscribers to the publications.

Membership dues cover publications for the calendar year, January 1 through December 31, and entitle members to the *Proceedings of the Annual Meeting*, *Proceedings of the Spring Meeting*, a special research volume (*Membership Directory* every six years), and quarterly issues of the *Newsletter*.

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If you are not already a member, we invite you to join by sending your membership application and dues payment. Inquiries regarding membership, meetings and publications should be addressed to the IRRA Office.

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Sincerely yours,



IRRA President 1984

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I. PRESIDENTIAL ADDRESS

Employment-at-Will: An Issue for the 1980s

JACK STIEBER
Michigan State University

Each year private-sector employers terminate about three million employees for noneconomic reasons.¹ In the United States such terminations are called "discharge for cause." While there are no reliable comparative figures, it is clear from the literature and discussions with scholars and practitioners in other countries that discharge for cause occurs much more frequently in the United States than in other industrialized nations.² The reasons for this are not entirely clear, though there is little doubt that among the contributing factors are the greater concern with job security in other countries, the generally higher unemployment rate in the United States which makes it easier for employers to replace discharged workers, a strong dedication to individual and property rights in the United States, and the existence of laws prohibiting unjust discharge in other countries.

There is no such statutory prohibition in the United States. Protection against unjust discharge in this country is provided to a minority of all employees through collective bargaining, antidiscrimination laws, civil service, and teacher tenure laws.³

By far the best protection against unjust discharge is afforded by the grievance and arbitration procedures that are found in more than 95

Author's address: School of Labor and Industrial Relations, Michigan State University, East Lansing, MI 48824.

¹ Derived from 77 *Monthly Labor Review* 86 (1954), Table B-1; J. Medoff, "Layoffs and Alternatives Under Trade Unions in U.S. Manufacturing," 69 *American Economic Review* 380, 389 (1979); J. Stieber and R. Block, *Discharged Workers and the Labor Market*, U.S. Department of Labor, Employment and Training Administration Grant 21-26-80-11, 1983.

² J. Stieber and J. Blackburn, eds., *Protecting Unorganized Employees Against Unjust Discharge* (East Lansing: School of Labor and Industrial Relations, Michigan State University, 1980), 46-80, 135-68.

³ Title VII of the Civil Rights Act of 1964, 42 U.S.C. ¶ 621-634 (1976 Supp. II 1978 and Supp. III 1979); Employment Opportunities for Handicapped Individuals Act, 29 U.S.C. ¶ 795-795j (Supp. II 1979).

percent of all collective bargaining agreements.⁴ The 22 million American workers covered by such agreements have better protection against being disciplined or discharged without just cause than workers in any other country. Thousands of discharge cases are appealed to arbitration each year, of which about 50 percent result in reinstatement of the employee with full, partial, or no back pay because of a finding that the discharge was without just cause.⁵

Statutory protection is also provided by federal and state laws making it unlawful to discharge employees for union activity or to discriminate in employment on grounds of race, sex, religion, national origin, physical handicap, or age. Most government employees are protected against unjust discharge by civil service and teacher tenure laws.⁶

All other employees—the 60 million private-sector employees not covered by collective bargaining, and statutorily protected employees who cannot demonstrate prohibited discrimination—are subject to the Employment-at-Will doctrine. This common law doctrine holds that an employment having no specific term may be terminated by either party with or without notice or cause. As one court put it 100 years ago, employment relationships of an indefinite duration may be terminated at any time without notice “for good cause, for no cause, or even for cause morally wrong. . . .”⁷

In recent years an avalanche of articles analyzing and generally criticizing the Employment-at-Will doctrine has appeared in law school reviews and industrial relations journals.⁸ Interlaced with these articles have been an increasing number of state court decisions finding exceptions to the Employment-at-Will doctrine.⁹

⁴ *Collective Bargaining Negotiations and Contracts*, Bureau of National Affairs 51:5 (1979); *Daily Labor Report*, No. 206, October 25, 1982, A-8

⁵ G. Adams, *Grievance Arbitration of Discharge Cases* 41 (1978); K. Jennings and R. Wolters, “Discharge Cases Reconsidered,” 31 *Arbitration Journal* 164–80 (1976); F. Holly, “The Arbitration of Discharge Cases: A Case Study,” 10 *National Academy of Arbitrators Proceedings* 1–16 (1957); D. Jones, “Ramifications of Back-Pay Awards in Discharge Cases,” 22 *National Academy of Arbitrators Proceedings* 163–74 (1969).

⁶ *Supra* note 3.

⁷ *Payne v. Western & Atlantic R.R.*, 81 Tenn. 507, 519–20 (1984).

⁸ L. Blades, “Employment at Will vs. Individual Freedom: On Limiting the Abusive Exercise of Employer Power,” 67 *Columbia Law Review* 1404 (1967); C. Summers, “Individual Protection Against Unjust Dismissal: Time for a Statute,” *Virginia Law Review* 481–533 (1976); J. Blackburn, “Restricted Employer Discharge Rights: A Changing Concept of Employment at Will,” 17 *American Business Law Journal* 467 (1980); A. Blumrosen, “Strangers No More: All Workers Entitled to Just Cause Protection Under Title VII,” 2 *Industrial Relations Law Journal* 519 (1978); C. Peck, “Unjust Discharges from Employment: A Necessary Change in the Law,” 40 *Ohio State Law Journal*; J. Stieber, “The Case for Protection of Unorganized Employees Against Unjust Discharge,” 32 *Industrial Relations Research Association Proceedings* 155 (1980); R. Howlett, “Due Process for Nonunionized Employees: A Practical Approach,” 32 *Industrial Relations Research Association Proceedings* 164 (1980).

⁹ *The Employment-at-Will Issue*, a BNA Special Report (1982).

Newspapers, business and trade magazines, and columnists, titillated by a small number of astronomical jury awards to wrongfully discharged employees, have played up these decisions in a way that has led many discharged employees to believe that they had a viable court suit, and has convinced employers that they were in imminent danger of being saddled for life with incompetent employees. Lawyers and consultants have come to the rescue with schemes to protect the sacred right of employers to fire employees with or without a reason.

Exceptions to Employment-at-Will

What are these court exceptions to Employment-at-Will that have aroused so much concern among employers and encouraged false hopes of winning large jury awards among discharged employees? The three theories most commonly advanced in support of wrongful discharge suits have been based on claims of violation of public policy, the existence of an implied contract, and the covenant of good faith and fair dealing.

The Public Policy Exception

The most widely accepted common law limitation to the Employment-at-Will doctrine has been the public policy exception, which argues that an employer may not fire an employee for reasons that contravene fundamental principles of public policy. Some 20 states have recognized this exception in cases in which an employee was fired for refusing to commit an unlawful act, for performing an important public obligation, or for exercising a statutory right or privilege.¹⁰ Typical cases involved firing an employee for refusing to give false testimony at a trial or administrative hearing, serving on a jury, reporting illegal conduct by an employer (i.e., “whistle-blowing”), refusing to violate a professional code of ethics, filing a worker’s compensation claim, or refusing to take a polygraph test.

Here are a few examples of such cases:

In one of the earliest cases the California appellate court ruled in 1959 that it was against public policy for the Teamsters’ Union to discharge a business agent for refusing to give false testimony before a legislative committee. Such action rendered the union liable for damages to the business agent.¹¹

In 1972 the Michigan appeals court held that an employee stated a valid cause for relief when he alleged that he was discharged for refusing

¹⁰ *Ibid*, at 8.

¹¹ *Peterman v. International Brotherhood of Teamsters, Local 396*, 174 C.A.2d 184, 344 P.2d 25 (1959).

to manipulate and adjust sampling results in pollution control reports which were required by law.¹²

In a 1981 Illinois case, the employee alleged that he was fired for offering information to the police about possible criminal behavior on the job by another employee and for agreeing to assist in the investigation. The court held that there is a clear public policy favoring investigation and prosecution of criminal offenses.¹³

The Implied Contract Exception

The implied contract exception, which is recognized in 13 states, has found an implied promise of job tenure for employees with records of satisfactory performance in employee handbooks, personnel manuals, or oral statements made during employment interviews.¹⁴ Examples of such cases include:

The Michigan Supreme Court held in 1980 that an employer who has a written policy or has made an oral statement that an employee would not be discharged without just cause must adhere to such policy.¹⁵

The California Court of Appeals, in a 1981 decision, found that evidence supported the claim that an implied promise was made to the employee based on the 32-year duration of his employment, his promotions and commendations, assurances that he received, and the employer's personnel policies. The employee claimed that he was discharged for refusing to participate in negotiations with a union because of a purported "sweetheart agreement" that enabled the company to pay women lower wages than male employees.¹⁶

In another 1981 case originating in New York, the employee signed an application stating that employment would be subject to the company's Employee Handbook, which said that dismissal would occur only for just and sufficient cause. He also received oral assurances of job security. The New York Court of Appeals held that there was sufficient evidence of a contract and a breach of contract to sustain a cause for action.¹⁷

The Good Faith and Fair Dealing Exception

This exception, which has been clearly recognized in only three states—California, Massachusetts, and Montana—holds that no matter

¹² *Trombetta v. Detroit, Toledo and Ironton R. Co.*, 81 Mich. App. 489, 265 N.W.2d 385 (1978).

¹³ *Palmteer v. International Harvester Co.*, 85 Ill.2d 124, 421 N.E.2d 876 (1981).

¹⁴ *The Employment-at-Will Issue*, *supra* note 9, at 8.

¹⁵ *Toussant v. Blue Cross and Blue Shield of Michigan*, 408 Mich. 579, 292 N.W.2d 880 (1980).

¹⁶ *Pugh v. See Candies Inc.*, 116 Cal.App.3d 311, 171 Cal. Rptr. 917 (1981).

¹⁷ *Weiner v. McGraw-Hill* 83 A.D.2d 810, 442 N.Y.S.2d 11 (1st Dept. 1981).

what an employer says or does to make it clear that employment is at-will and that an employee may be dismissed without cause, he must deal with the employee fairly and in good faith.

In 1977, the Massachusetts court ignored an explicit written contract that reserved to the employer the right to fire an employee for any reason. The employee, a 61-year-old salesman with 40 years of service, claimed that he was fired to avoid paying him sales commissions on a multi-million dollar order. The court held it was for a jury to decide if the employer's motive in firing him was suspect. If it so found, then the discharge was wrongful because the law imposed a covenant of good faith and fair dealing on every contract.¹⁸

In a 1980 California case, the court found that an employee could sue for wrongful discharge in both contract and tort, in the case of an employee with 18 years of satisfactory service with an employer which had violated its own specific procedures for adjudicating employee disputes. The court further held that, if a jury found that the employer had acted in bad faith, the company could be held responsible for pain and suffering and be assessed punitive damages.¹⁹

In 1983, the Montana Supreme Court approved a jury award of \$50,000 to a cashier who alleged that she was discharged without warning and was forced to sign a letter of resignation. The employer claimed she was fired for carelessness, incompetency, and insubordination. The court said that there was sufficient evidence for the jury to find fraud, oppression, or malice and held that an employer's breach of good faith and fair dealing is a tort for which punitive damages may be imposed.²⁰

To nonlawyers, which most of us are, the above principles and decisions may not appear surprising or unreasonable. They merely support what most people would regard as fair and decent behavior on the part of employers towards employees: that employers should not penalize employees for refusing to commit unlawful acts, for exercising their lawful rights, or for behaving as good citizens; that employers should not take advantage of employees by virtue of the power they have over their economic welfare; and that they should treat employees fairly. It may, therefore, come as a surprise to learn that most courts do not look at it this way; that they interpret the public policy exception so narrowly as to give it only very limited application; that they do not regard written or oral policy statements as binding on employers; and that they do not hold that employers must behave fairly and in good faith toward their employees.

¹⁸ *Fortune v. National Cash Register*, 373 Mass. 96, 364 N.E.2d 1251 (1977).

¹⁹ *Cleary v. American Airlines, Inc.*, 111 Cal. App.3d 443, 168 Cal. Rptr. 722 (1980).

²⁰ *Gates v. Life of Montana Insurance Co.*, Mont. Sup. Ct. No. 82-468, August 5, 1983.

Consider, for example, the following court rulings:

The District of Columbia Court of Appeals in 1981 rejected a public policy exception in a case in which an employee claimed that his employer had required that he testify in an administrative proceeding, and then fired him in retaliation for testifying truthfully against the employer's interests.²¹

In another 1981 case, the Indiana appeals court held that an at-will employee, who reported alleged misconduct by his superiors and questioned the safety of drugs marketed by the company, failed to state a claim for wrongful discharge because he was not exercising a statutory right or complying with a statutory duty.²²

In 1980 a New York court ruled that a bank employee, who alleged that he had been discharged because he had uncovered evidence of illegal foreign currency manipulation, was terminable at-will because he had no written employment contract.²³ This employee's termination was only a minor episode in a major case in which the Securities and Exchange Commission declined to bring civil action against the company, despite staff findings that Citicorp, the largest foreign exchange dealer in the world, had violated the tax and currency laws of seven countries. SEC officials argued that, because Citicorp had never represented to stockholders and investors that its senior management had "honesty and integrity," it had no legal duty to disclose breaches of these basic norms. Furthermore, these officials noted that Citicorp's pursuit of profits it knew to be probably unlawful was "reasonable and standard business judgement."²⁴ The SEC decision not to prosecute Citicorp fits very well with the earlier court ruling that the bank could, with impunity, fire the employee who complained about the currency manipulations to the board of directors. Both decisions are a sad commentary on what passes for acceptable business behavior in the eyes of the law.

The increasing frequency of court rulings on exceptions to the Employment-at-Will doctrine has led to the exaggerated notion that the doctrine is all but dead in the United States. Thus, attorney William Isaacson has said: "The employment-at-will doctrine is tottering in most jurisdictions and, in some, has for all practical purposes, already fallen. It would be ironic if unrepresented employees under state law developed more rights in the workplace than employees represented by unions."²⁵

²¹ *Ivy v. Army Times Publishing Co.*, 428 A.2d 831 (D.C. 1981).

²² *Campbell v. Eli Lilly & Co.*, 413 N.E.2d 1054 (1980), *affd.* 421 N.E.2d 1099 (1981).

²³ *Edwards v. Citibank*, 100 Misc.2d 59, 418 N.Y.S. 269 (Sup. Ct. N.N. Co. 1979), *affd.* 74 A.D.2d 553, 425 N.Y.S. 327 (1st Dept.), appeal dismissed 51 N.Y.2d 875, 433 N.Y.S.2d 1020 (1980).

²⁴ *The New York Times*, February 18, 1982, 1, 30.

²⁵ Speech to American Arbitration Association, *Daily Labor Report*, No. 100, May 23, 1983.

A business view was presented in *Fortune* magazine:

Your average progressive commentator, not understanding the centrality of firing to our economic system, which would otherwise collapse under the deadweight of goof-offs, opposes at-willism and yearns to counter it with the so-called implied contract doctrine. The latter . . . protects employees against dismissal so long as their performance is adequate.²⁶

Unfortunately, and contrary to these assertions, the Employment-at-Will doctrine is alive and well in most states. As noted earlier, only a minority of state courts have granted public policy or implied contract exceptions, and only three have explicitly recognized that all employment relationships are subject to the covenant of good faith and fair dealing. The majority of states still adhere to the undiluted Employment-at-Will doctrine for employees not covered by collective bargaining agreements or protected by specific statutes.

Limitations to Exceptions to Employment-at-Will

Even under the most liberal interpretation of the Employment-at-Will doctrine, the recognized exceptions apply to only a minute proportion of the three million employees who are discharged each year. The overwhelming majority of discharged employees are fired for such every-day occurrences as excessive absenteeism or tardiness, sleeping on the job, fighting in the workplace, horseplay, insubordination, using abusive or profane language, falsifying company records or application forms, dishonesty, theft, disloyalty to their employer, negligence, incompetence, refusal to accept a job assignment, refusal to work overtime, possession or use of intoxicants or drugs, etc.²⁷ In more than half of the discharges for the above-noted reasons, arbitrators selected under union-management agreements have found insufficient evidence to support the discharge penalty and have reinstated the employee with full, partial, or no back pay depending on the circumstances in each case.²⁸ Yet none of these discharges would qualify as an exception to the Employment-at-Will doctrine if they occurred in a nonunionized company.

Another limitation to the applicability of the public policy and implied contract exceptions to the Employment-at-Will doctrine is that it is used almost exclusively by executive, managerial, and higher level employees, who constitute only a small minority of all employees. One study of 92 wrongful discharge cases found only eight that involved so-called “sec-

²⁶ *Fortune*, May 30, 1983.

²⁷ F. Elkouri and E. Elkouri, *How Arbitration Works*, 3d ed. (Washington: BNA, 1973), 652-66.

²⁸ *Supra* note 5.

ondary market” employees.²⁹ Typical job titles of plaintiffs in wrongful discharge cases are company vice president, sales manager, marketing director, foreman, physician, sales representative, pharmacist, department manager, etc.

The rarity of hourly and lower level salaried employees among wrongful discharge plaintiffs is due to several factors. Such employees are less likely to consult attorneys than are higher level employees. Even when they do consult attorneys, they are less likely to pursue their claims because they and their lawyers have lower expectations concerning their rights in general and their rights to job security in particular. The contingent fee system, under which most wrongful discharge suits are taken, discourages attorneys from representing low-income employees because they can expect smaller returns from such cases.

A second explanation for underrepresentation of low-income employees in court cases is the inherent bias in the nature of the public policy and implied contract exceptions. The opportunities for low-income employees to be fired for refusing to commit unlawful acts, such as testifying falsely at a hearing or trial or falsifying company records, are small because these employees do not usually have access to information relevant to such acts. Similarly, discharge for performing an important public obligation or “blowing the whistle” on illegal conduct by an employer is more likely to occur among upper level, technical, or professional employees because they are in a better position to detect dangerous or illegal practices. There is also a greater willingness by such employees to question decisions of their employers.

The implied contract exception has little relevance to lower level employees because they are rarely in a position to inquire about future job security when they apply for a job. Nor are they likely to read carefully an employee handbook which may give rise to an implied contract obligation. Even if they were aware of such a handbook provision, most employees would not realize that it could be used to bring a court suit for wrongful discharge.

The only category of exception that might be considered equally applicable to both lower and upper level employees is that based on a statutory right or privilege, such as being fired for filing a worker’s compensation claim.³⁰

Alternative Courses of Action

In principle there is widespread agreement that the Employment-at-

²⁹ “Protecting Employees at Will Against Wrongful Discharge: The Public Policy Exception,” 96 *Harvard Law Review* 1941 (June 1983).

³⁰ *Ibid.*, at 1942–47.

Will doctrine has no economic or moral justification in a modern industrialized nation. The idea that there is equity in a rule under which the individual employee and the employer have the same right to terminate an employment relationship at will is obviously fictional in a society in which most workers are dependent upon employers for their livelihood. Recognizing the problem is, however, more difficult than finding an acceptable solution.

By far the best solution would be unionization. The best protection against unjust discharge is afforded by a collective bargaining agreement containing a grievance and arbitration procedure. Put in its simplest form, one answer to the Employment-at-Will problem is: Let those who want protection against unjust discharge join a union.

But this is both an oversimplification and an illusory solution. Many workers who join unions do not receive the benefits of unionization because they represent a minority of the bargaining unit in which they are employed. Thus, under the National Labor Relations Act, if less than 50 percent of the employees vote to unionize, 100 percent remain unprotected against unjust discharge. In 1981 unions won only 43 percent of NLRB certification elections, the lowest proportion in 25 years.³¹ This indicates that joining a union does not guarantee protection against unjust discharge. In addition, protection of the right to organize does not apply to several million supervisory employees under the National Labor Relations Act.

The illusory nature of unionization as a solution to the Employment-at-Will doctrine is even more evident from the fact that the percentage of organized employees has decreased from 35 percent of the nonagricultural labor force in 1955 to 23 percent in 1980.³² Thus, the tide of unionization has been receding rather than advancing, leaving an ever increasing number of employees without protection against unjust discharge. There is no evidence that this trend is likely to be reversed in the foreseeable future.

Voluntary employer action to provide due process, including impartial arbitration for discharged employees, has been proposed by the American Arbitration Association and is supported by progressive employer representatives as the best way to deal with the Employment-at-Will issue.³³ As in other fields of human behavior, voluntarism is always preferable to compulsion in labor-management relations. Unfortunately the record provides little basis for optimism that voluntary employer action is the

³¹ Speech by K. Moffett, *Daily Labor Report*, No. 12, September 7, 1983.

³² U.S. Bureau of Labor Statistics News, September 3, 1979; *BLS Earnings and Other Characteristics of Organized Workers, May 1980* (1981).

³³ Stieber and Blackburn *supra* note 2, at 4-20; J. Schauer, "Discussion" of "Due Process for Nonunionized Employees," *32 Industrial Relations Research Association Proceedings* 183-86 (1980).

key to the Employment-at-Will problem. Only a handful of employers—all of them very large—have adopted voluntary arbitration for their nonunion employees. Most nonunion employers, who have recognized that employees should have an outlet for their grievances, have instituted systems wherein some higher level of management reviews and has the final word on employee discharges.

Voluntary systems, though laudable, do not begin to approach the magnitude of the problem posed by Employment-at-Will. Few employers will voluntarily adopt impartial arbitration, and those most in need of outside review are least likely to provide it. According to a Conference Board study, nonunion complaint systems enjoy little credibility among employees and terminations are rarely appealed through such systems.³⁴

A third solution, which finds support among many lawyers, would place its faith in the judiciary to circumvent the anachronistic Employment-at-Will doctrine. Those who support this approach point to court decisions over the past decade as evidence that the courts can and will find a way to protect employees generally against capricious and arbitrary discharge.

I have previously noted the inadequacy of the public policy and implied contract exceptions to the Employment-at-Will doctrine insofar as hourly workers and lower level salaried employees are concerned. It is among these employees that the problem of unjust discharge is most serious, as indicated by the 50 percent reversal rate in cases appealed to arbitration. With respect to the larger issue of protection against unjust discharge for all employees, Professor Theodore St. Antoine has noted: "There is no case in this country where the court has clearly held as a matter of common law that discharge must be justified I see no chance of getting the courts to adopt full scale just cause protection."³⁵

Indeed, the courts themselves have begun to draw back from some of their earlier decisions in wrongful discharge cases in favor of the view that it is up to the legislature to explicitly strike down the Employment-at-Will doctrine. Thus, the New York Court of Appeals has allayed concerns among employers resulting from its 1982 decision upholding the right of an employee to sue his employer for wrongful discharge. In a 1983 case the court barred a complaint of wrongful discharge by an employee of 23 years who claimed that he was fired in reprisal for disclosing top management accounting improprieties. The court said:

If the rule of nonliability for termination of at-will employment is to be tempered, it should be accomplished through a

³⁴ The Conference Board, *Nonunion Complaint Systems: A Corporate Appraisal* (1980); "Policies for Unorganized Employees," PPF Survey No. 125, BNA (April 1979).

³⁵ *The Employment-at-Will Issue*, *supra* note 9, at 23.

principled statutory scheme, adopted after opportunity for public ventilation, rather than in consequence of judicial resolution of the partisan arguments of individual adversarial litigants. . . . In sum, under New York law as it now stands, absent a constitutionally impermissible limitation in the individual contract of employment, an employer's right at any time to terminate an employment at will remains unimpaired.³⁶

The Statutory Approach

The above failings in the unionization, voluntary employer action, and judiciary approaches to doing away with the Employment-at-Will doctrine leads to a consideration of federal or state legislative action. As noted above, legislative bodies are much better equipped than the courts to deal with the myriad problems that must be dealt with in devising a workable solution to protect employees against unjust discharge. I and others have elsewhere set forth proposals to deal with such issues as federal vs. state action, definition of just cause, employer coverage, employee eligibility, conciliation before adjudication, remedies for unjust discharge, cost, employee representation and the composition of the tribunal.³⁷ I do not intend to discuss the content of legislation on this occasion.

I recognize that some of the issues that must be dealt with in legislation do not have perfect answers. But the failure to find the ideal solution to every problem should not be used as an excuse to do nothing. The injustice done by the Employment-at-Will doctrine to thousands of discharged employees is too great to allow it to continue for want of a perfect substitute. The application of such a standard to other laws would have resulted in no action to prohibit discrimination in employment on grounds of race, sex, or national origin, to provide protection against occupational hazards in the workplace, and to guarantee that employees receive the benefits to which they are entitled in pension plans. Most of us would agree that on balance these laws have served a useful purpose despite many problems in their implementation. I am confident that a law to protect employees against unjust discharge would yield equally desirable results.

Legislative action to protect employees against unjust discharge would have to surmount major obstacles. Bills do not get adopted in Congress or in state legislatures merely because they are in the public interest. Without the support of major pressure groups, such bills die in committee or never even reach the hearing stage.

³⁶ *Murphy v. American Home Products Corp.*, N.Y. Ct. App. No. 35, March 29, 1983.

³⁷ J. Stieber and M. Murray, "Protection Against Unjust Discharge: The Need for a Federal Statute," 16 *Journal of Law Reform* 336-41 (Winter 1983); Summers, *supra* note 8.

It is understandable that there is no pressure group to lobby for a bill to protect employees against unjust discharge. No political action committee representing discharged employees exists to contribute campaign funds to legislators. Employees who are discharged for cause do not advertise their situation, even when they believe they have been treated unfairly. They are more likely to hide the fact that they were fired from their last job in order to enhance their prospects for future employment.

In the field of labor-management relations, few bills become law without the endorsement and active support of employer organizations or unions, or preferably both groups. Employers strongly oppose dilution of the Employment-at-Will rule.³⁸ Even unionized employers, who have lived with grievance procedures and arbitration for many years, want to retain the right to discharge their nonunion employees without having to prove just cause to an impartial tribunal.

Unions are often depicted as being harmed by legislation protecting nonunionized workers against unjust discharge, on the supposition that it would make organization more difficult. This view has been put forth by academicians, employers, and government representatives.³⁹ They argue that such legislation as OSHA, Title VII of the Civil Rights Act, ERISA, and even the Fair Labor Standards Act has made union organization more difficult by substituting government regulation for protection through collective bargaining.

Curiously, unions do not appear to share these views. Though it is not a priority item on labor's legislative agenda, union representatives have indicated support for legislation to protect nonunionized workers against unjust discharge.⁴⁰

In view of the obstacles to legislation to do away with the pernicious Employment-at-Will doctrine, one can hardly be optimistic about the prospects for statutory protection against unjust discharge in the next few years. Yet the 60 million employees who presently do not enjoy such protection can draw some hope from the words of a man who has earned a well-deserved reputation as a pretty good prognosticator on both economic and political matters. In *The General Theory of Employment, Interest and Money*, John Maynard Keynes wrote:

³⁸ *The Employment-at-Will Issue*, *supra* note 9, at 13–15.

³⁹ P. Wallace and J. Driscoll, "Social Issues in Collective Bargaining," in *U.S. Industrial Relations 1950–1980: A Critical Assessment*, eds. J. Stieber, R. McKersie, and D. Mills (Madison, WI: IRRA, 1981), 252–53; M. Lovell, "A Reagan Official Views a Changing Labor-Management Relationship," 35 *Industrial Relations Research Association Proceedings* 271–78; *The Employment-at-Will Issue* *supra* note 9, at 20–21.

⁴⁰ D. Wilson, "Discussion" of "Due Process for Nonunionized Employees," 32 *Industrial Relations Research Association Proceedings* 180–82 (1980); *The Employment-at-Will Issue*, *supra* note 9; H. Epstein, "Comment" on "Arbitration of Job Security and Other Employment-Related Issues for the Unorganized Worker," 34 *National Academy of Arbitrators Proceedings* 62–67 (1982).

Is the fulfillment of these ideas a visionary hope? Have they insufficient roots in the motives which govern the evolution of political society? Are the interests which they will thwart stronger and more obvious than those which they will serve? . . . I am sure that the power of vested interests is vastly exaggerated compared with the gradual encroachment of ideas Soon or late, it is ideas, not vested interests, which are dangerous for good or evil.⁴¹

The ideas espoused by Lord Keynes in *The General Theory* were certainly more revolutionary in the 1930s than the simple notion that I have put forward here today.

Keynes's ideas were proved sound in less than a decade. I trust that the much more modest proposal that all employees deserve statutory protection against unjust discharge will be tested and proved equally sound during the decade of the 1980s.

⁴¹ J.M. Keynes, *The General Theory of Employment, Interest and Money* (New York: Harcourt, Brace & Co., 1936), 383–84.

II. DISTINGUISHED SPEAKER ADDRESS

A Perspective on Industrial Relations Research— Thirty-Six Years Later

CLARK KERR

University of California, Berkeley

We gather here for the Thirty-Sixth Annual Meeting of the Industrial Relations Research Association, and I should like on this occasion to review briefly and to evaluate the contributions of industrial relations research over the past third of a century, plus a few years, since the founding of this Association. We started out as rebels. We first met almost like conspirators in the hallways during the annual meetings of the American Economic Association to grumble about what then seemed to us to be the neglect of labor economics at these meetings. I have recently gone back to review the proceedings of the American Economic Association for the several years preceding the founding of this Association, and I must confess that I now find our perception at the time not to have been warranted. However, it seemed to us then almost incredible, within the economics profession as then constituted, that labor, the most important source of production, was so ignored as compared, for example, with the role of capital; that the firm was the source of so much attention and the union hardly mentioned; that labor markets, when noticed at all, were viewed as though they were commodity markets; that collective bargaining, then in the daily headlines, had not penetrated into the domain of the interests of most traditional economists; but, most of all, that theory seemed to move along at the microeconomy level with so little contact with reality, although at the macroeconomy level the Keynesian revolution had sought successfully to combine theory and the actualities of economic life.

Author's address: Institute of Industrial Relations, University of California, Berkeley, Berkeley, CA 94720.

The Goals of the IRRA

We had several goals in mind when we founded this association. First of all, we wanted to meet together, to get to know each other better, to find out what others of us were doing, and this was not possible in the crowded mass atmosphere of the American Economic Association. Second, we wished to have an impact on the programming of the Association, and we negotiated an informal agreement that two sessions of the annual meeting would be jointly designed and sponsored by the AEA and the new IRRA, and this was long the practice but now, apparently, the number has been reduced to one. In this way we hoped to bring the attention of the general body of economists, but particularly the theorists, to our field of interest and to our own research. Third, we wanted to create a forum which would be participated in by practitioners in the unions, in industry, and in government who would never feel at home and consequently would otherwise never come to meetings of the American Economic Association. We were, I believe, the first of the specialized associations grouped around the American Economic Association to make a real effort to bring together the scholars in the universities and the more scholarly inclined of the operators in the field. We had a fourth goal which was to bring in scholars from related social sciences, particularly law, sociology, political science, and psychology, to discuss matters which clearly transcended the traditional boundaries of economics.

The “we” to which I have been referring were the more active among the already substantial numbers of young labor economists at the end of and just after World War II. Courses in labor economics and industrial relations were entering every college and university curricula, new centers for the study of industrial relations were being created in most of the major universities and in some not so major, and more well trained professionals were being employed by unions, industry, and government. We came mostly out of two traditions—the Wisconsin school of John R. Commons, Selig Perlman, Edwin Witte, and Philip Taft, among others, and the applied economics and much less cohesive school represented particularly by Sumner Slichter at Harvard, Harry Millis and Paul Douglas at Chicago, and Douglas Brown at Princeton. These two schools were not fully compatible—the first largely rejecting standard economic theory, the latter instead wanting to build upon it to make it more useful in an understanding of actual practice. But both schools accepted the new world of collective bargaining and of government intervention in economic life, and, in any event, representatives of the two schools had an unwritten understanding to respect each other. The first president our group of younger scholars chose was Witte of the Wisconsin school, and the second was Slichter of the applied economics school. The third and fourth

presidents, George Taylor and William Leiserson, were more highly successful practitioners, as mediators and arbitrators, than they were scholars; and the fifth, Ewan Clague, came from government—the Bureau of Labor Statistics.

The followers of both schools had in common very substantial field experience, particularly through the War Labor Board, and a broad social science orientation to economic life, rather than a narrow strictly economic one, as a result of this experience. Few were strictly “hot house” graduate school products. These accommodations and commonalities between the followers of the two schools, however, coexisted within an atmosphere of extremely intense competition of school versus school, of center versus center, of individual scholar versus individual scholar. There was a great outburst of effort, and many wanted to be among the first and none among the last to emerge from the competition.

Richard Lester (encouraged by Douglas Brown, both of Princeton) was the prime initiator of this Association in 1946, shortly joined by William McPherson of Illinois. The loci of the initiative were quite natural, since Princeton had established the first center for the study of industrial relations before World War II, and the University of Illinois had one of the most active of the postwar centers. The early interest in the new association was phenomenal—a thousand members had joined by the time of the first annual meeting in 1948—this from an original organizing committee of 20 members in early 1947. I note in passing that only one of the active early participants in the affairs of this Association—our first editor, Milton Derber of Illinois—is still active in the Association as a member of the Executive Board and as a recent President. Our early concerns and accomplishments were demonstrated by the facts that all four of the vice-presidents to serve in the first two years came from outside economics—from sociology, law (2), and psychology; and that, at our first annual meeting, two of the then seven sessions of the American Economic Association were jointly sponsored by the IRRA—nearly one-third of the total program.

The 1000 original members were mostly the “newcomers” as Witte called them in his, the first, presidential address—“younger economists” who found it “difficult to reconcile” what “they had found to exist” with “the theory they were taught,” and “others who have come from academic disciplines which have only recently become interested in industrial relations.” There was a generation of new people eager to explore and explain new worlds, and we had great expectations.

How successfully have the original goals been met looking back from the vantage point of 1983? Two of the goals—an opportunity to meet together as specialized experts and an effort to bring in practitioners from

outside academe with like training and concerns—I should say have been met very successfully; but the two others—getting a hearing by the theorists and bridging the disciplines—not successfully, since the theorists then mostly did not want to hear, and since the moats that divide the disciplines have proved wider and deeper than we then recognized. Perhaps also, economics was not the best center for an interdisciplinary social science effort; sociology might have been better. But it was a time of great hopes when we started and it should not be too surprising that some of our early expectations have proved to be not realistic; and, it may be noted, in particular and somewhat sadly, that this thirty-sixth program has little of interest to theorists and almost no participation from outside of economics.

Tests of Performance of Industrial Relations Research

I should now like to turn to an examination of the ongoing tests of performance of industrial relations research and of how well they have been met during the period under review. Industrial relations research is an applied field. It is applied in the sense that it relates directly to practice, although it may be and even should be connected with theory. As an applied field, it is based upon the facts and has a special obligation to collect and to analyze them. It is also a specialized field, comprehending only one (albeit large) aspect of societal operations. Thus it deals with what A. C. Pigou once called “realistic knowledge” as compared with “pure knowledge,”¹ and with a segment rather than with the aggregation of social reality. As an applied and specialized field of study, industrial relations has modest, but nevertheless important, contributions to make.

Commentary

The first contribution of an applied and specialized field, such as industrial relations, is to provide a running description of and commentary upon current developments. This is the role of the analytical historian of contemporary events or, more modestly, of the high-level journalist describing and explaining what is happening more or less as it happens. This is a highly important role. It keeps other scholars informed of developments for the sake of their teaching and research. It contributes facts and understanding to practitioners and to policy-makers in the field. It adds to the quality of public perceptions of developments both directly and indirectly. It provides historians of the future with a very rich store of information and analyses. Industrial relations research in the United States has played this role since World War II most effectively. A large volume

¹ A. C. Pigou, “Empty Economic Boxes: A Reply,” *Economic Journal* 32 (December 1922), pp. 458–65.

of articles and books has examined all aspects of the field quite adequately and generally quite impartially. There is no need for any interested person to be ignorant of any important, and even many unimportant, developments. An impressive layer of records has been compiled for current and future use.

Yet some criticisms may be advanced. Reflecting back on the literature as published and reviewed in the leading journals and at these annual meetings, one cannot miss seeing the rise and fall of interest in certain subjects—in the operation of unions at one time, in manpower planning at another time, in discrimination in the labor market at still another time, and so forth. These waves of interests are both understandable and regrettable. They reflect the current issues before society, but they deny constant attention to some long-term developments. Attention has focused now here, now there; and when picked up again in an old area by a new generation of scholars they seem often to make no connection with what was seen and thought the last time around. Related to this faddish nature of attention is the observation that so many subjects are treated in so many articles (particularly by econometricians) with little historical depth or little horizontal comparison to other similar contemporary developments—little self-contained compartments unrelated to time or to place; little dots not located vertically or horizontally on the great map of social experience. May I also suggest, looking at this body of literature over many years as an observer and occasional participant, that much of it, and perhaps even more of it than in earlier times, seems to be written to prove a point of view, mostly either neoclassical or Marxist, or to demonstrate mastery of a technique, like econometrics, than to give fresh and fully rounded illumination of the subject matter.

Policy

A second contribution is to be useful in policy formation. Industrial relations research and commentary has had one, but only one, spectacular success. This was the contribution of the Wisconsin school to two related but separable developments. One was to the introduction of the welfare state to the United States. Members of the Wisconsin school contributed many of the ideas, in their American formulation, and many of the persons who actually implemented these ideas. The other was to the official acceptance and even encouragement of the trade union movement in the United States. This may yet prove to be even more important than the former, for it may turn out to be the first step toward a new form of capitalism and even of political governance in the United States by establishing part of the framework for the tripartite corporative state, as has developed, for example, in Austria, Sweden, and Germany, although

this evolution now seems to have been set back temporarily at least. These two contributions together constitute certainly one of and perhaps even the greatest of all contributions of American social scientists to national policy.

Industrial relations research, however, made no major contribution to the other great revolution of recent times in American economic behavior—the Keynesian revolution, except for John T. Dunlop's important but relatively minor correction of Keynes. It might have done so, but it largely has not. One of the failures of the macroeconomy theory of the Keynesians has been that it has not been grounded in adequate microeconomy theory, including the behavior of labor markets. For Keynes, inflation would only commence as bottlenecks began to appear as full employment was approached. He did not contemplate the possibility of stagflation, and it had, of course, not yet evidenced itself when he wrote *The General Theory*. His followers, however, facing the fact of stagflation, have not had an adequate microeconomy theory to explain it or to suggest solutions, although this is beginning to change.

In the interim, industrial relations research, very broadly interpreted, has made contributions to some less significant new policies. It has helped to elucidate the contribution of education to skill and of skill to productivity, and thus encouraged the heavy investment in education, particularly in the 1960s. It has helped to indicate the degree of discrimination by race and by sex in labor markets, and thus encouraged policies of affirmative action. It has helped to search out and to extend good practices in improving the quality of working life. It has sought out and encouraged better management practices toward workers, as, for example, it did early on in the “human relations in industry” and in the theory “y” versus theory “x” analyses of management approaches. These are not inconsiderable contributions.

The big policy issue is now stagflation, the equivalent of the great depression of the 1930s as a challenge waiting a solution. Here the study of industrial relations can make a very great contribution both in understanding this phenomenon and in solving the policy puzzle of how full employment and stable prices can coexist. The Phillips curve once looked like both an adequate explanation and an acceptable cure by showing the trade-off between inflation and unemployment, but the trade-off now both explains less and cures less but at more cost. Industrial relations research can contribute part of the explanation as it discovers and explains the realities of labor markets, particularly of internal labor markets, and of wage-setting policies by firms, unions and governments—and possibly part of the cure as it studies the intricacies of incomes policies and their attendant social conditions and arrangements, and as it studies

the means for increasing labor productivity. In these ways less inflation and more employment can possibly be made more compatible. Here we are, however, dealing at the microeconomy level and no big solution, as with Keynes at the macroeconomy level, is possible.

Theory

The third potential contribution of an applied and specialized field is to theory. Such a field can (1) test the explanatory power of an existing theory against actual practice, can (2) contribute better assumptions to modify an old theory or create a new theory, and can (3) bring to light new problems to be explained. It can also (4) extend an old theory into explanations of farther corners of practice. Industrial relations research has only been clearly successful in the last of these contributions as the neoclassical labor economists have applied their system of analysis particularly to a deeper understanding of the supply of labor. Industrial relations research has long sought to alert theorists to the inherent nature and the changing natures of labor markets, but few of the theorists have really listened—John R. Hicks and Arthur Okun are prominent among those who have. Now stagflation is forcing them to listen as mass unemployment made them listen to new explanations during the Great Depression.

Conclusion

I should like to draw a few lessons from this short review.

- Theorists like to hear what they want to hear. Only in extremis will they listen to what they do not want to hear and particularly from scholars in applied fields.

- Interdisciplinary barriers are easier to raise than to lower. Only in biology are the old vertical barriers being torn down among fields, but only as new barriers are being built horizontally by levels of complexity of organisms.

- It is easier to prove once more or to extend into new areas of exploration an old theory, whether neoclassical or Marxist, than to create a new theory or even new explanations below the level of a general theory.

- Curiosity about historical antecedents before the current event and about comparative experiences beyond the immediate event under study does not seem to flourish in the current ambience of scholarship. Both Karl Marx and Joseph Schumpeter are at least temporarily out of style, as are Adam Smith and Alfred Marshall—all of them were concerned with philosophical issues, with historical changes, with the political and sociological conditions surrounding economic life.

- Policy advice can be effective only when policies are about to be made anyway because of the force of circumstances. Policy advice is of no value outside this context, no matter how intrinsically good the advice may be.

- The “pure” knowledge of the mathematical economist and what might be called the “bounded” knowledge of the econometrician (bounded by a limitation to only such evidence as is quantifiable) are both more in demand and easier to supply than the “realistic” knowledge of the person who contacts reality at first hand in all its complexities, such as the researcher in industrial relations.

These half-dozen lessons were not so clear 36 years ago to those of us who started this Association. In retrospect, I think I am glad they were not, but I am not sure—we might have been too discouraged by contemplating them; however, we might have been much more sophisticated in our efforts. In any event, always in the midst of less than perfect knowledge, each new generation of industrial relations scholars must answer for itself what problems are most worth solving, what methods are most likely to be most effective, and what efforts are most worth making. The problem most worth solving seems clear: stagflation. The method most appropriate would appear to be: the pursuit of realistic knowledge. The greatest effort, once again, should be an attempt to contribute to better theory. Fortunately, there is a new generation of exceedingly competent labor economists. Fortunately, also, great problems need to be solved. Once again, it is a period of great expectations.

III. USE OF ECONOMIC AND STATISTICAL ANALYSIS IN EMPLOYMENT DISCRIMINATION CASES

Economic and Statistical Analysis of Discrimination in Hiring*

RONALD G. EHRENBERG AND ROBERT S. SMITH
Cornell University

Legal and administrative determinations of employers' compliance with "equal employment opportunity" (EEO) requirements often hinge on the issue of the *availability* of protected class members to employers. That is, courts and affirmative action review agencies compare the *hire rates* of protected class members (the ratio of the number of protected class members hired to the number who applied or who were potentially available) to the comparable ratio for other applicants, in assessing whether an employer's hiring policies meet the standards required of it by equal opportunity regulations. The purpose of this paper is to review what economic theory suggests affects availability and to analyze the extent to which these factors are considered in administrative or judicial decisions concerning hiring policies. In our analyses, we will point out areas where there seem to be inconsistencies or unresolved issues.

An Economic Model of Availability

As a rough approximation, once individuals have decided to seek work for pay, the characteristics of the ultimate employee-job "match"

Author's address: New York State School of Industrial and Labor Relations, Cornell University, Ithaca, NY 14853.

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will be influenced by both employee behavior and employer policies. Below, we discuss these influences as they pertain to the issue of availability.

Human Capital Decisions

Searching and/or training for a job often entail an investment by the employee associated with schooling, with on-the-job training that initially is paid for by lower wages, with a geographical move, or with the costs of quitting one job and looking for another. These investment costs represent barriers to occupational and geographical mobility, but not insurmountable ones in most cases. Workers will change occupations, domiciles, and employers if the expected long-term gains are large enough to outweigh the initial transactions costs.

Human capital theory has two major implications for the calculation of “availability.” First, not all of the protected class workers who consider themselves in a given occupation are equally available to an employer seeking employees to fill that job. The pecuniary and psychic costs of making geographic changes appear to rise with distance, so that in “national” or “regional” labor markets not all potential applicants are equally likely to be interested. Persons with working spouses also face higher costs of mobility, other things equal. Likewise, those currently without employment tend to have lower opportunity costs of accepting a given offer than those with a job, and even among the latter group transactions costs will vary with the wage and compensation characteristics of the current job. Finally, the long-term gains from a human capital investment fall with age, so that older workers tend to be less mobile (“available”) than younger workers. Because the age distribution of the labor force varies by race and sex, the proportions of the labor force actually “available” in a labor market probably differ by race and sex.

Second, those not currently “in” the labor market from which a firm is hiring may be induced to join if the net returns are high enough. Employers normally hiring only those workers in the local area can induce workers to move in from other areas if their compensation offers are sufficiently high. Similarly, workers will change occupations when the long-run net benefits are large enough. Thus, the concept of a particular occupational/geographic “labor market” containing a fixed number of workers is a simplification that ignores mobility among workers.

Employer Policies

Participation and human capital decisions are usually modelled in terms of general, market incentives—incentives that are normally beyond the control of one employer. However, an individual employer’s policies

clearly do affect the number and quality of its applicants, and it is a brief review of the effects of these policies to which we now turn.

1. *Size of Recruiting Area.* Firms offering relatively generous compensation packages will attract larger numbers of applicants. The generous compensation will offset high commuting costs for many workers who live far away from the plant and tend to enlarge the geographic size of the firm's recruiting area.

Psychic and pecuniary costs of commuting, however, vary with sex, income level, and distance. Therefore, the geographic radius from which a given plant can draw applicants may differ by race and sex, and the interest of workers in the recruiting area will decline with distance from the plant. The willingness of a firm to pay higher wages depends on its ability to enlarge the number of its applicants and the payoff from doing so. Thus, unskilled jobs where worker selection need not be very careful may have smaller recruiting areas than more skilled jobs in the same plant where stringent screening is required.

2. *Applicant Quality.* Compensation policies of a firm can also affect the *quality* of its applicants. At lower compensation levels, only those whose current wages are very low will tend to be "available" to a firm. At higher levels, those available will include workers currently receiving higher wages. Because high wages can be presumed to reflect high productivity, higher wage offers by a firm will tend to attract more applicants of higher average productivity. The quality-increasing effects of higher wages, however, could be offset by dilution associated with the increased probabilities of attracting more distant applicants. Thus, while the *number* of high-productivity applicants will rise as wages increase (causing the average quality of *successful* applicants to rise), it is not possible to assert a priori whether high-quality applicants will form a larger proportion of total applicants.

Another factor affecting the quality of those hired is the recruiting strategy of the firm. Some firms will, as above, offer high wages and select the best from a large number of applicants. Others will offer low starting wages and *train* previously unqualified new hires for their jobs. Training offered may be *general* in nature, in which case it is paid for by the employee in the form of low initial wage rates. If training is *employer-specific*, both employer and employee will tend to share in its costs and agree to a post-training compensation policy that discourages the other from unilaterally severing the employment relationship. Thus "high-training" strategies can substitute for "high wage" policies, with predictable effects on hiring standards, the quality of applicants, wage rates and later mobility.

3. *Sex and Race Composition of Applicants.* Other aspects of a plant's employment package can affect the sex and race composition of applicants. A reputation for discrimination is one, but beyond that are such things as career ladders, fringe benefit packages, and plant location. Some plants maintain an "internal labor market," where new entrants are initially placed in low-responsibility, low-paying jobs but offered a succession of internal promotions later on. *Employers* look for qualities *beyond* the entry-level job, and the *employees* who find these jobs attractive are those who have a relatively long planning horizon and/or low discount rates. There are likely to be cultural and/or wealth differences by race or sex that affect planning horizons and/or discount rates—and these factors will in turn influence the proportion of protected class workers who both apply for such jobs and are ultimately hired.

Fringe benefits form an increasing proportion of most compensation packages, and they can subtly affect the race/sex mix of applicants. The fundamental characteristic of fringe benefits is that they are not paid in currently spendable cash; they are in-kind or deferred payments whose primary advantage to an employee is their income tax treatment. Because tax breaks are more valuable for high-income people, fringe benefits are of least value to the poor. Low-wage and low-wealth workers will tend to prefer cash; thus, compensation packages that offer high fringe benefits and lower wages will attract fewer minority applicants. Married women, who are perhaps already covered by medical insurance (say), may also be less attracted by compensation packages heavily weighted toward particular fringe benefits.

Finally, the *locational decisions* of a firm will affect the race and sex composition of its applicants. Locating near pleasant suburban residential areas will tend to attract more women than locating near nonresidential areas. Similarly, locating near minority "ghettoes" will attract more minorities than locating near distant suburbs. Land values, access to transportation, and access to customers, as well as the availability of labor, all affect locational decisions.

Operationalizing the Conceptual Framework

Given the above framework, it is interesting to ask how the criteria and evidence used in discrimination in hiring cases relate to it. To do so, we trace how the courts have treated a number of issues including the geographic dimensions of a firm's labor market, the pool of potential applicants, and the determination of which applicants or potential applicants are qualified for particular jobs. The discussion that follows is nontechnical in nature; citations to specific legal cases to support our

impressions are found in the footnotes. To anticipate, we find that while the courts have moved increasingly towards using criteria and evidence that are consistent with economic and statistical analyses, in some cases they have not moved quite far enough.

The Geographic Dimension of a Firm's Labor Market

Early cases arbitrarily specified the extent of a firm's labor market by geographic boundaries, such as a state, SMSA, or county.¹ However, such a broad specification ignores a firm's location within an area; since an individual's willingness to work for a firm depends upon commuting time and costs, where a firm is located will affect its potential labor supply. Moreover, the higher the compensation a firm offers, the greater the distance potential applicants will be willing to commute. Hence, the relevant geographic labor market is a *firm-specific* concept and depends on both the firm's location and its compensation policy.

Subsequent cases have adopted such a view and defined a firm's labor market by reference to actual commuting patterns of its workforce or applicant pool and/or by reasonable expected commuting patterns.² For example, with respect to the former criterion, the number of qualified (to be defined below) protected and nonprotected class individuals in each area is sometimes weighted by the fraction of a firm's employees (or applicants) who reside in the area to compute an overall availability rate.³ With respect to the latter, the weights assigned to each residential area are sometimes assumed to decline monotonically with the distance between the area and the firm.⁴

To date, the courts appear to have overlooked the fact that willingness to commute differs by race and sex. There is much evidence that females tend to live closer to their jobs than males and some evidence that nonwhites commute shorter distances than whites.⁵ To the extent that these differences reflect voluntary labor supply decisions, this suggests that in computing availability ratios the weights assigned to each residential area might be reasonably expected to differ by gender or race. For

¹ See *Griggs v. Duke Power Co.*, 401 U.S. 424 (1971), or *Taylor v. Safeway Stores*, 524 F.2d 263 (10th Cir. 1975).

² On the use of actual commuting patterns, see *Detroit Police Officers Assoc. v. Young*, 452 U.S. 938 (1981); and *Drayton v. City of St. Petersburg*, 477 F.Supp. 846 (M.D. Fla. 1979). On the use of reasonable expected commuting patterns, see *ABROV v. Black and Decker Mfg. Co.*, 439 F.Supp. 1095 (D. Md. 1977), and *EEOC v. North Hills Passavant Hospital*, 466 F.Supp. 783 (W.D. Pa. 1979).

³ See *EEOC v. duPont Co.*, 445 F.Supp. 223 (D. Del. 1978), *Smith v. Union Oil of California*, 17 FEP Cases 960 (N.D. Calif. 1977), *Louisville Black Police Officers v. City*, 511 F.Supp. 825 (D. Ky. 1979); *Gay v. Waiters Union, Local 30*, 489 F.Supp. 282 (N.D. Calif. 1980); and *Markey v. Fenneco Oil Co.*, 635 F.2d 497 (5th Cir. 1981).

⁴ See, for example, *Timkin Co. v. Vaughn*, 413 F.Supp. 1183 (N.D. Ohio 1976).

⁵ For evidence on commuting time differentials by race and sex, see Ellwood (1983) and the citations included there, and Rees and Shultz (1970).

example, a function relating the fraction of male applicants from a given residential area to the distance of that area from a firm might start (at 0 distance) lower but extend farther out than the comparable female function.

Other things equal, as we move to more highly skilled and compensated workers, commuting costs become relatively less important and the size of the local labor market expands, a tendency the courts have recognized.⁶ However, the courts have been less consistent with economic theory in their treatment of availability in *national* labor markets, markets for highly skilled professionals where the job search by both employers and potential employees is truly national in scope. To say that a market is national is not to say that a given firm's chances of attracting employees from all areas of the country are equal. For example, professionals raised and trained in the "sunbelt" may have strong nonpecuniary preferences for remaining there rather than moving to a snowbelt state. Moreover, we know that interstate migration rates decline with distance, even for highly skilled professionals. Finally, firms located in isolated small towns may face problems in attracting professionals with career-oriented spouses because the chances of the spouse's finding an acceptable job offer in such a town may be quite low. Court cases that use national availability data for professional employees appear to ignore these considerations.⁷

The Pool of Potential Applicants

While the earliest court decisions permitted the use of population representation as an appropriate standard for availability,⁸ it was soon realized that population figures included individuals who were not available for work (e.g., the aged, young children, individuals in institutions). Later cases moved to the use of civilian labor force data⁹ and, in cases where occupational qualifications could be established, to the use of the qualified civilian labor force.¹⁰

Although this is clearly movement in the right direction, a number of thorny conceptual issues remain; these all relate to the fact that the stock of qualified individuals in an area is not equal to the flow of potential

⁶ Schlei and Crossman (1983), p. 1362.

⁷ See, for example, *Quigley v. Braniff Airways, Inc.*, 85 F.R.D. 74 (N.D. Tex. 1979). Haber (1981) suggests a methodology that takes spacial mobility patterns into account when computing availability data for national markets, but to our knowledge it has not been adopted for use in actual cases.

⁸ For example, *Teamsters v. U.S.*, 431 U.S. 324 (1977).

⁹ See, for example, *EEOC v. duPont*, *supra* note 3; *Smith v. Union Oil*, *supra* note 3; *Detroit Police Officers Assoc. v. Young*, *supra* note 3; and *Reynolds v. Sheet Metal Workers Local 102*, 498 F.Supp. 952 (D.D.C. 1980).

¹⁰ See, for example, *Hazelwood School District v. U.S.*, 433 U.S. 299 (1977); *Croker v. Boeing Co.*, 437 F.Supp. 1138 (D. Pa. 1977); *EEOC v. Radiator Specialty Co.*, 610 F.2d 178 (4th Cir. 1979); and *EEOC v. United Virginia Bank*, 615 F.2d 147 (4th Cir. 1980).

applicants to a firm. First, the civilian labor force consists of both employed and unemployed workers and, as noted above, the response of each group to job offers is likely to be different. Some work by economists has considered the possibility of using a “reservation wage approach” to compute the number of potential applicants, but it is unclear how the courts will react to this methodology.¹¹ It is clear, however, that employed and unemployed workers should not be given equal weight in computing availability numbers; since unemployment rates differ by race and sex, to do so would bias availability comparisons.

Next, in computing applicant pools, the focus in court cases is often on the total *stock* of “qualified” individuals in the labor market. As is well documented, however, the probability of voluntary turnover declines with age. The focus should more appropriately be on relatively young employed workers in a labor market, with older more experienced workers receiving less weight in the computation of availability. Put another way, the flow of new hires should be contrasted to the flow of potential applicants, not to the stock of existing employees in the labor market. If the protected class proportion of new entrants exceeds their proportion of all employees (due to increased minority population and female labor force participation rates), the former proportion will lead to higher standards being set for protected class hiring. While it is now routine for universities hiring at the assistant professor level to focus on the share of protected class members in the new Ph.D. pool, it is our impression that in many other cases, older individuals are assumed as equally “available” to a firm as younger ones.

Finally, a firm’s compensation policy may affect the fraction of minorities or females in its potential applicant pool for at least two reasons. On the one hand, if reservation wage functions differ for minorities or females, their representation in the applicant pool will vary systematically with a firm’s wage policy.¹² On the other hand, holding total compensation fixed, firms that offer high wages but lower fringe benefits may generate—for reasons noted above—more female and minority applicants than those that offer low-wage/high-fringe packages. To date, the courts do not seem to have realized that a nondiscriminating firm’s compensation policy may affect the race/sex composition of its potential applicant pool.

Which Potential Applicants Are Qualified?

In a number of cases dealing with skilled and semiskilled workers, the

¹¹ See Atwater and Sheridan (1980) and Atwater, Niehaus, and Sheridan (1981).

¹² For evidence on white/nonwhite reservation wage differences for teenagers, see Holzer (1983) and Borus (1982).

courts have ruled that occupational representation is an appropriate availability standard.¹³ In some cases, for example those dealing with teachers, determining who is qualified to be hired is straightforward (employed teachers and other individuals who meet state or local teacher certification requirements). In other cases, however, qualifications are much more nebulous. While some jobs require very specific skills and prior occupational experience, others may require only general age/education/labor market experience credentials. It is clear that no general guidelines will emerge here.

What about the question of training? While a 1977 General Services Administration document defined availability to include those “. . . who are capable of acquiring those skills within a reasonable period of time,”¹⁴ we find no evidence that the courts have adopted this position. We believe this to be wise, for one knows from human capital theory that the costs of all general training, and some share of the costs of specific training, must be “borne” by workers if firms are permitted to maximize profits. Hence, if already trained workers were available, firms would hire untrained workers only if the latter were willing to accept lower wages and/or forgo training opportunities. If the protected class workers were disproportionately concentrated among the untrained (rather than the trained), and the courts counted such workers among the available set, then one of three outcomes would necessarily occur even in nondiscriminating firms: (1) New hires from the protected class would receive lower wage rates, on average, than other new hires; (2) the protected class new hires would be more likely than these others to be shunted into dead-end jobs that provide no training opportunities; or (3) firms would be constrained from maximizing profits. Since the first two outcomes might erroneously lead to allegations of discrimination and the third might reduce the number of nondiscriminating employers, none of the three outcomes seems socially desirable.

Finally, given a qualified applicant pool, the courts have agreed that employers have the right to choose the subset of applicants that they consider to be the most qualified.¹⁵ However, it is not sufficient to argue that explicit or implicit hiring standards (e.g., test scores or education levels) are believed to be correlated with subsequent productivity. Rather, it must be documented that they are valid predictors for the particular employer. Put another way, although a variety of economic theories (human capital, screening, neo-Marxian) all suggest that increased education is *associated* with increased productivity, in the absence of explicit

¹³ See the citations in note 10.

¹⁴ General Services Administration (1977), p. 9.

¹⁵ See *Griggs v. Duke Power Co.*, *supra* note 1.

evidence that such an association exists at a particular firm, the courts appear to be unwilling to accept evidence on differences in mean education levels between protected group and other applicants as a justification for differential hire rates between the two groups.¹⁶

Policy Issues

Hiring employees can be conceived of as a two-step procedure. Applicants are first generated, and then employees are selected from among the applicants. We examine each step below (in reverse order) within the context of legal policy issues.

Selection Criteria

The Supreme Court¹⁷ has enunciated the general rule that a plaintiff has made a prima facie case of discrimination by showing that a selection device has a significant disparate impact on race or sex (i.e., the ratio of those passing to those taking the test differs significantly by race or sex). Once a prima facie case of discrimination has been established by the plaintiff, the burden shifts to the defendant to show that the business practice giving rise to the disparate impact grows out of a business necessity. The Supreme Court has also emphasized the validity of inferring discrimination if the overall selection ratios of the firm (those hired divided by those applying) are significantly different by race or sex.¹⁸ The importance of showing disparate outcomes has been a key factor in stimulating the use of statistical methods and economic theory in discrimination cases involving the hiring process.

A statistical issue raised by the disparate impact standard is how to measure the “significance” of any differences in hiring ratios. The courts have considered criteria of statistical significance in some areas, focusing on hire rates being different at the .05 level of significance or being at least two to three standard deviations apart.¹⁹ In other cases, they have considered (but not always accepted) a standard of whether protected

¹⁶ See *Green and Danley v. U.S. Steel Corp.*, Decision by Judge J. Newcomer in the Eastern District of Pennsylvania District Court, July 18, 1983 (Docket No. 76-3673). The testimony in the case illustrates how one *can* analyze a company's selection process by a probit (or logit) analysis of race and gender differentials in hiring probabilities *conditional* on both being an applicant and having certain attributes (e.g., education) that are *thought to be* correlated with productivity. However, as noted in the text, the courts appear to demand evidence that these attributes are valid predictors of productivity for the given company before accepting the conclusions that such analyses imply.

¹⁷ *Griggs v. Duke Power Co.*, *supra* note 1, enunciated the standard of “disparate impact.”

¹⁸ See, for example, *Hazelwood School Dist. v. U.S.*, *supra* note 10; and *Teamsters v. U.S.*, *supra* note 8.

¹⁹ See, for example, *Contrares v. City of Los Angeles*, 656 F.2d 1267 (9th Cir. 1981); *Davis v. City of Dallas*, 483 F.Supp. 54 (N.D. Tex. 1979); *Hazelwood School Dist. v. U.S.*, *supra* note 10; and *Rivera v. City of Wichita Falls*, 665 F.2d 531 (5th Cir. 1982).

class applicant hire rates are at least 80 percent of the hire rate of other applicants.²⁰

There are well-known deficiencies with both of these approaches. The focus on statistical significance makes it difficult to prove evidence of disparate impacts in situations where there are a small number of observations, either because an employer has done proportionately little hiring or its workforce is small in size. The “80 percent” rule is arbitrary and is not grounded in any analytic framework. Nonetheless, it seems clear that the criteria ultimately chosen should involve issues of *both* statistical and quantitative significance. One senses, for example, that hire rates for a large employer of .49 for minorities and .50 for nonminorities which are statistically significantly different should not be taken as strong evidence of disparate impact.

Given that statistical significance is difficult to infer when samples are small, that arbitrary standards can be disputed, and that a finding of “disparate impact” leads to a finding of discrimination *only* in cases where selection standards cannot be shown to be job-related, it seems that courts will inevitably be drawn into the issue of judging firms’ hiring criteria. It would thus appear difficult for courts to sidestep the evaluation of hiring *procedures* by looking just at hiring *outcomes*.

Actual vs. Potential Applicant Pools

A firm that appears to apply nondiscriminatory hiring criteria to its *applicants* may in fact employ methods of *recruiting* applicants that are discriminatory in intent or effect. For this reason, the courts have sometimes been reluctant to accept a firm’s *actual* applicant flow as the basis for judging the fairness of selection procedures; estimates of the *potential* applicant flow it faces thus enter the picture.

If data on the actual applicant flow to a firm are available, the courts appear to have concluded that it is preferable to use such data rather than estimates of potential applicant flows, *provided that* the representation of protected group members in the former is equal to or exceeds their representation in the latter.²¹ However, if actual applicant flow data are distorted by application procedures, recruitment practices, or other actions that discourage protected group members from applying, potential applicant flow data may be preferred.²² This seems to almost reduce to

²⁰ See, for example, *Eubanks v. Pickens-Bond Construction Co.*, 635 F.2d 1341 (8th Cir. 1980), where the court rejected the 80 percent rule because of a small sample size, and *Moore v. Southwestern Bell Tel. Co.*, 593 F.2d 607 (5th Cir. 1979), where the rule was adopted. See also *Connecticut v. Teal* 457 U.S. 440 (1982), n. 4.

²¹ See, for example, *U.S. v. County of Fairfax, Va.*, 629 F.2d 1374 (5th Cir. 1974); or *New York City Transit Authority v. Beazer*, 440 U.S. 568 (1979).

²² See *Dothard v. Rawlinson*, 433 U.S. 321 (1977).

the rule, “use the type of applicant flow data that yields the highest representation of protected group members.” There are two major flaws with this rule.

First, were “potential availability” accurately estimable, a standard of actual or potential availability, *whichever is higher*, would create a goal that cannot be attained in the aggregate. The reason is simple: to the extent that actual availability exceeded expected availability in any firm, the aggregate goal would exceed the number potentially available.

More importantly, however, it seems clear from our review of both theory and evidence that factors affecting the availability of potential applicants to a particular firm can be highly specific. Thus, while estimates of expected availability can be obtained from a careful count and weighting of various workers in the labor market, a specific firm will usually be able to point to aspects of its training or recruiting policies, compensation packages, or skill needs that make it atypical. It appears to us that comparing actual to potential applicant flows for purposes of finding “disparate impact” will often involve quite legitimate disputes. A logical extension of the judicial standard applying to hiring criteria would seem to involve the following: If a firm’s actual applicant flows from protected classes are below those expected, the firm is permitted an attempt to demonstrate that the totality of its recruitment procedures (including its location and its compensation package) serves the purpose of business necessity. Once again, it appears to us impossible for the courts to circumvent the need to judge a firm’s policies or procedures by looking only at outcomes.

Unfortunately, court judgments on whether a firm’s *policies* are nondiscriminatory present an issue of profound importance. Suppose two plants are located side-by-side in a suburban location, but one pays a high wage that attracts black applicants from the central city and the other does not. Should a court be permitted to order the lower-wage firm to raise its wage? Should a high-wage firm that attracts white suburban applicants despite being located in the central city be told to reduce its wage to increase the proportion of black applicants? Should courts make similar judgments about a firm’s fringe benefit package or its reasons for relocating a plant? Courts are now allowed to make judgments about the business necessity of a firm’s hiring criteria, so perhaps a logical extension of this power is judicial intrusion into matters of compensation levels, fringe benefit packages and location policy. It is a step, however, fraught with serious implications for a market system.

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Economic and Statistical Analysis of Discrimination In Job Assignment*

JOHN M. ABOWD
University of Chicago

The use of statistical analysis in the preparation of evidence in employment discrimination litigation is now a widespread and generally accepted practice (Baldus and Cole 1980, and references therein). The differences in the legal requirements necessary to establish a *prima facie* case with statistical evidence under disparate treatment and disparate impact theories have also received considerable discussion (Baldus and Cole 1980, Ch. 1). Regardless of the legal theory underlying the employment discrimination claim, a variety of relatively standard statistical tests have been used to establish the *prima facie* case for the existence of employment discrimination and to defend against such a case. The limitations of these tests have been acknowledged; however, the economic theory required to interpret the outcome of a given test as evidence for or against a particular legal theory of discrimination has usually been implicit. Consequently, one of the primary roles of the economist/statistician—the model-building role—has been obscured by the technical details of presenting and defending a specific test for employment discrimination.

The purpose of this paper is to examine the relationship between economic models of employer and employee behavior and the development of statistical models of employment discrimination for the analysis of job assignment. My premise is that the fundamental problem facing all economic model-builders—the identification problem—must be addressed explicitly by both plaintiffs and defendants in developing statistical models of employment outcomes. In employment discrimination models, certain critical assumptions required to justify the inferences based on the model are not subject to test. The quality of these “identifying” assumptions must be assessed without the benefit of evidence from data.

Author's address: Graduate School of Business, University of Chicago, 1101 East 58th Street, Chicago, IL 60637.

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It is possible to make the statistical models conform more closely to reasonable economic models of the employer's hiring and assignment process and the employee's right to choose among several labor market options. This can be accomplished by studying the employer's offers in addition to the personnel records of the actual employees. In principle, the analyst should model choices of both actual and potential employees. The combination of employer-offer models with employee-choice models permits a sensible interpretation of statistical analysis under both the disparate treatment and disparate impact theories of discrimination.

The first section of this paper relates the two prevailing legal theories of discrimination—disparate treatment and disparate impact—to the fundamental models of economics—supply and demand. The second section explains how the analyst using an employment discrimination model must make identifying assumptions about employer and employee behavior before the statistical model is useful as evidence in a legal framework. The third section illustrates a simple model of employer and employee behavior which can be applied to personnel and application data.

The Relationship Between Economic and Legal Theories

The basic legal theories of employment discrimination which have been used extensively in the development of statistical evidence are disparate treatment and disparate impact. A disparate treatment claim arises when a differential employment outcome harming the protected group can be traced directly to a policy or practice of the employer. In economic theory this corresponds to a claim that the employer discriminates in the demand for labor.

A disparate impact claim arises when there is an identifiable differential in employment outcomes which works to the apparent disadvantage of the protected group. No specific policy or practice of the employer has been isolated as the most likely cause of the disparate impact. In economic theory such an outcome may be the result of either differential demand for labor or supply of labor. The disparate impact claim makes no direct attempt to isolate the source of the differential outcome. The defense of a disparate impact claim usually involves demonstrating that it was produced by either (a) differential labor supply in the context of an equal treatment of all individuals with similar qualifications or (b) legitimate business considerations.

Proving and defending claims of employment discrimination both involve statistical analysis of outcomes of the employment process. The workforce (and potential workforce) of a particular employer is divided into (at least) two groups: the protected group (called F in this paper) and

the unprotected group (called M in this paper). The employment outcomes of each group are then compared to the outcomes for the other groups. Two basic types of statistical comparisons are conducted: cross-sectional and flow analyses.

Cross-sectional models attempt to isolate M/F differences in the point-in-time distribution of employees among a variety of job categories. Within each job category the analyst compares the percentage M with the percentage F . In more detailed cross-sectional analyses, the model-builder also attempts to control for observable differences in the characteristics of the employees. This type of analysis is properly used in the context of establishing and defending a claim of disparate impact. No specific personnel policy is isolated as the cause of the unequal outcomes for M and F . However, the analysis often is interpreted as a claim of disparate treatment or as the defense against such a claim. Such an interpretation implicitly assumes that the cross-sectional model measures the employer's labor demand practices. The disparate treatment interpretation is inappropriate if the outcomes under study are produced by the interaction of the employer's labor demand policies and the employee's labor supply behavior.

Flow models attempt to isolate changes in the M/F differences which have occurred during the legally relevant time period. These analyses focus on M/F differentials in hiring, promotion, and termination rates. Flow models may also control for observable differences in the employee's history. As with cross-sectional models, the analysis is still properly used in the context of disparate impact claims. A disparate treatment interpretation is inappropriate unless the outcomes under study are produced solely by the employer's labor demand policies.

Cross-sectional and flow models are related by the simple dynamics of stocks and flows. When the analyst applies current changes to the previous end-of-period cross-section, the model produces an implied cross-section for the end of the current period. In the probability models considered in this paper, a single structure is used to generate both the cross-sectional and flow statistics. This forces all the point-in-time and flow comparisons to be internally consistent.

The Identification Problem in Employment Analysis

In 1927 when E. J. Working published his now famous paper "What Do Statistical 'Demand Curves' Show?" (Working 1927), he asked what evidence could be extracted from market information on prices and quantities concerning the price elasticity of demand and supply. Working noted that any scatterplot of market prices and quantities is consistent with the economic theory of supply and demand. In order to quantify the

price sensitivity of market demand, the analyst must make an assumption about the stability of the demand curve relative to the supply curve. To quantify the price sensitivity of market supply, the analyst must make an alternative assumption about the stability of the supply curve relative to the demand curve. If only market price and quantity data are available, the assumptions required to “identify” the demand and supply relationships are mutually inconsistent. The data are completely uninformative about either demand or supply curves unless the analyst can demonstrate that one or the other identifying assumption is theoretically preferable for the market under study. The role of the economist/statistician as a model-builder is therefore critical in the analysis.

In the study of employer and employee behavior, the analog of the market demand equation is the employer’s offer equation. The analog of the market supply equation is the employee’s acceptance equation. The offer curve measures the willingness of an employer to offer new or continued employment in a given position to a given employee. The acceptance curve measures the willingness of the employee to accept new or continued employment in a given position from a given employer. The outcome of the employment process is controlled by the choices of both the employer and the employee. The claim that a particular model represents the behavior of the employer (rather than the employee) rests on prior reasoning and cannot, in general, be demonstrated using the data available from a particular firm.

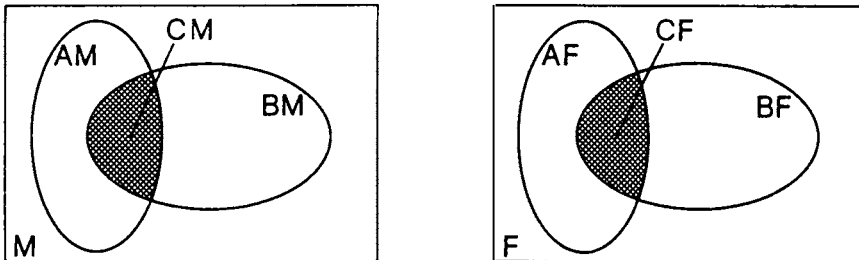
From a statistical viewpoint data on the current and past employees of a firm are doubly truncated. The analyst does not observe a sample of the potential employees to whom the firm might have offered employment (although, in principle, one could have such a sample). The analyst also does not observe a sample of the potential employers from whom an individual might have accepted employment (although one could also have such a sample). Because of the double truncation, the job of modeling either employer or employee behavior is particularly difficult.

Suppose a hypothetical firm is trying to fill a single well-defined job. Figure 1 illustrates the problem of double truncation for the observable M and F employees. The boxes labeled M and F represent the universe of individuals in the two populations. The firm must choose from individuals in each population. The two dimensions of each box represent two different characteristics of the population. The firm uses these characteristics to condition its choices, but individuals in the population acquired these characteristics before they came in contact with the firm. Regions AM and AF represent the subset of M and F individuals to whom the firm would offer employment. Those individuals inside regions AM and AF have combinations of the two characteristics which the firm demands for

the job under consideration. Regions BM and BF represent the subset of individuals who would accept the employment offer. Those individuals inside regions BM and BF have combinations of the two characteristics which they are willing to supply for the job under consideration. The cross-hatched intersections of the two regions labeled CM and CF represent the subsets of the populations actually observed as the employees of the hypothetical firm. Notice that neither the complete set of individuals to whom the firm would offer employment nor the complete set of individuals willing to accept employment can be inferred from either football-shaped intersection. Consequently, any comparison of the group of M individuals in CM with the group of F individuals in CF identifies neither employer nor employee behavior.

The behavior of the hypothetical firm is not dependent on the population of origin of an individual if the conditional probability of offering the job to an M or F individual is identical for individuals with the same characteristics. In terms of Figure 1 this statement means that the

FIGURE 1

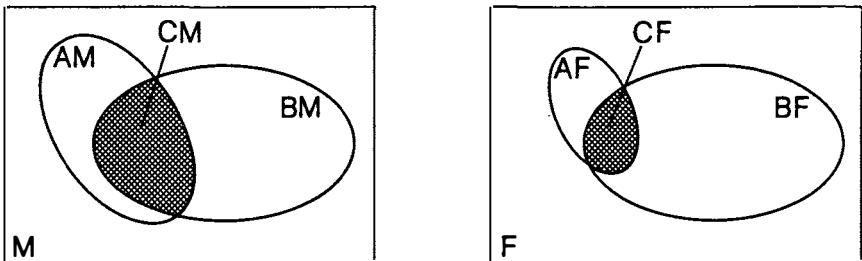


shape and location of region AM within the M box is the same as the shape and location of region AF within the F box. The firm's offer behavior is independent of the population of origin as illustrated in Figure 1.

The behavior of individuals is independent of the population of origin if the conditional probability of accepting employment is identical for M and F individuals with the same characteristics. In terms of Figure 1 this statement means that the shape and location of region BM within the M box is the same as the shape and location of the region BF within the F box. The individual's acceptance behavior is independent of the population of origin as illustrated in Figure 1. Because both the offer and acceptance behaviors are independent of the population of origin as illustrated in Figure 1, almost any well-constructed test of population differences in the outcome of the employment process will show independence. The shape and location of CM and CF are identical.

A sensible formal interpretation of the disparate treatment theory of legal discrimination is that the offer behavior of the firm is not independent of the population of origin. Figure 2 illustrates the consequences of disparate treatment of the M and F populations by the hypothetical firm. The shape and location of region AM is different from the shape and location of region AF . This means that individuals in the M population are required to have different characteristics from individuals in the F population before an employment offer is extended. In Figure 2 acceptance behavior remains independent of population of origin. Consequently, the shape and location of BM and BF remain identical. The resulting shape and location of the regions CM and CF are different for the two populations.

FIGURE 2

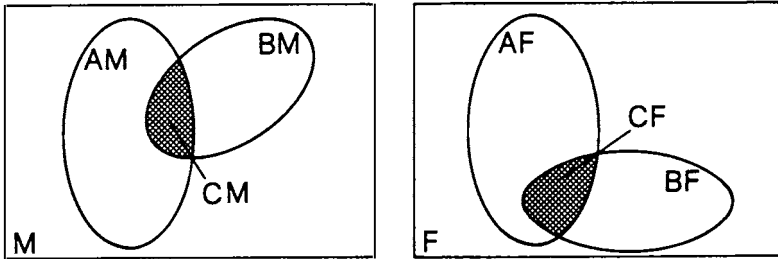


The analyst could construct a formal test of the difference between CM and CF using information from the firm's personnel records; however, the assertion that the failure of the test represents disparate treatment turns on the assumption, which the analyst could not verify, that the regions BM and BF have identical shape and location. All formal tests using only information about CM and CF individuals are subject to this criticism. It is the analyst's identifying assumption—regions BM and BF have identical shape and location—which makes the test informative concerning disparate treatment of M and F individuals. In the absence of this assumption, the test is not informative on the issue of disparate treatment.

Next, consider the disparate impact theory of legal discrimination. A sensible model of disparate impact is that either the offer or the acceptance behavior is not independent of the population. Figure 3 illustrates the disparate impact of differential acceptance behavior in the two populations. The shape and location of region BM is different from the shape and location of region BF . As illustrated, individuals in the M population who are willing to accept employment at the firm have different characteristics from individuals in the F population who are willing to accept employment. In Figure 3 offer behavior is independent of population of origin. Consequently, the shape and location of AM and AF

are identical. The result is a difference in the shape and location of CM and CF depending on the population.

FIGURE 3



A formal test of the difference between CM and CF using information from the firm's personnel records is a test of disparate impact regardless of the source of the difference. A defense that claims that the disparate impact arises solely from the choices of the employees requires the identifying assumption that the offer behavior is independent of population. In this context, the analyst must assume that AM and AF have identical shape and location.

A Detailed Model of Job Assignment with Examples

The model developed in this section distinguishes the choices of the employer from the choices of the employees. The employer's choices are summarized in the "Offer Probabilities." The employee's choices are summarized in the "Acceptance Probabilities." The two sets of probabilities combine naturally to produce a structure for the point-in-time (cross-section) distribution of job assignments and the flow distribution of changes in job assignments. I use numerical examples of the model to illustrate four distinct situations.

All the individuals in the same group are assumed to be observationally identical from the viewpoint of both the employer and the analyst. The group F is legally protected from employment discrimination. Group M is not. There are two jobs—job 1 and job 2. All employees in the same job receive the same compensation and work under identical conditions. The jobs involve differential responsibilities and job 1 pays more than job 2. There is also a group of applicants who are not currently employed at the firm under study.

In the current period an individual in either group occupies one of three employment conditions: (1) employed in job 1, (2) employed in job 2, or (3) applying for employment. An employer may make one of three choices: (1) offer job 1, (2) offer job 2, or (3) offer no job. If an individual

currently occupies job 1, then an offer of job 1 is an offer of continued employment, an offer of job 2 is an offered demotion (not used in the examples), and an offer of no job is an employer-initiated termination. If an individual currently occupies job 2, then an offer of job 1 is an offered promotion, an offer of job 2 is an offer of continued employment, and an offer of no job is an employer-initiated termination. If an individual is currently an applicant, then an offer of job 1 is an offer to hire the individual into job 1, an offer of job 2 is an offer to hire the individual into job 2, and an offer of no job is just that. An employer's offer behavior is summarized by the probability of each of the three choices for an individual of a given type in a given employment state. For example, an M individual currently employed in job 2 may be offered job 1, job 2, or termination. The probabilities of these three offers must sum to one. These probabilities completely describe the behavior of the employer. If M and F individuals currently employed in the same job (or currently applicants) face the same offer probabilities, then the employer does not exhibit disparate treatment.

In employment discrimination analysis, it is sufficient to describe the choices an individual faces at the firm under study. These choices depend on the current job occupied (including applicant) and the job offered for the next period. An individual's acceptance behavior is summarized by the probability of accepting job 1, job 2, or no job given the current job and the offered job. For example, an M individual currently employed in job 2 and offered job 1 may choose to accept job 1, job 2 (refuse promotion), or no job (employee-initiated termination). The probabilities of each of these three choices describe the relevant aspects of the employee's acceptance behavior. They must sum to one. If M and F individuals currently employed in the same job (or currently applicants) and receiving the same offer have the same choice probabilities, then the individuals do not exhibit disparate labor supply behavior.

The evolution of the number of M and F individuals holding jobs 1 and 2 is controlled by a Markov transition matrix that is fully determined by the offer and acceptance probabilities of the employer and individuals, respectively. For an M individual, the probability of moving from job 2 to job 1 is the sum of three components: (1) the probability of receiving an offer of job 1 given occupancy of job 2 times the probability of accepting job 1 given an offer of job 1, (2) the probability of receiving an offer of job 2 given occupancy of job 2 times the probability of accepting job 1 given an offer of job 2, and (3) the probability of receiving an offer of no job given occupancy of job 2 times the probability of accepting job 1 given an offer of no job. In most practical applications, the second and third components will be zero since the offer of either job 2 or no job precludes the choice of job 1. In all of the examples the complete set of

offer and acceptance probabilities is displayed. An individual is precluded from choosing a job higher than the one offered. The analyst must estimate both the offer and acceptance probabilities from administrative data on who received employment offers and who accepted those offers. Then the transition matrix can be constructed from these probabilities.

In the examples, two types of employment-outcome measures are calculated. The cross-section measures consist of counts of the number of individuals of each type occupying each job (including applicants) at the end of each period. The flow measures consist of counts of the number of individuals hired into job 1, job 2, promoted from job 2 to job 1, and separated from the firm during the period. The examples are constructed so that equal numbers of *M* and *F* individuals apply to the firm in each period and, initially, there are equal numbers of *M* and *F* individuals in each of the two jobs.

Example 1 consists of a set of employer offer probabilities that are the same for *M* and *F* individuals. These offer probabilities are shown in Part A of Table 1 for the two types of individuals. The employee acceptance probabilities (also shown in Part A of Table 1) are not the same. Type *F* individuals have a higher probability of accepting job 1 if they are currently occupying job 1 and offered reemployment (.951 for *F* vs. .945 for *M*). However, type *F* individuals have a lower probability of accepting job 1 if it is offered and they are currently in job 2 or applying for employment (.95 for *F* vs. 1 for *M* given job 2 and .85 for *F* vs. 1 for *M* given applicant). Type *F* individuals have a higher probability of accepting reemployment in job 2 (.942 for *F* vs. .911 for *M*). Other acceptance probability differences are evident from Table 1. The two transition probability matrices shown in Table 1 differ because of differential acceptance probabilities and not because of differential offer probabilities.

Table 1 Part A summarizes the personnel statistics for the hypothetical firm. The employer's cross-section distribution of *M* and *F* individuals between the two jobs is always 50 percent. The cross-section summary shows that there is no *M/F* differential in the outcome of the job assignment process. The flow summary, however, shows a difference in hiring and promotion rates favoring *M* over *F*. The cross-sectional equality between *M* and *F* and the flow disparity between *M* and *F* are both produced by the differential acceptance probabilities.

Example 2 is illustrated in Part B of Table 1. The offer probabilities are the same for *M* and *F* individuals and they are the same as in example 1. In this example differential acceptance probabilities have been constructed so that in the summary statistics there is no disparate impact in the flow analysis, but the cross-section analysis shows a disparate impact against the *F* group—they are differentially less likely to hold job 1 and more likely to hold job 2.

TABLE 1
 Personnel Statistics for Identical Employer Offer Probabilities and
 Different Employee Acceptance Probabilities Generating Identical
 Cross-Section Statistics for Both Employee Types

Part A	Identical Cross-Section Statistics						
	M			F			
Employer's Offer Probabilities:							
Offer Job		1	2	None	1	2	None
Current Job	1	0.960	0.000	0.040	0.960	0.000	0.040
	2	0.080	0.900	0.020	0.080	0.900	0.020
	Applicant	0.025	0.380	0.595	0.025	0.380	0.595
Employee's Acceptance Probabilities:							
Accept Job		1	2	None	1	2	None
Current Job 1							
Offer Job	1	0.945	0.000	0.055	0.951	0.000	0.049
	2	0.000	0.500	0.500	0.000	1.000	0.000
	None	0.000	0.000	1.000	0.000	0.000	1.000
Current Job 2							
Offer Job	1	1.000	0.000	0.000	0.950	0.000	0.050
	2	0.000	0.911	0.090	0.000	0.942	0.058
	None	0.000	0.000	1.000	0.000	0.000	1.000
Applicant							
Offer Job	1	1.000	0.000	0.000	0.850	0.000	0.150
	2	0.000	0.950	0.050	0.000	0.800	0.200
	None	0.000	0.000	1.000	0.000	0.000	1.000
Resulting Transition Probabilities:							
Next Job		1	2	None	1	2	None
Current Job	1	0.907	0.000	0.093	0.913	0.000	0.087
	2	0.080	0.819	0.101	0.076	0.848	0.076
	Applicant	0.025	0.361	0.614	0.021	0.304	0.675
				M	F	Differential	
Cross-section Summary (Year 10)							
Employees in Job 1				1000	1000	0%	
Employees in Job 2				1000	1000	0%	
Applicants for New Employment				500	500	0%	
Flow Summary (Year 10)							
Hired Into Job 1				13	11	-15%	
Hired Into Job 2				181	152	-16%	
Promotions From Job 2 to Job 1				80	76	- 5%	
Separations From the Employer				190	163	-16%	

Notes: The employer's offer probability is the conditional probability of offering "Offer Job" given that the individual under consideration occupies "Current Job." Rows of this table sum to one. "None" indicates no offer. "Applicant" indicates that the individual under consideration is not a current employee.

The employee's acceptance probability is the conditional probability that an individual who receives "Offer Job" will accept "Accept Job." This table of probabilities differs for each group "Current Job 1," "Current Job 2," and "Applicant." "None" means no offer for the "Offer Job" and no job accepted for the "Accept Job." Each group's table has rows which sum to one.

TABLE 1 (Continued)

Part B	Identical Flow Statistics						
	M			F			
Employer's Offer Probabilities:							
Offer Job		1	2	None	1	2	None
Current Job	1	0.960	0.000	0.040	0.960	0.000	0.040
	2	0.080	0.900	0.020	0.080	0.900	0.020
Applicant		0.025	0.380	0.595	0.025	0.380	0.595
Employee's Acceptance Probabilities:							
Accept Job		1	2	None	1	2	None
Current Job 1							
Offer Job	1	0.967	0.000	0.033	0.950	0.000	0.050
	2	0.000	1.000	0.000	0.000	1.000	0.000
	None	0.000	0.000	1.000	0.000	0.000	1.000
Current Job 2							
Offer Job	1	0.950	0.000	0.050	0.785	0.000	0.215
	2	0.000	0.945	0.056	0.000	0.980	0.020
	None	0.000	0.000	1.000	0.000	0.000	1.000
Applicant							
Offer Job	1	0.850	0.000	0.150	0.850	0.000	0.150
	2	0.000	0.700	0.300	0.000	0.700	0.300
	None	0.000	0.000	1.000	0.000	0.000	1.000
Resulting Transition Probabilities:							
Next Job		1	2	None	1	2	None
Current Job	1	0.928	0.000	0.072	0.912	0.000	0.088
	2	0.076	0.850	0.074	0.063	0.882	0.055
	Applicant	0.021	0.266	0.713	0.021	0.266	0.713
				M	F		Differential
Cross-section Summary (Year 10)							
Employees in Job 1				1076	925		-14%
Employees in Job 2				909	1091		20%
Applicants for New Employment				500	500		0%
Flow Summary (Year 10)							
Hired Into Job 1				11	11		0%
Hired Into Job 2				133	133		0%
Promotions From Job 2 to Job 1				69	69		0%
Separations From the Employer				145	142		- 2%

The resulting transition probability is the one period Markov transition matrix implied by the combined offer and acceptance probabilities for the designated employee type. An entry is the conditional probability of "Next Job" given "Current Job." Rows of this table sum to one.

Summary statistics show the separate distribution between Job 1, Job 2, and Applicants for each employee type based on year 0 as the initial condition. In year 0 there are 1000 M and 1000 F in both jobs. For each employee type years 1 to 10 are calculated by applying the transition probabilities to the distribution from the previous year. 500 new applicants arrive each year by construction. The employer always has (approximately) 4000 total employees by construction.

The cross-section and flow summaries are based on year 10 which is (approximately) the steady state for the employment process described by this table.

Differentials are calculated as $100((\text{Column F}/\text{Column M}) - 1)$.

In examples 1 and 2 the initial conditions, the rate of applicant arrival and the employer offer probabilities were identical for *M* and *F* individuals. All the differences in the outcomes for the groups were produced by differential acceptance probabilities. These differences in the acceptance probabilities are estimable from administrative records on applicants, job holders, offers, and acceptances. These examples, then, show that a disparate impact can be produced by differential supply behavior; however, they also show that the differential labor supply behavior can be quantified and its impact assessed.

Example 3 is summarized in Part A of Table 2. In this example the employer uses differential offer probabilities which favor group *F*. Type *F* individuals are twice as likely to be offered promotion from job 2 to job 1 (.08 for *F* vs. .04 for *M*). Type *F* individuals are more than twice as likely to be hired into job 1 (.025 for *F* vs. .01 for *M*). Finally, type *F* individuals are almost twice as likely to be hired into job 2 (.38 for *F* vs. .2 for *M*). There are also differences in the acceptance probabilities between the two groups. The summary statistics reveal no differential impact in the cross-sectional analysis and a substantial disparate impact in the flow summary favoring type *F* individuals.

This example illustrates two points. First, differential offer behavior by the employer can be masked in the cross-section analysis (or in the flow analysis, but this is not illustrated) by differential supply behavior by the individuals. Second, the differential offer behavior in this example illustrates a form of "reverse discrimination" in which an employer favors the protected group in order to produce cross-section statistics which show no evidence of disparate impact. The differential offer behavior compensates for the differential acceptance behavior.

Example 4 (Part B of Table 2) uses the same acceptance probabilities as example 3. In this case, however, the employer has no disparate treatment of *M* and *F* individuals in the offer probabilities. The offer probabilities have been chosen so that the firm has 2000 employees in each job. The *M/F* composition of those employees is determined by the acceptance rates of the two groups. The result is a substantial disparate impact favoring group *M*. This firm will never resemble the composition of its applicant workforce because the groups do not behave similarly when confronted with similar offers.

Conclusion

In this paper I have shown that the statistical analysis of employment discrimination claims requires a model of employer offer and employee acceptance behavior. Employer offer behavior is the proper measure of economic labor demand by the firm. Claims of disparate treatment involve measures of differential labor demand by the firm with the

TABLE 2
 Personnel Statistics for Identical Employer Offer Probabilities and
 Different Employee Acceptance Probabilities Generating Identical
 Cross-Sections (Part A) and Differential Cross-Sections and Flows (Part B)

Different Offers Compensating for Different Acceptances							
Part A	M			F			
Employer's Offer Probabilities:							
Offer Job		1	2	None	1	2	None
Current Job	1	0.955	0.000	0.045	0.962	0.000	0.038
	2	0.040	0.900	0.060	0.080	0.900	0.020
	Applicant	0.010	0.200	0.790	0.025	0.380	0.595
Employee's Acceptance Probabilities:							
Accept Job		1	2	None	1	2	None
Current Job 1	1	1.000	0.000	0.000	0.950	0.000	0.050
Offer Job	2	0.000	1.000	0.000	0.000	1.000	0.000
	None	0.000	0.000	1.000	0.000	0.000	1.000
Current Job 2							
Offer Job	1	1.000	0.000	0.000	0.950	0.000	0.050
	2	0.000	1.000	0.000	0.000	0.942	0.058
	None	0.000	0.000	1.000	0.000	0.000	1.000
Applicant							
Offer Job	1	1.000	0.000	0.000	0.850	0.000	0.150
	2	0.000	1.000	0.000	0.000	0.800	0.200
	None	0.000	0.000	1.000	0.000	0.000	1.000
Resulting Transition Probabilities:							
Next Job		1	2	None	1	2	None
Current Job	1	0.955	0.000	0.045	0.913	0.000	0.087
	2	0.040	0.900	0.060	0.076	0.848	0.076
	Applicant	0.010	0.200	0.790	0.021	0.304	0.675
				M	F	Differential	
Cross-section Summary (Year 10)							
Employees in Job 1				1000	1000	0%	
Employees in Job 2				1000	1000	0%	
Applicants for New Employment				500	500	0%	
Flow Summary (Year 10)							
Hired Into Job 1				5	11	120%	
Hired Into Job 2				100	152	52%	
Promotions From Job 2 to Job 1				40	76	90%	
Separations From the Employer				105	163	55%	

Note: See notes to Table 1.

differential harming the protected group. These claims cannot be assessed without identifying the employer's offer probabilities. In identifying the offer behavior, the analyst implicitly imposes structure using information from economic theory which cannot be tested directly with the available data. The theoretical distinction between offer (demand) and acceptance (supply) behavior rests on prior reasoning. Once the distinction has been

TABLE 2 (Continued)

Identical Offers Allowed to Have Disparate Impact							
Part B	M			F			
Employer's Offer Probabilities:							
Offer Job		1	2	None	1	2	None
Current Job	1	0.960	0.000	0.040	0.960	0.000	0.040
	2	0.053	0.900	0.047	0.053	0.900	0.047
	Applicant	0.020	0.271	0.709	0.020	0.271	0.709
Employee's Acceptance Probabilities:							
Accept Job		1	2	None	1	2	None
Current Job 1							
Offer Job	1	1.000	0.000	0.000	0.950	0.000	0.050
	2	0.000	1.000	0.000	0.000	1.000	0.000
	None	0.000	0.000	1.000	0.000	0.000	1.000
Current Job 2							
Offer Job	1	1.000	0.000	0.000	0.950	0.000	0.050
	2	0.000	1.000	0.000	0.000	0.942	0.058
	None	0.000	0.000	1.000	0.000	0.000	1.000
Applicant							
Offer Job	1	1.000	0.000	0.000	0.850	0.000	0.150
	2	0.000	1.000	0.000	0.000	0.800	0.200
	None	0.000	0.000	1.000	0.000	0.000	1.000
Resulting Transition Probabilities:							
Next Job		1	2	None	1	2	None
Current Job	1	0.960	0.000	0.040	0.912	0.000	0.088
	2	0.053	0.900	0.047	0.050	0.848	0.102
	Applicant	0.020	0.271	0.709	0.017	0.217	0.766
				M	F		Differential
Cross-section Summary (Year 10)							
Employees in Job 1				1251	748	-40%	2000
Employees in Job 2				1232	768	-38%	2000
Applicants for New Employment				500	500	0%	
Flow Summary (Year 10)							
Hired Into Job 1				10	9	-10%	
Hired Into Job 2				136	108	-21%	
Promotions From Job 2 to Job 1				65	39	-40%	
Separations From the Employer				108	144	33%	

imposed, however, the analyst can distinguish between disparate treatment and disparate impact in a meaningful way.

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Economic and Statistical Analysis of Discrimination In Terminations, Layoffs, And Reductions-in-Force

THOMAS G. ABRAM
Vedder, Price, Kaufman & Kammholz

GEORGE R. NEUMANN
Northwestern University

The central role played by statistical evidence in establishing or rebutting claims of employment discrimination is by now well established.¹ As social scientists know from their own research, however, the inability to obtain relevant data or to model employment practices with sufficient detail or accuracy limits the explanatory power of statistical analysis in many situations. These difficulties are often present in analyses undertaken by experts for litigation, and the courts are increasingly, if perhaps belatedly, recognizing the limitations as well as the strengths of statistical analysis. As a consequence, some of the more thoughtful court decisions now stress the need for more carefully considered and refined analyses before drawing inferences of prohibited discrimination.²

This article addresses the use and limitations of statistical analysis in litigation alleging discrimination in employee separations. We first describe the basic statistical model that underlies inquiries into the possible existence of discrimination and its applicability to employment separations. Next, we discuss technical issues in statistical analysis of employment separations and the judicial reception of such analyses in the relatively few cases involving claims of discrimination in discharge or layoff in which statistical evidence has been presented. In particular, we focus on the propriety of using employee disciplines as an explanatory variable in analyses of discharges. We also stress the need to take into account those institutional arrangements in which employment actions take place such

Abram's address: Vedder, Price, Kaufman & Kammholz, 115 South LaSalle Street, Chicago, IL 60603.

¹ *International Brotherhood of Teamsters v. U.S.*, 431 U.S. 450 (1977).

² See, e.g., *Pegues v. Mississippi State Employment Serv.*, 699 F.2d 760 (5th Cir. 1983).

as, in the case of discharges, the existence of grievance-arbitration machinery under a collective bargaining agreement.

In the third section, we explore the different legal and practical issues involved in performing statistical analyses to determine the existence of age discrimination in layoffs and reductions in force. In the last section, we conclude that, for a number of methodological as well as legal reasons, statistical analyses cannot play as central a role in discharge and layoff cases as they do in other employment discrimination litigation.

General Statistical Model

The implicit statistical model used in discrimination cases is a statement of the relevant probabilities of a certain event occurring, conditional on certain factors deemed to be important and in and of themselves judged to be nondiscriminatory.³ If we denote $P[A|B]$ the probability that event A occurs given that event B is true, the standard statistical model in discrimination cases is an empirical specification of

$$P[A(t)|Z(t), C(t), I(t)] = g[Z(t), C(t), I(t)]$$

where $A(t)$ = the relevant event, for example, hired or not hired, fired or not fired, paid wages of $\$X$ or not, etc.; $Z(t)$ = the net of characteristics of individual i relevant to the particular probability, where the characteristics may vary over time; $C(t)$ = a set of (possibly) time varying coefficients, identical across individuals, that describe the effect of specific characteristics on the probability of the event $A(t)$ occurring; $I(t)$ = an indicator variable that takes the value 1 if the individual is a member of the relevant protected group at time t ; and $g[.,.,.]$ represents some particular form that has been chosen to represent the probability function, given the model specification.

In a typical hiring discrimination case, the question of interest is whether the number of protected group members hired was less than could be expected if hiring did not take into account membership in the protected group. A relevant pool of potential hires is decided upon, based on considerations of interest and qualifications for the job in question, and the proportion of protected group members in the pool is used to calculate the probability that the observed number of protected group members differs from the expected number solely by chance. Typically, the probability calculations make use of the binomial distribution (or if sampling without replacement is an issue, the hypergeometric distribution) or the normal approximation to the binomial, endorsed by the United

³ For discussion on whether a potentially discriminatory factor should be included as an explanatory variable, see text at note 15.

States Supreme Court as the “two or three standard deviation test.”⁴ In this context the choice of the eligible pool based on some specification of qualifications corresponds to selection of the relevant $Z(t)$ s; $A(t)$ is the event “hired”; $I(t)$ is the number of protected group members hired at time t , and the use of the binomial distribution or its normal approximation is the specification of the function $g(\cdot)$.

Application of the Model to Layoffs and Reductions-in-Force

Application of the basic model to claims of race or sex discrimination in layoffs or reductions-in-force is similar to the typical hiring case and entails essentially a straightforward comparison of the representation of the protected group in the segment of the employer’s work force at risk with (after accounting for relevant factors, e.g. seniority) the representation of the protected group among those workers laid off or “riffed.”⁵ Even in this simple case, however, due consideration of the organizational structure of the employer must be taken into account in constructing the statistical model. For instance, “overhead” employees such as staff are likely to be separated at lower rates than production workers. Where collective bargaining agreements exist, the specification of a seniority variable should attempt to follow labor contract provisions which provide for the use of departmental seniority or bumping rights into vacancies for which an employee is qualified.⁶

Whether or not a layoff adversely affects minorities or women covered by collective bargaining agreements is of less legal significance in the wake of the Supreme Court’s decision in *Teamsters v. United States*, *supra*, in which the Court held that a layoff made pursuant to *bona fide* seniority provisions of a labor agreement did not violate Title VII of the Civil Rights Act of 1964, notwithstanding the fact that a disproportionate number of minorities were laid off. In such situations, the more pertinent legal inquiry now is whether the seniority system applied in laying off workers was formulated or applied with the intent to discriminate against

⁴ *Hazelwood School Dist. v. U.S.*, 433 U.S. 299 (1977); *Castaneda v. Partida*, 430 U.S. 482 (1977). Although the Supreme Court has yet to recognize the differences in possible models, lower court decisions are beginning to recognize that different models are appropriate in different circumstances. See, e.g., *EEOC v. Federal Reserve Bank of Richmond*, 698 F.2d 633, 650 (4th Cir. 1983). See also, Peterson, *Binomial v. Hypergeometric Employee Selection Models*, 2 Personnel Research Report 1 (April 1983).

⁵ Important statistical issues not especially germane to layoff or discharge cases, such as the determination of the relevant comparison group or appropriate statistical tests, have been extensively covered elsewhere in the literature and are not here discussed. See, e.g., Baldus and Cole, *Statistical Proof of Discrimination* (1980); Smith and Abram, *Quantitative Analysis and Proof of Employment Discrimination* 1 U.Ill.L.Rev. 33 (1981); Finklestein, *The Judicial Reception of Multiple Regression Studies in Race and Sex Discrimination Cases*, 80 Colum.L.Rev. 702 (1980).

⁶ See, e.g., *Robinson v. Polaroid Corp.*, 32 FEP Cases 621 (D.Mass. 1983).

members of a protected group. Statistical analysis will be of limited usefulness in addressing this issue.⁷

As discussed above, allegations of age discrimination in layoffs or a reduction-in-force raise special questions which are addressed below.

Application of the Model to Discharges

Application of the basic model to discharges differs from its application to other employment actions in that statistical techniques other than regression analysis commonly used in hire, pay, or promotion studies are more appropriate for studying employee separations. In predicting whether an individual will be terminated from an on-going enterprise, one will generally have information about which individuals have been terminated, which ones have quit, and which ones are still employed when the analysis is undertaken. A simple linear regression of the length of service with the firm on some individual characteristics such as age, education, etc., would be clearly inappropriate because for many individuals one never observes a termination. These observations are either censored because, in the case of quits, the individuals left the firm before termination occurred, or, for those who neither quit nor were terminated, the observations are either censored or truncated depending upon how the data were gathered. The complications resulting from censoring and truncation are analogous to the problems of sample selection bias found in regression studies of pay disparities and their proper treatment requires explicit attention to the nonlinearities that they cause.

The branch of statistics called survival analysis is specifically designed to account for the problem of censoring. However, even survival analysis of discharges will be flawed to the extent workers quit rather than face discipline or discharge procedures because survival analysis assumes that the censoring is not informative about the failure time. That is, the cause of censoring is assumed to be independent of the survival behavior being analyzed.

Two further technical issues arise in the application of survival analysis to discharge cases. The first involves modeling the analysis to account for the presence of internal covariates and the specifics of the discipline system being studied. An internal covariate is a variable generated by the individual under study and is observed only so long as the individual

⁷ Statistical analyses of layoffs which incorporate the appropriate measure of seniority as an explanatory variable can shed light on whether the layoff actually proceeded in accordance with the stated bona fide seniority system by determining whether the protected group members were laid off to the same extent as would be predicted on the basis of their relative seniority. Failure to take into account all options for bumping or reassignment set out in the labor agreement, however, will limit the probative value of any such analyses. See *Robinson v. Polaroid Corp.*, *supra* note 6.

survives and is uncensored.⁸ In discharge cases, discipline actions will be an internal covariate. As an example, suppose a firm had a policy of never discharging until three discipline notices were accumulated and anyone with three notices is always discharged. In this case, the probability that a person would have survived to time t is equal to the probability that $Z(t)$, the number of discipline actions at time t , first equalled three at time t . Hence, studying discharges by survival techniques is identical to studying the process by which disciplines are generated, $Z(t)$.

Actual discharge systems are unlikely to be as simply characterized as in the previous example. The probability of discharge will usually depend upon both the timing and type of work rule infractions committed by a worker. Thus, under typical collective bargaining agreement provisions, work rule infractions are categorized by degree of seriousness and discharges can be predicated only upon prior disciplinary actions occurring within a prescribed time period, e.g., within the last three years. In this case survival analysis can be meaningfully applied only if the discipline actions are properly categorized and allowed to vary over time. As a practical matter, this treatment will substantially increase the cost and time required for producing a careful statistical study.⁹

Second, in studying termination behavior one cannot ignore the myriad of external factors which may affect internal firm behavior. For instance, in a tight labor market an employer is apt to tolerate lower worker performance and to enforce work rules less rigorously than in recessionary periods. To the extent that these external conditions vary over time, and if the proportion of protected group members in the employer's workforce also varies, there is the very real possibility of a "Simpson's Paradox" bias leading to misleading inferences either in favor or against finding discrimination.¹⁰

⁸ See Kalbfleish and Prentice, *The Statistical Analysis of Failure Time Data* (1980).

⁹ To date, few courts have dealt with these technical issues. However, in at least two decisions the courts have rejected plaintiffs' statistical analyses of terminations in part because of their experts' technical errors in failing to account properly for censored observations in performing survival analyses. See, *Coates v. Johnson & Johnson*, 22 E.P.D. ¶ 32,644 (N.D.Ill. 1982); *Robinson v. Polaroid Corp.*, *supra* note 6. In addition to the technical issues discussed in the text, statistical analyses of discharges will also be circumscribed by the small number of individuals typically involved. See, e.g., *Soria v. Ozinga Bros., Inc.*, 704 F.2d 990 (7th Cir. 1983).

¹⁰ Analysis of terminations on an annual basis, rather than on a "pooled" basis for the entire time period at issue in the litigation, is one means to cope with time varying variables. Excessive data segmentation, however, may obscure patterns of disparate treatment. The courts have yet to develop a consistent or considered approach to this issue even though the finding of statistically significant disparities in the hire or termination rates of protected group members often may depend on whether the analyses are performed year-to-year or on a pooled basis. See, e.g., *Coates v. Johnson & Johnson*, *supra* note 9 (accepting year-to-year analyses and rejecting pooled analyses because of the "Simpson's paradox" problem), and *Lilly v. Harris-Teeter Supermarket*, 33 FEP Cases 195 (4th Cir. 1983) (rejecting year-by-year comparisons because of concern that such analyses may obscure statistically significant disparities for the entire time period).

A particular example of the problem arises where there are different discharge procedures for probationary and nonprobationary employees. More generally, a worker's chronological length of time with an employer may not correspond to the concept of seniority as expressed in a collective bargaining agreement or in personnel documents. Accordingly, the application of standard survival methods must be tailored to fit the appropriate definitions of seniority and disciplinary actions if reliable inferences are to be made.

More intractable than the technical issues discussed above is the general inability to gather relevant data or to model discharge practices with any precision. A researcher is confronted at the outset with inherent ambiguities in the definition of discharge as the dependent variable. While in the majority of instances determining whether a termination is a discharge may be easy, such as a termination because of a violation of a plant rule prohibiting fighting, in other circumstances it is not. For example, a termination because of an employee's failure to report to work might common-sensically be considered a quit, yet such a termination may be subject to reversal and reinstatement under grievance/arbitration procedures.¹¹ In any event, the employee's motivation will likely never be known to the researcher. Furthermore, an employee may, in consideration of future employability, "voluntarily" quit rather than be discharged in circumstances where the discharge would be discriminatory.

Contrary to our model's assumption, a researcher is also not likely to be able to quantify many of the factors $Z(t)$ which bear on the decision to discharge an individual. As discussed above, the current probability of being discharged will be influenced by a variety of factors reflected in an individual's work history, including performance and past disciplinary actions. Some of these disciplines may be verbal, others written. Records will rarely be complete and beyond dispute. It will rarely be possible to quantify satisfactorily all the elements of an employee's work history which may bear on the decision to discharge.

Moreover, where disciplinary history "explains" termination probabilities, the issuance of disciplines may itself be discriminatory. This is, of course, the familiar problem of using a "tainted" variable in a statistical analysis. It is particularly important in the discharge context because an employee's disciplinary record may likely be the most significant predictor of discharge and, unlike analyses of hires or promotions, no readily agreed upon proxy explanatory variables are available. Although it is likewise difficult to quantify all the factors which go into the hiring

¹¹ The ambiguity between a discharge and a quit has been repeatedly emphasized in the labor economics literature; see, e.g., Becker, *Human Capital* (1964).

decision, both plaintiffs' and defendants' experts agree that quantifiable factors such as past work experience and education, not subject to the potentially discriminatory influence by the employer, are the more important determinants in the hiring process. Furthermore, there is no a priori reason (at least cognizable under the law) to suspect that the distribution of relevant but unobserved determinants in the hiring process will vary systematically between members of protected groups and other job applicants.

Little meaningful statistical analysis of discharge rates, however, is possible absent the inclusion of disciplinary records as an explanatory variable because of the absence of any proxy of sufficient predictive power.¹² Yet, there will be in almost all instances no way in which to determine whether or not an employer disciplined in a discriminatory manner. Although a researcher could determine whether or not protected group members were discharged disproportionately relative to the number of written disciplines received (leaving aside the question of the role of verbal disciplines in the discharge process), the underlying distribution of disciplinable offenses by protected group members and other workers would remain unknown.

The courts (as well as researchers) are left with a very difficult problem. On the one hand, discharges and disciplines are so inextricably part of the same process that statistical analyses of discharges which do not incorporate disciplinary records should be given little probative value. On the other hand, the use of such disciplinary records as an explanatory variable may mask possible discrimination.

Furthermore, statistical analysis cannot incorporate the institutional framework in which discharges often take place where the relevant group of individuals are covered by a collective bargaining agreement providing for grievance/arbitration procedures. Under these circumstances, if a case involving discharges has merit there is a strong presumption that the union will exhaust its remedies under the existing collective bargaining agreement. Where the discharge goes to arbitration, some neutral third party will already have made a determination of the merits based on information that will not generally be available to the analyst. Even where the grievance is not taken to arbitration, there is a presumption that one side or the other has made a reasoned choice not to pursue the matter. It is, of course, true that arbitrators are not all-wise in the matters of

¹² In some instances, a researcher will have access to quantifiable measures of performance and adherence to plant rules such as measures of output, waste, or defective products, or unexcused absences, tardiness, etc. Rarely will these measurable aspects of an employee's work record be a sufficiently comprehensive description of the most important aspects of an employee's work history which bear on the decision to discharge.

discrimination¹³ and that unions have not always represented all of their members fairly.¹⁴ But where the issue involves an individual reckoning of the facts, as cases involving discharge so often do, extenuating circumstances that influence individual judgment are not likely to be available for statistical analysis. Consequently, a statistical analysis of terminations essentially involves an attempt to reach the same decision as a neutral third-party without the benefit on a case-by-case basis of the information possessed by the third party.

This is not to imply that the mere existence of grievance/arbitration machinery eliminates any useful role for statistical analysis of discharges. In the presence of such machinery, however, a researcher (and the courts) should be more circumspect in drawing inferences from the statistical analyses alone and will do well to inquire also into the results of the arbitration process (e.g., is there evidence that a disproportionate number of discharges of protected group employees have been overturned in arbitration or at lower levels of the grievance process?).

The legal issue thus narrows to whether a plaintiff can ever make out a prima facie case of discrimination in discharges based on statistical analyses which do not include disciplinary histories and whether a defendant, to be permitted to use disciplinary records in its rebuttal analyses, must show that disciplines were not discriminatorily administered, probably an impossible task. Because of the differences in analyzing discharges discussed above, precedent in other areas of discrimination litigation is of little relevance in answering these questions.¹⁵ We would argue that because the plaintiff bears the initial burden of producing meaningful statistical evidence upon which a prima facie inference of discrimination may be properly drawn,¹⁶ statistical analyses which do not consider the effects of past disciplinary history can rarely, if ever, make out a prima facie case standing alone for the reason that no meaningful inferences could be drawn from such analyses in all but the most extreme circumstances. Only where a plaintiff, through the intro-

¹³ *Alexander v. Gardner-Denver*, 415 U.S. 36 (1977).

¹⁴ See e.g., *Local 12, United Rubber Workers v. NLRB*, 368 F.2d 12 (5th Cir. 1967); *Hines v. Anchor Motor Freight*, 424 U.S. 554 (1976).

¹⁵ In some hiring and promotion cases, the courts have rejected statistical analyses including "tainted" variables such as initial job or highest skill level obtained where other evidence had established discrimination in initial assignment or promotion opportunities. See, e.g., *Trout v. Hidalgo*, 517 F.Supp. 873, *aff'd in part, rev'd in part, sub nom., Trout v. Lehman*, 702 F.2d 1094 (D.C.Cir. 1983); *James v. Stockham Values & F. Hings Co.*, 559 F.2d 310 (5th Cir. 1977), *cert. den.*, 434 U.S. 1034 (1978). For opposing viewpoints on the propriety of including in regression analyses potentially "tainted" variables or variables highly correlated with protected group membership, see, Finklestein, *supra* note 5, and Smith and Abram, *supra* note 5.

¹⁶ See, e.g., *Pegues v. Mississippi State Employment Serv.*, *supra* note 2; *Miller v. Weber*, 577 F.2d 75 (8th Cir. 1978); *Wilkins v. University of Houston*, 654 F.2d 388 (5th Cir. 1981), *vacated and remanded*, 103 S.Ct. 34 (1982), *aff'd on remand*, 695 F.2d 134 (5th Cir. 1983).

duction of anecdotal or statistical evidence, makes a prima facie showing of discrimination in the administration of disciplines should plaintiff be excused from the general obligation of considering disciplinary history in its statistical analyses. Once a plaintiff establishes a prima facie case of discriminatory discharges, however, a defendant should not be able to defeat plaintiff's claim on the sole basis of statistical analyses incorporating disciplinary histories absent a showing of nondiscrimination in the administration of disciplines sufficient to overcome plaintiff's prima facie showing of discrimination in disciplines. This recommendation would necessarily limit the role of statistical proof in discharge cases, but we believe it reflects a proper recognition of the limited explanatory power of statistical analysis in this context. Before placing reliance on statistical analyses of discharges, the court should look more closely at all available indicia of whether the discipline process was nondiscriminatory.

Statistical Analysis of Age Discrimination In Layoffs and Reductions-in-Force

At first blush, statistical analyses of the existence of age discrimination in layoffs or reductions-in-force appear to be straightforward. One can simply determine whether a disproportionate number of protected age individuals were laid off or "riffed" compared to their representation in the employer's workforce subject to layoff. A number of legal and technical factors, however, vitiate the probative value of such a simple comparison.

As a matter of law, the role of statistical proof in age discrimination claims may be more circumscribed than in litigation under Title VII. Section 4(f)(1) of the Age Discrimination in Employment Act (ADEA)¹⁷ allows an employer to differentiate among its employees on "reasonable factors other than age"¹⁸ and arguably permits employers to base employment decisions on job-related factors correlated with the aging process so long as the decisions are not motivated by prejudice against older workers.¹⁹ This provision, together with the absence of an analogous provision in Title VII, would accordingly suggest that statistical proof of

¹⁷ 29 U.S.C. §621-634 (1976).

¹⁸ 29 U.S.C. §623(f)(1).

¹⁹ See dissenting opinion of Justice Rehnquist from denial of certiorari in *Geller v. Markham*, 635 F.2d 1027 (2d Cir. 1980), *cert den.*, 451 U.S. 945 (1981); *Note, Age Discrimination and the Disparate Impact Doctrine*, 14 Stan.L.Rev. 837 (1982). An alternative reading of Section 4(f)(1) might permit a plaintiff to make out a prima facie case by showing disparate impact but allowing a defendant to rebut on the basis of an analysis incorporating a factor other than (although perhaps highly correlated with) age without requiring the defendant to establish the business necessity of the factor. The decision in *Geller v. Markham*, in which the court held that ADEA was violated where the employer refused to hire more experienced, higher paid, and older teachers and that cost-cutting did not justify this policy, is contrary to this alternative interpretation as well.

the adverse impact of an employer's actions against protected age group employees alone does not make out a violation of ADEA. Although at least two decisions have held that a plaintiff can establish an ADEA violation on the basis of a showing of disparate impact, to date no federal court has addressed this contention.²⁰ If claims of disparate impact do not make out an ADEA violation, the use of statistical proof would be limited to establishing or refuting claims of disparate treatment in age discrimination cases.

In addition, termination of salaried employees in a reduction-in-force will often depend on comparative performance appraisals. Thus, the propriety of including the potentially "tainted" performance review variable in any statistical analysis will turn on the antecedent inquiry into whether the performance reviews were conducted in a nondiscriminatory manner.

Regardless of the legally permissible scope of the use of statistical proof, inferences of illegal age discrimination should not be as readily drawn from statistical analyses as is the case with allegations of race or sex discrimination for the simple reason that race and sex, as a matter of law (except in the extremely limited situations where sex can be shown to be a bona fide occupational qualification), are not related to productivity, whereas the aging process at some point is likely to result in the deterioration of certain productivity-related skills or stamina.²¹ It will, accordingly, be more difficult in claims of age discrimination to construct statistical analyses which reliably differentiate between employer actions based on prejudice or stereotype, on the one hand, and legitimate productivity-related concerns on the other.²²

Technical problems also limit the probative value of statistical analysis in age discrimination cases. First, age is a continuous rather than a categorical variable and ADEA recognizes discrimination among individuals

²⁰ *Geller v. Markham*, *supra* note 19; *Leffwich v. Harris-Stowe State College*, 702 F.2d 686 (8th Cir. 1983).

²¹ ADEA recognizes that age can be a bona fide occupational qualification. See also, Smith, *The Law and Equal Employment Opportunity: What's Past Should Not Be Prologue*, 33 Indus. & Lab. Rels. Rev. 493 (1981); Kovarsky & Kovarsky, *Economic, Medical and Legal Aspects of the Age Discrimination Laws in Employment*, 27 Vand.L.Rev. 839 (1974).

²² Some courts have afforded less weight to showings of statistical disparities in an ADEA case than they would under Title VII for this reason. See, e.g., *Kephart v. Institute of Gas Technology*, 630 F.2d 1217 (7th Cir. 1980), *cert. den.*, 450 U.S. 959 (1981); *Langesen v. Anaconda Co.*, 510 F.2d 307 (6th Cir. 1975). One commentator has also suggested that statistical proof in age cases will be less probative than in Title VII cases because the natural replacement process entails the replacement of older workers with younger workers. Schickman, *The Strengths and Weaknesses of the McDonnell Douglas Formula in Jury Actions Under the ADEA*, 32 Hasting L.J. 1239 (1981). This observation goes only to very simple comparisons of the mean age of the workforce before and after layoff or the mean ages of those laid off and those retained. Such comparisons are not particularly informative. See, in general, *Note, Statistics as Evidence of Age Discrimination*, 32 Hasting L.J. 1347 (1981).

within the protected ages of 40 to 70.²³ Some courts, consequently, have accepted statistical analyses which subdivide protected age individuals into age groups against which the discrimination is alleged to have occurred.²⁴ The results of any such analysis, of course, may be critically sensitive to the manner in which the individuals are grouped. The courts to date, however, have not required the parties presenting such analysis to provide justification for their line-drawing. To avoid data manipulations designed to achieve the desired results, the courts should require that any age grouping utilized in statistical analysis be shown by independent evidence to conform to the employment practices at issue. That is, some showing should be made that there were employment practices or policies by which the employer did or could have differentiated among its employees in accordance with the age groups presented in the statistical analysis.

The operation of internal labor practices further complicates the drawing of reliable statistical inferences. Typically claims of age discrimination involve relatively few individuals because few individuals in the protected age group are ever separated from their jobs.²⁵ The small sample size problem makes it difficult in many cases to draw inferences with any precision.²⁶

Aside from these technical problems there is the more difficult issue of defining what "equal treatment" hypothesis should be tested statistically. In general, older workers face different economic constraints than younger workers and these differences persist even among different age groups within the protected age limits. These differences are magnified by the common practice of providing pension enhancements to encourage early retirement. Distinguishing voluntary and involuntary separations is problematic under these circumstances.

For all of these reasons, statistical analysis, we believe, will also be less helpful in age discrimination litigation than in other discrimination actions.

Conclusions

Statistical analysis will undoubtedly continue to play a central role

²³ See, e.g., *EEOC v. Sandia Corp.*, 639 F.2d 600, *rehearing granted in part, denied in part*, 26 FEP Cases 218 (10th Cir. 1980); *Marshall v. Sun Oil Co.*, 605 F.2d 1331 (5th Cir. 1979).

²⁴ *EEOC v. Sandia Corp.*, 639 F.2d 600 (10th Cir. 1980); *Mastie v. Great Lakes Steel Corp.*, 424 F.Supp. 1299 (E.D.Mich. 1976); *Stringfellow v. Monsanto Co.*, 320 F.Supp. 1175 (W.D.Ark. 1970); see *Note, Statistics as Evidence of Age Discrimination*, 32 *Hastings L.J.* 1347 (1981).

²⁵ See Hall, *The Importance of Life Time Jobs in the U.S. Economy*, 72 *Amer. Econ. Rev.* 716 (1982).

²⁶ See e.g., *Schmid v. Frosch*, 515 F.Supp. 1260 (D.D.C. 1981), *rev'd and remanded*, 680 F.2d 248 (D.C.Cir. 1982).

discrimination litigation, and, in particular, its use in discharge and layoff cases is likely to grow. Yet, for the reasons discussed above, we believe that in matters of discharge and layoff, statistical analyses cannot play as central a role as they do in other employment discrimination litigation. Courts have been willing to draw inferences of discrimination from statistical analyses in cases alleging discrimination in hiring or pay based on the assumptions that the more important determinants of the employment decision at issue have been included in the analysis and that there are no a priori reasons to expect differences between protected group members and other individuals in relevant but unobserved factors affecting productivity. In the case of discharge, however, these two assumptions may not hold. Information about the disciplinary history of workers will almost always be informative. Ignoring discipline information makes a statistical defense of discharge matters impossible, but including such information may mask the discrimination alleged to exist. Moreover, in some circumstances the individual discharge actions will have been reviewed by an impartial panel (e.g., in arbitration) with knowledge of a broader set of facts than will be available for statistical analysis. Finally, where discrimination by age is alleged, the number of cases is usually too small to make reliable inferences, or, in cases involving reductions-in-force where the numbers are sufficiently large, distinguishing voluntary from involuntary separations clouds the issues and raises substantive questions of what age-neutral comparisons can be made.

IV. CONTRIBUTED PAPERS: PERSONNEL, ORGANIZATIONAL BEHAVIOR, AND ORGANIZATIONAL DEVELOPMENT

Adaptation to Work: An Analysis of Employee Health, Withdrawal, and Change

JOSEPH G. ROSSE
University of Minnesota

Employee nonattendance continues to be a prominent area of organizational concern and study. Research proliferates on the correlates of absence and turnover, yet there is serious reason to question whether substantial progress towards understanding these behaviors is being made (cf. Mobley 1982). One could argue that a major limitation of much current research in this area is a narrow focus on behaviors without asking whether these behaviors may represent specific manifestations of a more general underlying construct. Thus, in addition to the frequent study of turnover and absence, various researchers have studied the incidence among workers of lateness, crime, health disorders, sabotage, drug use, productivity-restricting social norms, and accidents. Only rarely have researchers considered the possibility that these behaviors may all reflect a single underlying dimension of response to the work situation.

A few authors have suggested models of employee withdrawal behaviors as an alternative conceptualization (Herzberg, Mausner, Peterson, Capwell 1957; Gupta and Jenkins 1980; Lyons 1972). According to this perspective, workers may engage in a variety of behaviors that are intended to place physical or psychological distance between themselves

Author's address: Industrial Relations Center, University of Minnesota, 537 Management and Economics Building, 271 19th Avenue South, Minneapolis, MN 55455.

and a noxious work environment. Affective responses to work serve as the central causal variable in explaining a variety of employee behaviors.

According to the withdrawal concept, workers exhibit withdrawal behaviors as a means of avoiding a noxious work environment. In other words, the behaviors represent coping mechanisms intended to help a person adapt to his/her work environment. Thinking of withdrawal behaviors as part of an adaptive process suggests two additional and important questions. First, faced with a work situation that is dissatisfying, what is the *total* range of adaptive behaviors from which a person may choose? Second, what are the consequences of failing to adapt?

An answer to the first question suggests a number of behaviors that have not received much attention from withdrawal researchers, but which do evidence negative associations with job affect. Conceptually, withdrawal from work might include such tactics as loafing, taking long breaks, leaving early or using alcohol or other drugs, as well as the traditional triad of lateness, absence, and turnover. Moreover, adaptation need not take the form of withdrawal; logic and some limited evidence suggest that constructive attempts at change or aggressive responses (e.g., sabotage) may be alternative courses of action. By posing the question in terms of adaptation, this wider scope of responses may be more easily considered.

An answer to the second question—regarding the consequences of failing to adapt to unsatisfactory working conditions—has become increasingly important in the last decade. Two categories of outcomes seem attributable to a failure to cope: accidents and illness. Although largely ignored until the 1960s, there is now substantial evidence of an association between job characteristics and employee's mental and physical health (e.g., Matteson and Ivancevich 1979; Kasl 1974).

Rosse and Miller (in press) have described an integrative conceptual framework of employee adaptation that makes testable predictions about the relations among the behaviors/outcomes previously described, and about the relations between these variables and job affect. This study was designed as an initial test of some of these predictions. A basic foundation of their model is the hypothesis that job satisfaction will demonstrate negative correlations with measures of employee withdrawal and retaliation. This study includes simultaneous measurement of a wider variety of withdrawal and aggressive behaviors than previously researched. A related hypothesis regards attempts to make constructive changes in one's job; workers who are mildly dissatisfied should be most inclined to make changes, whereas few change attempts are expected among workers who are highly satisfied (and thus see little need for change) or highly dissatisfied (who are likely to see withdrawal as a more attractive

response). Finally, dissatisfied employees who fail to either withdraw or implement changes are hypothesized to suffer from declining physical and mental health.

Method

Forty-two new employees of a small private hospital were contacted on their first day of work and asked to participate in a series of ten interviews over a six-month period. During the interviews, respondents were asked to report job satisfaction and intention to quit, as well as complete a 36-item measure of Avoidance behaviors, and an eight-item Attempts at Change scale. The Avoidance scale consisted of examples of withdrawal (e.g., "daydreaming," "taking frequent or lengthy coffee or lunch breaks") or retaliatory (e.g., "arguing with patients or coworkers," "purposely damaging hospital equipment or property") behaviors for which respondents were asked to report usage on a seven-point scale ranging from "never" to "constantly." The Attempts at Change scale consisted of similar items pertaining to making job changes (e.g., "discussing with your superior ways to improve your job"). Physical and mental health was measured by a 31-item self-report checklist. Lateness, absence, and job change information was obtained on a bi-monthly basis from organizational records. Attendance and (delayed) job satisfaction data were also obtained from a hold-out control group of 21 new hires to test for effects attributable to the interview process. No significant between-group differences were found.

Results

The preponderance of evidence supported the hypothesized association between job attitudes and employee behaviors (see Table 1). Averaging across all measures of affect, 25 percent of the variance in intentions to quit and 21 percent of the variance in turnover may be explained; using the best predictors, these figures were 33 and 45 percent. Correlations with absence and the self-report Avoidance scale, although not as strong, were also in the predicted direction. Lateness was generally uncorrelated with job satisfaction, probably due to restriction of variance in lateness.

One of the potentially most interesting aspects of this study was the inclusion of a measure of employees' attempts to change their jobs. The failure of most withdrawal researchers to consider this category of behaviors has led to a very one-sided view of employees' responses to a dissatisfying job. Contrary to expectations, change attempts exhibited a strong linear relationship with job attitudes. Moreover, they evidenced a pattern of affective correlates essentially opposite to that of withdrawal responses; whereas unhappy workers were more likely to engage in

TABLE 1
Disattenuated Affect-Outcome Correlation Matrix

	JDI Facets						Company	
	Faces	Work	Sup.	Cow.	Prom.	Pay	Identification	Alienation
Avoidance	-.16	.00	-.19	.02	-.10	.13	-.31	.16
Absence frequency	-.20	-.40	-.04	-.27	-.06	.02	-.12	.23
Lateness	.01	-.21	.10	.08	-.22	-.12	.02	-.06
Turnover								
Total	.01	-.12	-.29	-.21	-.30	-.38	.15	.19
Late	-.67	-.64	-.49	-.40	n/a	n/a	-.20	.37
Intention to quit	-.43	-.57	-.41	-.52	-.38	-.13	-.47	.42
Health symptoms	-.58	-.43	-.32	-.49	-.19	.00	-.32	.33
Attempts at change	.14	.58	.52	.46	.41	.54	.59	-.78

Notes: All correlations are means averaged over all applicable measurements.

Ns range from 25 to 42, depending on attrition.

Underlined coefficients indicate that raw, uncorrected correlation is significant, $p < .10$.

Correlations with turnover are averaged across all measurements ("Total") and also for just the last 13 weeks of the research ("Late").

avoidance, it was the relatively more satisfied worker who was likely to attempt to implement changes in his/her job. Assuming that proactive adaptations are more functional than passive withdrawal, these results suggest that the costs of negative employee attitudes may be even greater than expected.

Self-reported health symptoms showed consistent and generally strong negative relations with affect. This pattern of relations persisted when initial levels of symptoms were partialled out. Thus it appears likely that negative attitudes were causing health disorders, rather than initially ill employees simply having poor attitudes.

These results appear to contradict the conclusion of Porter and Steers (1973), who argued that absence and turnover are characterized by different patterns of correlates. To better test this prediction of nonoverlapping antecedents, particularly as it applies to a broader range of variables, correlations were computed across all measures of affect for each pair of behaviors in Table 1. The resulting coefficients—shown in Table 2—are a measure of the similarity of affective antecedents for each pair of variables. The results of this analysis indicate substantial overlap in affective antecedents across the various withdrawal behaviors. Only lateness (which was plagued by a very low base rate) showed a clear departure from strong associations. As noted before, Attempts at Change intercorrelations, although strong, are in the opposite direction of those of the other variables. It appears that change attempts and withdrawal represent fundamentally different forms of response to work.

TABLE 2
Similarity Matrix of Correlates of Behaviors

	1	2	3	4	5	6
1. Absence frequency						
2. Lateness	.05					
3. Avoidance	.32	-.36				
4. Attempts at change	-.66	-.01	-.48			
5. Health symptoms	.88	-.28	.60	-.66		
6. Intention to quit	.88	-.10	.63	-.87	.93	
7. Turnover	.80	-.01	.38	-.76	.86	.85

Note: Underlined coefficients are significant, $p < .10$ ($N = 8$).

The final hypothesis pertained to detrimental effects on health arising from a failure to adapt. A measure of health risk was devised by considering subjects' degree of dissatisfaction and their failure to engage in adaptive behaviors. Correlations between the Risk measure and the Health Symptoms scales were then computed; the average correlation for

the three measurements of symptoms was a highly significant $r = .51$ (.62 corrected for attenuation). Thus, deteriorating health is not an inevitable result of dissatisfying work. Rather, it is when employees are unhappy and fail to cope that declines in health appear.

Discussion

This research should be viewed as a preliminary step in exploring employee adaptation. The results have provided a basic empirical foundation for the adaptation concept. Future research needs to consider the process through which a person comes to exhibit a particular behavior (or opts to do nothing). A better understanding of the functional relations among behaviors is also needed. For example, are all adaptive behaviors equally adaptive? Are the behaviors substitutable? Is there a "progression of withdrawal" such that people begin with relatively mild forms and then progress to more serious behaviors, or do people choose behaviors that best match their level of satisfaction? What constraints on behavioral choices exist? This study contributes to a growing body of data that suggest that questions such as these show greater promise for understanding behavior in organizations than a continuing emphasis on individual withdrawal behaviors in isolation.

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Beliefs, Organizational Position, and Whistle-Blowing Status: A Discriminant Analysis*

MARCIA P. MICELI
Ohio State University

JANET P. NEAR
Indiana University

Interest in organizational politics in general, and whistle-blowing in particular, has increased in recent years (Farrell and Petersen 1982). Whistle-blowing has been investigated by academicians, journalists, "public watchdogs," attorneys, and others (e.g., Ewing 1983; Malin in press; Nader, Petkas, and Blackwell 1972; Peters and Branch 1972; Weinstein 1979; Westin 1981). Empirical attempts to identify experiences and characteristics common to whistle-blowers, however, have been limited (e.g., Hoyman and Stallworth 1983; Near and Jensen 1983; Near, Miceli, and Jensen 1983; Parmerlee, Near, and Jensen 1982).

In this study we used survey data collected by the U.S. Merit System Protection Board (MSPB) to determine whether individuals' organizational positions and their beliefs and perceptions concerning organizational conditions relevant to whistle-blowing could differentiate organization members of three types: those who did not observe wrongdoing, those who observed wrongdoing but did not report it, and those who observed wrongdoing and blew the whistle. As all data were taken from surveys, measures are self-reported and often perceptual in nature; we omit the term "perceived" where it would otherwise be appropriate strictly to avoid repetition.

Hypotheses¹

H1: Whistle-blowers will be more likely than other organization members to approve of whistle-blowing and to believe that it should

Miceli's address: Management and Human Resources, College of Administrative Science, The Ohio State University, 356 Hagerty Hall, 1775 College Road, Columbus, OH 43210.

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¹ Rationale for the hypotheses was omitted due to space limitations.

receive greater encouragement. *H2*: Observers who do not act will report greater fear of managerial retaliation than will whistle-blowers. *H3*: Whistle-blowers who utilize internal channels will be more knowledgeable about internal channels and less knowledgeable about external channels than will external whistle-blowers. *H4*: Organization members who are not heavily dependent on their jobs because they have high levels of pay and education (e.g., professionals) will be more likely to blow the whistle than will others. *H5*: Whistle-blowers who use internal complaint channels will be more likely to hold supervisory positions or positions where whistle-blowing is role-prescribed than will whistle-blowers who use external channels.

Method

In December 1980, the MSPB sent questionnaires to the homes of approximately 12,000 employees selected at random from the 757,000 permanent employees of 15 major federal departments and agencies. Confidentiality was assured to the participants. A total of 8587 persons completed and returned usable questionnaires, resulting in a 66 percent response rate.

Respondents were asked, "Regardless of whether or not it is part of your job, *during the last 12 months*, have you *personally observed* or obtained *direct evidence* of any of the following activities?" If they checked none of nine activities, such as "employee(s) giving unfair advantage to a particular contractor, consultant or vendor," "waste of Federal funds caused by buying unnecessary or deficient goods or services," nor a tenth ("other"), they were classified as Nonobservers. Respondents who checked at least one and answered "no" to "Did you report this activity to any individual or group?" were termed Inactive Observers. Respondents who said they observed and reported any activity were classified as "Whistle-Blowers."

Internal Whistle-Blowers said they reported the activity to "co-workers," "immediate supervisor," "someone above my immediate supervisor," "the personnel office," and/or "the office of the Inspector General or the IG 'Hot Line' within the agency." External Whistle-Blowers checked "a union representative," "the Special Counsel within the MSPB," "the General Accounting Office," "a Member of Congress," and/or "a member of the news media." Dual Whistle-Blowers checked at least one from each list.

Twenty-five items concerning respondents' perceptions of existing organizational conditions, beliefs about whistle-blowing, and position characteristics served as potential discriminating variables. The stepwise (Wilks' lambda criterion) SPSS discriminant analysis procedure was used,

with a random split half holdout sample. Functions having lambdas significant at .05 or less were rotated, using varimax; these functions (and Bayesian prior probability adjustments) were utilized for classifying holdout cases.

Results

The discriminant analysis revealed that the first discriminant function had an eigenvalue of .149, accounting for 73.87 percent of the variance, with a canonical correlation of .360. Eigenvalues for the remaining three functions were .026, .008, and .007; percentages of explained variance were 13.24, 9.08, and 3.81; canonical correlations were .161, .134, and .087, respectively. Wilks' lambdas prior to extraction of each function were .825, .948, .974, and .992, respectively. The first three lambdas were significant at .0001 or less; the fourth was not significant at .05. Results of the rotation of the significant functions are reported in Table 1. The classification analysis, in Table 2, revealed that approximately 60 percent of the holdout cases could be correctly classified.

H1 was partially supported. Whistle-Blowers believed more strongly than Nonobservers that whistle-blowing currently received inadequate encouragement (functions 1 and 2); Duals believed more strongly than Inactive Observers that whistle-blowing should be encouraged (function 2); however, no differences in approval were observed. Mixed support for *H2* emerged. As predicted, Inactive Observers had less confidence that (1) management would refrain from retaliating against them; (2) it was possible to protect whistle-blowers; (3) they would blow the whistle if they could be identified, than did Dual Channel Whistle-Blowers. However, Inactive Observers believed more adequate protection from retaliation existed than did Duals. *H3* was strongly supported. Externals and Duals were more aware of the MSPB (an external channel) than were Nonobservers (function 2), who were more aware of it than Internals (function 1); Internals were more aware of the OIG (an internal channel) than were Nonobservers (function 1), who were more aware of it than External and Dual Channel Whistle-Blowers (Function 2).

Support for *H4*—that whistle-blowers would report higher levels of pay and education—was mixed. Internals reported having more education than did Nonobservers; no additional variance was explained by pay (function 1); Externals and Duals were differentiated from Nonobservers (function 2)—and Duals from Inactive Observers (function 3)—by higher pay, but *lower* education. *H5* was strongly supported: Internals were more likely both to be inspectors and to be supervisors than were Nonobservers (function 1) and Nonobservers were more likely to be

TABLE 1
Results of Discriminant Analysis, Using Significant Functions

Variable	Functions		
	1	2	3
<i>Canonical Discriminant Functions Evaluated at Group Means (Centroids)</i>			
Nonobservers	-.274	.180	.104
Inactive Observers	.223	-.229	-.256
Internal Whistle-Blowers	.652	-.081	.110
External Whistle-Blowers	-.136	-1.058	.122
Dual Whistle-Blowers	.323	-.916	.410
<i>Rotated Standardized Discriminant Function Coefficients</i>			
I am an inspector/auditor employee	.559	.051	.065
My agency encourages reporting	-.371	.200	.130
I know about the OIG	.268	.214	-.140
I know about the MSPB	-.247	-.209	.235
My pay level	-.125	-.478	.419
Top management would <i>not</i> retaliate	-.024	.449	.140
I am a supervisor	.351	.442	-.095
I have more than enough info. on channels	.006	-.403	.120
I would know where to report	.067	.252	.224
Protection is more than adequate	-.193	.201	-.195
My supervisor would <i>not</i> retaliate	-.149	.200	.198
Reporting is in agency's best interests	.185	.198	-.026
Cash for reporting is good	-.027	-.196	-.019
I'd report if action resulted	.054	-.144	-.028
I'd report if anonymous	-.134	.126	-.453
My education level	.268	.241	-.287
It's possible to protect reporters	-.033	-.141	.283
Agency should encourage reporting	.015	-.108	.258
I do <i>not</i> work at HQ	.121	.009	.234
I'd report if others approved	.047	.096	-.219
I'd report if wrongdoing was serious	-.139	-.072	-.195
I'd report if paid	.038	-.045	-.194
I know about the GAO	-.099	.119	-.158

Note. N = 3576. Of the 8587 possible cases, 328 were excluded due to missing values on variables used to create the "group" variable; 1073 were excluded due to missing discriminating variables; 3610 were held out (randomly) to be used in later classification.

supervisors, and no less likely to be inspectors, than were Externals and Duals (function 2).

Discussion

Profiles of Organizational Members

Organization members who had not observed wrongdoing were confident that they knew where to report wrongdoing, that they would not experience managerial retaliation if they blew the whistle, and that whistle-blowers received adequate encouragement and protection. Although they tended to be less well paid and in some cases less well

TABLE 2
Results of Classification Analysis

Actual Group	N of Cases	Predicted Group Membership				
		1	2	3	4	5
<i>Cases Selected for Use in the Analysis^a</i>						
1. Nonobserver	1973	85.8%	13.4%	0.9%	0%	0%
2. Inactive Observer	1102	64.5%	33.8%	1.6%	0%	0.1%
3. Internal Whistle-Blower	420	58.8%	35.0%	6.2%	0%	0%
4. External Whistle-Blower	12	66.7%	33.3%	0%	0%	0%
5. Dual Whistle-Blower	73	56.2%	37.0%	6.8%	0%	0%
<i>Cases Not Selected for Use in the Analysis^b</i>						
1. Nonobserver	1998	87.0%	12.0%	1.0%	0%	0%
2. Inactive Observer	1158	61.9%	36.7%	1.9%	0%	0.3%
3. Internal WB	406	57.9%	35.7%	6.4%	0%	0%
4. External WB	6	83.3%	16.7%	0%	0%	0%
5. Dual WB	45	51.1%	48.9%	0%	0%	0%

^a Percent of "grouped" cases correctly classified: 58.38%.

^b Percent of "grouped" cases correctly classified: 60.59%.

educated than Whistle-Blowers, they were not so contrasted with Inactive Observers; this suggests that opportunity for observation of wrongdoing is not highly limited.

Among those who observed wrongdoing, the characteristics and beliefs of the observer predicted who would blow the whistle. Inactive Observers tended to be supervisors who worked at headquarters and had low pay but high education; they seemed to be young "fast-trackers." These characteristics may help to explain why Inactive Observers were reluctant to blow the whistle by focusing upon power relationships (e.g., see Emerson 1962, Pfeffer 1981). Though Inactive Observers may have suitable employment alternatives, they may not wish to jeopardize their good but fragile reputations or begin again in another organization. Inactive Observers would require that anonymity be guaranteed, that the potential costs of co-worker ostracism be outweighed by monetary or other benefits of blowing the whistle, and that the observed incident be serious, before they would risk damaging their promising careers.

Whistle-Blowers who used internal channels exclusively tended to be powerful organization members relative to other employees and relative to their employers. They were highly educated and held supervisory positions and/or positions where internal whistle-blowing was role-prescribed. This may explain why—although they were somewhat fearful of reprisal from their supervisors—they claimed they would not be influenced by the situational factors.

Whistle-Blowers who used external channels tended to be employed in nonsupervisory positions and to receive high pay in spite of their low education—suggesting that they earn larger salaries due to seniority. Although they may be dependent on their employers, their employers are probably dependent on them also, because replacing them with comparable personnel would be difficult. The relative power of the whistle-blowers may then be high, yet lower than that of the internal whistle-blower. Whistle-blowers may go outside the organization because they believe that public support would increase their power or protect them from retaliation (Kolarska and Aldrich 1980; Perrucci, Anderson, Schendel, and Trachtman 1980).

Complaint channel awareness seemed predictive of *whether* an individual would blow the whistle, and of *which* channel would be chosen. Internal Whistle-Blowers were more knowledgeable about internal channels; External Whistle-Blowers were more knowledgeable about an external channel than were others; dual Whistle-Blowers were knowledgeable about both. Organizations may therefore be able to correct wrongdoing without adverse publicity by establishing and communicating the existence of effective internal complaint channels.

Although the vast majority of respondents said that their organizational responsiveness to a complaint would encourage their reporting (MSPB 1981), External and Dual Whistle-Blowers especially agreed. These findings are consistent with previous research showing that the perceived change in managerial attitudes toward the wrongdoing was more closely associated with whistle-blowers' perceptions of effective complaint action than was avoidance of reprisal (e.g., Near and Jensen 1983. Near et al. 1983).

Limitations and Suggestions for Future Research

The generalizability of our findings should be tested. Research should consider the applicability to private-sector organizations. Investigators might also examine how channel decisions are made, and what conditions may influence them.

We did not investigate cause-effect relations among the variables examined here, and self-reports may sometimes be biased. Opportunities for longitudinal field experiments using multiple data sources may be limited due to the sensitive nature of whistle-blowing. Laboratory studies may be a first step in determining cause-effect relationships. To increase predictive power, other variables, such as the actual circumstances surrounding the incident, the level of support a would-be whistle-blower received from family, friends, co-workers, or union members, and the actual consequences of previous complaints, could be included in future studies.

Conclusion

The primary difference between observers of perceived organizational wrongdoing who blow the whistle and observers who do not seems to be that inactive observers are unwilling to jeopardize their careers by reporting wrongdoing; they feel so strongly on this matter that they are unlikely to believe assurances of protection. Ewing (1983) has argued eloquently that whistle-blowing will increase in future years and that valid whistle-blowing should be encouraged because it improves organization operation through its corrective action. Our results indicate that finding the right encouragement for whistle-blowing might be problematic and will require long-term, concerted effort.

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Women's Job Satisfaction: Wages and Household Factors

ETHEL B. JONES
Auburn University

JOHN D. JACKSON
Louisiana Technical University

Students of job satisfaction contend that earnings are more important to the job satisfaction of men than of women (Crosby 1982; Kalleberg 1977; Kessler and McRae 1982). However, the activities of women in recent decades to attain expanded access to higher paying occupations and to promote the principle of "comparable worth" with respect to male-female pay differences among occupations belies an inference of homogeneity among women in the contribution of pecuniary rewards to job satisfaction.

In this paper we investigate the determinants of reported job satisfaction for a sample of white married women (spouse present) by using an extended version of a model developed by Borjas (1979) for studying the job satisfaction of white mature men. While Borjas found a significant relationship between a worker's job satisfaction and his wage, our estimation of the model for women finds that the satisfaction-wage relationship is not significant at any commonly acceptable level of significance and that the model, in general, performs poorly in explaining their job satisfaction.¹

We have extended the Borjas model by adding several variables reflecting the woman's relationship to her family and to demands upon her nonmarket time. Our interest in these variables stems from the research findings (for discussion and references see Ehrenberg and Smith 1980, especially Ch. 5, 6, 7, and 9), that other dimensions of a woman's relationship to the labor market, such as labor force participation, hours of work, and wages, are significantly affected by differences among women in family characteristics. Although many of the additional variables

Jones's address: Department of Economics, Auburn University, 107 Thach Hall, Auburn University, AL 36849.

¹ Equations referred to but not presented in the paper are available from the authors upon request.

significantly affect female job satisfaction, the results of the extended model still suggest that, contrary to the findings for male workers, job satisfaction is not influenced by pecuniary benefits. Investigation of the potential causes of this result reveals an offsetting effect on wages of differing female attitudes concerning the appropriateness of their labor force participation. Redefinition of our sample to promote homogeneity in attitude leads to results that correspond quite closely to those of their male counterparts.

The Extended Model

As in Borjas, there are three dependent variable indicators of job satisfaction (*INDEX*, *LOT*, *SATIS*) that were constructed from answers to the question "How do you feel about the job you have now?" For *INDEX* the four optional answers were coded as follows: like it very much (4); like it fairly well (3); dislike it somewhat (2); and dislike it very much (1). The measures *LOT* and *SATIS* were dichotomous variables, where for *LOT* the first answer was coded 1 and 0 otherwise and for *SATIS* the responses like it very much and like it fairly well were coded 1 and 0 otherwise.

Since the determinants of job satisfaction may vary by race and the extended model emphasizes household relationships, the sample, which is drawn from the 1972 National Longitudinal Survey (NLS) of Mature Women, is limited to white married women, spouse present and numbers 1091. In 1972 respondents of the NLS of mature women were 35 to 49 years of age.²

The independent variable set includes the Borjas selection of wage, union membership, occupation, and personal characteristics inclusive of experience, education, health, and tenure as well as family income.³ Our additions include: *CH*, a child less than six years of age lives in the household; *HIHLI*, the amount or kind of work done by the husband is limited by his health; *PW*, regular work hours of less than 35 per week; *HBDL*, the woman's husband dislikes somewhat or very much her working; *WPH*, the woman strongly agrees or agrees that a woman's place is in the home; *DISCR*, she experienced sex, age, or other discrimination during the past five years by an employer; and *GOVT*,

² While Borjas used 1971 NLS data, we select 1972 data (following his sample selection procedure) because the information concerning women's work attitudes is more extensive. However, tests of the Borjas model on women yields similarly poor results for 1971 and 1972. Borjas found 14 (excluding occupational dummies) significant independent variables (10 percent level) in the three job satisfaction equations. For women the count is 2 and 3 for the 1971 and 1972 samples, respectively.

³ A counterpart variable to Borjas's variable of the wife's education level was not developed for husband's education because marital status changes make the variable difficult to identify. In the extended model, the variable *CH* is substituted for the Borjas variable of number of children living at home under age 18.

employed in the public sector. All additional variables are dichotomous, assuming the value of one if the characteristic applies and zero otherwise.

The variables *CH*, *HIHLT*, and *PW* are included in the model because of their potential for indicating heterogeneity among women with respect to accommodating the time demands of household activities. At least one survey (Johnson 1980) finds that husband-wife families view part-time market work as ideal employment for the wife. An organization focusing upon women in the professions and at the management level of business has found that in two-career families "women still carry the primary responsibility for home and child care . . ." (*Catalyst News* 1981, p. 4) and thus a pre-school child would be expected to increase the time spent by the woman on household activities. The husband with a health limitation may adapt to undertaking certain household chores but increased home work time by the wife for his care may be required, or she may face job pressures associated with her increased importance in household financial support. We hypothesize that additional pressure on the wife for work in the home (*CH*, *HIHLT*) has the possibility of decreased job satisfaction whereas a lessened time commitment to market work (*PW*) enables her to accommodate more easily to the pressures of both market work and work in the home.

If job satisfaction is influenced by the dual relationship the employed woman has to both market work and household activity, then we would expect the husband's feelings about her working to influence her job satisfaction. Assuming that harmony within the household relationship engenders positive feelings toward nonhousehold activities, those wives who feel that their husbands dislike very much or somewhat their working would be less satisfied in their jobs. While employed women may have similar family needs and family structures (for example, husband's income level, and ages and number of children) that influenced their labor force participation, they can be expected to differ in their commitment to market work relative to work in the home. If the variable *WPH* serves as a proxy for an index for this commitment, then sample respondents who feel that a woman's place is in the home (*WPH* = 1) may more frequently offer a negative evaluation when asked how they feel about their current job.

Experiencing discrimination (*DISCR*) is expected to decrease job satisfaction. In her extensive study of public-sector compensation, Smith (1977) identified higher public to private wage ratios for women relative to men at all levels of government. She suggested that wage discrimination against women may be less in the public sector. Thus, we introduce the variable *GOVT* in order to improve identification of the separate impacts of discrimination and wages in influencing the job satisfaction of women.

Since the forms of the dependent variable of the model are categorical, an appropriate estimation technique is N-chotomous probit analysis (McKelvey and Zavonia 1975). In Columns 1 through 3 of Table 1 we report the probit results for estimation of the extended model upon the total sample according to the dependent variable indicated as *INDEX*, *LOT*, and *SATIS*. The reader is cautioned that the reported maximum likelihood estimates of the probit coefficients do not have a direct interpretation as in, for example, regression analysis. We can, however, infer from the reported coefficient signs whether an explanatory variable varies inversely or directly with job satisfaction, and we can infer statistical significance from the associated *t*-values.

From Table 1 we observe that, among the variables entering the model for the study of male job satisfaction, only two are significant in the equations for women (her health [*HHLT*] and family income [*INC*], *SATIS* equation). However, among the additional variables, five are significant at the 10 percent level or better in at least two equations (*HIHLT*, *HBDL*, *WPH*, *DISCR*, and *GOVT*). The wage variable is insignificant even though its sign indicates increasing job satisfaction at higher wages.

Pecuniary Factors and Satisfaction

The insignificant coefficient of wages may be the result of heterogenous preferences among sample members in the importance attached to pecuniary rewards. The variables *HBDL* and *WPH* both offer the possibility of classifying women according to these preferences. The female who feels that a woman's place is in the home may have made early life-cycle decisions concerning her years of schooling and curriculum in high school and college that were more oriented to home production and an interrupted labor market attachment. If a woman perceives that her husband dislikes her working or she feels that her place is in the home, she may spend fewer weeks per year employed, have less continuous attachment to one employer and to the job market, and hold part-week jobs.⁴ These characteristics lead to possessing lower amounts of market-oriented human capital and hence a lower wage when employed. When wage equations were estimated for the total sample, inclusive of *WPH* and *HBDL* as well as commonly included independent variables, *HBDL* was statistically insignificant at any reasonable level regardless of whether *WPH* was included in the wage model. There was, however, a strong negative relationship ($t = -3.69$) between *WPH* and the logarithm of

⁴ Andrisani (1978) found that women who felt their husbands opposed their working had fewer weeks of labor force attachment and were less likely to complete occupational training programs.

TABLE 1
 Job Satisfaction: Maximum Likelihood Estimates of
 Probit equations
 (*t*-values in parentheses)

	Total Sample			Sample: WPH = 0		
	INDEX	LOT	SATIS	INDEX	LOT	SATIS
WAGE	.0004 (1.06)	.0005 (1.05)	.0004 (.49)	.0010 (1.95)	.0011 (2.11)	.0004 (.46)
MEM	-.1363 (-1.27)	-.1752 (-1.50)	-.0292 (-.16)	-.2009 (-1.52)	-.2490 (-1.76)	.1168 (.45)
EXP	-.0055 (-1.06)	-.0032 (-0.57)	-.0126 (-1.41)	-.0022 (-0.35)	-.0014 (-0.20)	-.0012 (-0.96)
ED	.0132 (.66)	.0044 (.20)	.0428 (1.29)	.0168 (.66)	.0034 (.12)	.0722 (1.67)
HHLT	-.1582 (-1.38)	-.0541 (-.43)	-.4662 (-2.69)	-.0912 (-0.64)	-.0382 (-0.25)	-.1885 (-0.80)
INC	-.0000 (-1.09)	-.0000 (-.74)	-.0000 (-1.71)	-.0000 (-1.04)	-.0000 (-0.91)	-.0000 (-1.35)
TEN	.0080 (1.05)	.0044 (.55)	.0169 (1.20)	.0016 (.17)	-.0035 (-0.35)	.0202 (1.10)
CH	.1470 (1.04)	.1787 (1.18)	.0351 (.14)	.2370 (1.31)	.2389 (1.26)	.3872 (1.01)
HIHLT	-.2208 (-2.01)	-.1116 (-.92)	-.5195 (-3.22)	-.3452 (-2.47)	-.2368 (-1.55)	-.7043 (-3.31)
PW	.0646 (.73)	.0262 (.28)	.2160 (1.30)	-.0267 (-0.25)	-.0297 (-0.26)	-.1081 (-0.54)
HBDL	-.3141 (-3.15)	-.2428 (-2.21)	-.4986 (-3.32)	-.2760 (-2.06)	-.1912 (-1.31)	-.5569 (-2.73)
WPH	-.1592 (-1.96)	-.1910 (-2.17)	-.0870 (-0.62)
DISCR	-.2884 (-2.09)	-.2480 (-1.64)	-.4060 (-1.89)	-.4240 (-2.60)	-.3489 (-1.99)	-.6711 (-2.65)
GOVT	.2217 (2.34)	.2775 (2.79)	-.0578 (-0.34)	.2469 (2.17)	.3155 (2.65)	-.1399 (-0.66)
Log likelihood ratio	-916.59	-692.76	-225.94	-604.19	-471.20	-135.30

Variables: WAGE = hourly wage; MEM = 1 if union member; EXP = years of work experience; ED = years of school completed; HHLT = 1 if her health limits work; INC = family income; TEN = years employed at current job. For a description of other variables, see text of paper. Not reported is a set of 1-digit occupational dummies.

wages.⁵ These results imply that persons who do not feel a woman's place is in the home have engaged in a set of activities (for example, early curriculum choices or more careful job search) that have enhanced their market worth. Thus, wage levels may be more important in the determination of their job satisfaction than for persons for whom $WPH = 1$.

We have tested our hypothesis that the insignificance of the wage variable is due to sample heterogeneity between women who are more and who are less responsive to pecuniary rewards by confining estimation of the extended model to the subsample of 758 women for whom $WPH = 0$. The results of this estimation, shown in Columns 4 and through 6 of Table 1, find, as in the work of Borjas, that the wage variable is significant in the *INDEX* and *LOT* equations.

Conclusions

Our investigation of an extended model of job satisfaction for white married women provides strong evidence that this dimension of work is not independent of a woman's relationship to her family, and, in particular, to her husband. The husband's health status and her perception of his attitude toward her working are statistically significant variables. Possibly because the women of our sample are not of the ages of intensive child care responsibilities, the two proxy variables indicating accommodation to the time demands of home work do not perform as we hypothesized. Neither *CH* nor *PW* is, in general, of the expected sign relationships or significant.

A major finding is that women's job satisfaction (as well as male job satisfaction) responds to wage rewards. The employed wives who respond to wage rewards do not feel that a woman's place is in the home. The variables *DISCR* and *GOVT* tend to be of the expected signs and significant. Thus, while discrimination in employment reduces job satisfaction, job satisfaction is enhanced by government employment. The finding of increased satisfaction in government employment, with its higher wages for women than in the private sector, provides additional support to the equation-demonstrated relationship between job satisfaction and wages.

Our findings imply conflicting pressures for the trend of women's job satisfaction. As husband and wife attitudes become more accepting of a stronger labor market commitment for women, indexes of female job satisfaction should rise. However, slower government employment growth and increasing commitment to market work with its accompanying wage "awareness" infer declining female job satisfaction.

⁵ We have tested for the effect of simultaneity of the relationship between the woman's wage and *WPH* using a modified two-stage least-squares approach. The coefficient of the normalized probit predicted value of *WPH* in the wage equation has an enhanced significant relationship ($t = -9.11$), indicating that a woman's response with respect to *WPH* is not due solely to the current wage she is receiving but, instead, is representative of some set of actions (e.g., early life curriculum choices) that have increased her wage.

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DISCUSSION

JOHN A. FOSSUM

University of Minnesota

Were it not for the fact that these meetings enable me to escape snowfall which in one month has exceeded the average annual seasonal snowfall, the snowblower that seems bent on pursuing the mechanical equivalent of the "slowdown," and the opportunity to again visit San Francisco, I might view my duties as discussant as representing Dante's special place in the Inferno for industrial relations scholars. We have just heard three papers which differ widely in subject matter and methodology. The first studied the adaptation of 42 newly hired health care employees to their jobs. The second studied the responses of 8,600 relatively established employees in one organization to the phenomenon of "whistle-blowing." The third examined a national cross-section of women's job attitudes and their relationship to home and employment characteristics. Broadly, one could be classified as personnel-related, one an organizational behavior paper, and the third a labor economics piece. The first used simple product-moment correlations in its data analysis, the second discriminant analysis, and the third N-chotomous probit analysis. While many may argue about various attributes associated with industrial relations, this collection should forever put to rest any claim that the field is not eclectic.

With this introduction, I will make a disclaimer. While these are all legitimately industrial relations papers, since they deal with employment issues, I defy anyone who believes that there is at least one exogenous variable in the study of industrial relations to find any connection between the three papers worth exploiting. Thus, I will make no such attempt. If I were to draw any general conclusion, it would be that industrial relations researchers should more carefully consider theories and measures developed in the field's supporting disciplines when constructing and testing models.

Adaptation to Work

Rosse suggests that dissatisfaction with work may be manifested in behaviors additional to those typically examined. These might include

Author's address: Industrial Relations Center, University of Minnesota, 271 16th Avenue South, Minneapolis, MN 55455.

mental or physical illnesses, accidents, or attempts to introduce changes into the workplace. To determine whether or not satisfaction levels were related to several behaviors, 42 employees were longitudinally followed for the first six months of their employment. Respondents completed several questionnaires measuring job satisfaction and other attitudes; were asked to self-report attempts to change, sabotage, or retaliate; and completed self-report checklists on physical and mental health.

Results indicated that job satisfaction measures of the work, co-workers, and supervision were strongly negatively correlated with most distress measures except attempts to change (which was positively related). I applaud Rosse for suggesting that withdrawal may be reflected in far more complex behaviors than have previously been measured, and for actually proposing and testing some of them. I particularly applaud this from the viewpoint of one who has frequently turned over, seldom out of dissatisfaction, but more because of better opportunities, all the while observing others who stayed but who were clearly not committed to their employing organizations and engaged in a variety of deleterious behaviors (to themselves and their organizations).

Several questions or comments might be raised regarding the method section of this paper. First, it is not clear over how a long a period of time 42 employees were added to a "small" hospital. If it occurred rapidly, it would indicate that turnover (whatever its causes) was a severe problem in the organization. Second, I am somewhat concerned that reliability information is lacking on some of the measures constructed for this study. Third, I wonder whether existing measures could not have been more profitably used for comparative purposes, e.g., measures of organizational commitment (Porter et al. 1974) or alienation (Blauner 1964). Too often, we proliferate measures which may not be much different than existing instruments with known properties. Finally, while it is a minor point, it is not clear when or how many times some of the measures were taken. This obviously will be fixed in future revisions.

In the results section the following comments are applicable. I would have preferred to have had actual health symptoms measured rather than relying on self-reports which could lead to common method variance problems in the analysis. Second, it is unclear what unreliability levels are being corrected for in the disattenuated results.

Finally, I would like to add a comment and a possible explanation to two of Rosse's results. First, he mentions that low correlations between explanatory variables and lateness could be due to the very low base rate of lateness incidents. I find it more plausible that health care employees would not withdraw through absence, perhaps due to a norm establishing a sense of duty. I also might suggest that satisfaction may be tied in to

attempts to implement change through a perceived similarity of attitudes with others and a belief that persons with similar beliefs would logically want the type of change proposed.

Whistle-Blowing Status

Miceli and Near address a subject of current concern in many organizations. Unfortunately, the data represent a retrospective self-report of the participants' behaviors, with all the problems attendant to the time lapse (Hardin 1965). Using attitudinal data, they extracted three discriminant centroids which significantly classified individuals from five a priori groups. Applying the developed weights to a holdout sample, 60 percent were correctly assigned. However, it should be pointed out that labeling every holdout group member as a member of the nonobserver group would result in 55 percent being correctly classified without any further information. Also, each of the nonobserver groups were more frequently classified as nonobservers than their appropriate group. Two methodological issues also need elaboration. First, what were the relationships, if any, between the independent measures used in the discriminant analysis? And, second, some ordinal data (e.g., education or grade level) should more properly have been broken down into dummy variable categories.

One interesting thing that might be done, rather than relying solely on perceptual data, would be to construct a set of items which might measure individuals' investments in general or specific human capital. Those with general human capital should appear more often in inactive observer or internal whistle-blower categories since they might have nothing to gain or lose from either whistle-blowing or not. Those with heavy investments in specific human capital might be expected to be external whistle-blowers who wish to avoid identification and possible retaliation which would diminish the future value of their human capital.

Women's Job Satisfaction

Jones and Jackson used 1972 NLS data on mature white women, ages 35 to 49, who were members of a nuclear household as the basis for their study. They replicated Borjas's (1979) earlier study of men and added several variables associated with the woman's domestic status and beliefs she has regarding work and attributions she makes regarding her husband's attitudes toward her working. Their primary interest was in determining whether or not these women differed in the degree to which pay was related to job satisfaction when women in general were compared to women whose attitudes toward working were homogeneous.

As they reported, women's earnings were significantly associated with job satisfaction (but on only one of their three measures of job satisfaction) only among those who disagreed that women's place was in the home. With regard to their method, I have two comments. One is a general comment on research methods used by labor economists, and the other is a caution that I feel is appropriate for this paper.

The attitudinal measures used in most labor economics research (of which this study is no exception) utilize single item measures of attitudes and assume that they perfectly reflect the actual underlying affect of the respondent. There are instruments of relatively few items with known reliability levels to measure employment-related attitudes. The same lack of concern occurs when occupational and industrial data supplied by respondents are used. Researchers who ignore data reliability issues are not saved by careful, elaborate methods. Before single item and unverified respondent data are used again, researchers should read Mellow and Sider (1983) (of which Jones and Jackson would not have been aware at the time they wrote their paper).

While N-chotomous probit analysis is an appropriate method to use with the data set, in the absence of bivariate or multivariate information regarding the collinearity of the predictor set, I would expect that there are strong correlations among some of the independent variables such as government employment and beliefs about working, experience and wage levels, having children at home and a husband who is seen as disliking his wife's working, and so on.

There is always a difficulty in using cross-sectional data such as one year of an NLS cohort, and that is the inability of the data set to demonstrate causation. Obviously, job satisfaction can be looked at in a cross-sectional sense and the correlates of this construct can be identified. But it would be much more satisfying to view job satisfaction as an independent variable (along with other attitudes and personal characteristics) and see whether or not it influenced later behavior. One might hypothesize that women (or all people for that matter) who expressed lower levels of satisfaction would be more likely to change their status at subsequent measurement periods by either leaving the labor force or changing jobs to those that paid more.

One should not take this to mean that this paper does not have merit. It is reasonably carefully done, draws no conclusions that aren't supported by the results, and extends our knowledge of possible factors that are more closely related to differences in job satisfaction than gender. I would hope that Jones and Jackson and other researchers explore in causal models the preliminary implications uncovered here.

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V. TECHNOLOGICAL CHANGE AND INDUSTRIAL RELATIONS: AN INTERNATIONAL COMPARISON

Union, Management, and Government Response to Technological Change in Canada*

HARISH C. JAIN
McMaster University

The emergence and widespread adoption of the microelectronics (ME) technology has serious implications for labor-management relations and public policy. In this paper I examine the trade union, management, and government response to the ME technology. As part of the government response, some of the recommendations of the Canadian (federal) Task Force on Microelectronics Technology and Employment, contained in the task force report of November 1982, are discussed. As a member of this task force, I helped develop these recommendations; I will attempt to provide a rationale for the proposals.

Trade Union Response

Until recently most Canadian unions¹ failed to give serious thought to

Author's address: Faculty of Business, Personnel and Industrial Relations Area, McMaster University, 1280 Main Street West, London, Ont., Canada L8S 4M4.

* I am grateful for comments by Professor Joseph Rose on an earlier draft of this paper. Any errors are the sole responsibility of the author.

¹ Some of the rare exceptions include the Communication Workers of Canada (CWC) and the National Union of Provincial Government Employees' (NUPGE) components in Manitoba, Ontario, and British Columbia. For instance, the CWC and Bell Telephone in Ontario and Quebec have negotiated a clause that gives job security to employees with one year's seniority even though new technology will eliminate their existing jobs. Similarly, the Ontario Public Service Employees Union (OPSEU), an affiliate of the NUPGE, has negotiated a video-display terminal (VDT) provision that provides for a 10-minute alternate assignment away from the VDT after each hour of use. Employees who use VDTs regularly are provided with a free eye examination annually. In addition, pregnant employees may transfer to an equal or lesser paying job if a vacancy exists, or take an unpaid leave of absence.

the impact of microchip technology or to develop a strategy for coping with it, either as a bargainable issue or from a wider perspective.²

The responses of the majority of unions to a survey carried out by Peitchinis (1983) in 1979 and 1980 indicate that they are *reactive* in their approaches to negotiations. This holds them back from dealing with technological change until it creates a crisis in the workplace and impacts on their members.³ Yet, as experience on the railways, the post office, and at a number of newspapers suggests, a crisis environment dictates speedy solutions, and speedy solutions may not be the most satisfactory or long-lasting ones. Moreover, these crises occur at a time when unions have insufficient bargaining power to respond effectively (Rose 1981). Once the technology, in terms of equipment, has been put in place and is operational, there is very little that can be done (Peitchinis 1983). Other reasons include resistance by management to discussions on the issue and unions' preoccupation with problems caused by the recession. Recent union initiatives include (1) the attempt by the Canadian Labour Congress (CLC) to develop a consensus on this issue and an agreement with leaders of unions affiliated with the CLC for coordinated bargaining aimed at reducing time on the job by spreading the available work; this proposal will have to await adoption at the next CLC convention in May 1984. Other initiatives are (2) the merger of the Communications Workers of Canada (CWC) and the International Union of Electrical Workers (IUE) with a view to join forces in organizing the high-tech sector (Burr 1983), and (3) the approval and adoption of a strategy to deal with the chip technology by the largest Canadian union, the Canadian Union of Public Employees (CUPE) at its recent national convention (*The Sun* 1983).

The emerging CLC strategy and that of its affiliates is likely to be that they will not oppose technological changes, provided satisfactory adjustments are negotiated in relation to adversely affected workers. McDermott, the CLC president, recently (September 14, 1983) stated that labor cannot stop technological change, but it must do something to protect jobs. Some of the issues related to technological change that are likely to receive priority in bargaining may very well be (1) reduced workweek, (2) early

² As Dennis McDermott, the president of the Canadian Labour Congress recently (September 14, 1983) pointed out, most unions are not acutely aware of what is happening and are not prepared to deal with the impact of the new technology.

³ A recent (May 1983) survey of the 248 delegates to the National Policy Conference of the United Steelworkers of America confirms the results of the study by Peitchinis (1983). A majority (56 percent) of the respondents were local union presidents. Most (56 percent) of the respondents had uneasy personal attitudes toward the introduction of new technology. Only 35 percent of the locals had adopted policies toward technological change, 49 percent of the respondents had attempted to negotiate the definition of technological change, and 75 percent had job or income security provisions, etc. However, a majority of the respondents felt that their collective agreements contained no definition of tech change, notice/disclosure of employer plans, etc. ("Tech Change in Canadian Industry" 1983.)

retirement, (3) educational leave, and (4) a ban on overtime in order to spread work more widely and to improve the quality of work life. The Canadian Federation of Labour (CFL), a recently formed federation of mostly craft unions, has proposed a levy, or "economic rent," on the profits earned by the machines that "throw workers out of traditional jobs," according to the CFL president, James McCambly (Collins 1983). Additional union response is likely to consist of (1) job security, (2) portable pension plans, (3) adequate retirement income, (4) improvements in training programs, and other job-related issues.

Management Response

There has been a natural employer disposition to resist vigorously any encroachment on its traditional prerogatives. Unions have concentrated for the most part on limiting managerial discretion over matters directly and practically affecting critical job interests and only tentatively have they attempted to assert broader influence over the actual direction of the enterprise (Swan 1982).

It is no different in the case of technological change. Management regards technological change as a managerial prerogative. Collective agreements, which contain provisions in this area, do not generally prohibit technological change, but merely try to cushion its impact on employees. The emphasis, therefore, is on job security rather than on entrepreneurial decisions, as stated above (Swan 1982).

This is clearly evident from the collective agreement provisions in this area. The statistics show that very few collective agreements contain either procedural or substantive provisions on technological change. For instance, of the 1018 collective agreements covering 325,860 employees in May 1982 (under Part V of the Canada Labour Code), 72 percent made no provision for prior notice of a technological change. A much higher percentage of these agreements had no substantive provision for adjustment to change, such as training, retraining, relocation allowances, labor-management committees, etc.⁴ Thus, the management response to non-monetary issues such as technological change is to maintain the status quo (Kochan 1980).

Government's Response

The federal government was concerned about the introduction, growth, and development of high technology industries in Canada, given the dire

⁴The absence of contractual provisions does not imply that ad hoc accommodative arrangements do not exist. According to Peitchinis (1983) ad hoc arrangements, largely negotiated outside the provisions of the collective agreements, do exist. In view of the accelerating technological change, the matter cannot and should not be left to management's discretion, and should be formalized.

forecasts of massive job losses and its implications for the already strife-torn labor-management relations in Canada. In view of these concerns, the federal labour minister appointed a task force on Microelectronics Technology and Employment in 1982.

The task force was instructed to examine the impact of microelectronics technology on office workers,⁵ both union and nonunion, covered by the Canada Labour Code as well as health and safety concerns related to office equipment. It issued 30 recommendations designed "to maximize the positive impacts and minimize the negative consequences, thus ensuring a more equitable distribution of burdens and benefits of microelectronics."⁶

The task force clearly and unequivocally endorsed the introduction of microelectronics technology in Canada. It recommended that Canada encourage and support the continued development of high technology industries. This recommendation is based on the belief that microelectronics technology has the potential to create jobs, increase productivity, improve economic growth, and enrich personal development.

The task force believes a direct link exists between microelectronics technology and jobs, and that to resist the adoption of this technology would be counterproductive. Several studies commissioned by the task force and public presentations clearly indicated that Canadians would lose more jobs by resisting the introduction of microelectronics than by adopting it; Canada's export dependence would be severely and adversely affected (about 30 percent of Canada's output is sold in foreign markets), and the autonomy of decision-making (which in turn affects the quality of management jobs and research and development) would be seriously affected because firms would not have control over such technology.

The most important recommendation of the task force called for establishment of a federally funded center, with representation from labor, management, government, academe, and other sectors of the economy. The establishment of such a center, to be called the National Centre for Productivity and Employment Growth, was announced in April in the budget speech by Canada's finance minister. In August the federal government appointed a steering committee to make proposals concerning the objectives, mandate, role, structure, and financing of the center.

Industrial Relations

One task of the proposed National Centre for Productivity and

⁵ The task force did not seriously study the impact of microelectronics technology on factory workers because of lack of time and resources. However, more than 50 percent of Canadian workers are employed in offices.

⁶ The recommendations are published in *In the Chips* (1982).

Employment Growth will be to encourage continuous consultations between labor and management. Microelectronics technology cannot be implemented efficiently in an environment of confrontation and agitation resulting from a conflict between "management's prerogatives" and workers' concern for job security. Labor-management cooperation is essential because (1) the fast-changing microelectronics technology requires joint problem-solving, (2) society holds business and labor accountable for acting responsibly, (3) there is a call for greater participation of the rank and file in the direction of collective bargaining and for some form of "industrial democracy" within both union and management, and (4) sustained rapid productivity growth requires cooperation among workers, unions, and management (as productivity growth is vital to all three parties). In addition, there is greater acceptance of individual and group entitlements and rights as indicated by three recent developments in Canada: the enactment of human rights statutes, the Charter of Rights and Freedoms as part of the newly repatriated Constitution, and the Freedom of Information legislation.⁷

Based on these assumptions, the task force recommended that:

1. The current (1972) definition of technological change in the Canada Labour Code be amended and broadened to ensure that discussion between labor and management is started as soon as management proposes to introduce any new equipment or material which could affect, either directly or indirectly, the working conditions or job security of any employee.⁸

2. Mandatory joint technology committees be established in both union and nonunion establishments of 50 or more employees under the jurisdiction of the Canada Labour Code. These committees would deal with issues such as training, retraining, redundancy, work-sharing, productivity improvements, and other matters related to technological changes at the workplace.

3. Employers be required to give a minimum of 180 days notice of a proposed technological change (instead of the present requirement of 90 days). This would act to ease the negative effects of a technological change on the employment of all workers.

4. Disputes concerning the powers and functions of joint technology

⁷ *Ibid.*

⁸ A recent decision (Ottawa-Carleton Transit, 1982) by the Canada Labour Relations Board, a study commissioned by the task force, and oral and written presentations by trade unions and other groups pointed out that the current technological change provisions of the Canada Labour Code (1) contain numerous examples of ambiguous language, (2) do not cover all types of changes that may result from an introduction of technology, (3) have too many "opting out" provisions relieving an employer of the statutory obligation to give notice or to recommence bargaining, and (4) allow management to provide inadequate information about its plans to introduce new technology.

committees or the adequacy of proposed plans be settled by binding arbitration.⁹

The above recommendations are based on the reports of the previous commission and in some cases merely extend existing legislation. For instance, both the Freedman (1965) and the Woods (1968) reports in the late 1960s advocated negotiations and consultations between labor and management on all the problems arising as a result of technological change. The Carrothers Commission (1979) on redundancies and layoffs recommended "effective joint consultation" on a regular basis at the enterprise level and suggested that a standing "works council" be established for initiating such consultation. The resulting legislation, the Labour Adjustment Benefits Act (an act to provide for the payment of benefits to laid-off employees and to amend the Canada Labour Code) goes beyond the Commission's recommendation. Under the act, if an employer plans to terminate 50 or more employees within a four-week period, a joint planning committee must be established. (In case of mass layoff, the employer is required to provide 16 weeks of advance notice.) In nonunion establishments, employees can choose one-half of the committee members. If the committee fails to agree on all issues within six weeks, the unresolved issues may be submitted for arbitration. The arbitrator may first try to mediate but, if this effort is not successful, must decide on the outstanding issues within four weeks. This legislation, according to Adams (1983), establishes a bargaining relationship, as opposed to the consultation process envisioned by the Commission of Industrial Inquiry. The task force, convinced that technological change can be successful only if workers are consulted in advance of a change, went one step further and recommended mandatory joint technology committees.

In Canada, unlike the United States, there has been a recognition¹⁰ that collective bargaining was not capable of answering all the problems arising as a result of technological change. Legislation, either recommended or existing, has therefore helped to fill the vacuum. This is evident from the fact that the task force recommendations require or oblige (both the

⁹ The other recommendations made by the task force cover areas such as employment, education and training, health and safety, electronic monitoring, and worktime. For a brief discussion of these issues, see Jain (1983). For the task force report, refer to *In the Chips* (1982).

¹⁰ This recognition has been brought about by greater government intervention in the collective bargaining process than in the United States, stronger unions in Canada than in the U.S., the greater politicization of unions as well as political support from the New Democratic Party at the federal and provincial levels that unions have received in Canada relative to the U.S. Moreover, as noted earlier, the Labour Adjustment Benefits Act in effect requires negotiations between nonunion employers and employees over layoffs. Thus, there is government intervention in the case of nonunions employees as well; see Adams (1983). It should also be noted that the task force and other such Canadian task forces in the 1960s have been influenced by policy developments in Western Europe, and especially in the Scandinavian countries; see Jain (1983).

unionized and the nonunionized) parties to negotiate by providing for mandatory committees. If negotiations do not produce the desired results, arbitration is recommended in order to create the least amount of labor-management discord and to try to change the adversarial model toward one of accommodation.

As Clarke (1983) has suggested, neither collective bargaining nor legislation can ensure that disputes concerning the introduction of technological change are avoided. What they can do, and what the task force report may be able to bring forth, is to encourage collaboration. This, in turn, may help employer, union, and employees understand the issues involved in technological change, how the costs and benefits can and should be shared, and how microelectronics technology can be adopted and advanced.

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A Comparative Perspective On Technological Change And Industrial Relations*

GREG J. BAMBER
University of Durham

RUSSELL D. LANSBURY
Macquarie University

The links between technological change and industrial relations have recently generated considerable controversy in many countries. Drawing upon a recent comparative study of some industrialized countries (Bamber and Lansbury 1983), we can hypothesize that societies which have an adversarial approach to industrial relations (such as Australia and Britain) have found it more difficult to adapt to technological change than those which have more of a social-partnership approach to industrial relations (such as West Germany, Sweden, Norway, and Denmark). For the convenience of discussion, we have labelled the former as Type I countries and the latter as Type II.

Policies on Technological Change

Unions

The countries which we are considering have a higher density of unionization than the U.S. and in each case the unions are playing a more prominent role in the debate about technological change. Both the Australian (ACTU) and the British (TUC) central union confederations formulated new policies on technological change in the late 1970s. Their policies built upon their approaches to earlier forms of technological change, but were also influenced by recent Scandinavian approaches. Although the TUC's policies are set in a context of collective bargaining and are rather more specific than the ACTU's (set in a context of

Bamber's address: Industrial Relations Group, Durham University Business School, Mill Hill Lane, Durham DH1 3LB, England.

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compulsory arbitration), their policies are similar. In brief, they both call for: more union participation in making decisions about technological change; better personnel planning to avoid, or at best to minimize, consequential layoffs; and extensive government action to help those who are displaced and to protect those working with new equipment from any health or safety hazards. In both Australia and Britain such policies were formulated at the centre, by the union leaders (and their researchers). Despite extensive publicity and a growth in their union training activities, neither the ACTU nor TUC seem to have succeeded in securing a general commitment to such policies, either by the employers or even among the rank-and-file union membership.

Unions in our Type II countries have been able to exercise greater influence on technological innovation. These unions benefit from their structure of industry-unionism (except in Denmark) and powerful central confederations. This has facilitated tripartite planning. The unions confront technological change on three levels: at the plant or enterprise, the industry, and government. At the plant or company level, employee representatives have sought to influence technological change through codetermination. At the industry level, through collective bargaining, unions have won some compensation for increased workload or stress and opportunities for retraining. However, these matters have usually been the subject of government regulation which unions have sought through political action rather than collective bargaining.

The Scandinavian unions have sought agreements at both the national and industry levels to ensure that employees are not disadvantaged by technological change. However, in some cases it is arguable that they have won relatively little by signing new technology agreements. Simply being consulted about decisions regarding the introduction of new technology does not guarantee that employees will have an effective influence, especially when the choices are predetermined by employers and their suppliers. Thus, in Denmark, unions are now demanding not simply consultation or codetermination on generalities, but the right to establish criteria for technological changes which advance workers' interests. One major technology agreement between the Danish Bank Employees Union and the State Bank, for example, gives employees the right to be represented on project groups which plan the introduction of new technology. Members of these project groups must be trained so that they can cope with both the technical and the human dimensions of decisions they are required to make. Firms must also ensure that employees are provided with suitable alternative work if they are displaced, and they are given appropriate retraining at the employer's expense (Lund 1983). In such ways, unions in our Type II countries are attempting to adopt a

more proactive approach to technological change through codetermination, collective bargaining, and government action.

Governments

Unlike the U.S., all of the countries we are considering here have recent or current experience of Labour or Social Democratic governments. Both Australia and Britain have changed governments in recent years, but they have changed in opposite directions. In Australia, the former conservative government (a coalition of the Liberal and National Country Parties) commissioned a wide-ranging review by the Committee of Inquiry into Technological Change in Australia (CITCA). The current Labour government's policies are more consistent than its predecessor's with CITCA's recommendations. It has removed some of the legal barriers to union amalgamations and is sympathetic to CITCA's idea of a "social safety net" for people displaced by new technology (Lansbury and Davis 1983).

In Britain there have been no such wide-ranging inquiries, but various governmental bodies have issued reports. In sum, their recommendations are along lines broadly similar to those of CITCA. Many of them argue for more interventionist public policies to encourage the use of new technologies and to ameliorate the social costs, especially following the consequential layoffs. Recent British governments, both Labour and Conservative, have tended to pay lip-service to such recommendations. New agencies have been set up and some public funding has been allocated to support such recommendations, especially training young people on new technologies (Bamber and Willman 1983). However desirable, the government action in both Australia and Britain has not yet been sufficient, in view of the fundamental challenge of some current and projected innovations.

There are differences between the political alignments of the recent governments of Type II countries. Nonetheless, they have generally adopted a more interventionist role than those of Type I countries. Each Type II country has developed a framework of law, which regulates technological change at the workplace. The German government has also sponsored a Humanization of Work Program at the workplace level which, among other things, tries to confront the impact of technological change on the working environment (Fürstenberg 1983). In Norway, legislation allows worker participation in the development of computer systems and protects employees' rights to privacy. In Denmark, a governmental Council of Technology includes representatives from union and employer bodies. Since 1981 there has been a series of national technology agreements which embrace unions, private employers, and

the public sector. These agreements provide for advance information and consultation about the introduction of new technology, retraining, and disputes procedures. In Sweden, since 1977, employers have had to initiate negotiations with the unions about all managerial decisions, including those concerned with the introduction of new technology (Hammarström 1982).

Employers

The central employers' confederations probably play a greater role and are better coordinated in each of our six countries than in the U.S. In our Type I countries, the Australian (CAI) and British (CBI) confederations have reacted to the policies of the ACTU and TUC by formulating policies of their own. In many ways, these policies echo union and governmental rhetoric, but the employers usually shy away from legal regulation in general and codetermination in particular. They argue that change can be implemented by voluntarily consulting their employees; they want to avoid compulsion in this field.

The employers' confederations in the Type II countries are much stronger than those in the Type I. The former have given greater emphasis to the need to use new technology to foster increased productivity and competitiveness. The German Employers (BDA) have outlined procedures for introducing new technology which emphasize the need for partnership, flexible organization of working time, improvement of job security, and occupational health. When making decisions about technological change, the German employers are also required by law to cooperate with works councils and unions. The employers in Scandinavia have accepted framework laws on joint decision-making and have signed agreements with the unions on technological change. The employers have, nevertheless, endeavored to prevent limitations being placed upon the individual firm's choice of technology and have disputed many of the allegations made about the negative consequences of technological change.

Industrial Relations and Technological Change: Some Major Issues

To a greater extent than in the U.S., technological change has become an industrial relations issue in all our six countries because of its perceived implications for job security, industrial democracy, pay, health and safety at work, job control, and changing demarcation lines (between both industries and unions). Attitudes towards technological change are affected, *inter alia*, by the changes which the particular employees, unions, and firms have previously experienced, their ideological framework, their relative bargaining strengths, the role of government in providing safe-

guards for those laid off, and the prevailing economic conditions. During a recession, when unions are weak, pay is depressed and unemployment levels are high, employees are more likely to see new technology as a threat. Job security is a substantive issue which is particularly affected by technological change, and fostering employee participation is one procedural approach to introducing new technology. These two issues provide useful points of comparison between Type I and II countries.

Job Security

A distinguishing feature between our two categories is that the Type I countries have recently had higher levels of unemployment. This is one reason why their unions have probably been more concerned about the labor displacement aspects of technological change than those in Type II countries.

Despite the generally positive policies of the ACTU and TUC, which have welcomed technological change in principle, some groups of workers have fought the consequential layoffs in both countries (e.g., railway drivers, longshoremen, and newspaper printers). Such conflict is understandable, given that such craft-based occupations are being de-skilled or even replaced by new technologies. Moreover, with high levels of unemployment, the people displaced have found it more difficult to find alternative jobs.

Until the mid-1970s, economic growth in all of the Type II countries, combined with their relatively stable governments, discouraged unions from resisting technological change. Indeed, unions tended to welcome new technology as a means of promoting economic growth, even though they sought to enlarge labor's share of increased profits. From 1969 to 1983, however, unemployment in West Germany rose from less than 1 percent to more than 9 percent and the economy went into recession. The unions have responded by negotiating "protection from rationalization" agreements which aim to safeguard employees against dismissals due to technological change. Such agreements usually discourage layoffs, offer compensation where layoffs are inevitable, and establish that employee representatives have influence over decisions about changes arising from new technology.

The Scandinavian countries vary in regard to the rate of unemployment and job protection measures. During recent years, for example, Denmark has experienced an unemployment rate of between 7 and 9 percent. Since 1977, Danish firms have been legally bound to provide adequate reasons for dismissals and to negotiate with union representatives in advance. The Danish employers have argued that technological change does not necessarily cause unemployment. In Norway, the employers and unions

have established a national agreement to regulate problems arising from computerization. The development of local agreements that reflect the circumstances of particular industries or enterprises is also encouraged in Norway. In most of the Type II countries, industry-based unions make it easier for workers to be transferred or retrained for other jobs.

Employee Participation

Although the issue of technological change has arisen separately from the debates about industrial democracy and employee participation, these issues are often closely related. There has been increasing emphasis in all of our countries on the questions: Who controls the innovation process and the technology? With their adversarial traditions, however, there has generally been less emphasis on this question and less interest in schemes for employee participation in Type I than Type II countries. Nonetheless, unions in Type I countries have increasingly sought to develop bargaining and consultative procedures in order to gain access to information about corporate planning and projected innovations.

In 1977, the ACTU adopted a comprehensive policy on industrial democracy which supported both representative and participative democracy at all levels of enterprises. The Australian government also has an "industrial democracy" policy, which has many points in common with the ACTU's approach. Despite the number of such policies adopted by unions, employers' associations, and governments, Australian private-sector employers have been reluctant formally to involve employees or unions in the process of corporate planning and decision-making. In Britain, unions have traditionally sought to intervene in management decision-making through collective bargaining. However, during the 1970s some unions were advocating the introduction of worker directors, to complement their collective bargaining. When confronted with technological change, many unions have tried to negotiate a "new technology agreement," in accordance with TUC's recommendations. Most employers have resisted any notions of worker directors and have not yet been willing to sign technology agreements. Most agreements that have been signed relate to white-collar workers.

Norway has exemplified a "bottom up" approach, which holds that genuine industrial democracy begins with the involvement of employees in the design and organization of their jobs. Representation on works councils or boards comes at a later stage. West Germany, by contrast, has adopted more of a "top down" approach: democratization of the workplace is to be achieved most effectively through board-level representation whereby employees can influence strategic decisions. Sweden and Denmark tend to have adopted a blend of the Norwegian and West German

approaches. Within the Type II countries, the unions have generally sought to influence the way in which new technology is introduced by using a combination of collective bargaining and codetermination.

Attempting to use participative processes to settle issues arising from technological change, however, has not been without problems. In West Germany considerations of new technology are often excluded from industry-wide collective bargaining and it is left to works councils to address issues arising from technological change at the enterprise level. The Scandinavian unions have found it difficult to establish technology agreements in some industries. In Denmark, for example, the Employers' Confederation has strongly resisted the spread of technology agreements and has sought to maintain the prerogative of managers to select and apply new technology. According to the Employers: "It is a condition of the competitiveness of firms and their continued existence that [they] obtain high productivity and [use] advanced techniques [as] necessary" (Lund 1983).

Conclusions

In this paper we have compared some of the policies toward technological change and industrial relations in Australia and Britain (Type I countries) with those of West Germany and the Scandinavian countries (Type II countries). Although each of the countries differs, Type I countries share a common heritage of occupationally-based unionism, relatively weaker central union and employer associations, a less consistent role played by government in industrial relations (depending on which political party holds office), and adversarial traditions of labor-management relations, which mean that their negotiations tend to concentrate on *distributing* the wealth.

By contrast, the Type II countries (except for Denmark) have industry-based unions, strong central union and employer organizations, generally a supportive role played by government, and a more consensual approach to labor-management relations. Each of these countries has had a tradition of social partnership, at least since the Second World War. This has allowed unions to become more involved in the process of *creating* the wealth. There has been a higher degree of agreement, planning, and coordination in the Type II countries. By contrast, in the Type I countries, employers, unions, and governments have generally failed to achieve such a broad consensus on the planned introduction of technological change.

All of our six countries find that they are importing many new technologies (especially from the U.S. and Japan). The unions, even in the Type II countries, experience particular difficulty in implementing strategies for "humanizing" such new technologies. Although workers in all of

these countries face similar difficulties, with high unemployment and continuing threats to their job security, the industrial relations parties in the Type II countries have coped more effectively. This is due in part to their ability to utilize participative processes, developed as a result of their industrial democracy programs, in order to achieve more of a tripartite approach to job security and other issues associated with technological change.

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Unions and Technological Change: Attitudes of Local Union Leaders

ROGER D. WEIKLE
Winthrop College

HOYT N. WHEELER
University of South Carolina

International competition and a declining world economy seem to make rapid and widespread technological change an imperative condition of economic survival for all advanced industrial nations. In the United States, the ability of national unions to cooperate fully in the required leap forward in automation depends in major part upon the attitudes of grassroots-level union leaders. This paper reports the results of the first stage of a broad study aimed at determining the attitudes of local union leaders regarding technological change, and the determinants of those attitudes.

Although there have been no studies of local union leader response to technological change, the general topic of union response to such change has been much studied. A major study of this subject was part of the classic work by Slichter, Healy, and Livernash (1960). According to Slichter et al., the degree to which a union would tend toward acceptance of, or resistance to, new technology is determined by four factors. First, if the union is a *craft union*, they expect more resistance. Second, if the industry is a *competitive* one, or is *expanding* in size, the union is predicted to be more receptive to technological change. The third dimension is the "*nature*" of the change, which has three aspects. These are: (1) the number of jobs affected, (2) "the effect on the degree of skill and responsibility required of worker," and (3) "the effect on the kind of skill or other qualifications required" (Slichter, Healy, and Livernash (1960), pp. 346–47). Fourth, the union is less likely to be resistant to a change after it has had a chance to get used to the idea.

Wheeler's address: College of Business Administration, University of South Carolina, Columbia, SC 29208.

Two other important studies have since been performed. In 1971, Levinson, Rehmus, Goldberg, and Kahn performed an excellent study of technological change in the transportation industry. They found that the chief determinant of the union response was the economic environment. In particular, a scarcity of jobs led to resistance because of the high cost of job loss. The most recent major investigation of this question was performed by Doris B. McLaughlin (1979). Her clearest findings were that a favorable union response was facilitated by union leader perceptions that few jobs would be lost, that a quid pro quo could be obtained for lost jobs, or that the change was inevitable.

What is the most common response to technological change by American unions? Slichter et al., and McLaughlin agree that it is "willing acceptance." According to McLaughlin, "adjustment" is also quite common. However, her data, as well as those of others (Hershfield 1976, pp. 38-41) do show substantial evidence of "opposition."

Method

The 488 subjects for this research were local union leaders holding a variety of elected positions in a major industrial union. Their positions include president, vice-president, steward, and chair and member of grievance and bargaining committees. These leaders also represent a diverse group of local unions with considerable variation in geography, demographic characteristics, and industrial composition. Virtually all of them come from primary manufacturing, mining, metalworking, containers, construction, transportation equipment, chemicals, and electrical equipment. Geographically, the sample contains union members from 16 states in the eastern United States.

The data were collected by questionnaire at regional training seminars conducted by the national union. The forms were completed in large groups using standard instructions as administered by union education and research department staff members.

Three measures of local union leader attitudes were constructed. These are measures of: (1) the leader's preference for the local union's response to new technology, in terms of the degree to which it should encourage or discourage it; (2) the leader's preference for provisions in the collective bargaining agreement, in terms of how assertive the union should be in dealing with the new technology; and (3) whether the leader would favor a strike over the issue of new technology if it were to displace a substantial proportion of the local's members. The first two of these are used as dependent variables in our analysis of determinants.

The scales used for leader preference for the local's response as to encouragement/discouragement and leader preference for contract pro-

visions were constructed based on a review of the literature and discussions with national union staff members. Scores were assigned to various items on the scales based upon a preliminary survey of national unions regarding the degree to which each item reflected an attitude of encouragement or discouragement, or assertiveness of contract language preferred.

Eight variables were selected as predictors of the dependent variables. These were drawn from the literature on union response to technological change, and from reflection. They were chosen for the final regression equations on the basis of theoretical interest and significant, nonredundant, effects upon the particular dependent variable, as revealed by preliminary analysis. Only two variables were strongly intercorrelated ($r > .18$), and they were found not to affect one another in their regression equation.

The variables utilized in the regression equation involving the leader's preference for local union response along the encourage/discourage dimension were: (1) number of years as a leader, (2) perception of percent of workers likely to be technologically displaced within three years, (3) prediction as to effects upon members' job security, (4) belief that new technology would lower prices and cause more people to be employed in the industry, (5) prediction as to whether working conditions would be improved, and (6) perceptions as to the competitiveness of the firm's product market.

A large number of years as leader is expected to make the leader more receptive to technological change, as experienced union leaders may be less susceptible to a strong negative emotional reaction to such change. The expectation that a large proportion of the union's members would be displaced by change would be expected to cause the leader to wish the local to take action to discourage it (Wheeler and Weikle 1983, pp. 17-18; Slichter et al. 1960, pp. 346-47). A similar prediction is made for anticipated effects upon the job security of the members (Wheeler and Weikle 1983, pp. 17-18). However, it is hypothesized that a perception that long-run employment will be facilitated by technological change will cause the leader to be more favorably disposed toward encouraging it (Wheeler and Weikle 1983, pp. 17-18). If an improvement in working conditions for those remaining on the job is expected by the leader, this might serve as something of a quid pro quo for any lost jobs. This should improve union leader receptiveness to encouraging it (McLaughlin 1979). If the product market of the employer is perceived to be highly competitive, we predict that the union leader will recognize the necessity for moderation in response to technological change and be more favorable to its encouragement (Slichter et al. 1960, pp. 345-46.)

A somewhat different list of independent variables was used in the regression equation involving the leader's preferences for assertive contract language. Percent of members likely to be displaced and belief that new technology would lower prices and improve employment (listed as 2 and 4 above) are the variables which were used in both equations. The rationales were similar in both cases. The other independent variables used in this equation were: (1) the novelty of the issue for the local union, (2) the belief that the new technology would involve the learning of new skills, and (3) the leadership style of the officer.

If the issue of technological change is a new one for the local, we would expect the officer to prefer a more resistant collective bargaining posture (Slichter et al. 1960, p. 348). If the officer perceives that the new technology will require new skills, he would be expected to desire a more assertive provision than if this were not the case, as this imposes a burden upon, and might threaten the job security of, the local's members. Furthermore, it might threaten the union as an institution because of shifting jurisdictional lines (Slichter et al. 1960, pp. 346-47, 362-66). It is generally believed that the rank and file is less favorable to technological change than are the leaders (McLaughlin 1979). Accordingly, it is expected that a local officer who is a "leader" rather than a "populist," and is thereby more independent of the rank-and-file preferences (Batstone, Boraston, and Frenkel 1977, pp. 35-36), will have preferences which are less assertive.

Results

With respect to the leader's preferences for an encouraging or discouraging local union response, the average of the responses was 2.93 (S.D. = 1.88) on a scale which has a maximum score of 7.974, indicating a preference for a rather mild form of encouragement. A very large proportion (44.6 percent) selected the response entitled, "encourage but insist that the union have input into all decisions about technology, including which type of change to initially adopt." The second greatest proportion (24 percent) chose the answer, "encourage—with significant union input into the decisions on how the work force will adjust to change."

The leaders' responses as to preferences for contract language produced an average score of 7.48 (S.D. = 2.16) on a scale that had a maximum score of 8.856, meaning that they had a preference for rather assertive contract language. Fifty-six percent chose the most assertive provision, which would require a joint determination of what type of technology to adopt. Seventeen percent chose a joint committee to study methods of adjusting to new technology, which was the second most assertive clause.

The response to the query as to the leader's willingness to strike over new technology if it were to replace a large proportion of the local's members showed that a very large proportion of them were willing to do so. Those willing to strike represented 80.7 percent of the respondents.

What emerges from these data is a picture of a group of local union leaders who are not unalterably opposed to technological change, but are well agreed that the union should have very substantial influence upon it. Rather large proportions of them favor a union response and want contract language which gives the union influence over *what kind of change will take place*. In addition, these officers view this issue to be one worthy of a strike. Yet, when we look at the responses to our open-ended question, which we posed at the end of the questionnaire, we find a heavy emphasis upon retraining. This may indicate that these officers understand that their preferences cannot realistically be achieved. In fact, one leader, after outlining his preferences at some length said, "I realize that the steps I have just described would in all probability bear little fruit."

The method of data analysis with respect to the determinants of leader preferences was ordinary least squares (OLS) regression, using two regression equations. The results of this analysis are set out in Table 1.

The equation predicting encouragement or discouragement preference offers moderate explanatory power ($R^2 = .2811$, $F = 29.52$). All of the variables are highly significant and in the expected direction.

The equation predicting assertiveness of contract preference also offers modest explanatory power ($R^2 = .2128$, $F = 17.19$). The novelty of the issue of technological change and the perceived impact on skill type were significant and in the hypothesized direction. Leadership style was significant, but in the opposite direction. Anticipated displacement and predicted benefits from product market effects were nonsignificant.

The leaders' encouragement/discouragement preferences are most influenced by their perceptions of new technology's effects on working conditions. These union leaders seem responsive to the traditional management argument that new technology will improve conditions of work. Years as a leader was also a significant determinant. The economic variables pertain mainly to the movement of the firm along its production function, and to expected shifts in this function which stem from product market effects of the use of new technology (Wheeler and Weikle 1983, pp. 17-18). The results show these union leaders to be sensitive to both the detrimental effects of the firm substituting capital for labor, and the possible favorable effects upon the product market which might, in turn, increase the demand for their goods and, therefore, their labor.

Analysis of the determinants of preferences for contract language produced one unexpected, but interesting, result. Contrary to our pre-

TABLE 1
Determinants of Leader Preferences:
Ordinary Least Squares Regression Results

Independent Variable	Regression Coefficient ^a	Standardized Regression Coefficient ^a	Standard Error of Regression Coefficient	F Value
<i>Equation 1</i>				
Dependent variable: Encouragement or discouragement preference				
Years as a leader	.06	.20	.01	24.61*
Effect on job security	.38	.21	.07	25.44*
Effect on working conditions	.62	.33	.08	57.77*
Product market competitiveness	.30	.15	.08	13.34*
Anticipated displacement	.01	.11	.01	6.89
Benefits in product market	.22	.11	.08	7.58*
R ² = .2811				
F = 29.52				
Constant = -.68				
n = 460				
<i>Equation 2</i>				
Dependent variable: Assertiveness of contract preference				
Novelty of issue	.59	.29	.10	33.29*
Leader's style	1.31	.26	.28	22.57*
Effect on skill type	.66	.31	.11	31.53*
Anticipated displacement	.01	.07	.01	.98
Benefits in the product market	.11	.05	.11	.91
R ² = .2128				
F = 17.19				
Constant = 9.52				
n = 324				

* Significant beyond .001 level.

^a Signs omitted.

diction, the "take charge" leader was more likely to prefer assertive contract language. This may indicate that a leader's strong general inclination to be assertive is decisive in this regard. As expected, the leaders preferred more assertive language where the issue was a new one, or was expected to require different types of skills.

These results are suggestive of answers to several sets of policy questions. First, employers and national union leaders wishing to institute technological change may expect to receive a reasonably favorable response from local union leaders. Second, as expected, local union

leaders may strongly prefer to have some influence on the decision to adopt a change or, failing that, on the effects of the change. Third, changing the perceptions of local union leaders in any of the several regards identified here might produce changes in the favorableness of their attitudes toward technological change. This information may be useful either to those wishing to encourage change, or to others wishing to oppose it. Although these results have obvious limitations as to generalizability, they do present some empirical support for a number of policy-relevant hypotheses.

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DISCUSSION

JOHN HATCHETT

British Columbia Telephone Company

As the three papers presented give not only an international perspective, but a full spectrum of attitudes toward and beliefs about technological change, it is extremely difficult to present an equitable commentary. I will attempt to work through all three by comparing issues rather than discussing each independent of the others. I will do my best to represent a managerial perspective and leave debate on research methodologies to others.

Government Policies and Responses

Bamber and Lansbury define Type II (social partnership) countries as those that have developed a legal framework to regulate technological change at the workplace, whereas Type I (adversarial) countries have commissioned inquiries and sought recommendations. Jain emphasizes that the Canadian Task Force on Microelectronics identified a direct link between microelectronics and jobs which led the task force to recommend a multipartite National Center for Productivity and Employment Growth. If this were to be initiated by the federal government, we would have the opportunity to study the transition of a Type I country moving towards Type II, but in the absence of the necessary attitudinal prerequisites, it would be a lengthy process to achieve a planned economic and technological architecture. As Bamber and Lansbury note, the process of consultation required by legislation in Type II countries falls short of achieving effective employee influence. Perhaps this is openly recognized in the U.S., as Weikle and Wheeler do not investigate the attitudes of union leaders towards the role of government. Notwithstanding, all papers emphasize that international competition, declining economies, and increased productivity make “technological change an imperative condition of economic survival . . .” (Weikle and Wheeler). Governmental policy must, therefore, support technological change, but must also effectively wrestle with increasing employment options and employee participation, as all the presentations state. However, “Microelectronics

Author's address: British Columbia Telephone Company, 1795 Willingdon Avenue, Burnaby, BC, Canada V5C 5J2.

technology cannot be implemented efficiently in an environment of confrontation and agitation resulting from a conflict between 'management's prerogatives' and workers' concern for job security" (Jain). What are "management's prerogatives" and Jain's extrapolation of "concerns" into workers' rights?

Management Policies and Responses

Bamber and Lansbury and Jain claim that management reacts to government and unions in an attempt to preserve the status quo. Even within Type II cultures, competitiveness and productivity are identified by employers as benefits accruing from new technologies. Perhaps the main factor contributing to the lack of data in the managerial sphere is the inability of both academics and employers to come to grips with the knotty definitional problems and interrelationships in the spectrum of work, productivity, competitiveness, motivation, satisfaction, and security. We appear to have progressed enough to recognize that in modern production the amount or quality of human labour is small compared to changes in methods, machines, and materials. In effect, human labour appears to be responsible for 10 to 25 percent of productivity (Macarov 1982). In Zohar's (1982) study of Canadian manufacturing, the data collected showed that human productivity is not the main problem in the Canadian economy, but rather that much of the capital in the manufacturing sector is old and new capital has not always embraced newer and more efficient technology. As in a capitalist environment the accountability for remaining in existence is to the shareholders, the benefits of employee involvement in the capital decision-making process, apart from apparent derived satisfactions, contributes what value to the outcome? In fact, does the Type II culture elicit a Hawthorne effect? Relative to the adversarial bargaining process, what happens when employees are party to a decision that may give them job security and satisfaction, but does not ensure the survival of the firm in the competitive marketplace? How often have we confused safety needs and job security, satisfaction and motivation?

The easy road for employers is therefore to deal in job security or to make no provision for participation. The messages to date are confusing; therefore, the tendency is to protect the status quo. However, with this approach one reaps what one sows. The type of persuasion identified by Bamber and Lansbury, where employees worked with new technologies at existing rates of pay in order to achieve survival of the business, could never be attained with an antagonistic employee group. We don't need research to determine that outcome, nor do we need research to endorse the work ethic (although future generations may, if we don't resolve the issues before us). The value of the individual to the organization and, in

turn, the concept of work is “one of the most widely spread and deeply embedded elements in individual psyches, the structure of societal institutions and the value systems of industrial civilizations” (Macarov 1982). It is in this fibre that the exercise of prerogatives which negate opportunities for work turn workers’ “concerns” to “rights” (Jain). Indeed, the job-level and enterprise-level agreements achieved in some Type II countries may be a key factor for achieving economic survival in any set of circumstances, and certainly extract us from the economic versus technological argument identified in another part of the Bamber and Lansbury paper.

Trade Union Policies and Responses

I find it interesting that individual values and participation appear to be heavily weighted within the union research in all papers and weighted so little in either government or business.

Weikle and Wheeler’s findings appear to be consistent with the attitudes expressed in the other papers. The leader’s desire to influence what kind of change will take place, although a milder response than a westerner might face, relates with union policies in Type I countries for more employee participation in making decisions about technological change. The desire for assertive wording in the collective agreement requiring joint determination again leads us to a desire for a Type II environ or the planned social economy recommended by the Task Force on Microelectronics. The finding that these are strike issues is consistent with behaviours in both Type I and Type II countries, but indeed bears out Bamber and Lansbury’s assertions that Type I unions are more concerned about labour displacements.

Weikle and Wheeler’s positive finding on both the possible favorable effects of technology on working conditions and the possible favorable effects on the product market, which might increase the demand for goods, is a key for both union and management dialogue. The fact that firms in a Type I culture do a mediocre job of communicating is reinforced by Jain and by Bamber and Lansbury. Sony’s chairman, Akio Morita, has stated that “teamwork historically . . . is the American way. But your managers too often forget that . . . they viewed the worker as a tool” (D’Aprix 1982).

From my perspective it is significant that union officers gave a heavy emphasis on retraining in the open-ended question on Weikle and Wheeler’s questionnaire and that the researchers believe this response may be a realistic route to coping with technological change. Certainly, Jain identifies that unions are seeking improvements in training programs and forms of educational leave. In fact, this view was reinforced by his

task force when they recommended that mandatory joint technological committees address training/retraining requirements and was given impetus by the Skill Development Leave Task Force as well as the Canadian Occupational Projection System. "The link that Canadians perceive between learning and employment is a significant phenomenon" (Skill Development Leave Task Force 1983) establishes the base for future direction.

It would be significant to compare the educational investment directed to technological change in Type II versus Type I countries. In the realm of adult education in the U.S., *Training* magazine (October 1983) reports that unions/professional organizations and business provide 5 and 14 percent, respectively. The rest is provided by colleges, schools, and universities. In business, 72 percent is employer-provided, of which 68 percent is white-collar. The persons identified by those taking courses were as follows: advancement in current job, 45 percent; new job skills, 10 percent; new job in current field, 2 percent; other job-related reasons, 4 percent. The remaining 39 percent were not in courses for job-related reasons.

This survey is significantly different from my experience. In British Columbia Telephone only 12 percent of internal and external development is white-collar; 88 percent is focused on technical skills, including retraining for new job assignments. While the cultural differences between the U.S. and Canada may be significant, statistics I have seen indicate that these figures are indicative of the direction in North American telecommunications industries. As we are technological forerunners, we may be an example of the future for others.

Summary

The three papers identify significant findings and observations for business:

- Government policy must be supportive of technological change, but must establish a viable mechanism within the country's cultural parameters to develop attitudinal prerequisites for multiparty collaboration.
- Government should be the architect of bridges. Improved forecasting techniques and focused economic assistance should be part of this mechanism.
- Management and unions must work with the academic community to: (1) separate economic variables from technological variables, (2) identify the incremental addition of human labour, and (3) establish functional definitions of satisfaction, motivation, and productivity as well as their interrelationship.

- Develop functional methodologies for job-level and departmental dialogue on technological change.
- Identify and provide educational means for training/retraining.
- Work together to establish working conditions in the new technology.
- Discuss market strategies for driving demand for goods and services produced by the new technologies.
- Recognize the autonomy at the plant and local level and defer to local agreements.

It may well be that Type II countries are influencing Type I change policies, but as these papers have identified, the scope for Type I countries to redefine the adversarial approach in their own context affords an opportunity for economic and motivational buoyancy.

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DISCUSSION

STEVEN J. HENDRICKSON

Industrial Union Department, AFL-CIO

There are a few common threads running through these presentations, but none of the papers seems to make an effort to add them all up and tie them into the broader context of the current state of industrial relations in capitalist countries.

Simply stated, that context is that capitalist economies are currently stagnant, unable to mount a sustained period of growth strong enough to provide the number of jobs needed to match the number of job seekers. The world market for most products is over-saturated which means there is a strong current of competition among too many producers chasing shrinking levels of demand.

These competitive pressures will continue to get worse as long as there is no major new burst of investment outlets which might revitalize the global capital accumulation process. Only a very few optimistic economists and politicians believe that the new microelectronics technology can provide that required boost. At best, in terms of employment, this new tech, high-tech, or chip-tech will do little more than offset declines in traditional manufacturing areas. Why? Because this new technology involves more than just replacing human muscle power with machines in manufacturing, it is replacing muscle power and brain power in both production and service industries. Thus, in the competitive scramble to expand markets by producing better products at lower cost through CHIP TECH, job displacement will accelerate and unemployment will rise. The solution, unfortunately, is part of the problem.

The Jain paper as well as Bamber and Lansbury's paper discuss the ways and means of coping with technological displacement. Implicitly they accept the idea that new technology will result not only in displacement in a given workplace, but also a net job displacement for the economy as a whole. Given that the era of CHIP TECH has begun and should be encouraged, how does society deal with the messy problem of surplus workers? Throwing people out of work creates a lot of angry ex-workers and paranoid folks who retain jobs. To the extent unions may represent some of these workers, unions also tend to get angry and paranoid.

Author's address: Industrial Union Department, AFL-CIO, 815 16th Street, N.W., Washington, D. C. 20006.

The main point of the Bamber-Lansbury research is that societies with an adversarial approach to industrial relations find it more difficult to adapt to technological change than those which have more of a social-partnership approach to industrial relations. They cite the Scandinavian countries and West Germany as examples of the latter where tripartite planning and cooperation have been the rule and many programs to soften the impact of displacement are already in place. Certainly one cannot quarrel with the notion that these countries have had success in defusing social disruption by bringing unions and workers into the decision-making process at various levels and providing strong social safety nets to cushion the impact of employer actions. But all of these programs and all of this tripartite cooperation has occurred against a backdrop of economic expansion and low unemployment. Today, these same countries are not immune to economic stagnation and are faced with high levels of unemployment. Is that cooperative atmosphere going to continue or will it all come apart as labor and management find that when the chips are down, they really do have irreconcilable class interests. European unions are campaigning now to reduce working hours in reaction to high unemployment, and it will be interesting to observe employer and government responses.

Professor Jain was a member of the Canadian Task Force on Micro-electronics and Employment. This task force, as far as I can tell, seeks to create a positive attitude to new technology, while trying to minimize the social disruption that flows from it. This is, of course, a difficult goal to achieve given existing labor-management antagonisms, a point well understood by the task force. Their recommendations include advance notice and mandatory labor-management discussions whenever new technology is proposed and binding arbitration of disputes. The mandatory feature of such recommendations implies that employer resistance is expected to be very high.

While it is hard not to be skeptical of the Canadian government's sudden interest in protecting workers from the fallout of technological change, I am willing to give them a few points for effort especially when compared to the attitude of the Reagan administration in Washington.

Unlike Europe, Australia, Japan, and even Canada, labor unions in the United States always seem to be on the defensive in their efforts to establish their legitimacy. Although politically active, they have never sought to have an independent political party geared to their own interests. At the collective bargaining table, they have always accepted the supremacy of managerial rights to run business enterprises, asking only for fair play and a decent standard of living for their members. With such a decidedly nonrevolutionary attitude, it remains a puzzle that

employers call in the anti-union consultants every time a union organizer passes out a leaflet at a plant gate.

It would strike me as a bit odd if anyone was surprised by the results of the Wheeler and Weikle attitude survey. The survey showed that local union leaders accept the fact that technological change is desirable and, as representatives of workers whose job functions may be changed or eliminated, insist that they have a right to have input into the nature of technological change and workforce adjustments. The significant point, however, is the wide discrepancy between what they want and what they actually have in place.

More so than any other country discussed here today, the principal battleground for U.S. unions is the collective bargaining table. Their principal weapon at that bargaining table is the right to strike. Unions will strike over the issue of technology—not to stop it, but to be included in the decision-making process and especially to cushion the blow of technological displacement through training and retraining, and various forms of income protection. In other words, a reasonable response by reasonable and responsible worker representatives. Such reason on the union side, however, cannot be useful unless there is also reason on the employer side.

U.S. unions have had four years of experience with widespread plant closings, massive job loss, and high unemployment. During this period, job security has come to the forefront as the dominant concern at the bargaining table, with unions accepting wage freezes and cutbacks in attempts to save jobs. While I agree with the view that unions have been slow to formulate their position on technological change, it is also true that some of the same reactions are applicable to both plant closings and technological displacement. After all, when a worker loses his or her job, he or she is less interested in the cause than in dealing with the consequences. Of immediate importance, therefore, are contractual or governmental support programs such as training and retraining, early retirement options, supplemental unemployment benefits, and extension of health care coverage.

Although many U.S. employers have made some efforts to cushion the impact of both plant closings and technological displacement, many others have not. In fact, a significant number have taken advantage of the recession and the fear of job loss to go on the offensive to weaken or destroy unions, to slash wage rates, to break away from pattern bargaining arrangements, and to curtail union job rules. Since the Reagan administration's destruction of the Air Traffic Controllers Union, this employer offensive has grown steadily with the support of the federal government.

Unions must develop a long-term perspective. The new microchip technology will affect every industry and every type of worker, but it will not generate a new wave of capital formation sufficient to overcome stagnation of the capitalist economies. Stop-gap measures such as retraining and social safety-net programs will not be enough. Advance notice and consultation on the introduction of new technology is not enough. Labor must take the offensive and begin an assault upon management's right to exclusive decision-making control. At the company level, that means joint planning committees and joint review of capital expenditures. At the local level, it means joint committees to discuss changes in workplace organization and production methods. Failure to open up corporate decision-making in an era of rapid technological change and high unemployment will inevitably lead to a rise in social disruption.

DISCUSSION

MARYELLEN R. KELLEY

University of Massachusetts–Boston

The discussion in all three of these papers indicates that, despite differences in the industrial relations climate across countries (adversarial or cooperative), there is now surprisingly widespread support among trade union leaders for greater participation in management decisions concerning the planning, design, and implementation of new technologies destined to affect the organization of work. In West Germany and the Scandinavian countries, the demand for greater participation in management decision-making over new technology is consistent with the established philosophy of industrial democracy espoused by their unions and presumably can be incorporated into the existing institutional apparatus of joint labor-management committees. Within the United States, Canada, Britain, and Australia, however, the call for greater union participation in these management decisions represents a significant shift in attitudes and bargaining strategy. How might we explain the consistency of these demands across such different labor climates?

Bamber and Lansbury attribute the pervasiveness of the demand for greater union control over the planning and design of new technologies among six industrialized nations (Great Britain, Australia, Norway, Sweden, Denmark, and West Germany) to a heightened fear of job loss provoked by the persistence of high levels of unemployment in recent years. In Weikle and Wheeler's analysis of U. S. union leaders' attitudes toward technological change, they found the expectation of job loss *not* to be a significant factor in explaining local union officers' desire for greater influence over the development of new technology. Rather, the perception of new technology as a threat to the skill structure of membership's jobs was found to be the most important factor predicting leaders' advocacy of union involvement in management decisions about technological change. Unfortunately, in their paper, Weikle and Wheeler do not explore the question of what kinds of innovations their respondents identified as having a high potential for skill disruption. Yet because a significant number of the leaders favoring the adoption of restrictions on management's unilateral decision-making power view those innovations as un-

Author's address: College of Management, University of Massachusetts–Boston, Harbor Campus, Boston, MA 02125.

precedented and thus raising issues which they have never before had to consider, we may surmise that a technology with rather unique attributes is meant.

Rather than focusing either on workers' fears of displacement or on their attitudes about technology in general, I would submit that we should locate the answer in the actual shared *experiences* of workers in all of these countries with the way in which certain new technologies have been deployed. Of the three papers, only Jain's speaks explicitly to the nature of the new technology, the problems of which he associates with the "micro-chip." Chips certainly are being used in a variety of consumer products, e.g., in radios, televisions, and stereos. But it is not the chip per se, I would argue, but rather the application of the micro-chip to the development of computer-controlled machines for factories and offices that is of such worry to trade unionists.

In manufacturing, computers are used to: (1) direct the actions of machines, as in robot spot welders or computerized numerically controlled (CNC) machine tools; and (2) to process information about the flow of materials and parts through the shop and to monitor the operation of machines. The dual nature of this innovation—as a form of automation and as a technique for asserting greater managerial control over work activities—is what distinguishes computer-controlled machines from other forms of mechanization. It is not simply a labor-saving device, but rather has the potential for shifting the locus of control over work activities from the shop floor to the offices of managers and technicians. That duality is recognized by trade unionists and may be an important factor in their assessment of the need for greater union involvement in the *development* of computer applications in the workplace.¹

The information processing capability of computers can be used to provide management with the necessary data base to *monitor* the day-to-day (and sometimes, even the minute-to-minute) operations that take place within the plant. The actions of individual workers, e.g., time at a particular task, away from a machine, or in between tasks, can be more closely supervised using performance reports generated from that data base. Thus, for example, an operator of a CNC machine tool with a video display terminal (VDT) may see a message "prompting" him/her to take an action when he/she has failed to do so within a prescribed time period. Alternatively, when a particular machine is not in use as it is scheduled to be or an operator takes too long to activate a machine, a supervisor may be alerted by a message on his/her VDT relayed by a computer linking

¹ For an example of this type of analysis, see Harley Shaiken, "Numerical Control of Work: Workers and Automation in the Computer Age," *Radical America* 13 (November-December 1979), 6, pp. 25-38.

up the supervisor's station with the various machines in the plant. How information may be accessed, the conditions for inputting data, the type of information collected, and how it is to be processed are "software" design issues which have some implication for the hardware selected as well. Only by involvement in these decisions can trade unionists expect to exert influence over the monitoring function of these machines.

In contrast to earlier forms of automation, computer-controlled machines are "flexible": they can be reprogrammed to perform a variety of operations. Who gets to perform these programming tasks, particularly on CNC machine tools, is of major concern to metal workers' unions in the various industrialized countries. Programming tasks substitute for the calculations that operators or machine setters formerly performed in setting up and guiding the operation of conventional machines. If an operator of a computer-controlled machine does not perform any programming or program-editing tasks, then much of his/her job consists of the tedious chore of watching the machine to see that it runs properly. For there to be an opportunity for machine operators to perform programming functions at their machines, however, implies that certain choices in the software and hardware design of computer-controlled machines have already been made. VDTs and keyboards would have to be attached to the machines in order for the operator to access the computer at his/her work station. In addition, user-friendly interactive programs would have to be developed through which the computer could signal the operator with an easily understood message, asking for instructions to direct the machine's movements. In order to have any influence over the quality of work life and the retention and development of members' skills, union leaders have discovered that they need to be involved in these design decisions prior to the implementation of technology.

From a number of studies, we have learned that the implementation of computer-controlled machines has been fraught with delays, breakdowns, and lower-than-expected efficiency gains.² Programming errors, variability in material inputs, and the unpredictability of tool wear are a class of problems that are unlikely to disappear. One reason that these problems have been so disruptive is that managers and engineers have tended to overestimate the extent to which computer-controlled machines are truly "automatic," i.e., can operate without worker intervention or adjustment. When managers and engineers insist that they alone have the knowledge needed to design and implement a new technology even when they

² For a detailed discussion of these problems and the strategies management has employed to remedy them, see Maryellen R. Kelley, "Computer-Controlled Machines and the Disruption of Workplace Productivity: Establishing a New Labor-Management Relationship," J.F. Kennedy School Discussion Paper, Harvard University, forthcoming 1984.

encounter persistent problems which they cannot remedy (but are thought to be eminently remediable by workers), their authority in the workplace is undermined. In such work situations, workers have learned that computer-controlled machines are at best only an imperfect substitute for their skills and knowledge. They also learn that engineers and managers, who do not have the same intimate acquaintance with the work process that they do, lack the expertise needed to resolve these problems. Some trade union leaders have reasoned that, since their members have that much-needed expertise, they should be consulted about design and implementation decisions.

In some workplaces, managers have recognized the need to "tap" workers' knowledge in resolving some of these difficulties. For example, machine operators have been permitted to edit programs. Those editing tasks may be formally recognized as a part of an operator's job or only informally sanctioned by certain supervisors, unbeknownst to upper management. There are also cases of extra-contractual participative arrangements—joint problem-solving committees—initiated by management for the purpose of soliciting workers' suggestions about how to increase efficiency from the use of new technology. Both types of involvement in management decision-making, however limited, have set a precedent for consultation to which unions can point as demonstrating the viability of an expanded union role.

Clearly, participative arrangements that foster cooperation between workers and managers in remedying implementation problems are of benefit to employers. It is less apparent whether trade unionists gain greater influence over technological change through such arrangements. With voluntary, consultative arrangements—even if they are extended to include notification about plans and designs—management is under no obligation to modify its proposals to satisfy union objections. Workers' experience with computer-controlled machines, I would contend, has led them to be far less accepting of such a passive role in shaping the development of new technology. From these three papers, we learn that what unions want (but management seems unwilling to accede to voluntarily) are truly cooperative arrangements in which management *shares* its decision-making power over the plans and designs of new technology.

VI. COPING WITH LONG-TERM UNEMPLOYMENT

Comparing European and American Experience With Plant Closing Laws*

BENNETT HARRISON

Massachusetts Institute of Technology

In all of the Western industrialized countries, laws have been passed—or are being actively considered—that call upon business managers who intend to close or relocate some facility within an otherwise ongoing company to provide their employees and the government with some degree of notification in advance of the actual shutdown.

Advocates of prenotification (and, more generally, of the periodic public disclosure by companies of information previously reserved to management) justify this demand by appeal to both efficiency and equity considerations. Advance notice of major investment, production, and employment decisions by firms is intended to facilitate capital, labor, and product market adjustments to structural change. Government agencies will be given valuable planning time with which to bring subsidies or services into play. And workers will be provided a greater opportunity to search for new jobs, to reorganize household arrangements, or to make connections with retraining programs. Especially in Europe, disclosure and prenotification are also justified by appeal to the *right* of workers and communities to expect “responsible behavior” from private corporations.

The demand for and the widespread interest in plant closing legislation

Author's Address: Department of Urban Studies and Planning, Massachusetts Institute of Technology, 77 Massachusetts Avenue, Cambridge, MA 02139.

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in the U.S. are certainly understandable. During the period 1978–1982, the U.S. economy lost over 900,000 jobs a year to closures among those (generally corporate-owned) manufacturing firms having 100 or more employees. That turnover amounted to more than a fourth of the stock of jobs in such companies at the beginning of the period (Harris 1983). The mobility of especially middle-aged blue-collar workers out of industries and regions undergoing such “deindustrialization” is often hampered by mismatches in terms of skill, or by managerial discrimination on the basis of credentials, race, gender, or antiunion animus (Bluestone and Harrison 1982, Chs. 3–4). As far as voluntary prenotification is concerned, fewer than one in five American workers are covered by collective bargaining agreements, and of those contracts, only about 15 percent contain provisions for advance notification of shutdowns or of the introduction into the workplace of potentially labor-displacing new technology (Wendling 1983, pp. 411–13). Moreover, fewer than a fifth of those contracts containing prenotification language provide more than one week’s advance notice of closure (for more detail, see Harrison 1984).

The European Experience

The European economies experienced even greater and more generalized employment loss during the 1970s than did the U.S. Among the largest member countries of the European Community (EC), negative rates of growth across the private sector prevailed everywhere. It was during these years that the Europeans began to introduce comprehensive legislation to regulate the plant closure process (ETUC 1981).

Local plant managers were required (or encouraged) to provide “timely” advance notification of plans currently under discussion concerning the implementation of new technology, possible work reorganizations, and changes in company structure such as proposed mergers and closures. With respect to closures per se, nationally negotiated or legislated prenotification periods vary from ten days (in the Italian Metalworkers’ Federation national agreement with Intersind, the national employers’ organization) to 12 months in the Federal Republic of Germany, “at most sixty days” in Belgium, three months in Britain and Holland, and six months in Sweden (for plants with 100 or more employees). In some cases, compliance is *voluntary*, although important public incentives to the firm may be triggered by that advance notification. There are no formal program evaluations of the extent of corporate compliance with these individual country-by-country laws in Europe. We *do* know that these laws (or negotiated contracts) are not easily enforceable when the local plant is a branch or subsidiary of a multinational corporation headquartered in another country.

The trade unions' response in Europe to what their members believe to be the unequal bargaining power of multinational corporations vis-à-vis a nation-based labor movement has been twofold. First, the unions engage increasingly in extensive international *interunion* consultation and coordination. Second, the unions have urged their political representatives at both the national and European Community levels to pursue legal remedies. Specifically, the European labor movement has for a dozen years sought to get the EC to issue regulations that would apply across national borders (and with greater force within each member state as well). Between 1975 and 1980, advocates managed to push through into European-Community-wide law modest provisions with respect to advance notice of layoff, successorship, and workers' rights under bankruptcy (ETUC 1981).

In October 1980, the Commission of the EC took up the "Vredeling Directive," named after the Commissioner of Employment, Social Affairs and Education, a Dutch labor leader named Henk Vredeling (for further detail on Vredeling, including references, see Harrison 1984). At the heart of the proposed measure was the requirement that the home office of any corporation doing business anywhere in the Community would provide periodic information to the managers of all of its EC subsidiaries concerning the parent corporation's Europe-wide and world-wide operations. The local managers of any plant or facility employing 100 or more persons would be required to forward this information to workers' representatives in the plant, region, or even at the national level, "without delay." If the local managers would not or could not forward the information, workers' representatives were authorized to appeal directly to the home office of the corporation. If the home office was located outside the EC (in the United States or in Switzerland, for example), then that parent firm was asked to designate an "agent" inside the EC. If it did not do so, responsibility would fall on the parent corporation's single largest plant or subsidiary presently doing business inside the EC.

Moreover, whenever home office management was seriously considering major decisions about some structural changes in the operations of any of its subsidiaries, especially a total plant shutdown, then the headquarters was required to notify the managers of all of its local subsidiaries in Europe within 40 days. Local management would then be given 10 days to inform the workers' representatives in every subsidiary. If the local managers would not or could not meet with the workers' representatives in the plant to be closed, then the latter were authorized to "directly approach the dominant undertaking"—in other words, the home office, provided that the office was located within the EC. If that were not the case, then—as before—the workers' representatives could approach

either the non-EC multinational corporation's agent in Europe or its single largest European subsidiary. If *that* effort were rebuffed (or if the nature of any response seemed to violate the intent of the law), then the workers' representatives could go to court (following procedures which would have to be established by the member States). In any such action, it would be the parent organization's agent or its largest subsidiary that would be legally liable, *not* the local management in the plant or subsidiary from whence the local action would have been initiated.

The draft directive was debated throughout 1981 and 1982 in the various bodies of the European Community. Intensive lobbying by corporate groups—led by such American organizations as the U.S. Council for International Business and by a coalition of British companies—completely overwhelmed the advocates of the legislation (Kamm 1982). On December 14, 1982, the European Parliament voted to approve Vredeling—but only together with dozens of amendments that effectively gutted its most potent provisions. A substantially revised version was resubmitted to the 14 commissioners of the EC in the late spring of 1983. On June 15, they approved the revision and again sent it on to the Parliament for discussion. The new version contains major changes, most (although not all) of which substantially weaken the main intention of Henk Vredeling's original draft: namely, to regulate internationally the industrial relations practices of multinational corporations doing business in Europe.

What next for Vredeling? Certainly, business associations—especially in the U.S. and Britain—continue to strongly oppose it, even in its watered-down form, fearing it to be a step toward the eventual internationalization of collective bargaining. The Council of Ministers of the EC will probably vote on Vredeling II sometime in 1984. Even if it fails of passage this year, the European labor movement and its parliamentary representatives are determined not to let the question go away.

The Debate Over Plant Closing Laws in the United States

Over the past dozen years, some American unions have succeeded in negotiating collective bargaining language concerning so-called "runaway shops." Some contracts call for employer *neutrality* in any union organizing drive launched in a new nonunion facility. So-called *accretion agreements* automatically extend union representation to new branch plants whose operations are logically an extension of those in the older (unionized) locations. *Transfer rights* and *severance pay* provisions have also been negotiated in connection with closures and relocations (Craft, 1983, Lawrence and Chown 1983). But these examples remain few and far between.

Since 1979, in exchange for wage concessions, some unions have

gained quid pro quos from management on a number of job security issues (Slaughter 1983, pp. 14–25). However, as far as prenotification of closure is concerned, concession bargaining seems not to have yielded much new practice. At the level of the firm as a whole, even when central management *was* prepared to trade job security for wage concessions, it was typically a matter of the company agreeing not to go ahead with a previously planned closing or layoff. For the entire second half of 1982, Peter Cappelli could detect only three examples of concession bargaining yielding commitments by companies to any sort of procedure regarding advance notification of *future* shutdowns (Cappelli 1984). MIT economist Harry Katz informally reports similar results from his own perusal of 1982–1983 contract renewals.

In recent years, the managements of some companies planning a shutdown have met with their unions to discuss outplacement or retraining and to plan for the redeployment of the displaced employees (although almost never to reconsider the decision to close). A small body of best-practice case material is gradually emerging on the ideas and experiences of these managers and their consultants (McKersie and McKersie 1982).

Unhappily, there are far more stories of firms that display no consideration for their employees whatsoever. Thus, for example, a recent article in *Forbes* describes the 1983 Atari shutdown in California's Silicon Valley: "Consider the way Atari laid off 600 of its employees at one plant in California earlier this year. The company called workers off their jobs and told them they weren't needed anymore. Some were led off the premises through fire exits. [Additional] security guards were [placed] on duty" (Byrne 1983, p. 245).

Advocates of national legislation point to these data as evidence that voluntary (including collectively bargained) arrangements have been insufficient in their coverage to adequately provide the protection they feel is needed. That vulnerability has been enhanced by recent U.S. Supreme Court and NLRB rulings. Thus, there is a growing interest in America in developing specific European-style legislation to deal with the problem of closures. As far back as 1974, then-Senator Walter Mondale from Minnesota and Congressman William Ford from Michigan introduced the National Employment Priorities Act into Congress. This was the first "plant closing bill," calling for mandatory prenotification of intended closures. When "Ford-Mondale" failed to gain support at the congressional level, the labor movement's effort to gain mandatory and universal prenotification and severance arrangements in the event of a plant shutdown or relocation shifted to the states. In July 1977, a new

plant closing law was introduced into the Ohio legislature, which was to set the pattern for virtually all of the state and federal legislative attempts that would follow over the next seven years, by proposing specific legal language around three basic principles: *advance notification, income maintenance, and job replacement*. Together with a detailed set of proposals drafted by the United Auto Workers, following a three-union study tour of Western Europe in June 1978, the Ohio bill was taken up by Congressman Ford and Donald Riegle, U.S. senator from Michigan, and reworked into the second version of the National Employment Priorities Act. NEPA-II predictably ran afoul of the conservative political tide of 1980 and again failed to reach the floor of Congress for a vote.

In May 1983, 59 members of Congress co-introduced NEPA-III (H.R. 2847), which calls for (among other things) mandatory prenotification of from six to twelve months, depending on the size of the plant being shut down. The bill was drafted by the Industrial Union Department of the AFL-CIO, and this time was successfully reported out of the House Subcommittee on Labor Management Relations, on October 5, 1983. Even its strongest supporters are not optimistic about early passage on the floor of Congress, although it seems likely that plant closing regulations will be widely discussed over the next several years as part of the general debate on "industrial policy" (for detailed analyses of the earlier legislation, including the Ohio prototype, see Bluestone and Harrison [1982, Ch. 8]; Harrison [1984] describes the current version of the NEPA at length).

By the end of 1983, plant closing legislation has been passed or was being considered in 17 states and two cities (BNA 1982). Maine has had a modest law on its books since 1971. Last year the Wisconsin legislature repealed its 1975 law and substituted another, replacing provisions for mandatory notification with voluntary guidelines combined with incentives in the form of so-called "positive adjustment" assistance. In 1983 Connecticut passed a law requiring a modest continuation of the health benefits of certain eligible workers displaced by plant closures. Philadelphia passed a law in 1982 mandating a 60-day prenotification period; a recent evaluation of its immediate after-effects notes that a number of large service firms (in petroleum distribution, communications, and insurance) have moved into the city since the passage of the law (Craft 1983). In July 1983 the city council of Pittsburgh passed a 3-9-month advance notice bill over the veto of the mayor, only to have it disallowed in August by two local judges. Fourteen other states and Connecticut are currently debating advance notification and positive adjustment legislation, including California, Illinois, Indiana, Iowa, Kentucky, Maryland, Massachusetts, Michigan, Minnesota, Missouri, New Jersey, New York,

Pennsylvania, and Rhode Island. These bills call for an average prenotification period of from two to six months, depending on the size of the facility.

There is no question that employers' associations have been actively opposed to these government initiatives. Nevertheless, the business community is by no means monolithic on the question of prenotification of closures. For example, in a May 1980 survey of more than a hundred Fortune 500 companies, the editors of *Forbes* magazine discovered that three out of five executives thought a prenotification period of at least three months was quite feasible, while "over a third of the respondents considered six months to a year to be the ideal period" (Sweet 1981, p. 148, n. 44).

Nevertheless, as public officials become increasingly fearful of doing anything that might pollute their "business climates," the original emphasis on mandatory regulations at the state and local level is giving way to a focus on experiments in the use of government resources and negotiation to facilitate so-called positive economic adjustment to the structural dislocation created by plant closures. Thus, California, Rhode Island, Massachusetts, Wisconsin, Ohio, and Michigan have all created (or are actively considering the creation of) "economic adjustment teams" or "industrial extension services." The policy instruments being discussed consist of subsidies, incentives, targeted government procurement, and moral suasion by governors—but minimal coercion on employers. The goals of these experimental programs are to use state power to help firms, employees, and local governments work out plans for restructuring businesses in trouble, for finding new buyers (or for assisting workers in considering whether to buy the plant themselves), or for effecting an orderly redeployment of the displaced labor if a shutdown cannot be avoided.

Comparative Findings

In the U.S., the public policy debate has become extremely confused, if not actually polarized, in terms of objectives. The unions have tended to be fairly oblivious to the efficiency questions, stressing instead the workers' right to know. Business and government officials talk almost exclusively about efficient adjustment—whether of labor, capital, or product markets. When unions raise the question of fairness, they are invariably criticized by the others for advocating "protectionism" which will impede "efficient adjustment." In Europe, the language of the debate is much more likely to embody—indeed, to inextricably intertwine—both efficiency and equity objectives.

U.S. legislation has *never* called for European-style periodic disclosure

of company operating information (although a bit of this has begun to emerge through the concession bargaining process, for example, in the 1983 agreement between Eastern Airlines and its three unions). Instead, in this country, plant closing laws are invariably seen as a mechanism for dealing with *emergencies*. Their provisions “kick in” only when management has already made a decision to shut down.

In the U.S., prenotification requirements and positive adjustment assistance are coming to be treated by many as though they were very nearly mutually exclusive. In Europe, by contrast, subsidies and other aids to business are often tied to (or triggered by) prenotification.

A number of European countries (notably Sweden) complement public policies concerning closures with other policies geared to geographically targeted job creation—in other words, economic development. In this country, most existing economic adjustment programs consist of fairly traditional human resource approaches, emphasizing the diffusion of job vacancy information and the publicly subsidized provision of individual relocation and retraining assistance.

The very demand for notification and consultation puts an enormous responsibility on the unions themselves to learn how to combine advocacy and direct pressure with the acquisition of technical expertise in the evaluation and use of the information that they seek. *This*, in my judgment, is the issue that is most common to the situations in Europe and the United States. Whether for the purpose of facilitating knowledgeable participation in formal, high-level, neo-corporatist codetermination policies, to enable a union local or works council to assess the chances that a firm is bluffing when it threatens a closure if wage concessions are not granted, or to plan a strategy of positive resistance to closure, workers and their unions are going to have to learn *a lot more* about the financial, legal, and even engineering aspects of investment and production decision-making than they know at the present moment. If progress is to be made in the extension of workers' rights to protection from the consequences of unannounced corporate investment decisions, then the labor movement is going to have to learn how to *combine* direct political action, increasing sophistication in legal bargaining, and greater technical competence in making productive use of the information whose disclosure they are seeking.

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Coping with Long-Term Unemployment: The Role Of the Private Sector

RUTH H. FEDRAU

National Alliance of Business

Swings in the business cycle and random business failures are no longer the sole cause of nearly all unemployment. Major structural changes are sweeping the world economy and uprooting old patterns of production and employment. Analysts as varied as Peter Drucker, Robert Reich, and John Naisbitt have noted that the U.S. is shifting away from traditional mass production toward an economy based on more specialized production, services, and information exchange. The shift is being accelerated by rapid movement in the third world toward industrialization. In effect, we appear to be moving toward a post-industrial economy while the third world appears to be assuming our traditional role as a mass producer. At the same time, other "Western" nations such as Japan and Germany are adapting rapidly to economic change and aiming their production aggressively at U.S. consumer markets, so the U.S. competitive edge is eroding.

Unfortunately, these long-term economic changes not only threaten our overall competitive position, but also create an extraordinary amount of short-term volatility in the economy. Domestic and international market conditions fluctuate in ways that confound the world's leading economists, much less the average business employer. And government economic policies are shifting dramatically as a crisis atmosphere forces political action. In short, the era of postwar tranquility in the world economy is over.

The result of these new economic circumstances is that businesses have been buffeted by unpredictable changes in demand, new technologies, cheap third world labor, stiff foreign competition, high and unstable interest rates, sharp changes in factor prices (such as energy and raw materials), and changing government policies with regard to deregulation, trade, monetary and fiscal matters. Even those U.S. employers

Author's address: Project Director, Business Consulting Service, National Alliance of Business, 1015 15th Street, N.W., Washington, D.C. 20005.

facing little or no direct foreign competition are caught up in a whirlwind of economic change.

The Active Employer Response

The combination of long-term structural change in the world economy and short-term economic volatility is forcing companies to rethink their entire approach to survival. Every aspect of production is being reexamined, including long-term strategic planning, financial management, labor-management relations, product design, production technology, cost control, quality control, marketing techniques, producing for export markets, and more.

Coping with plant closings, terminations, and layoffs is part of this rethinking process. Many adaptations in production involve consolidating operations, eliminating old production methods and facilities, automating, and scaling down output levels.

The question to be addressed here is what, specifically, are U.S. employers doing to plan for workforce reductions and to respond to the needs of their terminated employees? Our discussion encompasses active employer responses in four major categories: (1) measures to prevent layoffs and terminations; (2) advance notice of plant closings and terminations; (3) active employer response models—the State of the Art; and (4) the tripartite approach to reductions in force.

Preventative Measures

Larger Japanese employers have developed systems for preventing layoffs and terminations as part of an overall employee security approach. Some domestic firms, such as IBM, have adopted what appears to be a similar approach to employee security. And it is likely that protecting employee security will become more integral to business management as time goes on.

Other measures to protect employee security have been agreed upon by Ford, General Motors, and Chrysler in recent contract negotiations with the United Auto Workers (UAW). Experimenting with the implementation of these contractual agreements has taken several forms. At Buick's plants in Flint, Michigan, retraining is guaranteed for any worker whose job is affected by work practices or technological changes that improve Buick's ability to compete. A special Employee Development Center has been established to accomplish this purpose. GM, Ford, and the UAW have set up special retraining funds which will be used to upgrade skills of workers (recognizing that, in the long run, better educated workers will result in a more productive workforce) as well as retrain laid-off workers

for other occupations. Program models originated in California are being adapted to plants in Michigan.

Measures to ensure job security will continue to be an issue as long as the introduction of new technology—automation—and methods of increasing productivity are seen by workers as means to reduce the workforce.

Ann Lawrence and Paul Chown, in an excellent publication entitled *Plant Closings and Technological Change: A Guide for Union Negotiators* (Institute of Industrial Relations, University of California, Berkeley), identify numerous provisions in existing labor-management contracts that limit the employer's freedom to close plants, relocate plants, or lay off workers. Especially common are protections against layoffs resulting from technological change. Another common protection is interplant transfer provisions. These usually give terminated workers a preferential right to job openings at other plants, subject to certain seniority requirements. Lawrence and Chown report that interplant transfer provisions are included in "about 35% of major collective bargaining agreements [that] cover almost half of all union members." Companies entering into contracts containing various types of preventative measures include clothing manufacturers, food processing industries, newspapers, grocery chains, and auto manufacturers, among others. While none of these contracts guarantees lifetime jobs, one comes close: ITU contracts with the *New York Times* and the *New York Daily News* specify that present job holders will not be laid off for any reason other than "a permanent suspension of the publisher's newspaper"

Another measure to prevent temporary layoffs (if not terminations) is worksharing—a reduced workweek or reduced hours for a large number of workers during down-cycles instead of layoffs for a smaller number of workers. Worksharing is designed to provide employment security during a temporary down-cycle. (Some states allow workers to collect partial unemployment insurance benefits while on a worksharing program.) Numerous companies have instituted such programs, and a number of labor-management contracts give union members the option of worksharing in lieu of layoffs. Overall, however, worksharing is still uncommon in the U.S. even though it is widely used in Canada and some European countries.

One of the most important measures to prevent terminations in ailing industries could be radical new approaches to structuring union-management relations. The recent Eastern Airlines contract, for example, in return for \$36 million in temporary wage reductions, gave its 32,000 employees a 25 percent share of the company and some ability to play a

role in making management decisions. This arrangement is patterned somewhat on European approaches to labor-management relations. It indicates the depth of change that is taking place in labor-management relations in response to the specter of unemployment and bankruptcy. Unlike some of the other preventative approaches mentioned, it provides a means of averting major workforce reductions even for the company that is currently in deep financial trouble.

Finally, companies which can increase their productivity through a variety of other measures are thereby remaining competitive and as such can maintain their workforce. Those that can streamline their production methods for certain product lines are finding that they can at the least avert a closure and maintain a sizable workforce, albeit not, in some cases, at prerecession levels. The General Electric assembly plant in Louisville, Kentucky, which manufactures dishwashers, made certain improvements in its assembly line procedures and by doing so was able to retain a substantial number of employees—up to two-thirds of its prerecession capacity. A totally different efficiency-oriented effort is currently being made by General Motors in its efforts to reorganize its corporate and division management structure.

Advance Notice of Plant Closings and Terminations

One of the most sensitive and difficult issues surrounding workforce reductions is that of when advance notice should be given. It has been addressed through labor-management contracts, through voluntary employer response, and, in some few cases, through state legislation. Lawrence and Chown note, "About 15% of all union contracts now require advance notification of plant closures or union participation in the decision to close. Many more contain less specific language which requires some notice of layoffs, for whatever reason." Voluntary advance notification also occurs frequently. Experience suggests that early notification can be useful to both the company and affected employees. It allows the firm more time to plan the phase-out schedule, and to prepare its workforce for the termination via outplacement assistance. More important, it provides the affected workers with time to plan for a new career or retraining for a new occupation. Advance planning, therefore, on the part of the company and employees can assist in reducing the stress that accompanies such events. Moreover, in the majority of cases, advance notification does not result in productivity loss. On the contrary, workers are less likely to respond in a punitive manner when they perceive that their employer recognizes that the layoff and job termination process is a difficult one and the employer is therefore attempting to buffer the impact.

Business trade associations have responded to this issue by encouraging their members to provide as much advance notice as possible. The threat of state plant-closing legislation, in particular, has stimulated state and national business groups to issue voluntary guidelines and technical assistance manuals for workforce reduction planning. The California Manufacturers Association, for example, has issued guidelines that contain the following language: "At the heart of any closure plan must be a logical notification program aimed at informing employees, the community, and certain governmental agencies and/or elected officials . . . [I]t is urged that, whenever possible, the greatest amount of advance notice of closure be given." A specific time frame is not suggested. Similar statements have been issued by the Business Roundtable, the National Association of Manufacturers, and the Chamber of Commerce of the United States.

It is worth mentioning that the issue of advance notice extends beyond plant closings, layoffs, and terminations. A number of labor-management contracts now contain provisions governing advance notice of technological change. This is a complicated issue given the fact that, legally, the definition of "technological change" has not been clarified. We assume that, with the accelerating pace of technology in manufacturing and other sectors, such agreements are likely to become more common.

Private-Sector Worker Assistance Models—The State of the Art

Although severance pay and special termination benefits traditionally have been part of employer benefit packages, in recent years the breadth and depth of assistance has increased substantially. In addition to liberalizing severance pay benefits, employers are more frequently including retraining and outplacement assistance, supplemental income benefits, special early retirement options, psychological and personal counseling services, extension of medical benefits, and other services or benefits related to job termination. Many of these benefits are included in labor-management agreements and, consequently, implemented in cooperation with the affected union local. Employers, however, frequently add services above and beyond those required by the agreements.

The Private-Sector Model

Although final severance packages often contain the components of the benefits to be provided upon termination, typically they do not describe how the benefits will be administered. A model has therefore "evolved," one might say, which serves as a means by which this can be accomplished. This model is adapted as appropriate and utilized by a growing number of companies, often in close cooperation with the local union (the above-referenced GM, Ford, UAW program is a case in point).

Where a labor contract is not in force, and when a range of benefits is not articulated in the final severance agreement, companies can—and often do—still elect to augment the benefits package with additional outplacement assistance.

The goal of this approach is to assist in the workers' transition from their previous job to a new one in an occupation with comparable wages. Studies such as the one being completed on the Downriver Community Conference project indicate positive effects on the employment rate and the earnings of individuals who have participated in such programs. The conclusion which has been reached by many in the business sector is that such positive efforts create good will, and significantly buffer the impact of the termination on the worker.

Important Features of the Employer-Based Model— Active Employer Involvement

Those models which are most successful incorporate a variety of key components—all of which play a role to support the reemployment effort. Although all the components need not be in place to establish an effective program, as the reader will note, there is an interrelationship to the components which promotes continuity but also still allows flexibility in planning and delivery.

The affected employer's active participation, then, in an early response program creates good will among the employees and in the community, enhances the possibility of an orderly closure of the facility, and reduces societal costs.

• *Prelayoff Assistance: Early Delivery of Employment Services to Workers.* As discussed above, notification of the pending reduction in force or closure enhances the capability of all parties to complete the activities surrounding the event. In effect, it:

1. Allows the time necessary for project planning so that an orderly, efficient, and cost-effective program can be designed and implemented in a short period of time.

2. Mitigates costs to both the employer and the public sector by reducing the time that UI and other benefits are paid to employees. Returns workers to their role as taxpayers.

3. Reinforces workers' security by planning for continuity of employment through immediate job placement or early enrollment in appropriate training programs.

• *Joint Company/Union Participation.* Where there is a union contract and the union has the confidence of its membership, the local union's visible support is very useful. Typically, union local members serve on the steering committee, encourage their membership to utilize center services,

and work to gain the support of other unions to assist in job development and placement. When the labor contract includes retraining or other benefits to be provided as a part of the termination, the project can offer a coordinated approach to the delivery of those benefits. In addition, it provides funds which can be matched with state and local resources. Participation by both groups, especially at the plant level, is particularly crucial to the success of the project.

• *Resources Support and Participation by State and Community Agencies.* State Job Training Partnership Act (JTPA) Title III funds and community resources are matched more readily when some funding or in-kind resources are provided by the company and the union. Many vocational education institutions, private industry councils, and social service agencies provide financial and/or service-related resources to company-sponsored projects. Strong company involvement acts as an incentive to gain the support of these groups. In most states, Title III of the JTPA requires some kind of match.

The Coordinated Approach: The Worker Assistance Center

The Center has consistently proven to be the most cost-effective, efficient approach for laid-off workers. It is now “State-of-the-Art.” It allows for an intensive reemployment effort to be mounted on behalf of the workers, direct participation by the company and union, and effective coordination of funds and resources. The Center is established at the plant site or at a readily accessible community location. It becomes the focus for all employee assistance activities. These activities are intensive, targeted to company and worker needs, and in operation for a specific period of time—before, during, and after the layoff period.

Services provided at the Center can be flexible, but are targeted to the employment requirements of the targeted workforce. Program components proven to be most useful are:

1. A company/union steering committee which directs and oversees the entire project and staff.

2. Surveys and assessment. Surveys to design the program plan that will satisfy employer and worker requirements include (a) an employee survey to provide planners with information about employee plans and needs; (b) a labor market survey to indicate the industries, employers, or occupations targeted for job development and retraining; and (c) an assessment of vocational education institutions’ capabilities to retrain and/or develop the classes necessary for retraining.

3. “Self-help” job search assistance, including job search workshops.

4. Testing and skills assessment, combined with vocational and career counseling.

5. Personal counseling services, including psychological and financial counseling.

6. Occupational retraining programs, customized for individual employers; basic education services including GED instruction and other workshops, developed as needed by the participants. Where possible, short-term skills-related courses are developed at the plant site, utilizing plant equipment.

7. An aggressive program of job development (utilizing steering committee, community, and private center expertise and effort) designed to identify appropriate job openings, market workers to employers, and coordinate area job development and economic development efforts to access employment opportunities in a systematic way.

8. An ongoing social service and health referral system.

9. Where appropriate, relocation assistance for individuals unable to find jobs in the commuting area.

The Tripartite Approach: Business, Labor, and the Public Sector

The final point to be made concerning private-sector planning for workforce reductions is the advantage of cooperating with the public sector to develop outplacement programs and comprehensive worker assistance centers. The State of California pioneered efforts along this line, working with a number of large corporations and smaller companies to develop plant-based and community-based employee assistance centers. The passage of Title III (as part of the JTPA) in October 1982 has accelerated this trend; however, since JTPA is still in its infancy, it is not yet possible to indicate if companies will step forward to request state assistance or how many states will organize their Title III programs to encourage direct employer involvement.

The author works with a number of companies and unions to design and implement workforce reduction programs, often in conjunction with states and Private Industry Councils. Our experience indicates, however, that state bureaucratic practice could inhibit the growth of such partnership efforts. Problems encountered include: arbitrary and uncertain fiscal year periods—hence, the first three months of a two-year center must be submitted as a separate proposal; required affirmative action planning when it is clear that the target population is plant employees; requirements for detailed descriptions of the company's or union's accounting systems; administrative cost limitations more severe than the already strict limits contained in the JTPA; required descriptions of training curricula for courses that should not be designed until workers' skills assessment and job development has taken place (i.e., so that training is geared to matching worker skills with existing job openings); and long delays in

funding decisions. Under these conditions, setting up a program before layoff occurs is particularly difficult because the pre-termination phase is not likely to include many of the job placements, on-the-job training placements, or highly specialized retraining programs that look so attractive in funding proposals. The emphasis before termination is generally on counseling, job search instruction, skills assessment, and job development so that intensive retraining and job placement can begin immediately upon termination.

As indicated earlier, however, the Job Training Partnership Act and Title III are still very new, and public administrators are attempting to adapt their program to the private sector's requirements. State Job Training Coordinating Councils and Private Industry Councils must play a key role in evolving Title III from a makeshift program based on past bureaucratic practice to a successful government-company-union-community initiative. One of the contributions business can make is to participate actively on State Job Training Coordinating Councils and Private Industry Councils—to help make the public-private system work.

Progress has been made in preventing unnecessary layoffs and providing advance notice of plant closings, terminations, and technological change. Pre-termination and post-termination services, including counseling, retraining, and job placement are becoming much more common. And companies are working more with unions, the community, and the government to put together assistance programs.

Also, American management and labor are beginning to develop innovative approaches to the overall role of labor in the production process. Twenty-five years ago, for instance, Walter Reuther's demand for profit-sharing in the auto industry was seen as socialistic. Today, however, over 17 million workers are covered by profit-sharing plans.

Although the traditional approach to collective bargaining may not change in the foreseeable future, an expected trend is greater cooperation between management and labor to improve productivity and, thereby, maintain a competitive advantage. What was recently termed concessionary bargaining and give-backs is indeed evolving into ways that salvage jobs and curb the layoff cycle.

Finally, as mentioned earlier, rapid changes in technology, world markets, and overall economic stability are forcing business to rethink the entire production process from long-term strategic planning to the assembly line. The future of the American workforce depends greatly on how well management and labor can anticipate change and respond quickly, effectively, and cooperatively to the new challenge of a restructured world economy.

Coping with Long-Term Unemployment: The Role Of the Trade Union Movement*

MELVA MEACHAM

Illinois AFL-CIO Manpower Assistance Program

Job loss as a result of plant shutdowns, plant relocations, and related workforce reductions has created a crisis situation for hundreds of thousands of workers and their families. Effects of economic dislocation can be profound and permanent on individuals and communities. The plight of displaced workers may be one of the most serious problems facing society today.

As organizations made up of workers, unions have a clear and direct interest in softening the blow of displacement caused by plant closures. Since workers traditionally turn to their union for help, unions feel a special responsibility to lend a hand in addressing the problem of dislocation.

Organized labor firmly believes that the solutions to this deep-rooted problem lie jointly in the hands of labor, management, and government. Labor supports an essentially three-pronged attack—through joint labor-management efforts, through public policy, and through special union programs to facilitate workers' transition to new jobs and skills.

In the arena of joint labor-management efforts, the labor movement's principal tool has been its traditional one—the collective bargaining process. The “union view” of bargaining with regard to plant closings has two primary aspects: (1) making it less attractive and more expensive for employers to close or relocate present facilities, and (2) protecting workers' jobs, benefits, and income levels. Collective bargaining increasingly has reflected union concern about sustaining high levels of employment, attempting to guard against long-term layoffs, displacement by technological shifts, and reductions in force. A case in point is the

Author's Address: Manpower Assistance Program, Illinois State AFL-CIO, 500 West Central Road, Suite 204, Mt. Prospect, IL 60056.

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agreement recently negotiated with AT&T by the Communications Workers of America, the International Brotherhood of Electrical Workers, and the Telecommunications International Union. The agreement will establish training programs financed by management and operated by the unions to help telephone workers upgrade their skills and adapt to automation and changing skill requirements.

There are many other labor-management initiatives which have helped cushion the effects of dislocation. The problem, however, is of such proportions that it cannot be addressed by the private sector alone. Clearly, it is also a matter for public policy attention at both the federal and state levels. Organized labor continues to press for legislation to mitigate the effects of permanent layoffs on individual workers and their impact on communities where they occur.

Organized labor strongly supports a national industrial policy that would halt the economic erosion contributing to today's mass dislocations. The AFL-CIO has called for creation of a national reindustrialization board representing labor, business, and government. Its mission would be to revitalize the nation's sick industries and stimulate new industrial growth for the future. The AFL-CIO is also trying to fight worker dislocations with job-stimulating legislation, accompanied by appropriate reforms in tax, trade, and monetary policies.

While much has been done on these fronts, much remains to be done. In addition, organized labor has worked to minimize the adverse effects of long-term unemployment through its Community Services Department and through its manpower programs. This paper will present an overview of activities undertaken by the Illinois AFL-CIO and also provide information concerning the national AFL-CIO's manpower endeavors in this issue area.

The Problem in Illinois and Labor's Response

Two major forces are shaping the economic future in Illinois. A long-term shift in jobs, away from traditionally manufacturing industries and towards the service and communications sectors, has produced often wrenching dislocation of working people throughout the state. This trend has been aggravated by a prolonged recession marked by high unemployment and persistently high interest rates. One result of the interaction of these forces has been a series of major plant closings. Thousands of productive workers were, and continue to be, displaced by these changes.

It is a well-recognized reality that thousands of Illinois residents, once gainfully employed in "good, permanent jobs," are now facing an uncertain future of prolonged unemployment. Underemployment is also commonplace. Unemployment benefits are often exhausted. Job scarcity,

outmoded skills, and job-search frustrations produce "discouraged workers" who are not even included in the unemployment statistics.

Prospects for replacing the income, benefits, and security once provided by jobs that have now been lost are bleak for most individuals. Many displaced workers had decades of seniority, yet are faced with many working years remaining before retirement. Many are younger workers, in the prime of their working lives, often with families to support in hard economic times.

Recognizing the ever-growing problems facing displaced workers, the Illinois AFL-CIO initiated a special project in 1980 which focused on servicing the needs of shutdown victims. These services are provided through the AFL-CIO Manpower Assistance Program (MAP). The MAP, the employment and training arm of the Illinois AFL-CIO, is conducted with funds provided by the Illinois Department of Commerce and Community Affairs.

The MAP's three main objectives in relation to plant closings are: (1) to provide educational services in areas of plant closings to interested parties by collecting/disseminating materials and conducting seminars/briefings upon request concerning the issues, effects, and available assistance in shutdown situations; (2) to provide technical assistance in potential or actual shutdown situations by assisting in developing "Action Plans" to deal effectively with the problems produced by plant closings for local unions and their communities, and to conduct Adjustment Assistance Workshops for displaced workers to acquaint them with available services; and (3) to develop special retraining and other programs for workers.

Perhaps the key direct service provided by the MAP to displaced workers is the Adjustment Assistance Workshops. The workshops are half-day seminars that provide unemployed or soon-to-be unemployed workers with essential information about locally available services. Five basic topics are covered in each workshop: (1) income maintenance programs, (2) available social services, (3) stress management, (4) job-seeking skills, and (5) retraining opportunities. Community resource representatives usually make the presentations in these topic areas.

While turnout for the Adjustment Assistance Workshops seems to be very "situation-specific," generally they are well attended. Workshops are most often announced through formal networks of communication from the affected local union. The informal communication network that exists within the local union also has proven to be very effective in reaching target groups. In short, "word of mouth" about the workshops from local union stewards and local union members tends to generate interest in the program.

Success of the workshops perhaps can be measured by the extent to which workshop attendees learn of previously unknown community resources, regain confidence in their ability to remain in charge of their lives, enroll in retraining or job-seeking programs, and regain their sometimes waning trust in the ability of labor to "care" and "deliver." Workshop participants usually evaluate the sessions very highly and sometimes provide advice and suggestions for future sessions.

The State of Illinois established 18 "Dislocated Worker Centers" in selected labor market areas that have high concentrations of unemployment. Each center is funded through Job Training Partnership Act Title III allocations provided by the Illinois Department of Commerce and Community Affairs. Most centers are located on community college campuses. Illinois requires each center to provide a comprehensive employment and training program offering such services as: (1) training/retraining, (2) vocational counseling and assessment, (3) job-search assistance, and (4) job development. Each center was encouraged to establish as its advisory board a community task force. The MAP offers assistance to these centers by providing "access" to displaced workers through its workshops and by recommending appropriate labor representatives to serve on the task force.

During the past three years, staff members of the MAP have worked in 20 shutdown situations involving more than 7000 displaced workers. Recent activities include assisting the International Brotherhood of Teamsters Local 743 in addressing problems resulting from the closing of Aldens Catalog House in Chicago. Aldens, the nation's fifth largest mail order company, phased out its operations in Chicago early in 1983. As a result, some 1200 members of Local 743 were displaced.

The MAP and Local 743 co-sponsored eight workshops for displaced members throughout the Chicago area, using as a frame of reference the area of residence of the unemployed and the phase-out schedule from Aldens. Members of Local 743 were notified of the workshops by letter and telephone. Attendance was extraordinary, with 775 members of the local participating. As a result of these activities, 241 are currently enrolled in various classroom training programs, 62 were directly placed into jobs, and 30 are scheduled to enter on-the-job training programs in January 1984.

In addition, Local 743 and the MAP secured funding through the Illinois State Board of Education for an Adult Basic Education Program conducted at Teamster headquarters in Chicago. Through this program, 38 displaced workers from Aldens received intensive instruction in reading, math, and English skills for three hours daily, over a six-week period. The major goal of the Adult Basic Education Program was the

provision of basic skills to make participants eligible for certain retraining slots and more competitive in a difficult job market. An instructor for the program was provided by the City-Wide College Program of Chicago.

Also, ongoing counseling sessions were conducted by an area social worker at Teamster headquarters for approximately 50 former Aldens workers. These counseling sessions proved to be a valuable opportunity for members to support one another emotionally, to ventilate problems and feelings, and to share valuable information. Participants at these sessions also received instruction in valuable job-hunting techniques.

Based on the MAP's encounters to date, several observations can be made. First, a special community project focused directly on the problem seems to be the best way to mobilize necessary action. Second, it is sometimes difficult to involve workers in special projects. They often shy away from "welfare programs." They also often have the feeling that the plant will reopen, or that they can find another job using the same skills, and so perceive no need to relocate or be retrained. Even just informing the workers that these special projects are available may present logistical problems. In most cases, the workers are more apt to utilize these programs if they are endorsed by trusted and accepted groups, such as their local union. Third, two levels of action are usually needed to insure the success of special reemployment projects. Workers without "marketable" job skills need to be provided with training opportunities. Workers also need a support network with access to both community resources and information in order to minimize the trauma of job loss and to facilitate the transition to reemployment

National AFL-CIO Employment and Training Efforts

As the employment and training arm of the AFL-CIO, the Human Resources Development Institute (HRDI) has worked closely with the Illinois AFL-CIO Manpower Assistance Program. A major objective is to help labor organizations in other parts of the country replicate the Illinois program's highly successful union initiatives for displaced workers. HRDI's mandate is to bring the resources of the labor movement to bear on serving the unemployed and disadvantaged.

Despite many programs already initiated and some improvement in the economy, dislocation continues to be a major problem and a serious concern to the national AFL-CIO. Today the nation is experiencing a modest expansion in the number of jobs, but unemployment is still unacceptably high. While the new Job Training Partnership Act (JTPA) will not solve these problems, it represents a tremendous opportunity for many dislocated workers. Organized labor fully supports JTPA's objectives

and particularly welcomes the new Title III program for dislocated workers.

The new program represents the first significant government commitment to assist these workers. Under the Comprehensive Employment and Training Act (CETA), retraining was difficult to arrange because money for this purpose was limited, and most dislocated workers were not initially qualified for other employment and training assistance. In contrast, JTPA specifically makes workers eligible if they have received a layoff notice and have limited opportunities for reemployment—and it authorizes a wide variety of services to assist them.

Operating under a clear mandate from the AFL-CIO, HRDI is providing comprehensive assistance on the new programs to key labor officials across the country, and it is working with state and local JTPA staffs to help them fully utilize the special talents and resources of the labor movement. In helping organized labor design Title III programs, HRDI is drawing on nearly two years of experience in serving displaced workers. The centerpiece of its program is a series of worker assistance workshops, which have been conducted in cooperation with affected unions for workers who are not likely to return to their old jobs.

These workshops have essentially the same objectives and format as those provided by the Illinois program. They are designed to inform workers about the services available to them in their community and to help them cope with job loss. The workshops also offer practical advice on finding new jobs and, when appropriate, obtaining the training or education needed to enter a new occupation.

Since passage of JTPA, HRDI has shared its experience in displaced worker services with labor organizations through on-site assistance and educational activities in every state. Besides preparing organized labor for its partnership role in JTPA, and particularly the Title III programs, HRDI is working to make JTPA staffs aware of labor's concern about displaced workers and the resources labor can contribute to serving them.

Perhaps the most visible success to date in bringing labor's resources to bear on state services to dislocated workers is the eight-state Rocky Mountain Work Project that was funded under Title III this fall. Sponsored by eight AFL-CIO state federations, the project is the first program planned under JTPA to serve displaced workers throughout an entire region of the country. The project is also demonstrating that the labor movement has a unique ability to reach out and serve workers affected by layoffs and company shutdowns. It is offering a variety of reemployment services, including job-search assistance, employability planning, counseling, and retraining, to displaced workers throughout the region.

While the Rocky Mountain project is probably labor's most ambitious effort to assist displaced workers planned thus far, numerous other labor-involved programs are now serving these workers in cities and entire states across the country. A few of these projects are:

- The Metropolitan Reemployment Project in St. Louis, which provides a wide array of services to help displaced workers prepare for and find new jobs.
- The Governor's Dislocated Workers Program for the State of Arkansas, a coordinated project involving the Arkansas AFL-CIO and state agencies, that is providing survival skills training, job-search instruction, vocational training, and job development.
- Project Fresh Start, which is providing retraining, a job club, and other reemployment services for former Carborundum employees in Logan, Utah.

Another major effort of HRDI has been to help state AFL-CIOs develop labor-JTPA coordination programs to promote full labor participation in dislocated worker activities and serve as labor's liaison with the governor's JTPA staff. Twenty-two state labor federations are now operating coordination programs. In keeping with its mandate from the AFL-CIO to assure coordinated labor involvement in JTPA activities, HRDI is working closely with statewide labor programs, considering them extensions of its own efforts to promote linkages between the labor movement and state JTPA staffs.

It should be abundantly clear to both the public and private sectors that there is a significant and necessary role for organized labor in programs for the unemployed. Through programs such as the Illinois and HRDI efforts, organized labor is committed to making the JTPA system work for both the economically disadvantaged and the newly dislocated worker.

DISCUSSION

TREVOR BAIN

University of Alabama

Bennett Harrison has presented an excellent summary of both the literature and the issues concerned with advance notification of plant closings and worker displacement in Western Europe and the United States. I will confine my comments to three subjects raised in his paper, the methodology employed, and final remarks.

First, on the subject of labor's involvement in restructuring and managing the process: Historically, unions in the U.S. have not sought to become involved in managing the process. They have not wanted to be part of the problem if the firm encounters additional difficulties, and they have learned that if restructuring succeeds, management will probably receive the credit. In those cases where union members' jobs are at stake, it becomes even more difficult for the union, particularly the local. My research in the 1960s into restructuring in the flat glass industry disclosed this, and those findings are consistent with 1980s experience. Related to the issue of union involvement is the necessity for unions to be competent in finance, planning, and assessing the implications of technological change. Even in West Germany where the works councils receive a great deal of information about the company's plans, because of codetermination, they also lack the expertise. The largest union in Germany, I G Metall, has an office of technological assessment which keeps works council members abreast of the implications of technological change. However, even in I G Metall only the largest plants and companies can be serviced by the union.

Second, on the subject of management's approach to advance notification: Once the corporate headquarters has made the decision to close a plant, it is extremely difficult for local plant management or the union to alter this decision. In the case of the Ford plant in Sheffield, Alabama, eleventh-hour conditions presented by the company did not offer the workers sufficient time to adjust to these demands. The Ford plant has since become a model of labor-management cooperation during closing. Another case of labor-management cooperation is the General Motors

Author's address: Human Resources Institute, University of Alabama, University, AL 35486.

plant, Rochester Products Division, in Tuscaloosa, Alabama. Only the intervention of the University of Alabama as a third-party along with a mix of community funds and employee wage contributions to a contingency fund has enabled the Tuscaloosa plant to remain open.

Third, on the subject of the role of the local community and employee representatives: In the U.S., the idea of a “buy-out” by the community and/or the workers may sound feasible; however, it can be very expensive. In the smoke-stack industries, the cost of a buy-out may be prohibitive. A study of western Pennsylvania mill-towns by graduate students at Carnegie-Mellon University concluded that steel mill retention could not be carried out at the local level; the financing required (\$250 million in Youngstown, Ohio) made buy-out on a purely local basis impossible.¹ In Germany the employee representatives operate at two levels—the union and the works council. In plant closings the company and the works council must negotiate a social plan, and this requirement often allows sufficient time for a political solution through the intervention of the works council, the union, the community, and the state (land) government. Plant closings under a social plan may last for several years. A plant of the Klöckner steel company first negotiated a social plan in 1967 and the last plan was negotiated in 1982. During the intervening 15 years a mix of job and income security arrangements were carried out, including transfers, retraining, early retirements, and severance pay.² Works councils in the automobile industry have succeeded in convincing companies to shift product lines to ailing plants and to move the production of strong car models to plants producing models that were not selling well.

I turn now to the methodology of Bennett Harrison’s paper. He appears to have pursued the same methodological approach that other scholars have used to investigate the European experience—that is, to examine legislation or pending legislation and to talk to one of the actors, often the trade unions at the most centralized level. This often-used approach by American researchers is a less than perfect technique for gaining an understanding of the general European experience and particularly for an understanding of prenotification and plant closings. It is difficult, but advantageous, to progress beyond rephrasing public policy to widening sources of information. Labor and management representatives at the shop-floor level should be consulted because it is at that level that adjustments to restructuring and technology can best be observed.

¹ Carnegie-Mellon University, School of Urban and Public Affairs, *Newsletter* 3 (September 1983).

² For a more complete discussion of these employment adjustments, see Trevor Bain, “German Codetermination and Employment Adjustments in the Steel and Auto Industries,” *The Columbia Journal of World Business* 18 (Summer 1983), pp. 40–47.

Harrison makes a good point when he states that in Europe the employer has to notify the labor office of a short-term layoff if employees are to collect unemployment compensation. This allows for some prenotification. My work indicates that in some layoff cases the prenotification requirement can be by-passed. Management appears to be able to announce short-term layoffs at the last minute and to pay unemployment compensation out of its own budget. Later, labor offices always approve the layoff and reimburse the company.

My final comments are as follows:

There is a single overriding difference between the European experience and that of the U.S. in the area of corporate disclosures and prenotification. Management in Europe appears to seek compromise and the desire for harmony is foremost. However, in the U.S. the adversarial relationship continues and confrontation remains the principal tactic.

There is little prospect of national legislation in the U.S. on plant closings and almost no prospect for legislation at the state level. The states view such legislation as inhibiting their ability to attract industry and new industrial development.

Harrison is to be commended for his excellent paper and its wealth of references and notes. It should keep researchers in this area very busy for a considerable time.

VII. IMMIGRATION AND EMPLOYMENT

Immigration and Wage Growth In U.S. Manufacturing in the 1970s

GREGORY DEFREITAS
Columbia University

ADRIANA MARSHALL
*Facultad Latinamericana
de Ciencias Sociales*

The impact of immigrants on unskilled and semiskilled workers in the U.S. has long been at the very heart of academic debates on their domestic economic effects and of policy discussions on reforming immigration law. However, the empirical evidence needed to evaluate this complex issue properly is still remarkably thin. The few economic studies in the U.S. to date have focused on the influence of foreign labor on the absolute wage level of native-born workers nationwide (Grossman 1982, King 1982), an approach which is undermined by the downward inflexibility of wages in many industries. Among less-skilled workers, the proximity of their earnings to the minimum wage floor sharply reduces the possibility of discerning any negative immigration-induced wage effect. In contrast, a number of studies of migrant labor in Western Europe have investigated its implications for wage growth and for earnings differentials in specific occupations and industries, particularly manufacturing (Lutz 1963, Maillat 1968, Marshall 1973).

In this paper we report the first findings of a larger study of the impacts of recent immigration on the earnings and employment of manual workers in U.S. metropolitan areas. Unlike previous studies in this country, we here focus specifically on manual occupations in manufacturing and look at inter-metropolitan rates of wage growth rather than absolute wage levels. Contrary to the still widespread popular image of low-wage immigrants as largely agricultural and service workers, the 1980

DeFreitas's address: Department of Economics, Barnard College, Columbia University, New York, NY 10027.

Census reveals that more than one-third of immigrants in the American labor force are now in manufacturing, compared with only 23 percent of indigenous workers.

The paper is organized in three main sections. In the first, an analytical framework which incorporates immigration among the principal determinants of wage change is presented together with a set of hypotheses about the economic effects of immigration and their diffusion across fragmented labor markets. This is followed by multivariate regression analysis of the relationship between immigrant concentrations in manufacturing and average rates of wage growth in major metropolitan areas during the 1970s. The final section summarizes our findings and makes suggestions for future research.

Framework of Analysis

We investigate the relationship between immigration and earnings growth with a model which, following Sylos-Labini (1974), focuses on four primary determinants of short-run money-wage variation:¹ (1) increases in the cost-of-living, which typically fix the lower limit for wage changes; (2) growth in labor productivity, which sets the upper limit on employers' "ability to pay"; (3) the degree of excess demand (supply) which strengthens (weakens) workers' bargaining power, and (4) trade union strength as it affects the size of the effective wage rise at or between the limits given by (1) and (2).

Within this framework, increased immigration may transmit its influences on industrial wage growth through a number of channels, some more direct than others. Productivity would be enhanced insofar as the foreign-born bring needed skills and capital and if their contribution to consumer demand is sufficient to induce investments by firms seeking economies of scale (Denison 1962, Simon 1982). But any such positive effects are unlikely to be felt in the short run, particularly among recently arrived manual workers with little capital and high savings rates. Their availability to employers creates incentives to delay new investments in labor-saving technologies, thereby lowering productivity growth. This is especially likely in "labor-sensitive" activities with high elasticities of substitution.

Remarkably little research exists on the contemporary relationship between trade unions and the foreign born. The prevailing view among most union leaders is that immigrants are generally more difficult to organize than natives in the same industry and serve to weaken bargaining strength. Recent immigrants, particularly those without legal documents,

¹ The model can (and will, in our subsequent work) be adapted to analysis of wage growth over the long term.

are thought to be the least likely to risk employer sanctions by engaging in union activity.

The extent to which immigration slows wage growth by expanding labor supply depends crucially on the elasticity of supply of the indigenous labor force and on the substitutability of foreign for native labor. In the presence of high elasticities of supply and substitution, migrant inflows could displace natives both by enabling employers to fire them and hire immigrants in their place and by inducing natives to drop out of the workforce from discouragement with the resultant wage rates and job conditions. This could also set in motion outmigration from the affected industries and/or the metropolitan area. In this way, although the initial impact of immigration would be concentrated only in "immigrant-intensive" industries, the shift of native workers to other industries spreads the downward pressure on wages throughout the employment structure. Although this may weaken the ability of studies such as ours to measure immigration's impact through inter-SMSA comparisons, research on the pace of internal labor mobility suggests that it is probably not so rapid as to offset entirely immigration-induced differentials.

Empirical Analysis

Any attempt to investigate immigrants' role in metropolitan labor markets must contend with the dearth of adequate cross-sectional or longitudinal data sets with sufficiently large immigrant samples for reliable statistical tests. Our approach in this paper is to draw data from a diverse array of sources. Average annual rates of change in the hourly wage rates of manufacturing production workers in the period 1970–1978 were calculated for individual SMSAs from information on annual earnings and hours worked in the Annual Survey of Manufactures and the 1972 and 1977 Censuses of Manufactures.² Tabulations from the Public Use Samples of the 1980 Census of Population yielded the numbers of native- and foreign-born persons 16 years of age or over who reported their most recent job as being a manual occupation (laborer, operative, or craftsman) in manufacturing.

Table 1 presents calculations of annual rates of wage change and the immigrant share of the manual manufacturing workforce in the 35 SMSAs with one million or more inhabitants in 1980 and a significant manufacturing sector. These tabulations reveal the considerable importance of migrants to the economies of a number of the largest cities; nearly three-fourths of all manufacturing workers in Miami are immigrants, as are over

² Beginning in 1979, the Census Bureau stopped tabulating metropolitan-level data from the Annual Surveys of Manufactures due to budget cuts. The raw data from the surveys are unavailable to private researchers.

two-fifths of those in Los Angeles and New York, one-fourth in San Francisco, and one-fifth in Chicago and Boston. For the country as a

TABLE 1
Percentage of Manual Manufacturing Workers Foreign Born
And Growth Rates of Manufacturing Wages in Major SMSAs

	% Manual Workers Foreign Born, 1980	Annual % Change in Wages, 1970-78
30-75% foreign born	49.58	6.56
Miami	73.80	7.18
Los Angeles	45.70	6.07
New York	44.40	6.37
Anaheim/Santa Ana	30.98	6.67
20-29% foreign born	23.71	6.81
Newark	26.09	7.66
San Francisco/Oakland	25.41	7.38
San Jose	23.26	6.23
San Diego	23.10	5.00
Chicago	22.76	7.77
10-19% foreign born	17.29	7.40
Boston	19.13	7.20
Nassau/Suffolk (NY)	16.79	6.13
Houston	14.28	8.47
San Antonio	13.69	7.81
Riverside/San Bernardino	12.23	7.38
Under 10% foreign born	5.71	8.20
Dallas/Fort Worth	9.40	7.08
Cleveland	8.71	8.49
Tampa/St. Petersburg	8.61	7.98
Seattle/Everett	8.50	6.91
Phoenix	8.10	7.37
Portland	8.00	8.33
Denver/Boulder	7.81	6.70
Buffalo	7.05	9.23
Detroit	7.03	8.81
Philadelphia	6.74	8.01
New Orleans	6.27	9.50
Milwaukee	4.82	8.49
Minneapolis	4.34	7.36
Baltimore	3.84	8.83
Kansas City	2.87	7.94
Atlanta	2.39	7.47
St. Louis	2.21	8.47
Cincinnati	2.01	8.68
Pittsburgh	2.00	9.71
Indianapolis	1.54	8.71
Columbus	0.72	8.16
All SMSAs	19.00	7.70

Sources: 1980 Census of Population, Public Use Samples, and Surveys and Censuses of Manufactures, various years.

Note: Mean hourly wage rates for each year were estimated at the SMSA level by dividing annual payroll by annual hours worked for manual employees in manufacturing. Mean values of the % foreign born for the four groupings and the overall total were calculated using manual manufacturing employment weights for each SMSA.

whole, 19 percent of production workers in major metropolitan areas are immigrants. These figures also seem to show an inverse relationship between wage growth and immigrant concentrations. Of the nine SMSAs with 20 percent or more of manufacturing workers foreign born, only Newark and Chicago had rates of wage growth at or above the national mean (7.7 percent). In contrast, 15 of the 21 areas with the smallest share of immigrants exceeded the national pace of wage growth.

However, this pattern could reflect no more than a tendency for low immigration/high wage growth SMSAs to also have above-average union membership and employment opportunities, among other factors known to be important to earnings increases. Hence, to control for the independent effects of such factors, we estimated wage change regressions of the following form:

$$\dot{E} = f(UR, \dot{P}, \dot{V}, UN, SOUTH, IMM)$$

where \dot{E} is the average annual rate of change in the hourly earnings of production workers in each SMSA's manufacturing industry; UR is the average annual civilian unemployment rate of each SMSA;³ \dot{P} is the average annual area-specific change in the Consumer Price Index;⁴ \dot{V} is the average annual rate of change in value-added per manhour in manufacturing in each SMSA (a proxy for changes in productivity and in the ability of employers to grant wage hikes);⁵ UN is the percentage of each SMSA's production workers who were union members in the mid-1970s;⁶ $SOUTH$ is a dichotomous variable set equal to 1 if the SMSA is in a southern state, 0 otherwise (included to capture unmeasured regional differences in labor markets); and IMM is the percentage of manual workers in each SMSA's manufacturing sector in 1980 who were foreign born, entered both as a continuous variable and alternatively as a set of dummy variables for levels of concentration.

Estimation of this equation in the cross-section using average values of the variables computed for the period 1970–1978, instead of a more typical time-series approach, was dictated both by the peculiar characteristics of immigration and by the severe data limitations. Legal ceilings on annual inflows cause yearly variations to be negligible. It is rather the accumulation of a stock of migrants over time in each SMSA which is

³ Unemployment rates by area are from Bureau of Labor Statistics, *Employment and Training Report of the President*. Mean values of all variables are in a statistical appendix available from the authors.

⁴ Source: U.S. Bureau of Labor Statistics (1981).

⁵ Source: U.S. Bureau of the Census, *Surveys and Censuses of Manufactures*, various years.

⁶ Estimates for the period 1973–1975 are provided in Freeman and Medoff (1979).

most likely to show some impact on inter-area differentials in wage growth.

The coefficient estimates in the first column of Table 2 reveal that, without controlling for the immigrant share of the workforce, higher rates of change in value-added per hour and greater unionization have positive and statistically significant effects on wage growth. Wages appear to rise more slowly in areas of high unemployment, but at a more rapid pace in the South, though both estimates are on the margin of statistical significance at the 10 percent level. However, when we control for the immigrant-employment ratio (column 2), the coefficients of both the unemployment and productivity variables fall dramatically in magnitude and become

TABLE 2
Regression Analysis of Average Rates of Wage Growth
In Manufacturing in Major SMSAs, 1970-1978^a

Independent Variables	Ordinary Least Squares			2-Stage L.S.
	(1)	(2)	(3)	(4)
Unemployment rate	-.186 (1.72)	-.090 (.828)	-.072 (.719)	-.002 (.012)
Inflation rate	.421 (1.61)	.301 (1.21)	.356 (1.54)	.191 (.667)
Productivity growth rate	.417 (2.76)	.215 (1.30)	.196 (1.25)	.029 (.120)
% Production workers unionized	.059 (3.47)	.059 (3.71)	.062 (3.94)	.059 (3.42)
Southern state	.908 (1.79)	1.300 (2.59)	1.163 (2.54)	1.160 (2.67)
% Manual manufacturing workers immigrants		-.025 (2.32)		-.042 (2.11)
		<i>Immigrant Concentrations^b</i>		
10-19% Immigrants			-.463 (1.26)	
20-29% Immigrants			-1.230 (3.24)	
30-75% Immigrants			-1.060 (2.31)	
Constant	-.494 (.189)	1.992 (.748)	1.613 (.661)	4.290 (1.23)
Adjusted R ²	.520	.511	.578	.431
N	35	35	35	35

Note: Absolute values of *t*-statistics in parentheses.

^a Dependent variable is average annual rate of change in hourly wage rate of manufacturing production workers in each SMSA, 1970-1978.

^b Dichotomous variables set equal to 1 if each SMSA has the indicated share of manual workers who are foreign born, 0 otherwise. The excluded group is the set with under 10% of manual manufacturing workers foreign born.

statistically insignificant. The immigration coefficient is negative and significant at the 5 percent level, suggesting that, in the absence of the immigration control, the *UR* and *V* estimates are biased upward (in absolute value) due to misspecification.⁷ The regional dummy, on the other hand, now indicates significantly higher wage growth in the South once the high migrant concentrations in parts of that region are taken into account. In addition, the inclusion of level dummies in place of *IMM* in column (3) reveals that the wage-dampening effect of foreign labor only becomes significant once immigrant concentrations in manufacturing reach a threshold level of 20 percent of the workforce.

The only variable other than *IMM* which was consistently significant in all specifications is *UN*, the percentage of local production workers unionized. In regressions with all variables standardized for differences in their means and variances, the beta weights indicated that the positive impact of unionization is by far the single most important determinant of wage growth.

Several possible questions about these estimates require consideration. First, it may be that most immigrants are largely confined to areas in which the industrial mix is dominated by traditionally stagnant, low-wage sectors of manufacturing. But when a variable for the nondurable fraction of SMSA manufacturing jobs was included in the regression, its estimated coefficient was small and insignificant and the coefficients of other variables were unaffected.

Another potential econometric problem arises from the possible indirect influence of immigration on wage growth through its relationship to productivity, unemployment, and other explanatory variables (discussed in the previous section). The stronger this relationship, the greater the likelihood of multicollinearity. But the robustness of our estimates in a variety of specifications and SMSA subsamples makes us confident that this is not a serious problem. Finally, there is the possibility that causation in our model actually runs from left to right, as differential rates of wage growth induce inter-SMSA variations in immigration. The fact that data limitations forced us to use a wage series ending in 1978 but 1980 immigrant employment statistics might appear to increase the likelihood of such simultaneity bias. We estimated a two-stage least squares model in which predicted values of *IMM* were generated from a first-stage equation in which the exogenous variables determining wage growth rates plus SMSA population size (a commonly used proxy for the scope of

⁷ See Rao and Miller (1971). In separate regressions of unemployment and of productivity growth on immigration, both with and without controls, higher immigrant concentrations were associated with significantly greater local unemployment and with significantly lower productivity growth. Space limitations require that detailed consideration of these findings be left to a subsequent paper.

social and economic opportunities at destination) served as explanatory variables. The results in column (4) support the OLS finding of a statistically significant, inverse relationship between wage growth and immigration.⁸

Based on the estimated immigration coefficient in column (2) and the (unweighted) mean values of \dot{E} and IMM , the elasticity of wage change with respect to immigrant concentrations is -0.047 . This implies that a 10 percent difference between SMSAs in the proportion of manual manufacturing workers who are immigrants is associated with slower wage growth of about 0.5 percentage point per year. The annual reduction in growth rates implied by the two-stage least squares results is 0.9 percentage point, which may be best viewed as the upper bound of immigration's estimated impact.

Conclusions

In the research reported in this paper, we investigated the relationship between immigration and earnings growth in the manufacturing sector of major U.S. metropolitan areas during the 1970s. The empirical findings suggest that higher concentrations of foreign-born manual workers have a statistically significant negative impact on wage growth rates. However, the magnitude of the estimated impact is relatively modest (less than one percentage point slower wage growth with every 10 percent increase in the immigrant share of manufacturing jobs), and it is significant only in SMSAs in which 20 percent or more of manual workers are immigrants.

To better gauge the full influence of foreign workers, future research should aim to determine the extent to which immigration's wage effect is reflective of an offsetting effect of induced out-migration of native labor from industries and SMSAs with a sizable immigrant presence. Greater disaggregation by industry and more detailed information on the relationship between unionization and immigration would be particularly useful. And shifts over time in the wage effect as migrant cohorts mature need to be traced, both by focusing on immigrant groups stratified by arrival period and by developing adequate longitudinal data sets. Only with a deeper understanding than we now possess of the complex interactions between foreign workers, labor demand in specific industries, trade unions, and wage change—in both the short and the long term—can the labor market impact of immigration be properly assessed.

⁸ We also considered whether the immigration variable might be subject to error stemming from the smaller sample size (and larger standard errors of estimated statistics) of some SMSAs relative to those with large manufacturing sectors. Reestimation of the basic regression with the variables weighted by the size of each SMSA's manufacturing sector did not, however, produce dissimilar results; the immigration coefficient remained significantly negative, with an even larger magnitude (-0.0382) and t -value (5.03).

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Immigrant Economic Mobility In an Era of Weakening Employment Relationships: The Role of Social Networks

THOMAS BAILEY AND MARCIA FREEDMAN*
Columbia University

An audience of industrial relations practitioners and researchers hardly needs to be told that the last ten years have brought about significant changes in the relationships between employers and employees in the U.S. economy, with the decline in the influence of the labor movement only one of a larger set of changes in institutional arrangements.

In the first part of this paper, we shall outline these changes and argue that they create more space in the interstices and at the margins of the labor market than heretofore. Furthermore, employment conditions that were previously only associated with marginal sectors may come to characterize the economy's core sectors. In the second part, we explore the implications of this development for the prospects for economic adaptation and mobility of immigrants and point out the advantages they have in the situation where growing numbers of jobs offer uncertain and ambiguous futures and weak benefit structures. Foremost among these advantages is the extended family and kinship structure that facilitates their coming to the U.S. in the first place.

Finally, we consider the implications for native-born blacks for whom changes in the relationships between employers and employees are potentially more damaging. It was precisely those sectors characterized by strong ties between employers and workers where black men especially made the greatest gains over the past two decades. Thus, if past experience is a guide, the weakening of the employer-employee relationship is a trend that will strengthen the labor-market prospects of recent immigrants and undermine those of blacks.

The Weakening of the Employment Relationship

Over the past 15 years, several related trends—the decline of unionism, the internationalization of the economy, deregulation, technological in-

Authors' address: Conservation of Human Resources, Columbia University, New York, NY 10027.

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novation, and the shift from goods production to service production—appear to have changed the nature of the employer-employee relationship in many low-wage jobs. A difference between formal and informal mechanisms for allocating jobs, skill acquisition, and promotion is central to our argument. Government rules have promoted formal worker-employer ties through regulation of industrial relations, enforcement of antidiscrimination legislation, and more general involvement in the regulation of markets and prices. What we see now, however, is a movement away from formal structures in hiring and promotion and a concomitant reduction in government influence in the labor market.

Hiring

Studies of hiring practices and routes of access to employment show that personal contact plays an important role in the American labor market. With the passage of time, the hiring process has become more formal, but certain institutions that helped to structure the relationship—like the union shop—have been substantially weakened. So has Equal Employment Opportunity enforcement, with the advent of a public policy that promotes merit and a (voluntary) sense of fair play. This does not guarantee the return of personal influence and arbitrary favors, but neither does it enhance rule-making in the hiring process.

In a more general way, the chronic weakness of the labor market makes informal pathways more important because timely information about openings is critical under the condition of a surplus of applicants. For high-skilled jobs, formal requirements and credentials provide a first level of screening; in less skilled jobs, personal networks come into play even earlier in the process.

Unionization

Union organizing success in recent years has been largely in the public sector at the local level. Union losses, on the other hand, have been due, first, to the decline of basic industries as sources of employment; second, to the weakened bargaining positions of unions; and third, to a determined antiunion stance taken by leading employers. Unions either have been forced to grant concessions or have had their membership greatly reduced in air transport, steel, auto, meatpacking, and copper mining. Major companies no longer fear strikes. On the contrary, as in the case of Greyhound, they seem to welcome them as a first step in attempting to break the union.

Spinning off subsidiaries is another way to weaken unions, and the latest strategy involves the use of bankruptcy proceedings as a way to abrogate union contracts. Interestingly enough, even a school district—in

San Jose, California—has used the bankruptcy court to roll back a wage increase agreed on in prior collective bargaining. While these developments have mainly been accompanied by permanent layoffs and greater job insecurity, in construction antiunion moves (for example, by the Business Roundtable) and the growing presence of nonunion shops have a more pervasive effect because they open the way to direct competition from nonunion workers.

Changes in Industry Employment

A great deal of attention has been paid to the trend away from goods production toward service and trade. From the point of view of worker attachment and close employer-worker ties, the decline of the goods producing industries and the lack of growth in the public sector have been the most salient. There is general agreement that although the decline was hastened by the recessions of the early eighties, certain manufacturing and mining industries will never recover. Some evidence for this position is available from recent data on layoffs and rehiring (Baver 1983). Job losers were heavily concentrated among blue-collar workers, especially in the metals-based industries, and permanent losses, as opposed to layoffs, were higher in the latest recession than during any other economic downturn (Bednarzik 1983). State and local public employment usually increases in the first six months of a recovery, but between January and June 1983, jobs in state and local government declined (Baver 1983).

The effects of displacement, as well as of constricted opportunity for new workers, are not necessarily long-term unemployment. As Wachter and Wascher (1983) have argued, it may be that workers who are permanently laid off find other jobs, and that their problem is lower pay rather than unemployment. But along with that lower pay comes participation in a less certain employment situation. In contrast to relatively unskilled jobs at relatively high wages, new jobs being created are likely to be low-tech. The Bureau of Labor Statistics has predicted that in the 1980s the greatest demand—in descending order—will be for secretaries, nurses' aides and orderlies, janitors, sales clerks, cashiers, nurses, truck drivers, fast-food workers, office clerks, waiters and waitresses. These growth occupations tend to be low skilled, but they require higher degrees of literacy than many manufacturing jobs; in a word, most of them are traditional women's jobs.

Self-Employment

At the end of World War II, about 18 percent of the workforce was self-employed, two-thirds of them in agriculture. By 1981, the proportion was cut in half, and farmers made up fewer than one in five. If we

examine only nonagricultural trends, we see a steady decline in proportion, from 12 percent in 1948 to 10 percent in 1962, and then to a low of 6.7 percent in 1973. In the next decade, however, this proportion rose slowly but steadily, reaching 7.6 percent in 1982 (U.S. Department of Labor 1983, Table A-23).

This difference, although not large, is probably understated because of the growing incidence of corporate forms and, secondarily, the spread of the underground economy. A good deal of officially defined self-employment at the present time is in small-scale activity which produces relatively little income to be sheltered or hidden. Such activities increase in depressed economic times, but there seems to be a secular trend here as well.

Labor Force Participation Rates

While trends in labor force participation rates since World War II (U.S. Department of Labor 1983, Table A-5) have important implications for family income, for labor markets, and for other economic issues, our concern here is limited to evidence of weakened ties in the labor market. From the falling rates among men, we infer that more men are in relatively unstructured positions, but *rising* rates among women are also related to looser ties, especially insofar as the growing numbers of women are employed in traditional, female-labeled jobs.

The dramatic drop in rates among men over 54 (from 88 percent in 1955 to 72 percent in 1980) seems to be due to the trend toward earlier retirement. But the lesser, though significant, drop in the age cohorts from 29 to 54 are harder to explain. Some of these men are disabled, and some are permanently engaged in the underground economy, but it seems more reasonable to assume that participation varies over the year for individuals who are not strongly attached to a job or to an occupation. Lower participation rates imply a good deal of movement in and out of the labor force, going from illegal activity or off-the-books employment to work that is counted in the employment figures, and a growing cadre of prime-age men who are not strongly attached and whose prospects for strong attachment are not very bright.

Among all women age 16 and over, the participation rate went from 36 in 1955 to 52 in 1980. While some of these entered jobs on an equal footing with men, the lower wage scales, shorter tenure, and generally less attached quality of their participation is a matter of general agreement among students of the field. Considerable argument remains about how much their labor market position is due to preference and how much to discrimination, but it seems clear that the typical female-labeled job is one

in which strong attachment is not a necessary ingredient or a major factor in satisfactory performance.

By the same token, the growth of such jobs in the economy can be viewed as both a cause of and a response to greater female participation. Insofar as obligations to workers can be minimized, employers will prefer to hire the weakly attached. They usually require a cadre of skilled workers whose experience is indispensable, but many jobs, even those requiring literacy and special skills, *can* be filled by relatively short-term workers, many of whom may even be part-time.

With respect to women, therefore, the question of cause or effect is not the issue. The labor market situation is the same whether jobs changed to fit the supply or the supply arose to fill a new type of job. In either case, historical shifts in participation argue a change in the nature of jobs.

Immigrants in Loosely Structured Markets

As we pointed out earlier, the less formal the entrance requirements and procedures, the more weight is carried by informal ties and personal networks. Workers do not present themselves in a queue where employers make choices to fill vacancies. Rather, the market exists in segments that are bounded not only by prerequisites, but also by networks of information and access, and by size and style of organization. Large-scale absorption of immigrants requires an economy with many jobs in relatively unstructured settings where firms are small and labor standards poorly enforced.

Immigrants do not only find such places, they create them in small businesses in trade, construction, and the provision of services. The networks they establish for access and the informal training that takes place in these enterprises (and among other network members in larger organizations) make it possible for them to maintain their foothold in an economy.

New York City illustrates this process perhaps the best of any place in the U.S. because it is a city of small units in certain industries where immigrants traditionally supplied the labor force, such as apparel and restaurants, and in others where new conditions favor immigrants, such as construction and taxicabs.

Construction

Trends in construction in New York City have both increased the employment of immigrants in the industry and channeled them into particular sectors. Although downtown office and apartment construction remains a union stronghold in the city, the nonunion sector, particularly

renovation, has grown significantly over the past decade and is likely to continue to expand (Sternlieb and Hughes 1983).

Although many foreign-born workers do eventually find their way into unionized contract construction, the greatest concentration of relatively recent immigrants is in the renovation sector (Gallo 1982). Because blacks have been most successful in the unionized sector, the relative weakening of the unions in the industry appears to reduce the opportunities of blacks while it opens the industry for recent immigrants.

Taxis

The taxi industry furnishes another example of the effect of looser labor market ties on the absorption of new immigrants. Driving a cab has long been an expedient way to make a living in the short run, and the de facto relaxation of standards that occurred when drivers were hard to recruit served not only to enlarge the pool of eligible native-born drivers, but also to incorporate newcomers whose spoken English and knowledge of the city were often marginal.

The economics of the industry has been such that official taxicab medallions came onto the market in significant numbers beginning in the late sixties when labor and fuel costs rose sharply (Gorman 1981). With a brokerage system in place and with the availability of bank loans (the medallion itself constituting security), immigrants seized the opportunity to become owners. The trend toward self-employment was particularly attractive to immigrants because they are willing to invest long hours of labor to achieve economies of scale without, in effect, counting the costs.

Garments

Subject to worldwide competition, the decline of the garment industry would presumably have been more precipitous were it not for the labor supply of new immigrants who now dominate the industry's workforce. This classical immigrant industry is dominated by small firms often organized by immigrant entrepreneurs in substandard space and with rented equipment. The industry segments that are engaged in mass production for predictable demand simply no longer exist in New York (Waldinger 1983).

Health Care

Developments in the health care industry reflect both a strengthening as well as a weakening of employment relationships. On the one hand, unionization of the industry's workforce has increased significantly over the past 15 years and credentialism in middle-level jobs has continued apace. The lower level jobs in housekeeping and dietary have few skill

requirements, but even here, turnover, at least in New York, is extremely low since the jobs are secure and have good fringe benefits. Finally, in the hospital industry there is, of course, no opportunity for small-scale entrepreneurship which plays such an important role in immigrant employment in other industries. Therefore, the hospital employment relationship continues to be characterized by strong ties and formal rules.

Nevertheless, there are trends in the industry that are weakening employment ties. Subcontracting is increasing for some hospital functions such as housekeeping, dietary, maintenance, and laundry. Cost-cutting efforts, as well as the increasing size of the elderly population, have led to a rapid increase in home health care. Most workers in this sector are recruited informally and employed at the minimum wage. Employment is guaranteed only as long as the client is alive and not hospitalized. According to a 1979 profile of some 15,000 home-care attendants, two-thirds were immigrants—43 percent of the total were West Indians (New York Human Resources Administration 1979).

Restaurants

The restaurant industry also demonstrates the opportunities afforded immigrants in loosely structured labor markets. In New York they dominate not only the ranks of the least skilled, but also those of the skilled workers and owners; almost two-thirds of the restaurants are owned by first-generation immigrants (Bailey 1983). Much of the employment in the industry is off the books and is in violation of labor standards laws. On the other hand, there is a counter trend in the industry. Over the past 15 years, large restaurant corporations have significantly increased. Fast-food chains in particular have made dramatic gains, and even in a city like New York they have been able to hold their own in competition with inexpensive immigrant restaurants.

While the high turnover in fast-food restaurants hardly indicates that the employment relationships are strong, restaurant chains, because of their size and visibility, are more likely to abide by formal, legislated employment regulations than are small family-owned immigrant restaurants. Significantly, it is in the fast-food sector that black workers are concentrated. Furthermore, native-born blacks have also entered the managerial ranks in these chains—a rarity in other sectors of the industry.

Conclusion

What we have tried to do is to describe current trends in the labor market as they affect worker-employer relations, and then draw out the implications for the economic adaptation and mobility of immigrants. The question arises about what comes first or, to put it more precisely, “Is

the loosening of the ties an exogenous set of events or is it in some measure 'caused' by the newcomers?"

Most of the trends that we have outlined in this paper were well established before the reemergence of immigration as a national problem. The decline of the manufacturing sector, the internationalization of the economy, the stagnation of productivity, the weakening of the labor movement, the demise of government regulation of the economy and the labor market, and the increasing severity of economic downturns can hardly be blamed on immigration. To be sure, the availability of large numbers of immigrants does influence the economy's reaction to those trends, and in some regions it may have speeded them; nevertheless, it is more likely that these events have actually increased the demand for immigrants.

Their advantages are of three kinds. First, since they operate in a different frame of reference, they will accept the low wages and living standards that those wages imply. Second, most immigrants are subject to less discrimination on the part of both employers and customers than are native-born blacks. Finally, the networks they establish make it possible for them to maximize their skills and their experience in a setting that is psychologically comfortable even if it is physically and economically harsh.

While the trends that we have considered here may open up some employment opportunities for recent immigrants, the implications for the economic mobility of native-born workers with low levels of educational attainment are as yet unclear. It does appear that fewer unskilled workers will find entry jobs that will systematically lead to relatively high-paying secure jobs in the same firms—the primary sector jobs of dual labor market theory. As we have argued, these developments may reduce the prospects for unskilled blacks with low educational attainment. Particularly to the extent that black progress has been based on the enforcement of antidiscrimination legislation, the weakening of formal rules regulating the employment relationship will thwart that movement.

Furthermore, although the trends we have described here have not been caused by immigrants, they will probably result in greater competition between immigrants and some groups of native-born workers. The rules and structures that appear to be breaking down are the institutional features that created the barriers and divisions between sectors. These divisions mitigate the labor market competition between immigrants and those native-born groups that historically have depended on low-wage jobs. As the institutional structures on which those divisions were based weaken, we can expect to see more direct competition between immigrants and the native born.

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Immigration and California Agriculture*

PHILIP L. MARTIN AND RICHARD MINES
University of California, Davis

Agriculture is the core of the largest industry in the United States, the food system that supplies farm inputs, produces food and fiber, and then processes farm products and distributes them to consumers. The food system generates about 23 percent of GNP and employs 22 percent of the workforce: 3 percent supply agriculture with equipment, finance, and other inputs; farmers and farmworkers comprise 3 percent of the workforce; and 16 percent are employed by food processors, retailers, and restaurants. This food system is the envy of the world because it provides consumers with a variety of foods at low cost. The average American family spends about 16 percent of its disposable income on food, versus 25 percent in Europe and up to two-thirds in developing nations (USDA 1983).

Farm labor, a perennial issue, became even more controversial since 1970 because the large and specialized farms that produce most of the nation's food and fiber continued to substitute hired workers on land acquired from family farmers. Many of these hired workers are working in the United States in an undocumented or illegal status, and agriculture's reliance on illegal alien workers has helped to stall immigration reforms. This paper reviews the farm labor debate in California, a state with 10 percent of the nation's agricultural sales, the producer of about 40 percent of the country's labor-intensive fruits, vegetables, and nursery products, and the employer of at least 20 percent of the seasonal farm workers.

California Agriculture

California's 80,000 farms produce over 200 commodities that range from cotton and grapes to olives and kiwifruit. California agriculture has several distinguishing features. The most important feature is the commercial production of specialty fruits, vegetables, and nursery products on large acreages of high value and irrigated crop land. These specialty crops require unique inputs, including seasonal farmworkers, specialized

* This paper is based on research supported by the Rosenberg Foundation. Authors' address: Department of Agricultural Economics, University of California, Davis, Davis, CA 95617.

processing and transportation facilities, and sophisticated farm management.

Public policy has tried to maximize the number of family farms in the United States since Thomas Jefferson argued that “those who till the soil are the chosen people of God” and “the backbone of democracy.” Despite persisting family farm rhetoric, the structure of agriculture is changing to reduce the number of full-time family farmers throughout the United States. A farm is any unit of land that is “operated as a farm” and sells \$1,000 or more in farm products annually. The United States has 2.4 million farms, but 72 percent sold less than \$40,000 in farm products in 1981 and, on average, these farms *lost* money producing 13 percent of the nation’s food and fiber. The largest 25,000 farms each had sales of \$500,000 or more, supplied 30 percent of all farm products in 1981, and received 60 percent of net farm income. Despite family farm rhetoric, farms are being squeezed from the middle of the size spectrum toward the viable extremes. The most profitable and sustainable U.S. farms appear to be small and nonfarm oriented operations that can afford to lose money farming *or* large and specialized “factories in the fields.”¹

Almost all of California’s specialty crop farms rely on hired workers. Throughout U.S. agriculture, farmers and their families do 70 percent of all farm work and hired workers do 30 percent. In California, hired workers do 70 percent of the work, and 95 percent on many specialty crop farms. Dependence on hired workers does not vary greatly with the size of specialty farms, but worker characteristics, wages, and employment conditions do vary with size of farm, commodity grown, and area. Available evidence suggests that larger specialty crop farms generally hire more legal workers, pay higher wages, and offer more fringe benefits than smaller farms (Johnston and Martin 1983). If true, this suggests that the incomplete transformation of specialty crop agriculture helps to explain grower opposition to immigration reforms and other labor market changes, and that grower opposition is strongest in commodities and areas with the most mid-sized growers.

Several labor-intensive commodities have already evolved an industrial production pattern, with a handful of large grower-packer-shipper firms supplying 50 to 70 percent of the market and hundreds of smaller growers producing for the remaining market niches. The five largest iceberg lettuce producers are integrated grower-shipper operations that supply

¹ Large and small farms vary enormously across commodities. In 1978, for example, the largest 12 percent of California’s 10,300 grape growers each had 100 or more acres and two-thirds of all grape acreage; the largest 6 percent of the 7900 citrus growers had 51 percent of all citrus acreage.

almost 40 percent of the U.S. market. Four large fresh mushroom producers supply 70 percent of the California market, and the two largest nursery operations supply 40 percent of the nursery stock from a string of nurseries. These “factories in the field” typically hire 500 to 2,000 farmworkers at one or several locations and employ several hundred additional packers, drivers, and support personnel. Other specialty crops that are developing this industrial-production pattern are wine grapes, melons, and cannery tomatoes. Crops with low concentration ratios (the five largest producers account for less than 5 percent of total production) include most tree fruits, citrus, and many fresh vegetables.

The Farm Labor Market

The California farm labor market reflects the nature of specialty crop production. On most specialty crop farms, a few year-round or permanent employees are joined by fluctuating numbers of seasonal workers who perform particular tasks: pruning in winter, thinning and hoeing in early summer, irrigation throughout the summer, and harvesting in the fall. Nurseries and a few crops such as the citrus harvest offer six to eight months work at one location, and some of the Salinas lettuce and vegetable growers provide almost continuous employment to workers who move from the summer coastal valleys to the winter desert areas, but most seasonal workers are employed from two weeks to two months by a particular grower.

Most specialty crops are labor-intensive, with wages 20 to 50 percent of total production costs. Thus, a large acreage of specialty crops in California requires a large number of hired workers: in 1981 an average employment of 223,000, a range of 175,000 to 270,000, and a total workforce of 616,000 (persons who had farm wages).² Weather and market fluctuations make it hard to predict grower labor needs precisely, and perishability sets limits on the window for harvesting a commodity. The conflict between the uncertain timing of labor needs and perishability has always encouraged farmers to demand “too many” workers, especially since growers do not usually share the costs of maintaining workers who are waiting for work to begin. The easiest way to assure an ample labor supply for such seasonal and often piece rate, low-wage work is to flood

² California's Employment Development Department estimates agricultural employment every month by having local observers decide what tasks need to be done and how many family and hired workers will be needed to do them. These job slot estimates say nothing about the total farm workforce; the workforce estimate is from unemployment insurance records. For further elaboration on the division of 616,000 farmworkers into about 500,000 seasonal workers and 120,000 to 150,000 year-round workers, see Philip Martin and John Mamer, “Hired Workers on California Farms,” *California Agriculture* 36 (September-October 1982), pp. 21–23. Data from California's UI records. These statistics are taken from Philip Martin, “Collective Bargaining in California Agriculture,” UCD, 1983, mimeo.

the labor market with domestic workers shut out of other labor markets and to permit the entry of immigrant farmworkers without options. Growers have been able to structure most farm jobs so that workers with diverse backgrounds and motivations can be put to work with minimal training and supervision.

Since 1950, average employment and the total workforce have stayed at about 220,000 and 620,000, respectively, as cotton, tomato, and sugarbeet mechanization displaced workers but these job losses were offset by the expansion of grape, fruit, and vegetable production. However, the composition of the farm workforce has changed significantly. In 1950, the California farm workforce included substantial numbers of prime-aged white males, housewives, and teenagers, and a diverse collection of minority farmworkers, including Hispanics, Blacks, Filipinos, and Pakistanis. Today, whites and blacks have largely abandoned hand-harvest work, and the hand tasks in agriculture are done primarily by Mexican-born or Mexican ancestry workers. Except for a few reports of Asian refugees entering the farm workforce, only Mexicans are entering the farm workforce to do hand tasks.

Hired farmworker status used to be considered a way station to farm ownership by workers, farmers, and the public. Today, hand harvest work is still a way station for most farmworkers, who do hand harvest work for five to fifteen years and then switch to an easier farm task like irrigation, find nonfarm work, or return to Mexico. A few hand harvest workers become equipment operators, and a few become supervisors or farm labor contractors, but very few farmworkers who begin hand-harvesting fruits and vegetables at age 18 or 20 will still be in the fields 20 years later. The farm labor market, as currently structured, needs a constant infusion of new workers (Mines and Martin 1983). Since farmwork, especially hand harvest work, is not the preferred job of most workers, an ample workforce for agriculture depends largely on the existence of a pool of domestic and immigrant workers without options, or "unemployment at home and poverty abroad."

California's farm labor market matches about 500,000 seasonal workers with farm jobs each year. Most of this matching is done by foremen, crew leaders, or labor contractors—the middlemen who are the "bosses" in the eyes of most farmworkers. Foremen are typically bilingual, often ex-farmworkers who can recruit friends, relatives, and other workers for farm jobs. Foremen usually supervise these workers on the job and sometimes transport them to other farm jobs. The authority of these key labor market intermediaries varies: some foremen recruit and supervise under close grower scrutiny, while others have only occasional discussions with growers about who is hired and fired. Some foremen are employed

by the packing houses that provide bins and other harvesting equipment, while other labor contractors supply workers and equipment and decide where and how to pick. Most farmworkers are hired by foremen who ask current workers to recruit their friends and relatives, a recruitment practice that helps to explain why workers from a particular Mexican village are concentrated in a certain area and set of commodities in California. The illegal status of most entry-level farmworkers reinforces this concentration effect because employed friends and relatives often send money and border-crossing advice to Mexico and then provide or arrange housing and a U.S. job. Twenty years of such post-bracero recruitment have forged such strong networks between California jobs and Mexican villages that a Mexican worker's place in the farm labor market is determined primarily by his network. A worker's network can deliver him to a \$7 to \$10 hourly Salinas lettuce harvesting job, a \$5 to \$7 Ventura citrus job, a \$4 Fresno tree fruit job, or a minimum wage thinning and hoeing job. Some pioneer workers enlarge the set of jobs open to a particular network by moving to a different area, getting into a packing shed, or finding an urban job, but this network tends to remain an immigrant farmworker's most important asset.

Labor market matching is also done by growers and employer associations that hire workers directly (although most depend on current worker referrals), union hiring halls, and the public employment service. It is not possible to divide California's 500,000 seasonal worker-job matches by type of recruitment, but at least 80 to 90 percent are foremen-network referrals or workers returning to last year's employer.

Most farmworkers are deployed in crews of 20 to 30. Some crews and tasks are paid hourly wages, so that a foreman monitors the quality and quantity of work done by persons who thin and hoe or harvest tree fruits such as peaches, pears, and nectarines. Many harvest workers earn piece rate wages, so that a supervisor monitors primarily quality. Some crews include a checker who records each worker's production, while others divide the entire crew's piece rate earnings equally among crew members. When the entire crew divides its earnings equally, it tends to be self-regulating, expelling workers who cannot work fast enough in lettuce, melons, and broccoli. Most piece rate wage systems fix a grower's cost of harvesting so that workers' wages vary with the yield and condition of the crop, although a few commodities establish piece rates that stabilize workers' wages by changing piece rates with yield and crop conditions.

Seasonal farmworkers piece together incomes in a variety of ways. In the most structured vegetable and citrus labor markets, a construction-style pattern of relatively high wages supplemented by unemployment insurance permits many lettuce and citrus harvesters to earn \$200 to \$300

weekly for three to five months and then draw unemployment insurance (UI) benefits of up to \$156 weekly for up to 26 weeks. In the more common casual labor markets, workers earn \$3.35 to \$5 hourly for a fluctuating number of hours each week, or \$100 to \$200 weekly. Many of these illegal alien workers do not remain in California looking for work, and some are afraid to request UI benefits. However, many farmworkers rely on UI, and UI is modifying the seasonal farm labor market in California. In 1981, an average 394,000 farmworkers covered by California UI had taxable wages of \$2.5 billion and received \$144 million in UI benefits, making UI benefits 5.9 percent of taxable farm wages. Contract construction UI benefits are 8.3 percent of taxable wages, food processing 7.9 percent, and motion pictures 6.2 percent, indicating that agricultural UI benefits can and probably will increase if the construction-style labor market spreads.

UI benefits are changing the farm labor market by providing seasonal workers an off-season source of income, sometimes lengthening farmwork careers. Unions and collective bargaining represent another force that is changing farm labor markets. California granted farmworkers organizing and bargaining rights in the 1975 Agricultural Labor Relations Act (ALRA), and seven unions currently represent California farmworkers. The United Farm Workers (UFW) headed by César Chavez reports 177 contracts around California covering 43,000 farm jobs; the Salinas-based Independent Union of Agricultural Workers reports 11 contracts and 3,500 members; the Santa Maria-based International Union of Agricultural Workers reports 1,500 members; and Teamsters Local 890 represents the 3,200 field workers employed by Salinas-based Bud of California. The El Centro-based Fresh Fruit and Vegetable Workers Union reports several thousand members, and the Chino-based Dairy Employees Local 17 and Teamsters Local 63 represent several hundred dairy employees in southern California.

Collective bargaining has helped to balkanize farm labor markets by increasing wages and fringes and promoting formal personnel policies on farms that have union contracts or feel threatened by union activities. The UFW tried to combine Clark Kerr's craft and production systems (Kerr 1954): it tried to control the supply of workers to a particular farm by requiring recruitment through the union's hiring hall, and it tried to regulate mobility up each farm's job ladder. However, the farms most likely to permit upward mobility have resisted the union hiring hall, so the UFW has been forced into the craft system of using union seniority to ration farm jobs. Union rationing has sometimes divided families and relatives accustomed to working at the same location and has been a source of worker and employer frustration.

The ALRA has also generated controversy. Since the ALRA allows more remedies for employer unfair labor practices than does the NLRA, and because the Agricultural Labor Relations Board (ALRB) has declared that the uniqueness of agricultural employment justifies certain deviations from NLRA practices, agricultural employers are required to permit nonemployee union organizers to have access to workers on the basis of a union petition and employers can be required "to make their employees whole" for wage and fringe benefit losses incurred while the employer did not bargain in good faith with a certified union representative. The asymmetry between the extensive labor relations rights afforded farmworkers by the ALRA and these same workers' frequent lack of legal status helps to explain the very uneven enforcement of labor laws that depend on worker complaints. For example, employer practices and the make-whole remedy yield numerous back pay awards for workers who can rarely be found after several years of litigation.

Conclusions

California's labor-intensive agriculture is dependent on seasonal farmworkers to perform critical tasks of two weeks to two months duration. Job and worker development have adapted to and often fostered a revolving door harvest workforce, requiring a constant infusion of 18- to 25-year old immigrant workers to replace the 35- to 45-year old workers who "retire" to easier farm or nonfarm jobs. In some commodities and areas, more formal labor markets have evolved that offer higher wages and fringes, seniority recall, and other incentives to prolong the harvest career of a worker with a particular employer, but most farm labor markets still depend on a foreman or labor contractor to recruit a sufficient number of easily trainable workers.

Persisting illegal immigration contributes to the balkanization of farm labor markets by making wage and fringe benefit increases unnecessary, thus increasing the gap between improving union-affected and nonunion labor markets. Illegal immigration is contributing to the resurgence of "Mom and Pop" labor contractors who usually escape enforcement efforts, and these small contractors often supply workers to middle-sized labor-intensive farms whose owners are usually honest when they assert that they will go out of business without alien farmworkers.

California's labor-intensive agriculture doubled its production of the specialty commodities demanded in an affluent society since 1950. This enormous agricultural expansion was facilitated by the ready availability of domestic and immigrant farmworkers. Public policy now faces a series of unpalatable choices because legislators cling to contradictory goals: how to phase out dependence on alien workers yet preserve mid-size fruit

and vegetable farms; how to avoid displacing farmworkers with machines yet keep American commodities competitive with the products of even lower wage workers abroad; and how to maintain low food prices for consumers while upgrading farm labor markets. A society ready to make choices could resolve some of its perennial farm labor issues.

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DISCUSSION

VERNON M. BRIGGS, JR.
Cornell University

In general, the paper by DeFreitas and Marshall is an important contribution to understanding the mounting influence that immigration has had and is continuing to have on the nation's labor force. As with most econometric studies of labor force trends, the authors carefully couch their findings in phrases that tend to manifest an impression of tentativeness about the certainty of their conclusions. Nonetheless, their central point is that immigration in the manufacturing sector of major U.S. metropolitan areas has exerted a statistically significant negative impact on wage growth. As would logically seem apparent, they also find that the negative effect is most prevalent in those metropolitan areas which have had the largest number of immigrants working in manufacturing.

Because the authors rely on data for the foreign-born, they make no pretense of separating the effects of legal immigrants from illegal immigrants. They are implicitly lumped together. As is well known from the immigration literature, there is a serious undercount of the illegal component of the total immigrant flows of the 1970s. Hence, it is highly probable that there are considerably more immigrant workers in the U.S.—both in manufacturing and in other industrial sectors—than are represented in any of the data sources used by the authors. Studies of illegal immigrants, however, have found relatively few illegal immigrants to be employed in manufacturing enterprises. The only clear exception to this is the low-wage garment industry which seems to be aggressively seeking illegal immigrants as preferred employees. Hence, it can be presumed that the great preponderance of those persons studied by the authors are legal immigrants.

The importance of making this observation is not mentioned by the authors. Namely, under the nation's prevailing immigration policy, labor market consequences are not of any real importance to the operation of the system. Only 5 to 6 percent of the legal immigrants to the United States each year are admitted solely on the basis that their skills are needed by the labor market. This study serves as a vivid reminder that

Author's address: New York State School of Industrial and Labor Relations, Cornell University, P.O. Box 1000, Ithaca, NY 14853.

legal immigrants do have significant labor market impacts on both the earnings and employment opportunities of citizen workers regardless of the standard used to admit them. The fact that the overwhelming number of legal immigrants to the United States are admitted on the basis of family reunification and refugee status and not because their particular employment skills are needed by the economy is often overlooked by scholars, citizens, and policymakers. No other country in the world has an immigration admission system that gives so little attention to labor market factors. Consequently, even though the U.S. admission system pays scant attention to the labor market consequences of mass immigration, this paper proves the obvious: namely, there still are significant labor market impacts which result from this process. With immigration now accounting for at least half of the annual increase in population and labor force (if conservative estimates of illegal immigration are added to documented increases in the number of legal immigrants and refugees) of the United States, the necessity to change the admission priorities of the nation's legal immigration policy should be obvious. I hope the authors intend to include some comments to this end in their larger study of this issue to which they allude in this paper.

There is only one minor problem in this paper that mars the ability to interpret the importance of their work. Namely, it would have been helpful if the authors had used a consistent term throughout the paper to describe the group that is being studied. They begin the paper discussing "unskilled and semiskilled workers"; later they use the term "manual workers"; and still later they use "production workers." When "manual workers" are defined, they say it includes "laborer, operative, and craftsman" occupations. Hence, the data they are using actually include skilled workers as well as unskilled and semiskilled workers. The inclusion of skilled workers (i.e., craftsmen) is not immediately obvious in the paper. A clear statement of the definition is important because over the decade of the 1970s—the period used for analysis by the authors—it is only the skilled worker component of the production worker group that sustained any significant growth among all of the blue-collar occupations. The addition of large numbers of immigrant workers into occupations that are growing as opposed to those that are not in manufacturing can be expected to exert a differential impact on earnings and employment of native-born workers. Likewise, because of their definitional ambiguity, it is very hard to understand how the authors use the term "low-wage workers in U.S. metropolitan areas" in their paper. Craftsmen in manufacturing are not usually considered to be "low-wage workers," nor for that matter are most operatives. In reality, the group that is being studied are production workers in manufacturing. Most production workers in

manufacturing—regardless of their occupational category—are considered to be above average wage earners among the nation's labor force.

Otherwise, I feel that the paper by DeFreitas and Marshall serves as a tantalizing appetizer that should encourage one to look forward to reading the complete study from which this paper is but a brief summary.

VIII. CONTRIBUTED PAPERS: LABOR ECONOMICS

Some Causes and Consequences of Disability Benefit Receipt*

THOMAS N. DAYMONT
PAUL J. ANDRISANI
Temple University

The Social Security Disability Insurance (SSDI) program has come under particularly close scrutiny in the past few years. Some argue that the program should be tightened in various ways in order to control sharply rising costs and a presumed inhibiting effect on the labor force participation of middle-aged and older workers. Others maintain that the program needs to be liberalized to insure an adequate standard of living for individuals with work-limiting health problems. Beliefs about these issues will be determined largely by philosophical views about the proper insurance, welfare, and employment functions that should be served by the SSDI program. Also important for these policy choices are answers to questions about the degree to which more liberal disability programs encourage labor force withdrawal and also about the present role of the SSDI program in providing economic support for individuals with work disabilities or work-limiting health problems. Several empirical studies have examined the impact of disability and other government transfer programs on labor force participation (e.g., Parsons 1980, 1982; Leonard 1979; Haveman and Wolfe 1982, 1983). Although the results of the studies vary in terms of the estimated magnitude of the effect, they consistently

Authors address: Center for Labor and Human Resource Studies, School of Business Administration, Temple University, Philadelphia, PA 19122.

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show that the level of benefits has a significant inhibiting effect on labor force participation.

Assessing the degree to which SSDI and other disability benefit programs provide adequate economic support for individuals with work limitations is difficult due to the differing characteristics of the various programs. However, aspects of the program characteristics suggest that they provide a safety net with few holes. Most noteworthy, the Supplemental Security Income (SSI) program provides assistance to all who can demonstrate that they are too disabled to work and who have very low levels of income and assets regardless of the reason for the disability or the individual's work history. When combined with food stamps and Medicare, SSI benefits constitute a minimum standard of living near the poverty line for most recipients. After considering these and other characteristics of various disability programs, Burkhauser and Haveman (1982, p. 65) conclude, "The system now provides a strong safety net that virtually guarantees that no workers who are severely disabled will fall into poverty." However, to be guaranteed protection by this safety net, an individual has to meet the rather strict definition of work disability—basically, unable to engage in any substantial gainful employment activity because of a medically determined long-term physical or mental impairment.

The results of several empirical studies suggest the possibility that the disability criteria for SSDI and SSI may be too stringent (in terms of either definition or administrative procedures) and that many individuals with work-limiting health problems do not receive disability benefits (e.g., Johnson et al. 1979, Muller 1980). In a study of unhealthy men who withdrew from the labor force prior to age 62, Kingson (1981) concluded that, on average, the health of the men who did and did not receive SSDI was similar. Kingson inferred that many of the nonrecipients were deserving of benefits and concluded that serious consideration be given to liberalizing the eligibility criteria for both the SSDI and SSI programs. Others have taken issue with aspects of Kingson's analysis or conclusions (for more on the ensuing debate, see Myers 1982, 1983; Kingson 1982, 1983; Daymont and Andrisani 1983). In this paper we examine further the degree to which men with work-limiting health problems receive SSDI or other disability benefits. In addition, we examine the degree to which disability benefit receipt contributes to the economic well-being of men with work-limiting health problems.

Data and Analytical Strategy

Like several other studies, we use data for mature men (ages 50–64 in 1971) from the National Longitudinal Surveys (NLS). Basically, the

sample includes men: (1) who permanently withdrew from the labor force prior to age 62, (2) who withdrew after the 1966 interview and prior to the 1971 interview, (3) who reported in the first interview after withdrawal that they had a health problem that either prevented them from working or would limit the amount or kind of work they could do, and (4) who survived until 1975.¹

In the analysis we distinguish between three types of disability benefits. The first is SSDI. The second category includes workers' compensation, veterans compensation and pension programs, SSI, and programs for the blind or permanently disabled that became part of the SSI program when it began in 1974. The third category is a residual category of all "other" disability programs. Though the sources of these "other" benefits were not specified in the NLS, private and government-sponsored programs would seem to be the major source.

To examine the effects of several determinants of disability benefit receipt, regression analysis (OLS) was used.² More specifically, disability benefit receipt was expressed as a function of work disability (the degree to which health prevents work rather than only limiting the amount or kind of work), health (as measured by a functional limitations index), family income prior to labor force withdrawal (relative to the poverty level for the respondent's family type), an indicator of whether the respondent would ever be eligible for Social Security retirement benefits (as an indicator of whether the respondent met the work history eligibility criteria for SSDI), self-employment, and government employment.³ We then examined the effects of disability benefit receipt on family income

¹ A respondent was considered to have permanently withdrawn from the labor market in interview year i if: (1) his labor force status in the interview year prior to year i was employed or unemployed, (2) his labor force status in year i and all subsequent interviews through 1975 was out of the labor force, and (3) he did not report any weeks worked in any interview subsequent to year i through 1975.

² Given the dichotomous nature of the disability benefit receipt variables, probit or logit analysis would be more appropriate on a statistical basis. (Although it should be kept in mind that these techniques rely on assumptions about the nature of the process and the distribution of the disturbance term that are not completely valid in this analysis.) However, the use of probit or logit usually makes very little difference in the significance of effects in simple models such as this. OLS was used because the interpretation of its results is more straightforward. The multiple classification analysis allows for nonlinearities in the effects of most of the explanatory variables.

³ Family income prior to labor force withdrawal was measured two to three years prior to labor force withdrawal. Family income after withdrawal was measured two to three years after withdrawal. The log of the ratio of family income to the poverty level was used so that we would be assessing the effects of proportional rather than arithmetic differences in income. This ratio was multiplied by 100 before taking the log to eliminate negative values. Including negative values would lead to a nonmonotonic relationship between the log of the ratio and the square of the log of the ratio. The functional limitation index and algorithm for its construction are provided in NLS data and documentation. Operational definitions of each category of functional limitation are available from the authors upon request.

after labor market withdrawal (relative to the poverty level for the family). In all analyses, cases are weighted by their sampling weight.

Disability Benefit Receipt

Of the 106 men in our sample, 80 percent received some kind of disability benefits. Far and away, the most common type of disability benefit was SSDI. Sixty-eight percent of our basic sample and about 85 percent of those receiving some kind of disability benefits received SSDI. Twenty-one percent of the sample received other disability benefits from specified programs, most commonly veterans benefits, SSI, or programs to aid the permanently disabled or blind which became part of SSI in 1974. Twenty percent received benefits from nonspecified programs. Twenty-nine percent of the sample received benefits from more than one program. Other results indicate that almost every combination of programs is represented among multiple beneficiaries.

Our analysis yielded much higher rates of disability benefit receipt than did Johnson et al. (1979), who also analyzed NLS data but found that only about one-half of their sample received disability benefits. However, Johnson et al.'s sample included men who reported work-limiting health problems yet continued to work, while we included only men who reported work-limiting health problems and who permanently withdrew from the labor force.

These results can also be compared to those reported by Sunshine (1981) who used data from the Social Security Administration's 1972 Survey of Disabled and Non-disabled Adults. He found that about one-fourth of those too disabled to work at all reported receiving no benefits. One difference between the samples is that ours is restricted to men who were still in the labor force in 1966 when they were 45–59 years old. Thus, our sample is restricted to men who were able to continue working until relatively late in their careers. It should be remembered that the definition of our sample leaves room for the inclusion of some men who had only minor work limitations and withdrew from the labor force for reasons other than health. If we restrict the sample to those who reported that health problems actually prevented them from working, rather than just limited the amount or kind of work they could do, then we find that only 14 percent of the men reported that they did not receive any disability benefits.

Determinants of Disability Benefit Receipt

The effect of functional limitations on SSDI benefit receipt is positive but not statistically significant. A similar finding with the NLS data led Kingson (1981) to conclude that among men who withdrew from the

labor market and reported a work-limiting health problem, the health problems of nonrecipients of SSDI benefits were similar to those of SSDI recipients. This, in turn, seemed to imply to Kingson that a significant portion of nonrecipients were unhealthy enough to deserve benefits, and that serious consideration should be given to liberalizing the eligibility criteria for SSDI. Although the effect of functional limitations on receipt of any type of disability benefits is only slightly larger than its effect on SSDI receipt, it is statistically significant, suggesting a tendency for the more unhealthy men in our sample to receive some type of disability benefits.

The relatively weak effects of functional limitations probably reflect the fact that the functional limitations index is only an indirect indicator of work disability—the most relevant dimension of health for explaining disability benefit receipt.⁴ Some functional limitations prevent some kinds of work and not others. Even in the same occupation, the same functional limitation may imply a disability for some individuals but not for others, especially if they differ in the degree to which they like their jobs.

The effects of self-reported work disability are relatively stronger, most likely reflecting a greater conceptual relevance. However, they may also reflect response biases. In particular, disability beneficiaries may be more likely to report that their health prevents work in order to justify receipt of disability benefits. Indeed, the concern about such response biases is a primary motivating factor for using indirect indicators such as functional limitations in analyses of the relationship between disability and labor market behavior. The weaker effects of self-reported work disability on disability benefits from any source than on SSDI benefits may be due to the fact that some disability programs, such as veterans compensation, provide benefits for partial work disabilities or that other programs, such as some employer-sponsored programs, require only that health problems prevent certain types of work rather than work in general.

Since the variable “ineligible for Social Security retirement” proxies for being in noncovered employment, we expect that self-reported work disability would have no impact on SSDI receipt for those few men who indicate that they would be ineligible for Social Security retirement, because they would be ineligible for SSDI regardless of how disabled

⁴ Of course, the relationship between health (or disability) and benefit receipt would be stronger if the sample included individuals without work-limiting health problems. However, testing for this relationship in such a sample would be a trivial exercise since such a relationship obviously exists. Given the focus of past studies and the fact that most disability programs are designed to provide benefits only to those with full disabilities, the more relevant question is whether, among those with some kind of work limitation, the more unhealthy or disabled are actually more likely to obtain disability benefits.

they are. When the analysis was rerun, excluding men who were ineligible for Social Security retirement benefits, the results indicated that the effect of work disability increased slightly (from .39 to .44 in the most complete model).

The regression results suggest a curvilinear effect of pre-labor-force-withdrawal economic status on receipt of SSDI and, to a lesser degree, on any disability benefits. Results from a multiple classification analysis in which the prewithdrawal income-poverty ratio was divided into five levels indicate that having a very low prewithdrawal family income decreased substantially the likelihood of receiving SSDI benefits. Some of the nonrecipients of SSDI benefits received disability benefits from other sources; however, respondents with very low prewithdrawal incomes still were much less likely to receive any disability benefits. This is despite the fact that respondents with the lowest levels of prewithdrawal incomes were somewhat more likely to report work-preventing health problems. When we standardized for this and other factors, only about one-third of the respondents with prewithdrawal incomes below three-quarters of the poverty level received any disability benefits. In sharp contrast, roughly 85 to 90 percent of respondents with prewithdrawal incomes above one and a half times the poverty level received some kind of disability benefits.

The relative magnitude of the effects of the variables and the R^2 s for the various models indicate that prewithdrawal income is substantially more important than either functional limitations or work disability in explaining disability benefit receipt for the men in our sample. While most men who withdraw from the labor market with work-limiting health problems received some kind of disability benefits, nonreceipt was less a result of having only a minor or moderate functional limitation or a nondisabling health problem and more a result of having a prewithdrawal income well below the poverty level.

It is not clear why this is the case. Certainly, it cannot be explained in terms of the eligibility criteria for the various disability programs. Indeed, a very low family income would seem to increase the likelihood of meeting the eligibility criteria for means-tested programs like Aid to the Permanently and Totally Disabled and Aid to the Blind, and, later, SSI.

It may be that a significant proportion of the poor men in this sample did not realize that they might be eligible for disability benefits or were in some way intimidated by the administrative procedures of the Social Security system. Moreover, they may have had less access to the advocacy support which appears to be important for negotiating the sometimes lengthy and complex administrative and legal processes involved in obtaining SSDI or SSI benefits.

The negative effects of the “ineligible for Social Security retirement” and government-employment variables on SSDI receipt suggest that a primary reason for the finding of some previous studies (e.g., Kingson 1981) that many individuals did not receive SSDI is simply that they worked for certain government or private employers who were not covered by the Social Security program (the effect of “ineligible for Social Security” is significant when the government-employment variable is not included in the model). The insignificant effects of these variables on receipt of “any” disability benefits suggest that workers in uncovered employment were eligible for other types of disability to such an extent that they were not at a disadvantage in terms of receiving some type of disability benefits.

Economic Status After Labor Force Withdrawal

On average, the postwithdrawal family incomes of the men in our sample are 1.84 times the poverty level for their types of families. This represents a drop of about 38 percent from the average ratio of prewithdrawal income to the poverty level for these men. Though these averages may suggest a reasonable standard of living after withdrawal for many of the men in this sample and their families, a look at the distribution of income to poverty ratios indicates that a sizable minority (31 percent) had family incomes below the poverty line.

Several factors need to be kept in mind in considering these indicators of economic status, however. First, there can be little doubt that many individuals underreport their income in surveys such as the NLS, although such underreporting appears to be less for low-income individuals (e.g., Upp 1983). Moreover, underreporting is almost assuredly not so great as to imply that a nontrivial portion of our sample suffer substantial economic hardship. Second, about 40 percent of the men who were in poverty after withdrawal did not “fall into” poverty at the time of withdrawal, but instead were in poverty prior to labor force withdrawal as well as after. Hence their disadvantaged economic status cannot be blamed solely on their health problems or nonreceipt of disability benefits. This observation must of course be qualified to the extent that the health problems which led to the withdrawal of many of these men may have existed for some time and may have limited their earnings capacity prior to withdrawal.

Third, postwithdrawal economic status was ascertained during the late 1960s or early 1970s. Since that time, the benefit levels for SSDI have risen substantially. Recent trends in poverty rates further suggest that the incomes of nonworking older men have improved relative to most other groups. Despite the fact that the 1970s was a period of declining labor

force participation among older men and a period when the incidence of poverty was increasing among younger families, the incidence of poverty among families with household heads ages 55 to 64 fell by 20 percent during this period (U.S. Bureau of the Census). Thus, our results may underestimate the present economic status of the families of men who have work limitations and withdraw from the labor force early.

Disability benefits are particularly important to the extent that they contribute to the economic well-being of the disabled. To shed some light on the size of this contribution, we use as a measure of postwithdrawal economic status the log of the ratio of family income to poverty level. Interestingly, the effect of SSDI benefits on this measure of economic status is insignificant. When prewithdrawal economic status and health are controlled, the effect is fairly close to zero. This finding holds true whether or not other types of disability benefits are also included.

This suggests that many unhealthy nonrecipients of SSDI may have had greater access to other disability benefits or income than SSDI recipients. Other income might have come from a variety of sources including increased labor force participation by other family members. Others may have been eligible for retirement pensions, possibly at reduced benefit levels. Indeed, the postwithdrawal income for those who withdrew from the labor force around age 60 or 61 could have included early Social Security retirement benefits, since it was assessed two to three years after withdrawal. These results also suggest the possibility that some unhealthy men who were unsuccessful in obtaining SSDI benefits engaged in some kind of labor market activity, perhaps in some cases with considerable pain and struggle, and thus were not in the sample.

We also included an interaction term in the model to examine the degree to which the effect of SSDI benefit receipt may vary by prewithdrawal economic status. That is, we tested whether SSDI benefit receipt is more important for reducing economic hardship for those worse off before the disability. Consistent with this hypothesis, the coefficient on the interaction term is negative and substantial, but its standard error is so large that the coefficient is not statistically significant.⁵

Interestingly, the effect of SSDI benefits on postwithdrawal economic status is as low or lower than the effects of other types of disability

⁵ Statistically, the substantial size of the interaction coefficient can be at least partly explained by a combination of the facts that (1) the dependent variable is measured in a log metric so that the coefficients measure proportional changes in the income to poverty ratio, and (2) disability benefits replace a smaller proportion of earnings for higher levels of earnings. Substantively, the negative coefficient suggests the possibility that those who have low prewithdrawal incomes tend to be quite dependent upon SSDI benefits after withdrawal. This possibility increases the importance of ascertaining the reasons for our previous finding that men with very low prewithdrawal incomes were least likely to receive SSDI benefits.

benefits. Only benefits from unspecified sources had a strong and statistically significant positive impact on postwithdrawal economic status. This finding is consistent with the notions that employer-sponsored disability programs constitute the largest group of disability programs not specified in the NLS data and that employer-sponsored programs are often more generous than public programs. Other analyses indicate that men with high prewithdrawal incomes are significantly more likely to gain access to these benefits.

We expected a negative coefficient for the "multiple benefits" variable due to the offset provisions in some of these programs whereby benefits are reduced when benefits are received from another program. But while this coefficient was negative in models excluding prewithdrawal economic status, it is not statistically significant and is reduced to around zero when prewithdrawal economic status is included. We find that receipt of disability benefits from any source is positively associated with postwithdrawal economic status. However, once we control for prewithdrawal economic status, the effect of "any" disability benefits is reduced by more than half and becomes insignificant.

The negative effect of functional limitations indicates that respondents with less severe functional limitations have higher family incomes. This is consistent with previous results by Kingson (1981). The usual interpretation is that most individuals with severe limitations withdrew from the labor market, often out of necessity, whether or not they have adequate retirement income. On the other hand, individuals with minor limitations are more likely to withdraw only if they have a satisfactory retirement income. Others tend to continue working despite their minor functional limitations. Central to this explanation is the assumption that the functional limitations index is an indicator of work disability or limitations. Given this interpretation, we would expect to find a relationship between the measure of work disabilities and postwithdrawal economic status; however, this relationship is insignificant. Interestingly, the correlation between functional limitations and work disability is only .04, suggesting that whatever they are measuring, these two variables are measuring quite independent phenomena.

While disability benefit receipt has a surprisingly weak influence on postwithdrawal economic status, prewithdrawal economic status has a strong impact, as indicated by the large increase in the R^2 when it is added to the equation. (The small t -values for the linear and the squared term are due to the extreme collinearity between the two variables. If either is entered separately, it is statistically significant.) The results of a multiple classification analysis indicate that although higher prewithdrawal income usually implies higher postwithdrawal income, the proportional reduction

in income associated with labor force withdrawal is greater for those with higher incomes.

The strong effects on postwithdrawal economic status of prewithdrawal economic status, and the weak effects of disability benefit receipt (when other factors are controlled), suggest that eliminating poverty among families of mature men who stopped working because of health problems is a difficult and complex problem. In particular, the results suggest that liberalizing the eligibility criteria for SSDI and SSI will have only a limited effect. In addition, policies that would eliminate poverty among disabled mature men without affecting the economic status of working men would exacerbate the moral hazard problem by providing individuals with a greater financial incentive to claim a disability.

Conclusions

The most important findings can be summarized as follows:

1. Among men in this sample who withdrew from the labor force prior to age 62 and reported a work-limiting health problem, about two-thirds received SSDI benefits and about 80 percent received benefits from some disability program. When the sample was restricted to those who reported that their health actually prevented them from working, 86 percent reported receiving some kind of disability benefits.

2. The probability of receiving some kind of disability benefits was lower for those who (a) reported that their health problem only limited the amount or kind of work they could do rather than actually preventing them from working, and/or (b) reported minor rather than severe functional limitations.

3. The most powerful predictor of disability benefit receipt was prewithdrawal economic status. Respondents with a very low family income, say, less than three-quarters of the poverty level, were much less likely than others to receive disability benefits, even after controlling for other factors.

4. Disability benefit receipt had a surprisingly weak effect on postwithdrawal economic status, once other factors were controlled. However, there was some evidence, albeit statistically insignificant due to our small sample size, that receipt of disability benefits was important financially for those with low prewithdrawal incomes.

5. Postwithdrawal economic status was closely related to prewithdrawal economic status. About 40 percent of the respondents who were in poverty after labor force withdrawal were also in poverty prior to withdrawal.

These results need to be interpreted cautiously, especially until these

empirical questions are reexamined with more recent data and larger samples. Future research should also examine the degree to which these results may be affected by response biases or other types of errors in measuring health, work disabilities, and income. In addition, these issues need to be studied within a framework that considers the labor force participation decision. Such an approach may shed some light on the degree to which the weak effects of disability benefit receipt on postwithdrawal economic status is due to nonrecipients having alternative sources of retirement income and/or would-be nonrecipients remaining in the labor force.

The finding that nonreceipt of disability benefits is less a function of a nondisabling or nonsevere health problem and more a function of low prewithdrawal income is especially important. This suggests that liberalizing the eligibility criteria for SSDI and SSI may have only a limited impact on insuring an adequate standard of living for families of mature men with work-limiting health problems. It is particularly disconcerting because it appears that it is precisely those individuals for whom disability benefits may be especially important financially who are least likely to receive such benefits.

The explanation of this finding merits careful attention. In particular, consideration should be given to the possibility that poor men lack knowledge of SSDI, SSI, and other disability programs and/or have very limited access to the advocacy support which seems important for negotiating their sometimes complex administrative procedures. To the extent that this is a factor, ways should be found to streamline the system so that such advocacy support is not necessary.

As we noted at the end of the previous section, these results suggest that the problem of poverty among disabled mature men and their families has to be considered in conjunction with the problem of poverty among mature men still in the labor force.

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The Decision to File A Sex Discrimination Complaint In the Federal Government: The Benefits and Costs of “Voice”*

SANDRA E. GLEASON
Michigan State University

The availability of complaint procedures for employees to use in expressing their dissatisfaction with events in the workplace is an important feature of industrial relations systems today. The expression of a complaint provides an employee with a “voice” in a variety of matters affecting a job and its performance, including work assignments, training opportunities, and career advancement. Employers who handle the “voiced” concerns of employees in a manner satisfactory to the employee should have lower turnover rates since employees will not “exit” from the workplace as a result of dissatisfaction (Hirschman 1970).

Despite the avowed importance in the industrial relations literature of a readily accessible complaint procedure designed to keep the costs of “voice” low to both the employee and employer, no research has dealt with either the expected or actual costs and benefits of expressing “voice” from the perspective of the employee. This paper therefore considers sex discrimination complaints as one example of “voice.” The focus of the analysis is women professionals in the federal civil service. The expected benefits and costs of filing a complaint are estimated with reference to a representative complainant whose characteristics are based on those of actual respondents in a case study of CHANGE (Check Harassment and Negligence in Government Employment) who reported on their experiences as filers using the federal complaint procedures.¹ Although it is not

Author’s address: School of Labor and Industrial Relations, Michigan State University, East Lansing, MI 48824.

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¹ CHANGE is a support group for federally employed women in the Washington, D.C., area who are considering filing a sex discrimination complaint against, or have filed against, the federal government. In a mail survey of CHANGE members, 18 women (a 30 percent response rate) reported filing 22 complaints. Fourteen cases charged only sex discrimination, while eight cases charged sex discrimination in combination with discrimination based on race, age, and/or religion (Gleason 1984).

clear how typical this “representative” complainant is of other professional women who file sex discrimination complaints in either the public or private sector, this composite is useful for the present purpose of illustrating the decision factors to be considered by a woman confronting the filing decision. Moreover, in order to demonstrate how the monetary factors in the decision will vary with the age of the complainant, the representative complainant is compared with a woman having identical career and personal characteristics except that she is ten years older.

The Expected Benefits and Costs of Filing: An Illustrative Example

A filer in the federal civil service faces a sequence of decisions with uncertain outcomes, as indicated in Figure 1. In Stage 1 the complaint is discussed informally within the agency. If the complaint is not settled or the complainant is not satisfied with the resolution achieved, a written complaint can be filed for administrative review within the agency (Stage 2). If no settlement is reached or the complainant is dissatisfied with the resolution, the complaint can be appealed outside the agency (Step 3) to the Equal Employment Opportunity Commission (EEOC). Finally, a private civil suit can be filed (Stage 4).

A review of the outcome probabilities in Figure 1 indicates that the probability of failure at any stage is consistently higher than the probability of success. The highest probability of success is at the first stage when the least costly informal methods of settlement can be employed. The smallest probability of success occurs at Stage 4 and helps explain why litigated suits are relatively rare: they represent the last stage of a long and costly process with a high drop-out rate as filers progress through the prior three stages.

The benefits and costs expected by a filer as she progresses through these decision stages can be illustrated with reference to one hypothesized set of circumstances faced by the representative CHANGE complainant who is 40 years old, has a graduate degree, has been employed for 14.5 years, and filed her complaint while a GS-12 in the federal civil service. She believes that her actual career path has deviated due to discriminatory treatment from the ideal career path along which she has observed male colleagues with similar qualifications progress. This illustrative example is employed since the wide variations in individual cases prohibit generalizations about “typical” complaints.

The potential monetary benefits of filing are based on a comparison of her actual career path with an ideal career path² from fiscal year 1972

²It is assumed that the actual career path begins at the professional starting level of GS-9 grade level at age 26. The complainant remains in this grade for two years. She is promoted as required in the professional career sequence to GS-11 and remains there for three years.

(FY72) through retirement. FY72–FY82 civil services salary scales are used to determine back-pay benefits.³ The salary scale and retirement plans in FY82 are used to estimate gains in future salary⁴ and retirement benefits⁵ if the woman achieves the desired level of promotions, training, and/or new career opportunities which will cause her actual career path to converge to the ideal career path. These potential benefits overstate the actual gains most women can expect since settlements seldom fully compensate for lost earnings and career opportunities, particularly retirement income. In addition, two cost scenarios are developed to reflect the variations in the costs incurred by filers.

The results of these estimates of expected benefits for the younger representative filer (age 40) and the older representative filer (age 50) with identical career and personal characteristics are shown in Table 1. The results indicate the same back-pay expectations for both complainants since their hypothesized actual career paths are identical prior to

Her final grade promotion is to GS-12 grade level, where she progresses only in step increases for ten years, resulting in a GS-12, step 10. Her salary based on the FY82 pay schedule would be \$36,715. She considers filing at age 40 because she expects to remain in her present grade until retirement unless she files. This scenario assumes that she has tolerated discriminatory treatment for some time before facing the filing decision, perhaps because it was not obvious at earlier stages of her career what was happening to her.

The ideal career path is based on expectations of progress through the federal civil service grades as described by CHANGE officers and the personnel director of a federal agency. The ideal career path is assumed to be the same as the actual career path for the first four years, and then to diverge from the actual path due to more rapid promotions. Therefore, at age 30 she is promoted to GS-12 and after three years of step increases is promoted to GS-13. She stays in the GS-13 grade for three years of step increases and is then promoted to a GS-14 grade which she holds for five years of step increases while waiting for one of the scarce GS-15 positions to become available. At age 40 she is promoted to GS-15, step 1, with a FY82 salary of \$46,685 and remains in this grade level for the rest of her career. This ideal path is conservative since it is possible for a person starting at GS-9 to be promoted to GS-11 after one year, remain a GS-11 for one year and be promoted to GS-12 where the person remains for 18 months until promotion to GS-13, staying in this grade for two years until promotion to GS-14 and, within a few years, to GS-15.

³ The back-pay benefit was estimated by comparing the civil service pay schedules for FY72-FY82. The monetary difference between the two career paths was determined, multiplied by a probability of success of 30 percent based on the average probability of success in Figure 1, and treated as though the money was placed in an investment each year, subject to 8 and 12 percent cumulative interest. These interest rates reflect earnings on many investments in FY82 and therefore reflect the filer's private opportunity cost.

⁴ Future salary benefits were estimated from age 41 by assuming that she remained employed another 25 years until retirement at age 65, and that the FY82 ideal and actual salaries rose over that time period at 5 percent per year, which has been the annual average increase in the civil service pay scale since the early 1970s. The difference between the two paths was multiplied by a probability of success of 30 percent and converted to present value beginning with the salary at age 41 using discount rates of 8 and 12 percent. The same method was employed for the older complainant from the age of 51 until 65.

⁵ The federal retirement is based on 76 percent of the three highest salaries earned prior to retirement for a person with 40 years of service. In this case, the highest salaries were earned in the last three years of employment. If the representative complainant retires at age 65, she can receive a retirement income for 18 years from age 66 until death at age 83, while the older complainant will receive 16 years of retirement income until death at 81. The ideal and actual career paths are extended into the retirement years based on a 5 percent annual increase, and the filing benefit is estimated using the method described in footnote 4.

their consideration of the filing decision. However, future earnings as compared to retirement income are relatively more important to the younger woman, while retirement benefits are relatively more important to the older woman.

The monetary costs of filing an individual complaint of sex discrimination can vary widely depending on the complexity of the case and number of stages in the federal complaint process employed. The first

FIGURE 1
Probability Tree Diagram for Federal Employees
For Handling Discriminatory Treatment on the Job

Discriminatory Act Occurs		Outcome Probability
Evaluate Job	Stay on job	.370
	Quit	
Informal Discussion (Stage 1)	Success	.567
Failure (.63) ^a	Evaluate job	
	Stay on job	.013
	Quit	
File Written Complaint (Stage 2)	Success	.045
Failure (.9) ^a	Evaluate job	
	Stay on job	.002
	Quit	
File with EEOC (Stage 3)	Success	.003
Failure (.8) ^a	Evaluate job	
	Stay on job	.001
	Quit	
File in Court (Stage 4)	Success	.000
Failure (.57) ^c	Evaluate job	
	Stay on job	
	Quit	
		Total
		1.001

^a Rosenbloom (1977), pp. 131-32.

^b The probability of continuing beyond Stage 2 is unknown, but is a rare event. As a consequence, a probability of continuing of .1 is employed.

^c Equal Employment Opportunity Commission (1982), p. 9. Probabilities are based on the settlement rate in FY81 of Title VII compliance cases.

^d Abramson (1979), p. 229.

three stages were designed to provide a complaint process which does not impose any monetary expenses on the complainant. However, the CHANGE respondents reported expenditures for attorneys' fees and other legal costs ranging from zero to \$5000 for the first three stages, which suggests that it is unrealistic to expect no expenses. Furthermore, the time costs were substantial, with the administrative stage alone lasting two years for some respondents, and litigated cases often lasting ten years. As a consequence of this variation, low⁶ and high⁷ cost scenarios are developed to illustrate the potential range of monetary expenses which should be considered since a woman cannot know initially how far she will pursue her complaint. These potential expected costs are shown in Table 1.

TABLE 1
Expected Costs and Benefits of Filing
A Sex Discrimination Complaint
Against the Federal Government

Costs and Benefits	Discount Rates	
	8 Percent	12 Percent
<i>Costs</i>		
Monetary: Legal expenses		
Low: Avoid court	\$ 2,699	\$ 2,520
High: Go to court	12,812	11,270
Nonmonetary: Leisure time		
Avoid court: Low (49 days)	9,800	9,114
High (98 days)	19,600	18,228
Go to court: Low (49 days)	29,547	24,598
High (98 days)	59,094	49,196
<i>Benefits</i>		
Complainant age 40		
Salary: Back pay	\$23,701	\$28,361
Future earnings	52,902	35,952
Retirement	14,911	4,448
Complainant age 50		
Salary: Back Pay	23,701	28,361
Future earnings	36,065	27,850
Retirement	18,017	7,945

⁶ The low cost scenario assumes that the complainant expects a total cost of \$3000 spread over a three-year period with increases of 5 percent per year in costs if she settles her complaint at Stage 1, 2, or 3. This expenditure will pay for the services of a private attorney and related legal costs. The cost estimates are converted to present value using 8 and 12 percent discount rates.

⁷ The high cost scenario assumes the woman pursues her case to court. Since litigating a private legal suit can be quite expensive, it is assumed that she shops to find the most favorable financial arrangement on a contingency fee basis in which the attorney is reimbursed through court-awarded attorney's fees if successful, rather than undertaking litigation on a "pay-as-you-go" basis. She expects to pay a \$5000 retainer to an attorney the first year she files and \$10,000 in legal expenses over a ten-year period, with 5 percent increases in legal costs each year and the legal expenses spread evenly over a ten-year period. The legal costs pay for filing fees, computer time, expert witnesses, xeroxing, and other costs incurred in the pursuit of her complaint. The cost estimates are converted to present value using 8 and 12 percent discount rates.

A comparison of the expected monetary benefits with the expected monetary costs in Table 2 indicates that all of the benefit/cost ratios are greater than one. This suggests that filing a complaint is a good investment, with the greatest net benefit accruing to those women who are able to avoid litigation. Furthermore, the payoff increases as the focus of the monetary benefit extends beyond back pay to include gains in future earnings and retirement income. When these additional factors are included, the younger woman gains more than the older woman.

TABLE 2
Expected Benefit/Cost Ratios

Benefit/Cost Ratios	Complainant Age 40		Complainant Age 50	
	8%	12%	8%	12%
Back pay/Monetary cost				
Low	8.8	11.2	8.8	11.2
High	1.8	2.5	1.8	2.5
Back pay plus future earnings/ Monetary cost				
Low	28.4	25.5	22.2	22.3
High	6.0	5.7	4.7	5.0
All benefits/Monetary cost				
Low	33.9	27.3	28.8	25.5
High	7.2	6.1	6.1	5.7
Back pay/All costs				
Avoid court: Low	1.9	2.4	1.9	2.4
High	1.1	1.4	1.1	1.4
Go to court: Low	.6	.8	.6	.8
High	.3	.5	.3	.5
Back pay plus future earnings/ All costs				
Avoid court: Low	6.1	5.5	4.8	4.8
High	3.4	3.1	2.7	2.7
Go to court: Low	1.8	1.8	1.4	1.6
High	1.1	1.1	.8	.9
All benefits/All costs				
Avoid court: Low	7.3	5.9	6.2	5.5
High	4.1	3.3	3.5	3.1
Go to court: Low	2.2	1.9	1.8	1.8
High	1.3	1.1	1.1	1.1

However, these conclusions are based on underestimates of the expected benefits and costs, since nonmonetary factors, which must also be considered in the decision, are omitted. Nonmonetary benefits include psychological rewards such as helping other women if a complaint results in improved personnel practices within an agency, a sense of

personal victory over injustice, and protecting one's own self-respect. Nonmonetary costs include perceived retaliation against the filer in response to filing a complaint, as well as psychological stress, health problems, and the loss of leisure time. Unfortunately, none of these nonmonetary factors can be readily measured, but the value of lost leisure time can be estimated using a shadow price of labor.

The CHANGE survey provides insight into these nonmonetary costs as perceived by the respondents. Although retaliation by supervisors and/or co-workers is illegal (Durling 1981), it was reported as a common experience. In only three of 20 cases filed in which the respondent remained employed in the agency after filing did the women report no retaliation; in two cases the respondents resigned at the time of filing or shortly thereafter to avoid retaliation. The types of perceived retaliation varied widely and included such treatment as having one's office moved into the file room, the assignment of no work, overburdening with work with unreasonably short deadlines, giving reduced performance evaluations, denying promotions or salary increases, and forms of ostracism such as isolating the individual from staff support services (Ewing 1979).

In addition to retaliation, other types of nonmonetary costs were perceived by the respondents. Having to deal with the perceived retaliatory actions described above generated substantial stress for the respondents. Approximately 60 percent reported increased stress on the job, while about 45 percent reported increased stress at home. Fifty percent of the respondents developed new medical problems or aggravated existing health problems which required the use of sick leave. In addition, two respondents noted that their careers had been ruined as a result of being blacklisted and stigmatized as "trouble-makers." A further nonmonetary cost to the respondents was their loss of leisure time because of spending evenings, weekends, holidays, and/or annual vacations working on, or worrying about, the progress of their complaints. Although 80 percent reported a loss of leisure time, none had kept records of the time spent in activities related to their complaints. These activities were quite varied. They included collecting and preparing statistical evidence, talking with attorneys and others, writing memos defending themselves from retaliatory activities conducted by the agency (such as false claims about work attendance or performance), and completing work assignments with unreasonably short deadlines to ensure that they could not be charged with incompetence for failing to complete an assignment.

Estimates of the shadow price of labor are constructed to measure the opportunity cost of labor during the complaint-related activities pursued by the complainant during her leisure time in the two monetary cost

scenarios discussed above.⁸ The results shown in Table 1 suggest that the largest costs associated with filing a complaint are those of lost leisure time, even for those filers who settle their cases without going to court. However, to the extent that time is spent working on the case, such as preparing statistical data, it is a substitute for the payment for work which otherwise would be performed by an attorney or an attorney's associates. Therefore, the filer is reducing her monetary expenditure while increasing her nonmonetary costs by using her own time.

A review of the expected benefit/cost ratios based on only monetary costs as compared with those based on all costs (monetary and nonmonetary) in Table 2 indicates that the inclusion of the value of lost leisure time dramatically reduces all of the ratios, particularly if a complaint is litigated. Furthermore, the estimates for litigation show ratios slightly under and slightly over one, which suggests that an expensive litigated case is a barely justified investment in one's future, and may not be justifiable when the additional nonmonetary costs of retaliation, stress, and health problems are also included as decision factors. These estimates also suggest that a remedy limited to only back pay is an inadequate expected benefit relative to the expected total costs. Therefore, at a minimum a filer should seek a remedy of back pay plus training and agency assistance in upward career mobility to ensure that she attains the ideal career path and the benefits of improved future earnings and retirement income.

Conclusion

This paper provides a decision-making model which can be employed by an "economic woman" who is considering "voicing" a complaint of sex discrimination in response to perceived discriminatory treatment on the job. Use of the model can aid a woman in her evaluation of the expected monetary and nonmonetary benefits and costs of the complaint process, and indicates that a focus on only the monetary factors in her decision is too narrow. Furthermore, this example suggests that most potential filers will consider the expected costs of filing too great relative to the expected benefits and will therefore seek other means to remedy sex discrimination, such as changing jobs. Filing is thus an option to be used only when no other acceptable alternatives are available.

⁸ Since it is unlikely that a professional woman with a full-time job would be able to work as many days as she wants at her daily civil service wage, it is assumed she will have to accept a wage 50 percent less than her regular wage for additional work (Harberger 1974). Therefore, the value of one day of leisure time is estimated as 50 percent of the salary in each year during which the complaint is being processed, divided by 261 working days and converted to present value. A range of costs is estimated based on the equivalent of 49 and 98 days per year spent on the case, which represents the equivalent of one and two days per week, respectively, excluding a three-week vacation.

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Evidence on the Racial Difference In the Discouraged Worker Effect Among Male Teenagers*

DONALD R. WILLIAMS
Kent State University

The “discouraged worker effect,” defined to be the observed decline in labor force participation rates associated with increases in unemployment rates, is frequently an important topic for discussion in both academic and political circles. One reason for concern is the fact that the effect seems to differ across demographic groups. The labor force participation of women and teenagers, for instance, is often found to be more responsive to changes in employment opportunities than is the participation of white prime-age males.¹ This can lead to differentials in the accumulation of human capital through on-the-job training and the understatement of “unemployment” in periods of loose labor markets. Recent work has found that, among the male teenage group, differences also exist by race. The participation rate declines with rising unemployment for teens of both races, but the magnitude of the response differs by up to a factor of 5 to 1, with black youth exhibiting the “stronger” response.² In this paper I examine the nature of that differential response.

The approach is based on the acknowledgement that the labor market is in continual motion; that levels of and changes in the labor force participation rate are determined by levels of and changes in flows into and out of the labor force. An increase in the rate at which individuals flow into the labor force will increase the labor force participation rate. A

Author’s address: Department of Economics, Kent State University, Kent, OH 44242.

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¹ For evidence of these effects by sex and age, see Tella (1964, 1965), Dernberg and Strand (1966), Mincer (1966), Bowen and Finegan (1965, 1969), Perry (1977), or Williams (1984).

² Williams (in progress) finds that a 1 percent increase in their own age/race-specific unemployment rates caused .11 and .02 percent declines in the labor force participation rates for black and white teens, respectively, over the 1972–1982 period. A 1 percent increase in the *prime-age male* unemployment rate (the variable used in this analysis) is associated with participation rate declines of .11 percent for blacks and .08 percent for whites. In the last recession, where the prime-age male rate went from 5.0 percent in May 1981 to 7.9 percent in June 1982 (a 58 percent increase), the black teenage participation rate declined from 43.8 to 36.5 percent, a drop of 16.6 percent, or more than 75,000 workers.

decrease will have the opposite effect. The discouraged worker effect as defined above can therefore be due to an increase (as unemployment rates rise) in the rate at which individuals leave the labor force, or a decrease (as unemployment rates rise) in the rate of entry, or both. Likewise, differences in the magnitude of the effect can be the result of differences in the responsiveness of these labor market flows. A time series analysis of Current Population Survey Gross Change data suggests that racial differences in the responsiveness of the flows from out-of-the-labor-force to employment and from unemployment to out-of-the-labor-force are major contributors to the differential discouraged worker effect exhibited by black and white teens. This conclusion is confirmed after controlling for the effects of the minimum wage, AFDC payments, and the labor market activity of women.

The Gross Flow Approach

By definition, an individual can occupy one of three states at a point in time: employment (E), unemployment (U), or nonparticipation in the labor force (N). Over time, he or she makes transitions between those states and contributes to the flows into and out of the labor force described above. The probability of making such a transition in a specified time interval can be defined simply to be the number of people who make the transition divided by the total number of people in the original state. Letting λ_{ij} be the probability of making a transition from state i to state j , we can express the six possible transition probabilities as λ_{EU} , λ_{EN} , λ_{UE} , λ_{UN} , λ_{NE} , and λ_{NU} .

The importance of these flow probabilities or "transition rates" lies in the fact that they determine the numbers of people in each of the states E , U , and N at a point in time and, hence, the labor force participation rate. That relationship can be expressed fairly simply.³ As a result, changes in participation rates over time or differences in them across demographic groups can be linked to changes or differences in transition probabilities. In general, the labor force participation rate for a demographic group will be higher the higher are λ_{NE} , λ_{NU} , λ_{UE} , and lower the higher are λ_{EN} , λ_{UN} , λ_{EU} .

Determinants of Transition Rates

Each of the transition probabilities can be regarded as being determined by factors falling into two broad categories: those that affect the levels and frequencies of job offers made by firms, and those that affect

³ See Marston (1976) or Williams (in progress) for discussions of the exact relationships between labor force participation rates and transition rates.

the “value” for workers of nonmarket activity (leisure). The demand for a firm’s product and the (perceived) productivity of a worker are examples of the former. Unemployment insurance, schooling, and marriage or children are examples of the latter. Certainly some factors fall into both categories.⁴

Expectations about these factors’ effects on transition rates are not always clear, but under standard assumptions we can form the following hypotheses:⁵ (1) Those factors that decrease the levels of the wage offers of firms should increase the probability of making the U to N transition because the returns to search have declined. Likewise, employed workers will be less likely to choose to quit work to search for another job and unemployed workers will be less likely to accept a job, so the E to N , E to U , and U to E rates should decline. Individuals not in the labor force will also see lower returns, so that N to U and N to E transition rates should also be lower.

(2) Those factors that decrease the probability of or frequency of wage offers have a two-fold effect. First, given a level of search intensity, expected returns to search are lower. That, however, could increase the returns to increased intensity of search. Assuming that the first effect dominates we should predict the same effects on transition rates as in (1): higher λ_{UN} and lower λ_{EU} , λ_{UE} , λ_{NU} , and λ_{NE} .

(3) Factors that increase the value of nonmarket activity should decrease the rate of flow out of nonparticipation and increase the rates of flow into it. Factors that at the same time decrease costs of search (or subsidize search) will have an ambiguous effect with regard to the N to U and U to N transitions, but can be expected to decrease the U to E transition rate.

The level of aggregate demand can affect the various transition rates through each of the channels above. First, a decline in aggregate demand can be a source of a decline in the levels of wage offers made by firms, leading to the effects described in (1) above. In the extreme, however, the wage offers may drop all the way to zero (firing or layoff) in which case not all the predictions in (1) will hold. In particular, an increase in firings or layoffs should lead to increases in the E to N and E to U transition rates. A decline in aggregate demand should also lead to a decline in the probability or frequency of given wage offers, so we should

⁴ For example, a decline in aggregate demand may decrease the levels of pay being offered to workers or increase probabilities of layoff, and at the same time decrease the value of a worker’s home time due to the unemployment of a spouse. See Lundberg (1981) for an examination of household labor supply.

⁵ I discuss these relationships in general in “The Discouraged Worker Effect in a Dynamic Model of Labor Supply,” Chapter 4 in Williams (in progress).

expect it to have the effects described in (2). Third, a decline in aggregate demand can lead to the unemployment of a spouse or parent, which can lead to decreases in the value of the worker's nonmarket activity and corresponding increases in transitions from N to U and E . The effects of changes in aggregate demand are therefore not all clear cut, depending on the relative magnitudes of the responses described above. The effects of four other variables are also examined in this paper: the minimum wage, the level of female labor force activity, the level of AFDC payments, and the Youth Employment and Demonstrations Projects Act.

The minimum wage variable fits into two of the above categories. To the extent that the minimum acts as a proxy for wages offered by firms to teenagers, a rising minimum can be thought of as rising wages, inducing participation. On the other hand, to the extent that it reduces the demand for teenage labor (due to rationing, for instance), it reduces the probability of a teenager receiving a job offer which can reduce flows into the participation states, and increase flows out of them.

The female labor force activity variable is included to account for this latter effect. If teenagers and women are close substitutes in production, then, given a level of aggregate labor demand, the increased labor force participation of women should decrease the probability of job offers to youth, and the predictions in (2) above should result.⁶ The increased supply of women can also have the effects described in (3), however, to the extent that the working women are also teenagers' mothers.

The AFDC variable is included to account for its effects on the value of the teen's nonmarket time. The direct effect of AFDC payments is to increase household income or wealth. Any nonmarket income is seen to increase the value of one's nonmarket activities, and so should decrease flows into and increase flows out of participation. Because AFDC can also be seen as reducing costs of (or subsidizing) search, it could decrease the U to E transition rate.⁷

The Youth Employment and Demonstrations Projects Act of 1977 served to create more than 200,000 jobs for inner-city youth, and so should have increased the frequency of job offers, particularly for black youth. The overall effect of the program should therefore be to increase flows into the labor force, and decrease flows out of it.

⁶ For evidence regarding the elasticity of substitution of women for teenagers, see Grant and Hamermesh (1981).

⁷ Wachter and Kim (1982) argue that as minimum wage programs expand, other government programs (e.g., AFDC) often are expanded. These programs can have effects which offset those of the minimum wage. Betsey and Dunson (1981) present results indicating that the biases which result from estimating minimum wage effects without controlling for changes in these other programs can be substantial. Therefore, another reason that we may want to include AFDC payments is to better estimate the effects of the minimum wage.

Empirical Analysis

I estimate the effects of the variables above on levels of transition rates from the following equation:

$$(1) \log(\lambda_{ij})_t = \beta_0 + \beta_1 \log(\text{RELMIN})_t + \beta_2 \log(\text{WOMEN})_t + \beta_3 \log(\text{AFDC})_t \\ + \beta_4(\text{YEDPA})_t + \beta_5 \log(\text{UPRIME})_t + \beta_6(\text{TIME})_t \\ + \Gamma(\text{month dummies}) + u_t,$$

where the variables are as defined below.

The minimum wage variable (*RELMIN*) is defined to be the basic (federal) minimum wage, relative to the average hourly (nominal) wage for production and nonsupervisory workers. The "female labor force activity" variable (*WOMEN*) is defined as the percent of the total labor force that is women. The AFDC variable is the average monthly (nominal) AFDC payment received by AFDC families, relative to average hourly (nominal) wages. The Youth Employment and Demonstrations Projects variable (*YEDPA*) takes the value 1 for months beginning September 1977.⁸

The variable used to proxy for the level of aggregate demand is the prime-age male unemployment rate (*UPRIME*). The dependent variable, $(\lambda_{ij})_t$, is defined as the number of people that moved from state *i* to state *j* in month *t*, divided by the number of people in state *i* in month *t*-1. The data used are from unpublished "Gross Change" tabulations from the Current Population Survey, for the January 1972 to December 1981 period.⁹

The results of estimating the parameters in equation (1) are presented in Table 2. For expository purposes, I have presented in Table 1 the results from a regression of $\log(\lambda_{ij})_t$ on *UPRIME* and *TIME* alone. Referring first to Table 1, we see that decreases in the level of aggregate demand (increases in *UPRIME*) are associated with decreases in flows into employment (*NE* and *UE*), increases in flows from employment to unemployment, and decreases in flows from employment to nonparticipation. This latter effect may be indicative of the propensity for quits to decline as demand falls. The propensity for the *N* to *U* transition rate to increase as aggregate demand falls may indicate a strong "added worker"

⁸ The jobs were created in the summer of 1977, so this variable doesn't really measure the "direct" impact of *YEDPA* on labor market transitions. Instead, it simply divides the sample into "pre-" and "post-*YEDPA*" periods.

⁹ For a description of gross change data, see U.S. Department of Labor (1982). Also presented there are descriptions of the biases inherent in the data. The data used in this paper are the raw data and so are subject to those biases, though they should not affect the interpretations of our results. For solutions to some of the problems, see Smith and Vanski (1980) and Abowd and Zellner (1983).

effect among male teens. The most perplexing result in Table 1 is the tendency, as *UPRIME* rises, for the *U* to *N* transition rate to decline for white males. This is interesting since the *U* to *N* transition is the one most commonly associated with notions of "discouragement." Smith and Vanski (1980) found a similar result using a different measure of demand. It clearly suggests that standard behavioral notions of discouragement may be inappropriate.

TABLE 1
Regression Results

Transition	Blacks			Whites		
	Constant	<i>UPRIME</i>	<i>TIME</i>	Constant	<i>UPRIME</i>	<i>TIME</i>
<i>EN</i>	2.536°	-.108	.002°	2.228°	-.003	-.001°
<i>EU</i>	1.813°	.002	-.000	1.077°	.273°	.001
<i>UE</i>	3.173°	-.310°	-.003°	3.771°	-.431°	.001°
<i>UN</i>	3.316°	.096**	.001	3.433°	-.092°	-.001
<i>NE</i>	2.067°	-.308°	-.001	2.296°	-.192	.000
<i>NU</i>	1.865°	.081	.001	1.435°	.290	.001°

Note: All coefficients are based on ARI assumption.

° Significant at the 95 percent level of confidence.

** Significant at the 90 percent level of confidence.

Racial differences exist for many of the effects, in addition to the *U* to *N* difference. The decline in the transition rate from nonparticipation to employment seems much larger for blacks. And though teens of both races become more likely to make the out-of-the-labor-force to unemployment transition, the response is much less (and insignificant) for blacks.

Table 2 indicates that these results are confirmed after taking account of the effects on transition rates of the other variables. A major difference is that the sign of the coefficient on *UPRIME* in the *U* to *N* regression changes from positive to negative, so that blacks and whites exhibit the same type of response. But the magnitude is still much larger for whites. Of particular interest among the effects of the other variables is the effect of the influx of women on the teens' transition rates. An increase in the labor market activity of women is seen to be associated with a decrease in flows into employment and an increase in the flow from unemployment to out-of-the-labor-force, particularly for black youth. To the extent that the increased participation of women has been primarily among whites, these results would suggest a significant degree of substitution of white women for black teens over the sample period. They could also suggest a significant degree of racial preference on the part of employers. Note that

TABLE 2
Regression Results, Equation 1

	<i>EN</i>	<i>EU</i>	<i>UE</i>	<i>UN</i>	<i>NE</i>	<i>NU</i>
<i>Blacks</i>						
Constant	19.4236	-51.750	52.665°	-30.686°	18.147	-21.531
<i>WOMEN</i>	-4.267	11.403	-10.513**	8.319°	-6.425	4.557
<i>AFDC</i>	-.577	4.633**	-.503°	2.315°	1.661	2.233
<i>RELMIN</i>	-.383	.024	-.753	-.196	-.781	.125
<i>UPRIME</i>	-.147	-.248	-.248	-.009	-.320°	.110
<i>YEDPA</i>	-.171	.072	-.311°	.052	.246	.263°
<i>TIME</i>	.011	-.010	.008	-.918**	.015°	-.006
R ²	.663	.250	.590	.585	.852	.782
D.W.	2.012	1.923	1.789	2.028	1.993	1.990
<i>Whites</i>						
Constant	-1.850	-1.301	-9.677	6.139	17.449°	9.259
<i>WOMEN</i>	2.511	.539	1.860	.522	-4.307°	-2.444
<i>AFDC</i>	-1.294**	-.344	2.309°	-1.056	-.588	-.226
<i>RELMIN</i>	.408**	.560**	-.384	-.037	-.121	-.165
<i>UPRIME</i>	-.033	.259°	-.478°	-.038	-.221°	.247°
<i>YEDPA</i>	-.109°	.010	-.096**	-.013	-.094°	-.074
<i>TIME</i>	-.007°	-.002	.002	-.004	.008°	-.006
R ²	.937	.655	.814	.679	.959	.844
D.W.	1.951	2.002	2.186	1.981	1.973	2.001

Note: All coefficients are based on ARI assumption, except the *EN* and *UE* results which are from OLS regressions.

° Significant at the 95 percent level of confidence or greater.

** Significant at the 90–95 percent level of confidence.

we must be careful when interpreting the results in Table 2 since *WOMEN*, *AFDC*, and *RELMIN* all probably have some cyclic components. We may attribute to those variables some of the effects that should instead be attributed to *UPRIME*.

Differences in Participation Responses

Each of the racial differences in the impacts of changes in *UPRIME* noted above contributes to the racial differences in the discouraged worker effect. As *UPRIME* increases, λ_{UE} decreases more for blacks than for whites, λ_{NU} increases more for whites than for blacks, and λ_{UN} decreases more for whites than for blacks. Each of these effects decreases the labor force participation rate more for blacks than for whites. The relative importance of the effects can be ascertained using the information presented in Table 3. The entries there represent the answer to the question: Given the average values of the transition rates (averaged over the 1972–1981 period) and hence an average participation rate, how much does the participation rate change in response to a 1 percent change

in a transition rate? For example, the entries in Table 3 for the *EN* transition indicate that a 1 percent increase in the *E* to *N* transition rate causes a .2907 percent decrease in the participation rate for blacks and a .2695 percent decrease in the participation rate for whites. Overall, the table indicates that given changes in transition rates have greater effects on participation rates for blacks than for whites, for all transition rates. This is especially true for the *EU*, *UE*, *UN*, and *NU* transitions. Note that the effects presented in the table are only "partial" effects. It is not correct to conclude that a 1 percent increase in the *E* to *N* rate *and* a 1 percent decrease in the *U* to *E* rate will cause a .35 percent decline in the participation rate for blacks, for instance, because the effects of changes in each of the transition rates depend on the values of the other rates.

TABLE 3
Percentage Changes in Labor Force Participation Rates
After 1 Percent Increase in Transition Rates

Changed Rate	Percentage Change	
	Blacks	Whites
<i>EN</i>	-.2907	-.2695
<i>EU</i>	-.0580	-.0354
<i>UE</i>	.0575	.0390
<i>UN</i>	-.2197	-.0915
<i>NE</i>	.2800	.2530
<i>NU</i>	.2319	.1049

Using the information in both Tables 1 and 3, it seems that the most important sources of the racial differences in the participation rate response to a change in *UPRIME* are in the *U* to *N* and *N* to *E* transitions. A 1 percent increase in *UPRIME* decreases the labor force participation rate by .02 percent through the *U* to *N* rate and .09 percent through the *N* to *E* rate for blacks. For whites, a 1 percent increase in *UPRIME* leads to an *increase* in the participation rate of .002 percent through the *U* to *N* rate and decreases it by only .05 percent through *N* to *E*.

Summary and Concluding Remarks

The differential discouraged worker effect exhibited by black and white male teenagers seems to be linked to racial differences in the differences in the magnitudes of the responses (to changes in aggregate demand) of the nonparticipation to employment, unemployment to nonparticipation, and nonparticipation to unemployment transition rates. The sources of these differential responses remain unclear; yet identification of those sources could answer many important policy questions. Are

the differences behavioral? As unemployment rates rise, does the N to E transition rate decline more for blacks than for whites because blacks and whites have different values of nonmarket time? Or is it because the frequency of wage offers declines faster for blacks than for whites due, say, to racial discrimination? Further research, using micro data from the National Longitudinal Survey or the Seattle-Denver Income Maintenance Experiments, must attempt to answer those questions.

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DISCUSSION

KATHARINE G. ABRAHAM

Massachusetts Institute of Technology

Thomas Daymont and Paul Andrisani have embarked upon what may well prove to be a useful investigation of the causes and consequences of disability benefit receipt. I do have some reservations about the paper they have presented.

First, I wonder whether the criteria used in selecting their sample are the most appropriate given the set of issues they address. Specifically, only men who reported in the first interview after they withdrew from the labor force that they had work-limiting health problems were included in the sample. The authors' later conclusion that "prewithdrawal income is substantially more important than either functional limitations or work disability in explaining disability benefit receipt for the men in our sample" must be considered with this in mind.

Second, it is not strictly correct to estimate ordinary least squares regressions with dichotomous dependent variables, as the authors do with their disability benefit receipt equations; a logit or probit equation would be preferable. In fact, some of the models reported could not be estimated using a logit or probit, since none of those "ineligible for Social Security (yes = 1)" receive SSDI benefits. The observations on these people should probably be removed from the sample. I would guess that all or most of those who are ineligible for Social Security come from the lowest prewithdrawal income category. While there are not many of them in the sample, correcting the misspecification I have noted could move the probability of SSDI benefit receipt for those in the lowest prewithdrawal income category much closer to that for those in other prewithdrawal income categories.

Third, I wonder how well the health variables used actually capture ability to work. I find it troubling that the "functional limitations" variable and the "health prevents work" variable are only correlated 0.04.

Fourth and most importantly, there is obviously a limit to the confidence one can place in any estimates based on a sample size of 106.

These issues aside, the authors' results that those with the lowest prewithdrawal incomes are the least likely to receive disability benefits

Author's address: Sloan School of Management, Massachusetts Institute of Technology, 50 Memorial Drive, Cambridge, MA 02139.

and that receipt of disability benefits has no effect on postwithdrawal money income are provocative. Both results have significant policy implications and deserve further study.

One line of future research on this general topic might be to jointly model the individual decision to retire, the composition and labor force behavior of the family unit, and the receipt of disability benefits. This would be, to say the least, a challenging problem. A second possible track would be to seek better data. The questions addressed in this paper are the sort that the new longitudinal Survey of Income and Program Participation being undertaken by the Bureau of the Census should help us answer. The information collected in this new survey will include work histories, labor force status, disability status, family composition and sources of money and nonmoney income (plus a great deal else) for each sampled person over the age of 15. This survey should provide researchers interested in the sort of questions raised by Daymont and Andrisani with a wealth of new information.

Labor force participation rates for male teenagers move substantially over the business cycle. Donald Williams's paper represents an effort to better understand why these swings occur. Using separate data for white teenagers and black teenagers, Williams looks at how various labor force transition rates (EN , EU , UE , UN , NE , and NU) change with the prime age male unemployment rate. One set of models has no other controls except a time trend; a second set includes several other controls.

Perhaps the most interesting finding Williams reports is that increases in the U to N transition rate—which is what standard notions about discouraged workers suggest we should focus on—cannot explain any of the decline in white male teenagers' labor force participation rate that is observed when the prime age male unemployment rate rises; in fact, Williams's no-controls results suggest that the U to N transition rate for white male teenagers actually *falls* when the prime age male unemployment rate rises! The no-controls results for black male teenagers do show a significant increase in the U to N transition rate, but the with-controls results do not. Even the no-controls results for black teenagers imply that other factors—in particular, the decline in the N to E transition rate—account for much more of the reduction in black male teenagers' labor force participation rates that is observed when unemployment increases. Both the fact that movements in the U to N transition rate cannot explain the cyclical movements in labor force participation rates among either white or black male teenagers, and the fact that there appear to be significant differences in the factors which do cause cyclical swings in the two groups' participation rates, suggest that further work in this area might be of value.

While Williams has pointed out some interesting relationships, I am reluctant to place too much confidence in his specific quantitative estimates of how transition rates vary with the prime age male unemployment rate. As he correctly notes, there may be problems with the no-controls estimates, since other factors besides business cycle swings are likely to affect transition rates. Unfortunately, the control variables Williams introduces do not perform particularly well. For example, the AFDC variable is hypothesized to proxy for increases in the value of teenagers' nonmarket time; it is disturbing that it assumes a significant positive coefficient in the U to E transition rate equation for white male teenagers. To take another example, the Youth Employment and Demonstration Projects dummy is intended to capture an increase in the availability of jobs for teenagers; yet, it takes on a significant *negative* coefficient in the U to E transition equations for both blacks and whites. The minimum wage variable, the female labor force activity variable, and the AFDC variable may all suffer, to greater or lesser extent, from endogeneity with respect to the business cycle; the Youth Employment and Demonstration Projects dummy could be picking any post-1977 shift.

As William suggests, individual panel data probably represent the best hope for future research in this area.

DISCUSSION

HARRY C. KATZ

Massachusetts Institute of Technology

Sandra Gleason's paper addresses an interesting and important public policy question. She estimates the benefits and costs of the filing of a sex discrimination complaint by a female federal civil service employee. The data used include a survey conducted by the author of women who filed such complaints and data others have collected tracking the course of similar complaints.

Gleason finds that if nonmonetary and monetary filing costs are considered, a case that requires litigation has benefit/cost ratios "slightly under and over one" depending on other assumptions. A critical factor producing these low returns is the cost of the lost leisure time needed to press the complaint. The monetary benefits used in this calculation are derived from the assumption that if successful, the complainant wins an award that moves her from her previous career path up to an "ideal path" similar to the typical career path of male civil servants. It is important to note that Gleason does not use the *actual* remedies that courts or the civil service commission have imposed to derive the estimated benefits in these calculations. Since actual remedies apparently are much more limited, the use of this assumption likely leads Gleason to overestimate the potential benefits from filing a complaint. Gleason points out that in the face of all the costs associated with filing a complaint, a remedy limited to back pay likely pushes the benefit/cost ratio significantly below one. If Gleason's estimates of potential benefits are overestimates, then this point is reinforced.

Gleason's survey of individuals who have filed a sex discrimination complaint reveals that in only three out of twenty cases did the complainants report no retaliation by supervisors and co-workers. I find that statistic alarming. With regard to Gleason's calculation, the existence of such retaliation suggests that the hard-to-measure nonmonetary costs of filing a complaint may be important. From a public policy point of view, the existence of retaliation and the low benefit/cost ratios estimated by Gleason suggest the need for public assistance for those seeking to protect their civil rights.

Author's address: Sloan School of Management, Massachusetts Institute of Technology, 50 Memorial Drive, Cambridge, MA 02139.

IX. DISSERTATION ROUNDTABLE I

A Microlevel Study of Strikes During Contract Negotiations: Determinants and Effects on Wage Changes*

CYNTHIA L. GRAMM
University of Iowa

Scholars in industrial relations have had a long-standing interest in the causes and effects of strikes. This study has two distinct objectives. First, the determinants of the propensity to strike during the negotiation of a collective bargaining agreement are examined. Most previous studies of strike determination have been characterized by two shortcomings: (1) the use of theoretical models that ignore competing hypotheses regarding the impact of explanatory variables on the union's and the employer's propensity to strike, and (2) the use of aggregate data to test models concerning the behavior of individual bargaining units. The second objective is to estimate the impact of a strike on the magnitude of the wage change negotiated by the parties to the negotiation. There has been considerable debate regarding the direction of a strike's impact on the value of the settlement. Moreover, empirical estimates, which have relied on the use of aggregate data, have failed to resolve the controversy.

In order to avoid the problems associated with the use of aggregate data, this author has constructed a unique microlevel data set in which both strike activity during and wage changes resulting from individual negotiations are observed. The sample of negotiations comprises those in manufacturing industries involving 1000 or more workers reported in the U.S. Bureau of Labor Statistics (BLS) annual *Wage Calendars*, 1971-1980.

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Strike data on those negotiations were obtained from the BLS's weekly publication, *Industrial Relations Facts*.

Wage changes, wage levels, and other bargaining unit characteristics were obtained directly from the collective bargaining agreement or from public sources. Variables measuring aggregate economic, labor market, and product market conditions were also obtained from public sources. Other industry characteristics were made available by Wallace Hendricks and Lawrence Kahn of the University of Illinois.

A theoretical model of strike determination is proposed in which the forces influencing both union and employer willingness to incur a strike are explicitly analyzed. A reduced-form strike determination model was estimated using three dependent variables: (1) a dichotomous variable indicating whether or not a bargaining unit-wide strike occurred, (2) the number of days idled due to a strike, and (3) the number of worker-days idled due to a strike. The former was estimated using multivariate probit analysis, the latter two using multivariate tobit analysis.

The principal findings and conclusions pertaining to strike determination may be briefly summarized:

1. Both the probability and the severity of a strike were inversely related to the wage changes over the term of the previous contract, indicative, perhaps, of catch-up demands on the part of workers. In addition, the probability of a strike and strike duration were positively influenced by the length of the previous contract.

2. Both union density in the local labor market and location in a state with a right-to-work statute had a positive impact on strike activity.

3. Strike activity varied positively with the percent of union workers in the bargaining unit's industry who are male, possibly reflecting lower costs of and higher expected returns to striking for male workers relative to females.

The average differential between the annualized percentage wage change negotiated by striking and nonstriking units was estimated using multiple regression techniques with controls for local labor market and aggregate economic conditions, and industry, bargaining unit, worker quality, and the previous contract's characteristics. The estimated average differential between the two groups was not significantly different from zero.

Issues in the Regulation Of Work: Seniority Rules And Constrained Choice*

JOHN F. SCHNELL
Syracuse University

The general purpose of this research is to extend our understanding of the nonpecuniary outcomes of collective bargaining relationships. These nonmoney contract provisions form a set of regulations determining how work is conducted. Seniority rules are the elements of this set that are studied in this thesis. The specific purpose is two-fold. First, seniority rules are examined in a choice-theoretic framework, incorporating worker preferences that would imply seniority rules as Pareto-optimal rules, and focusing on the firm's internal allocation of heterogeneous workers. Second, the determinants of the variation in seniority rule strength among collective bargaining agreements are estimated using the propositions yielded by the theoretical analysis.

Two central issues are implied by seniority rules. One is that these rules limit the degree to which management can shift labor resources within and in and out of the firm. The other follows from this. It is that seniority endows workers with property rights over jobs. Both issues involve consideration of mobility and efficient allocation of labor services.

The central problem for the firm is one of optimal worker-job matching. For the workers and their union, it is one of effectuating collective preferences which differ according to the characteristics of individual workers. Individually, workers chose both the firm to which they provide their labor services and under what circumstances they will quit. Firms choose the workers to employ in particular jobs and wage rates, given probabilities over worker quits. This research develops a formal theoretical framework which yields seniority rules as the rational economic choices of the parties involved. Observed variation in seniority rule strength in union environments and, although not directly observable but conceptually similar, in nonunion environments is explained as the outcome of bargaining by parties with different characteristics and, consequently, different preferred allocation rules. Formally, firms are faced with the choice of allocating to particular jobs workers who differ

* This dissertation research was done at the University of Illinois.

by their innate ability, their level of accumulated firm-specific human capital, and their age. Distinguishing workers by this vector of characteristics allows the model to capture the notion that seniority-based allocation schemes imply an efficiency distortion when workers of different types are comparatively more productive in one job that a firm offers than in another. “Strong” promotion and layoff rules—those in which seniority is the prime decision variable—are explicitly formulated as a constraint on the firm’s allocation decisions. Current-period efficiency losses result either from the lost profit of workers not promoted (or laid off) because of their seniority status or from the negative profit generated by more senior workers who are promoted (or not laid off) so that less senior workers can be. Yet, with the proposition that quit propensities vary by worker type because different types face more or less costly mobility choices, and that seniority rules attenuate the exit behavior of workers valued because of the investment they represent in specific training, the firm may incur negative current profits for greater future profits because of the dynamic effect that a seniority rule has on the exit behavior of its workers. As an employment condition, this rule actualizes worker time preferences over income and their increasing risk aversion over time. Young workers with good market alternatives who, under a seniority rule, would be less likely to be promoted and more likely to be laid off prefer these prospects now rather than when they become older, when their mobility costs have increased. Consequently, they are less likely to quit when they are younger, even though their market alternatives in the current period may surpass their alternatives with their present employer under a seniority rule.

The empirical analysis uses data on major collective bargaining agreements in manufacturing to test hypotheses suggested by the theoretical analysis. Seniority provisions in these agreements have been coded according to the weight given seniority in the particular decision. The estimation procedure employed a reduced-form probit equation. The dichotomous dependent variable allows one to estimate the probability that a collective bargaining agreement will contain a strong promotion (or layoff) seniority rule versus a weak one or none, as a function of a set of factors hypothesized to influence this bargaining outcome. Market, workforce, firm, and union characteristics of these collective bargaining agreements, including factors influencing the bargaining power of the parties, are controlled for in order to test, among others, the hypothesis yielded by the theoretical analysis that, if firms’ technologies can be distinguished by which of two major productive worker attributes—innate ability or firm-specific human capital—are relatively more valuable, then firms in which the latter dominates the former should, *ceteris paribus*, be more likely to exhibit strong seniority rules.

Labor Union Organizing Programs, 1954–1977*

PAULA VOOS
University of Wisconsin-Madison

For this dissertation, the author collected and examined new evidence on the size of organizing programs in an effort to explore several issues in the union growth literature. First, was a decrease in the union commitment to growth partially responsible for the secular decline in the percent organized in the private sector, as some have contended (Lester 1958, Block 1980)? Second, did a larger expenditure on organizing enable a union to win bargaining rights for more employees in NLRB representation elections, *ceteris paribus*, and if so, what was the cost to the union of each new member? Third, how did that estimated marginal cost compare to the marginal benefit existing union members receive from organizing—that is, is organizing justifiable in strictly economic terms or is social idealism a necessary rationale for these programs? And finally, how much additional money would the American labor movement have to spend per year to arrest the long-run decline in the percent organized?

To answer these questions, estimates of nonlocal organizing program expenditures were made from union financial statements for 27 predominantly private-sector unions: Auto Workers, Brewery Workers, Carpenters, Chemical Workers (ICWU), Clothing Workers, Communications Workers, Electrical Workers (IBEW), Furniture Workers, Glass and Ceramic Workers, Ladies Garment Workers, Longshoremen and Warehousemen, Machinists, Maintenance of Way Employees, Marine and Shipbuilding Workers, Meatcutters, Newspaper Guild, Office and Professional Workers, Packinghouse Workers, Painters, Railway and Airline Clerks, Rubber Workers, Service Employees, Steelworkers, Teamsters, Textile Workers (TWUA), Upholsterers, and Woodworkers.

The trend in real, inflation-adjusted, organizing expenditures was inferred from a continuous subsample of 20 unions that grew at the same rate as did all U.S. unions for the period 1953–1974. A second subsample of 25 unions that utilized NLRB representation procedures was used to generate marginal cost estimates for the period 1964–1977.

Organizing expenditures were found to have increased in real terms between 1953 and 1974, using either the CPI or the GNP Deflator to

* This dissertation was completed at Harvard University.

define constant dollars. Nonlocal organizing expenditures for the subsample of 20 unions rose from \$24.4 million to \$43.6 million (1967 CPI dollars) between 1953 and 1974, an annual real rate of growth of 2.8 percent. Insofar as the union commitment to growth can be defined as the tangible allocation of real resources to organizing, a decrease in commitment was not responsible for the secular decline in the percent organized over this period.

At the same time, unions which mounted larger organizing programs between 1964 and 1977 did win bargaining rights for more workers in NLRB representation elections, controlling for the number of employees potentially organizable by each union, the characteristics of the contested units, and macroeconomic factors. The regressions establishing this relationship were used to estimate the cost of recruiting an additional union member. Estimates were adjusted to reflect the facts that unions do not manage to negotiate collective bargaining agreements in a significant minority of units won in NLRB elections and that a minority of employees covered by collective bargaining agreements do not become union members. With these adjustments, the marginal costs of each additional union member was found to lie between \$580 and \$1568 (1980 dollars). The lower figure was derived from a "fixed effects" model controlling for many measured aspects of the union's environment and for unmeasured characteristics of each union; the higher figure was derived from models which controlled for neither.

Previous econometric estimates of the extent to which wages increase when a greater percent of an industry is organized were utilized to derive estimates of the marginal benefit going to existing union members from organizing an additional person (Freeman and Medoff 1981). In 19 of 20 major manufacturing industries, the discounted present value of this benefit exceeds the highest estimate of the marginal cost of organizing.

In sum, while formal organizing programs are effective in bringing about the unionization of additional persons, the cost per person organized is substantial. However, the cost of not organizing in terms of the benefits forgone by existing union members is even higher. Consequently, U.S. unions should be encouraged to expand organizing programs. A reasonable initial goal would be to arrest the secular decline in the percent organized of 0.3 percent per year (1953–1978). In 1978, that goal would have required the expenditure of an additional \$163 million to \$442 million (1980) dollars per year.

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X. DISSERTATION ROUNDTABLE II

A Descriptive Study Of the Joint Labor-Management Training Program of the Federal Mediation and Conciliation Service*

JEROME T. BARRETT
Northern Kentucky University

Although dispute mediation has always been the primary function of staff mediators since the Federal Mediation and Conciliation Service was founded in 1947, other activities involving labor and management have occupied the attention of FMCS mediators. Joint labor-management training and joint labor-management committees are two of these non-mediation activities.

In this dissertation I describe the joint labor-management training program—its original and current purpose, the theory that buttressed it originally, and the reasons for its success. The primary sources for this study were FMCS reports and internal documents, transcripts of oral histories, congressional testimony, and current and former FMCS employees, many of whom were surveyed and/or interviewed. The limited amount of external literature was also reviewed.

Training in industrial relations skills traditionally has been done separately by the parties, both labor and management. Only recently have some universities, area and community labor-management committees, and a few sophisticated labor-management relationships undertaken joint training. Prior to these initiatives, only the FMCS provided joint training programs.

* This dissertation was completed at George Washington University.

Development of Joint Labor-Management Training

FMCS joint labor-management training was never conceptualized as based on anything other than mediation: an additional type of third-party-neutral assistance to the parties to improve their relationship. From the beginning, the agency encouraged experimentation to determine which nonmediation activities were most useful. By 1950, these activities became known as “preventive mediation.” Joint training was not emphasized as unique until the development of audio-visual (AV) materials in 1953. Then, for several years, both separate and joint training were referred to as AV programs. It was soon recognized that AV was primarily a tool—an aid to training and not the primary program. Later modern equipment as well as many new AV films and slides were purchased or produced by FMCS.

FMCS policy toward joint training ebbed and flowed with changes in the availability of travel funds, the interests of the director, and the availability of materials. The program reached its peak between 1963 and 1978. Factors contributing to its success were FMCS management’s recognition and encouragement of good work, the positive attitudes and desires of the parties, the use of interactive instruction, and the neutral’s understanding of the parties involved. Mediator efforts to measure the effect of training have traditionally been minimal and subjective.

Conclusions

The following conclusions are based on the researcher’s analysis of the responses to four research questions:

Question 1: From official documentation and participating mediators’ observations, what theoretical basis or conceptual explanation supports the origination of the joint labor-management training program of FMCS, and what theoretical basis has sustained the program over its 35-year history?

The FMCS learned through trial and error that joint training worked for the parties and was compatible with the mediator’s neutrality. Since FMCS has little patience with theoretical questions or conceptualizations, there was no speculation in the beginning as to whether or why joint training might work, nor is there any today. Although there is no documentary evidence to support the theory, it is possible that the emerging work of B. F. Skinner and sensitivity/T-groups influenced the initial formulation of FMCS joint training.

Question 2: What are both officially stated and mediator perceived goals and purposes of joint labor-management training at the policy or working level?

Once AV materials were developed, joint training became a permanent and popular category of preventive mediation designed to aid labor and management. Changes in FMCS leadership, available funds, and the introduction of new training materials have influenced goal priorities at various times, but joint training has remained the most utilized type of preventive mediation. Under the agency's broad mandate to aid the parties in their relationship, mediators conduct joint training without specifying or giving systematic attention to goals and objectives.

Question 3: Based on official documentation and mediator responses, which public policy and industrial relations factors have influenced the success of joint labor-management training?

The success of joint training, subjectively defined as "in the view of the individual mediator involved," is influenced primarily by (a) the encouragement given by FMCS management, (b) the positive attitudes and the desires of the parties, and (c) the unique understanding of labor and management possessed by a third-party neutral.

Question 4: What are the training techniques and success measures used by mediators conducting joint training?

Interactive training techniques are the most popular among the mediators. A typical program combines discussion and/or role-playing with film materials to provide a problem focus. Multiple training sessions (six two-hour sessions over a six-week period) are preferred, with the group size appropriate to maximum group interaction. Mediators use intuitive and subjective measures of training results—reduced numbers of grievances, less resort to arbitration of grievances, and a better relationship. They view any more refined measures of training results as the parties' responsibility since they have the resources and the data.

Recommendations

The following recommendations are derived from the findings and conclusions of this study:

1. FMCS should maintain a consistent policy on joint labor-management training. Inconsistencies in policy over the years have, on occasion, left the mediators and labor and management in the difficult position of not knowing what to expect from the FMCS.
2. Should joint training continue as an FMCS function, it would be appropriate to select new mediators from among applicants who have training skills, or who are at least willing and able to learn how to conduct training programs.

3. FMCS should provide mediators with regular training and information-sharing opportunities in the joint training area. Since even professional trainers find it useful to attend workshops and conferences to learn of new developments and to share experiences with colleagues, the mediators, as part-time trainers, would benefit from such experiences.

4. FMCS mediators should be provided training in training needs analysis, using an appropriate joint training model. Since the mediators do not systematically examine the needs of the parties or set specific goals or objectives, they would benefit from an understanding of a training model that was relevant and easy to use.

5. FMCS should introduce an after-training reaction sheet for use in all joint training programs. Once mediators have experienced the benefits of feedback on their training performance, they could be encouraged to try other types of evaluation. Also, the FMCS could use this standard form to aggregate reactions to FMCS joint training programs.

6. FMCS should develop other forms of training evaluation by examining the techniques used by labor and/or management to evaluate FMCS training.

7. FMCS should examine the experience of others who are conducting joint training—the area labor-management committees, the university-based labor-management centers, and a few cooperating labor-management groups.

8. State and local government mediation agencies should consider offering joint training to their labor and management clients. They could start on a limited basis and benefit from FMCS experience.

Perceived Social Support as a Function of Communication Pattern and Job Stress Among Police Radio Dispatchers

THUNG-RUNG LIN
Cornell University

Current work on the role of social support in reducing job stress, especially among service employees, has been encouraging. It has been suggested that involvement in a supportive communicative network might protect individuals against stress. However, the mechanism through which social support ameliorates the impact of job stress has rarely been explored. Thus, the main purpose of this study was to investigate the role of interpersonal communication behavior in the prediction of perceived social support.

The problems addressed by this study were the relationships among objective workload, observed patterns of communication among employees and their supervisors, perceived social support at work, and perceived overload stress. Four hypotheses were proposed:

1. The objective workload has direct positive effects on perceived stress.
2. Perceived social support has negative effects on perceived stress.
3. Perceived social support reduces or buffers the relationship between objective workload and perceived stress.
4. Objective communication patterns have a direct positive effect on perceived social support.

The participants in this research were 72 police officers and civilians employed as radio dispatchers. They were drawn from a larger sample in a study of workload effect. The participants were randomly selected from the personnel rosters of the 12 state police stations located in rural and urban communities throughout the eastern region of New York, exclusive of New York City. The stations selected for study were ones which sent and received a high volume of communications through a statewide police information computer network.

The multimethods and multidimensions strategy was utilized—that is, both qualitative observation and quantitative scales were applied. Five trained observers recorded the work activities of the research participants during an eight-hour work shift with the aid of electronic digital recorders. Participants reported their perceptions of stress and social support on questionnaires after completing their shifts.

Observed work activities included workload, interpersonal communication, and nonverbal indicators of stress. Four measures of workload were derived from observed activities: emergency/nonemergency activities, completed/noncompleted activities, activities simultaneous/nonsimultaneous with another activity, and activities in response to public/police requests. Observed interpersonal face-to-face communication yielded seven measures. The first, overall communication, included both communication with supervisor and communication with co-workers; each of these last two measures were separated into either work- or nonwork-related communication. Perceived stress measures included self-reported mood states (overall mood, positive mood, and negative mood) and perceived workload stress, as well as psychological tasks performed at the end of the work shift to indicate stress. Perceived social support was measured by two social support scales: the Moos work relationship scale and the Caplan social support scale. Each scale included items measuring both supervisor and co-worker support. All the questionnaire measures had multiple items, and the inter-item reliabilities ranged from .69 to .87.

The results showed that both completed/noncompleted and simultaneous/nonsimultaneous workloads had a direct impact on perceived workload. In terms of the main effect of social support on perceived stress, the hierarchical regression analysis showed that Caplan co-worker support related positively to both overall mood and positive mood after workload measures were controlled. As to the relationship between communication and social support, overall interpersonal communication was found to have a positive effect on Caplan overall social support, while communication with co-workers related positively with Caplan co-worker support. Further analysis revealed that although Caplan co-worker support could be predicted by nonwork-related communication with co-workers, this relationship did not extend to work-related communication.

This study was an initial step in exploring how face-to-face communication could contribute to the understanding of social support, particularly communication among peer police radio dispatchers. These results indicated that co-workers within the police stations play an integral role in

the quality of work life, at least among “boundary spanning rule” personnel like police radio dispatchers.

One of the major contributions of this study was the converging effect obtained through the “triangulation” of methods (observation and self-report), which gave a much more fruitful interpretation. It is impossible to do this based on either a pure qualitative description or a cross-sectional survey. Implications for future research as well as for effective job stress management were discussed.

Ideology and Practice In Worker Participation Projects*

MARK D. LARSON
Texas Tech University

This research examines the relationship between the ideology of two worker participation programs, the Quality of Work Life Project, Warren-town, Ohio, and the Quality Circle Project, Bigley Manufacturing, Bigley, Ohio,¹ the values and beliefs of the participants, and the behavior exhibited in the projects. The methodology involves: (a) a systematic analysis of the ideologies of each worker participation project as found in the written documents that legitimate them—that is, policy statements, procedures, and historical records concerning their operation; (b) an analysis of the values and beliefs that the participants hold toward the participation project; and (c) the interaction between the values and beliefs of the participants in such a way as to yield an understanding of how the project's ideology affects actual shopfloor behavior. The frame-work that guides this research is that ideology helps determine the form that participation takes in action, as well as the ways various forms of worker participation are perceived.

The main variables in this study—ideology, values and beliefs, and behavior—are all analyzed with the technique recently put forth by Robert Freed Bales.² This complex methodological tool is known as SYMLOG, an acronym for “System for the Multiple Level Observation of Groups.” SYMLOG provides systematic and reliable ways of recording and analyzing (1) verbal and nonverbal *behavior*; (2) classes of the *content* of messages, namely, those referring to self, other situation, society, and fantasies; and (3) the *value judgments* expressed in favor of, or against, any of the above behavior or content. The techniques provided for scoring *value judgments* are used to measure ideologies in this study.

* This dissertation was completed at Ohio State University.

¹ Historically, the Quality of Working Life refers to programs that are jointly determined by management and union officials. While there are less data on Quality Circle programs, it appears that they are typically organized and controlled by management. A complete review of these two worker participation projects is included in the dissertation. The names of the field sites are fictitious.

² Robert F. Bales and Stephen O. Cohen, *SYMLOG* (New York: Free Press, 1979).

This is the first time that SYMLOG has been used in the field of industrial relations. In this research SYMLOG is found to yield a richness of data that has escaped researchers using other types of behavioral and/or content classification tools.

The findings of this research are as follows:

1. SYMLOG is a useful research tool for categorizing the ideologies of worker participation projects.

2. There are significant differences in participant behavior in Quality Circle and Quality of Work Life projects and these differences can be attributed, in part, to the underlying ideology of the respective project.

3. The differences in participant behavior is also a result of the values participants hold toward the participation project. In the Quality Circle project, self-selection results in high value congruency with the Quality Circle ideology. Thus, behavior exhibited by participants in the Quality Circle project was found to be limited in range. In the Quality of Work Life project there is more diversity among the values expressed by the participants toward the project due to the representative nature of the project. There was found to be a wider range of behavior exhibited in the QWL project than in QC.

4. The ideology of a worker participation project shapes the form and meaning that participation takes in actual participant behavior by the role and relationship the project assigns to the following:

<i>Actors</i>	<i>Institutions</i>	<i>Objectives</i>	<i>Rules</i>
Workers	Union	Purpose	Procedure
Managers	Management	Task of group	Task of chair
Facilitator		Definition of project	Topics

The role of and relationship among these four classes of objects constitute the ideology of a worker participation project. They define the necessary and sufficient components of a participation project. The ideology system specifies what would happen within the project and provides answers to questions concerning how the project works—that is, who participates, how information is shared, what is discussed, how decisions are made, what is appropriate behavior, etc.

DISCUSSION

THOMAS H. PATTEN, JR.
Michigan State University

I found that these three papers have continuities with early work in the behavioral sciences and industrial relations. Barrett's paper suggests that the early work of the FMCS about 1947 in working with labor and management in a training role has roots to the National Training Laboratories' concepts and methods. It is true Kurt Lewin was starting his laboratory learning workshops in the mid-1940s. No one knows for sure if Lewin's ideas were consciously applied by the FMCS. Lin's paper on the importance of social support in groups to reduce job stress reminds me of the early findings of a similar nature regarding employee work groups in the Relay Assembly Test Room, Mica Splitting Test Room, and Bank Wiring Observation Room studies at Hawthorne. Larson's study is deliberately based upon the work and some of the conceptualization of Robert Freed Bales at the Laboratory of Social Relations at Harvard University. Thus each dissertation writer has not designed a research project out of thin air but rather has carried out one that can be placed in a context. I turn next to some comments at greater length on each paper.

Barrett's research is useful because he is attempting to uncover what exists in the oral history of the FMCS and reduce it to writing. The action-oriented fire-fighting tradition of mediation leaves little time for the practitioner for recording the origins of ideas, concepts, and workable techniques for conflict resolution. Also retired mediators tend to retire their personal archives when they leave the FMCS. We stand to lose much that should be recouped to enhance our understanding of the processes of conciliation, mediation, difference-splitting, and conflict-resolution unless these archives and their compilers are studied properly.

Barrett recommends that as the FMCS becomes more intensely involved in joint labor-management training, the Service should have a more consistent policy on training so as to avoid confusing the parties. FMCS commissioners should be interested and skilled in training and know how to assess training needs and evaluate training programs in a sound professional manner. State mediation agencies should also develop such training competency.

Author's address: School of Labor and Industrial Relations, Michigan State University, East Lansing, MI 48823.

I heartily agree with these proposals for they represent sound preventive measures and can be used remedially as well. The day of the fire-fighting mediator is not over, but the conflict-weary industrial peacemaker certainly yearns for a better way to handle the job than the incessant running from one emergency to the next, especially when a good number of distressful situations could probably be headed off with sound joint labor-management training. Friends of mine working for the FMCS in Michigan have told me about their considerable success in this regard. A number of successful labor-management committees have been established by them.

Lin's careful documentation of observations and psychometrically sound tools convince me that social support is likely to be an effective moderator of work overload stress. I believe that he has tapped into job stress very convincingly, and we certainly need to know more about how this is generated as well as reduced so that employees can perform their assigned work.

The long stream of research on the impact of co-workers in the group as a support system is well known to industrial sociologists and industrial relations scholars. We also know how important community and family groups are as support systems. Yet it seems to me, more generally, that the other side of the coin is: why does not management redesign the work and level out assignments so that work overload distress is reduced quantitatively for the employee? The work group as a social support is an antidote to bad working conditions, and industrial relations history is replete with studies of the antidote. Seemingly, the need for the antidote can be avoided by proficient management?

Lin's study looks at stress induced in the worker by the job. There is another hypothetical aspect of stress; namely, some people become stressed regardless of the job they acquire. In these instances the stress is "in" them and not inherently "in" the job or "in" the working conditions surrounding the job. I have often wondered if people who are stress-prone are attracted to jobs that are perhaps inherently stress-laden. I have also often asked how we can build in stress measurement as a factor in industrial job evaluation plans. Lin's conceptualization on the triangulation of measures which he used sparked off some useful ideas for me. I hope that he continues research within the framework of his model.

Larson's paper was an exciting and fresh look at quality of work life ideology and quality control circle program methodology. I believe that his application of Edward Shils's hierarchy of dogmatism scale to QWL and QCC phenomena was very insightful. The detailed analysis of these phenomena using Bales's SYMLOG was very imaginative and represents a new direction in industrial relations research that deserves pursuit.

I believe we are at a crossroads in QWL and QCC and that disenchantment is already setting in concerning QWL. For example, recent newspaper stories in Michigan suggest that General Motors' QWL philosophy may have had some sinister aspects in its recent formulation and implementation that justifies the UAW's recoiling at its application in layoffs and employee cutbacks. I believe QWL should be more than an ideology that masks intentions fundamentally oriented to the advancement of underlying adversarial power relations in the long run. At least, QWL has the potential for the humanization of work. Whether QWL *will* humanize the workplace is another matter that only time will reveal.

The bureaucratization of QWL and QCC which may already be under way in America may spell the end of both. It is difficult for organizations with existing ideologies and programs to shed their characteristic bureaucratic cultures and wholeheartedly endorse such apparently alien ideas as QWL and QCC, although they might be given a faddish try. I am reminded in this regard of the "progressive" corporate vice president of personnel who once told me with a straight face that he liked everything about participative management except participation. I wonder today if similarly situated people like everything about the quality of work life idea except the need to put quality into working life. I hope Larson continues his serious efforts at piercing the mystique of both QWL and QCC so that we learn more about what we are doing and where we are headed in these areas.

XI. INTERNATIONAL TRADE AND DEVELOPMENT

Employment Adjustments In Import-Sensitive Manufacturing Industries, 1960–1980

ANN C. ORR
Consultant

JAMES A. ORR
Manhattan College

The expansion and liberalization of international trade over the past two decades has increased competitive pressures on firms in many U.S. industries. The focus of the recent empirical research into the effects of trade on employment has been on estimating the extent of employment opportunity declines and associated adjustment costs of displaced workers in manufacturing industries.¹ Employment declines, however, are only one of many ways in which firms in import-sensitive industries can adapt to increased competition. Reductions in wages and compensation can, under certain conditions, substitute for reductions in employment as a means of reducing labor costs. Capital mobility also creates additional adjustment options for firms. Geographical differences in wages and other costs of production can result in firms moving among regions or the establishment of new plants, perhaps using new technologies, a process which can complement a firm's attempts to reduce costs. The scope for utilizing either wage reductions or regional redistributions of

Author's address: Economics & Finance Department, School of Business, Manhattan College, Bronx, NY 10471. Ann C. Orr is a consultant to the World Bank and the U.S. Bureau of the Census. The opinions expressed in the paper are solely those of the authors.

¹ The studies include Aho and Orr (1981) and Lawrence (1983).

as adjustment options differs among industries. In a firm or industry where skill specificity or market imperfections create a wage premium, wage reductions become an adjustment option. Large industries with national or world-wide markets, new or easily transferable technologies, or rapidly developing new product lines will be more likely to attempt to reallocate capital and employment geographically in order to improve competitiveness.

This paper broadens the analysis of the process of employment adjustment in import-sensitive industries beyond the estimation of employment opportunity declines by examining which industries have utilized regional redistributions of employment and wage declines in their adjustment process. A sample of 25 industries identified as import-sensitive are used in the analysis. The use of these adjustment measures by each of the industries during the period 1960 to 1980 is described, and industry and worker characteristics are used to determine what kinds of industries are likely to resort to each type of adjustment when faced with import competition.

Identification of Import-Sensitive Industries

Several criteria were used to identify a sample of 25 three-digit SIC manufacturing industries that have experienced relatively strong import competition. Generally, an industry was considered import-sensitive for purposes of this analysis if the import penetration rate was high and rising over the past decade, or employment in the industry is highly protected by the existing tariff structure. Secular increases in import penetration rates suggest that imports are likely to be permanent features of a market rather than the result of short-term movements in exchange rates or general demand conditions. Tariff-sensitive employment indicates the combination of a high tariff rate, high import elasticity of demand, and labor intensive production technologies.² The industries are listed in the Appendix.

The sample contains a heterogeneous group of industries, including nine of the textile and apparel categories, the rubber and nonrubber footwear industries, steel and autos, four electronics industrial and two machine categories. Employment in these industries was 40 percent of all manufacturing employment.

Time series data on annual employment, average hourly wages, and the distribution of employment by state were the basis for analyzing the adjustment behavior of these industries.³ An industry was considered to

² Import penetration rates are taken from Schoepfle (1982). Tariff-sensitive employment is taken from Bayard and Orr (1980).

³ Wages and employment data were from U.S. Department of Labor, Bureau of Labor Statistics.

have experienced a decline in employment if there was a reduction of 10 percent or more in the average annual number of workers employed from the industry's pre-1978 peak employment level to 1978. An industry was considered to have experienced a wage adjustment if there was a decline of 5 percent or more in its *relative wage*, i.e., the average wage in the industry expressed as a percentage of the average manufacturing wage. This form of the industry's wage was used to control for both the effects of inflation and manufacturing sector-wide effects on wages. Regional employment adjustment was measured over the period 1972–1980. It was judged to have occurred if there was both a decline of at least 5000 jobs in an industry in at least two states and a corresponding increase in employment in at least two states of the same amount.

In order to determine whether a systematic pattern of adjustment exists among import-sensitive industries, logit equations with each of the three adjustment measures, employment level adjustment (*EMPADJ*), regional redistribution of employment (*REGADJ*), and relative wage decline (*RELWADJ*), as dependent variables are estimated. Each of these measures are also used as independent variables to test whether they complement or substitute for one another.

Selected industry characteristics are included as independent variables in these equations to determine whether they impede or facilitate adjustment. They are: industry size as measured by the value of shipments (*SHIP*), degree of unionization of its workforce (*UNION*), the import penetration rate of the industry (*IPR*) and three binary variables. *SOUTH* takes on a value of one if the concentration of the industry's workforce in the South was greater than the mean concentration in the sample (34 percent). *FEMALE*, which proxies factor specificity in the industry, takes on a value of one if the proportion of women in the industry's workforce was greater than the mean for the sample (39 percent). *PROD* equals one if labor productivity growth in the industry between 1965 and 1978 was higher than the average of the manufacturing sector. A trade policy variable, the average tariff rate on competing imports (*TAR*), was included to test for the effects of protection on the industry's adjustment process.⁴

Process of Employment Adjustment

Data characterizing the adjustment process that occurred in the sample of industries are presented in Table 1. Despite the prevalent notion that employment declines are the predominant means of adjust-

⁴ Measures of unionization were taken from Freeman and Medoff (1979). Tariff rates were provided by the International Trade Commission. Industry characteristics were taken from U.S. Department of Commerce (1972 and 1976).

ment in these industries, only three of the 12 industries which experienced employment declines used them as the *sole* means of adjustment. A majority (16) used at least two measures. Relative wage declines were the most common forms of adjustment, occurring in 15 industries. Regional redistribution of employment occurred in 10 industries and were accompanied in almost every case by relative wage declines.

TABLE 1
Characteristics of Adjustment in Import-Sensitive Industries,
1960-1980

Industry	(1) Change in Employment	(2) Regional Redistribution	(3) Change in Relative Wage
221	- (1960)	No	0
222	0	No	0
223	- (1960)	No	0
224	- (1969)	No	- (1960)
225	- (1973)	Yes	- (1970)
226	- (1973)	No	- (1967)
227	0	Yes	- (1970)
228	- (1973)	No	0
230	0	Yes	- (1968)
244	0	Yes	0
302	- (1973)	Yes	- (1972)
314	- (1960)	No	- (1968)
326	0	No	0
331	- (1965)	No	+
354	0	No	- (1970)
355	0	No	0
363	0	Yes	- (1961)
364	0	Yes	- (1965)
365	- (1966)	No	- (1960)
366	0	No	0
367	0	Yes	- (1967)
371	0	No	0
387	- (1969)	No	- (1960)
391	0	Yes	- (1970)
394	- (1974)	Yes	- (1970)

Notes: The -, 0, and + signs represent a decline, no change, and an increase, respectively, in the pertinent measure of adjustment. Dates in parentheses indicate the beginning of the decline. 1978 was actually used as the base year for the measurement of trends, as it was not a business cycle peak.

The textile industries illustrate the variations in the process of adjustment which can occur in a broad industrial category. The broadwoven fabric mills, cotton (221) and yarn and thread mills (228) industries experienced only employment declines. However, by 1970 employment in these industries was already concentrated in the South and wages were

only 70 percent of the manufacturing average. The adjustment options for these industries were correspondingly limited. By contrast, knitting mills (225) and floor covering mills (227) experienced both declines in wages and a regional redistribution of employment. Employment losses in the apparel industry (230) were not large in the aggregate. There was, however, a decline in relative wages beginning in 1968 and a significant redistribution of jobs away from the Northeast states toward the South and West.

The electronics industries (363–367) tended to adjust in a similar manner. Actual declines in employment occurred in only industry 365. All others, excepting 366, experienced declines in relative wages beginning in the early to mid-1960s and a regional redistribution of employment. By the end of the 1970s, relative wages in all of these industries had recovered. Furthermore, despite a strong growth in labor productivity, relative wages declined during the 1960s, suggesting their adjustment was based largely on labor cost reductions.

The automobile (371) and steel (331) industries were anomalies in their patterns of adjustment. The former did not adjust in any of these dimensions over the period. The latter was the only industry in the sample which experienced a decline in employment, a decline in labor productivity, and an increase in relative wages. This suggests that adjustment of employment might have been less had relative wages declined rather than increased.

The results of estimates of the effects of industry characteristics and trade policy on the process of adjustment are presented in Table 2. The evidence supports our contention that industries concentrated in the South were more likely to resort to reductions in employment as a means of adjustment (Eq. 1). Other characteristics, excepting *IPR*, had no significant effect, *ceteris paribus*, on the likelihood of using employment reductions as an adjustment measure.

The reductions in relative wages as an adjustment measure were more likely in smaller than larger industries (Eq. 3). This suggests that larger industries are better able to withstand competition by resorting to adjustments in product lines or other means unrelated to labor costs. There is no evidence that relative wage declines occurred due to lower than average productivity growth in an industry. In fact, the coefficient on *PROD* is positive and close to significant at the 10 percent level, suggesting that it is those industries with higher than average productivity growth which used wage reductions to improve their competitiveness.

The inclusion of the trade policy variable (*TAR*) in the equation did not increase its explanatory power (Eqs. 2,4,6). The results also show that,

TABLE 2
 Logit Estimates of the Effect of Industry Characteristics and Trade Policy
 on Measures of Adjustment
 (Chi-square in parentheses)

Independent Variables	Dependent Variables					
	<i>EMPADJ</i>		<i>RELWADJ</i>		<i>REGADJ</i>	
	(1)	(2)	(3)	(4)	(5)	(6)
Intercept	-4.53	-4.58	-2.45	-3.38	0.53	0.48
<i>UNION</i>	3.30 (1.06)	3.41 (0.98)	2.62 (0.88)	3.63 (1.50)	5.02 (2.01)	5.43 (1.97)
<i>SHIP</i>	-0.02 (0.36)	-0.02 (0.40)	-0.08* (2.64)	-0.13 (1.35)	-0.07 (1.83)	-0.07 (1.70)
<i>PROD</i>			2.21 (2.51)	2.10 (1.91)		
<i>IPR</i>	9.62* (3.21)	12.35 (0.96)	16.62 (1.56)	10.34 (0.59)	-13.58* (2.98)	-16.21 (2.51)
<i>SOUTH</i>	3.09* (3.02)	3.69* (3.54)	0.56 (0.16)	-2.66 (0.56)	-1.38 (1.07)	-1.72 (1.27)
<i>FEMALE</i>	1.00 (0.86)	1.62 (1.49)	0.38 (0.09)	-1.07 (0.33)	0.73 (0.41)	0.50 (0.16)
<i>TAR</i>		-6.74 (0.75)		32.99 (0.93)		3.73 (0.21)
D	0.32*	0.35	0.40*	0.44*	0.31	0.32
Chi-square	9.03	9.82	11.80	13.25	8.36	8.56
N	25	25	25	25	25	25

Note: * indicates significance at the 10 percent level.

contrary to conventional wisdom, the degree of unionization in an industry did not affect the likelihood of an industry's using any of the three means of adjustment.

Estimates of complementarity and substitutability between these measures of adjustment, controlling for industry characteristics, are reported in Table 3. The results show that employment reductions and regional redistributions of employment are substitute measures of adjustment (Eqs. 1,2). Regional redistributions of employment and relative wage declines are complementary measures of adjustment (Eqs. 5, 6). Concentration of employment in the South was still significant in increasing the likelihood of employment reductions (Eq. 1), while the positive relationship between *IPR* and employment declines was no longer significant (Eqs. 1,2). Low factor specificity (*FEMALE*) appears to have had a positive effect on the likelihood of employment declines, but the relationship is significant at the 13 percent level (Eq. 2).

TABLE 3
 Logit Estimates of Substitutability and Complementarity
 Between Measures of Adjustment
 (Chi-square in parentheses)

Independent Variables	Dependent Variables					
	<i>EMPADJ</i>		<i>RELWADJ</i>		<i>REGADJ</i>	
	(1)	(2)	(3)	(4)	(5)	(6)
Intercept	-2.37	-0.92	-2.38	-1.81	-0.23	-2.83
<i>UNION</i>	3.53 (1.65)	2.52 (1.23)	3.13 (1.18)	2.16 (0.84)	5.77 (1.77)	11.18 (2.36)
<i>SHIP</i>	-0.04 (1.38)	-0.04 (1.30)	-0.09* (2.91)	-0.08* (2.60)	-0.05 (0.62)	-0.12 (1.23)
<i>PROD</i>			2.20 (2.42)	2.07 (2.24)		
<i>IPR</i>	6.42 (1.31)	2.57 (0.41)	17.01 (1.99)	14.95 (1.43)	-28.68** (4.51)	-30.48* (3.27)
<i>SOUTH</i>	2.69* (3.05)		1.23 (0.64)		-2.67 (1.23)	
<i>FEMALE</i>		1.66 (2.24)	17.01 (1.99)	0.71 (0.35)		1.33 (0.61)
<i>EMPADJ</i>			-0.82 (0.37)	-0.41 (0.12)		
<i>RELWADJ</i>					5.07** (3.88)	4.40** (5.47)
<i>REGADJ</i>	-1.66 (2.19)	-2.25** (3.70)				
D	0.36* (1.38)	0.32 (1.30)	0.40* (2.91)	0.40* (2.60)	0.49** (0.62)	0.47** (1.23)
Chi-square	10.45	8.87	12.09	11.76	17.92	16.78
N	25	25	25	25	25	25

Note: * and ** indicate significance at the 10 percent and 5 percent levels, respectively.

Conclusion

The findings indicate that firms in import-sensitive manufacturing industries engaged in a variety of means of adjustment to adapt to increased competition. Besides employment losses, wage reductions and regional redistributions of employment were important features of their adjustment process. Declines in aggregate industry employment levels did not fully describe the process of employment adjustment in import-sensitive industries. Relative wage adjustments were important in our sample of industries both as complements to the regional shifts in employment and because they did not increase as fast as labor productivity. These findings support the argument that wage adjustments have played an important role in the successful adjustment of the U.S.

manufacturing sector compared to that of many of the developed economies of Europe over the past decade.

Industry characteristics varied in their effects on the likelihood of observing particular types of adjustment patterns in the face of increased import competition. The size and geographic distribution of industry employment were the two most significant factors serving to constrain or facilitate the use of different adjustment options, with weaker evidence that the degree of factor specificity and union strength were also important. To the extent that these industry characteristics remain stable over time, policies to alter the process of adjustment in the industries will be correspondingly constrained. Lower labor costs and greater geographic mobility can prevent employment declines in an industry and hence maintain or improve an industry's competitiveness, but these factors are only indirectly amenable to policy. Similarly, current trade policy did not influence the use of adjustment options by these industries.

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Appendix: Import-Sensitive Industries

3-Digit SIC Industries	Comparable 4-Digit Input-Output Industry
221 Broadwoven Fabric Mills, Cotton	1601
222 Broadwoven Fabric Mills, Man-made fiber and silk	1601
223 Broadwoven Fabric Mills, Wool	1601
224 Narrow Fabric Mills	1602
225 Knitting Mills	1801-1803
226 Dyeing and Finishing Textiles	1601
227 Floor Covering Mills	1701
228 Yarn and Thread Mills	1603-1604
230 Apparel	1804
244 Wooden Containers	2100
302 Rubber and Plastic Footwear	3202
314 Non-Rubber Footwear	3402
326 Pottery and Related Products	3606-3609
331 Blast Furnaces and Basic Steel Products	3701
354 Metalworking Machinery	47
355 Special Industry Machinery	48
363 Household Appliance	54
364 Electric Lighting and Wiring Equipment	5501-5503
365 Radio and T.V. Sets	5601-5602
366 Communication Equipment	5603-5604
367 Electric Components and Accessories	5701-5703
371 Motor Vehicles and Equipment	5901-5903
387 Watches, Clocks and Parts	6207
391 Jewelry	6401
394 Toys and Sporting Goods	6403-6404

The Outlook for “High-Tech” Exports: A Case Study of the Foreign Student Processing Industry in the U.S.*

JAMES G. SCOVILLE
University of Minnesota

“It couldn’t be any worse”

—Professor of English to colleague in Classics

Economists and politicians alike have voiced concern about how our economy can move into the “post-smokestack” world and take advantage of our relatively abundant human capital. One key aspect of this concern focuses on jobs for the less human-capitally endowed, displaced by robots or by the death of whole industries (Aho and Orr 1981). In all this discussion, the potential role of “high-tech” employment has often been stressed, even if the term seems to lack precision.

In the usual visions of the high-tech society, the role of the university is frequently stressed, commonly as a producer of human capital and a cooperating factor of production. Seldom is the college and university sector looked upon as a direct source of employment. This seems unfortunate for several reasons: it is surely an extensive employer of highly qualified manpower as well as a lot of “low-tech” workers; it is an industry where the U.S. appears to possess great strength and comparative advantage; and it is entering a period of possible excess capacity which suggests room for export expansion.

The problems facing U.S. academia as an ongoing industry are fairly well known. Past fluctuations in the birth rate and the apparent saturation of the market can be expected to produce a decline in U.S. student populations between now and the end of the century.¹ In addition, the relatively recent boom in faculty hiring led Harvard’s Henry Rosovsky to

Author’s address: Industrial Relations Center, University of Minnesota, 537 Management & Economics Building, 271 19th Avenue South, Minneapolis, MN 55455.

* The author is indebted to Toby Saide for research assistance.

¹ National Center for Education Statistics, *Projections of Education Statistics*, various years. For a less pessimistic view, see Ahlburg et al. (1981).

project in 1978 that “the *total* demand for new faculty between 1980 and 1995 will be about 10,000, which is only one-quarter of the number hired in the single peak year of 1965” (Harvard 1978).

By contrast with all the campus gloom, the number of foreign students in U.S. colleges and universities has boomed from 53,107 in 1960–1961, to 144,708 in 1970–1971, and to 305,795 in 1980–1981.² Foreign student enrollments hit their eighth consecutive new high last fall (1982), rising to 326,299.³ Moreover, the American Council on Education (1982) forecast that foreign student enrollments could rise to nearly one million by the end of this decade. The purpose of the present paper is to appraise in somewhat greater detail the present and prospective impacts of the human capital processing export industry on academic and nonacademic employment on U.S. campuses.

In principle, this is a simple matter: take the number of foreign students by field, divide by the student/faculty ratio by field, sum the employments generated in the various fields, and that’s that. Unfortunately, data have not been collected (or, in the case of the Census, published) for faculty by field in 1980 or foreign students by field in 1970. Thus, the strategy for this paper becomes somewhat more complex and is outlined thus:

1. To estimate total student enrollment by fields in 1970 (a year for which we have faculty by fields) from data on degrees granted by field and then to estimate the student/faculty ratios in 1970.

2. To estimate student/faculty ratios in the various fields in 1980 by assuming each field to stand in the same relative position to the all-field ratio as it did in 1970 (we do have the overall 1980 S/F ratio).

3. To estimate the enrollments of foreign students by fields in 1980 from data on degrees granted by fields.

4. Finally, to divide the estimated student enrollments by the estimated student/faculty ratios, add them up, project them forward to 1980, and appraise what we have found.

Table 1 shows the results of the process outlined under point 1 above. Enrollments by field for 1970 have been estimated from the distribution of degrees conferred in 1970–1971 on the assumption that the distribution of enrollments is similar to the distribution of degrees weighted by their approximate years to completion. Thus, dealing in moduli of about four years’ duration, Bachelor’s degrees have a weight of 1, Master’s of 1/2, PhDs of 1 1/2, and first professional degrees of 1. These enrollment

² 1960–1961 and 1970–1971: *Digest of Education Statistics*, 1972, Table 158. 1980–1981: *Digest of Education Statistics*, 1982, Table 92.

³ *The New York Times*, October 24, 1982, p. 57. Data are reported to be from the International Education Institute.

estimates are then combined with the instructional staff data to produce the student/faculty ratios in the last column.

TABLE 1

Field ^a	Estimated Enrollment, 1970 ^b	Resident Departmental Instructional and Research Staff ^d			Student/Faculty Ratio, (1)/(2)
		Total ^c	Senior	Junior	
Agriculture and natural resources	126,762	7208	6145	1063	17.59
Architecture and behavioral design	52,865	2335	2214	121	22.64
Biological sciences	359,767	25383	21201	4182	14.17
Business and management	1,061,265	28096	25978	2118	37.77
Engineering	520,164	23012	19411	3601	22.60
Law	150,793	3364	3266	98	44.83
Health professions and medicine ^e	358,819	44306	38190	6616	8.10
Physical science	254,517	34172	27179	6993	7.45
All other fields ^f	5,613,165	287401	260598	26803	19.53
Total	8,498,117	456277	404182	51095	18.67

^a Fields are compressed from greater detail to match 1980 classifications.

^b *Digest of Education Statistics*, 1972, Tables 114 and 118. See text for description of estimating procedures.

^c *Digest of Education Statistics*, 1972, Table 84.

^d *Digest of Education Statistics*, 1974, Table 101. Excludes nondepartmental research staff. "Senior" faculty are instructors and above.

^e Medicine includes first professional degrees in medicine, dentistry, podiatry, pharmacy, veterinary medicine, etc.

^f Includes first professional degrees in theology.

Table 2 shows the next step in the process: estimation of the 1980 enrollment of foreign students by field from the (partially estimated) distributions of degrees conferred in 1978–1979. (It is to be noted that the resulting estimates will be understated if, as has been the case, foreign student populations have been growing more rapidly than the rest, so that their share of degrees will lag behind their share of students.)

Table 3 shows the final steps in the estimating process. Column 1 expresses the 1970 student/faculty ratio, by field as multiples of the overall ratio; these figures are then applied to the known 1980 overall ratio to estimate the 1980 field ratios (Column 2). These are then divided into the estimated numbers of foreign students (Column 3) to yield the employment they generate (Column 4). (It should be noted that these figures overestimate the net employment effects on citizens and residents, as some of the "junior faculty" will themselves be foreign students.)

TABLE 2

Field	Degrees Granted, 1978-79			Estimate: 1st Professional Degrees Going to Foreign Students	Derived Distribution of Foreign Student Enrollments 1980 ^d	
	Bachelor's	Master's	PhD		Percent	Number
Agriculture and natural resources	479	725	268	—	2.8	8562
Architecture and behavioral design	354	350	33	—	1.3	3975
Biological sciences	887	464	343	—	3.7	11314
Business and management	3499	4388	163	—	13.4	40977
Engineering	4760	3952	867	—	18.2	55655
Law	1	326	17	7056 ^a	16.4	50150
Health professions and medicine	600	634	89	3393 ^b	10.0	30580
Physical science	693	706	487	—	4.0	12232
All other fields	6558	7860	1648	396 ^c	30.2	92350
Total	17831	19405	3915	10845	100.0	305795

Sources: Degrees granted: *Digest of Education Statistics*, 1982, Table 109. First professional degrees, total: *Digest of Education Statistics*, 1982, Table 114.

^a Percent foreign students in Master's program used to estimate percent foreign students in first professional degrees in law.

^b Percent foreign students in PhD programs in "Health professions" used to estimate percent foreign students in MD, DD, DVM, etc., programs.

^c Percent foreign students in PhD programs in "All other fields" used to estimate percent foreign students in first professional theology degree programs.

^d Derived using weighting system described in the text: 1 for Bachelor's and first professional degrees, 1/2 for Master's, and 1 1/2 for PhD.

What we see in Table 3 is a small but growing "industry" which is absorbing some 2½ percent of total U.S. faculty employment. About one-third of the total is taken up in "All other" academic fields, many of which are suffering very loose labor markets. Surely, this is good news to English professors and their ilk.

Table 4 carries the employment analysis one step further by applying the labor input coefficients for "support workers" to the teaching employment estimates above, so that we can see how many jobs in other parts of colleges and universities are generated by the processing of foreign human capital.

Applying the senior faculty-junior faculty splits by field (implicit in Table 1), presenting the estimates of Tables 3 and 4 at higher levels of aggregation, and pushing the 1980 estimates forward by the ratios of

TABLE 3

Field	1970 Relative Student/Faculty Ratio ^a	1980 Estimated Student/Faculty Ratio ^b	Estimated Foreign Students, 1980	Estimated Employment Generated 1980 (3)/(2)
Agriculture and natural resources	.942	13.61	8562	629
Architecture and behavioral design	1.213	17.53	3975	227
Biological sciences	.759	10.97	11314	1031
Business and management	2.023	29.23	40977	1402
Engineering	1.210	17.48	55655	3184
Law	2.401	34.69	50150	1446
Health professions and medicine	.434	6.27	30580	4877
Physical science	.399	5.77	12232	2120
All other fields	1.046	15.11	92350	6112
Average or total		14.45 ^c	305795 ^d	21028

^a Derived from Table 1, Column 5.

^b Column 1 times 14.45.

^c Total enrollment (12,225,374): *Digest of Education Statistics* 1982, Table 85. Total instructional staff (846,000): *Digest of Education Statistics*, 1982, Table 97.

^d Total number of foreign students: *Digest of Education Statistics*, 1982, Table 92.

forecast 1990 enrollments to actual 1980 enrollments, we see the broad "direct" employment creation picture in Table 5.

TABLE 4
Other College and University Jobs

Census Occupational Group	Employment per 1.0 "Teacher, College and University" ^a	Employment Generated, 1980
Professional	.620	13037
Managerial	.213	4479
Sales	.007	147
Clerical	.929	19537
Crafts, etc.	.099	2082
Operatives	.066	1388
Service workers	.460	9673
Laborers	.072	1514

^a Employment ratio derived from 1978 *National Industry/Occupation Employment Matrix*, Vol. 1, pp. 356-60. "Teacher, College and University" is the exact I/O Matrix title which (according to the Classified Index of Occupations, 1980) includes all teachers, i.e., both senior and junior staff of Table 1.

To put into perspective the net growth of 165,500 jobs which foreign student processing might create during the 1980s, compare its annual job creation of 16,550 with the big winners reported by Aho and Orr (1981,

TABLE 5
Summary of Campus Employment Created,
1980 and Projected 1990

	1980	1990
Senior faculty	18,434	60,300
Junior faculty	2,594	8,500
Other professional and managerial	17,516	57,300
Total, professional and managerial	38,533	126,100
Clerical and sales	19,682	64,400
Crafts and operatives	3,470	11,300
Service and laborers	11,187	36,600
Total	72,883	238,400

Table 3): small aircraft, 4900 per year from 1964 to 1975; aircraft equipment, 4100; computing machines, 3500.

Beyond this, the industry has a bifurcated employment pattern with about half its jobs being professional and managerial and the vast bulk of the remainder being pink- or lower skilled blue-collar jobs. If we took into account foreign students' expenditures in the off-campus economy—the world of Aggievilles and Campustowns—the importance of this lower skilled and service element would loom even larger. (Between 60 and 80 percent of all jobs in such sectors as “Retail trade,” “Other lodging places,” and “Other personal services” fall in the clerical, sales, service, or laborer groups.⁴) Thus, we have an industry which helps two badly affected labor market strata.

Several demographic and occupational characteristics of the direct employment created by this industry are shown in Table 6, adapted from Aho and Orr (1981). This particular “high-tech” industry employs higher proportions of youth and minorities than the average “favorably affected” industry, far higher proportions of women, white-collar, and educated workers, and carries the nonunion trait of trade-favored industry to an extreme. In terms of the employment of youth and women, its demographic patterns are more similar to the declining, adversely affected industries than are the demographics of the average trade-favored industry.

However, before we conclude that foreign human capital processing is the industry of the future and the answer to shortages of employment opportunities for faculty, let us express a note of caution. From inspection

⁴ *National Industry/Occupation Matrix*, Vol. 1, pp. 242–46, 300–303. A cursory review of documents advising foreign students suggests that the rock bottom amount for books and “incidentals” is now about \$200 per month; some, of course, spend much more.

Moreover, as George Seltzer has pointed out to me, there is an ongoing flow of exports (of unknown size) as U.S.-trained scientists, engineers, and business people turn naturally to the equipment and products with which they were trained.

TABLE 6
 Characteristics of Workers and Industries Most Affected
 By Trade-Related Employment Changes Between 1964 and 1975
 and Colleges and Universities

	Average of the 20 Most Favorably Affected Industries	Overall Manufacturing Average	Average of the 20 Most Adversely Affected Industries	Colleges and Universities
<i>Demographic Characteristics of the Labor Force (in percent)^a</i>				
Women	21.5	29.4	41.1	46.1
Minorities	7.4	10.1	11.5	9.5
Under age 25	15.4	16.4	15.8	20.9
Over age 50	24.4	26.5	28.0	19.0
Family income below poverty level	5.8	7.0	9.8	4.7
Annual earnings under \$10,000	72.1	77.4	81.7	77.8
High school education (4 years)	39.1	36.6	34.0	84.2
College education (4 years)	6.9	5.1	3.1	60.8
<i>Occupational Measures</i>				
Unionized workers as a percentage of the labor force ^b	40.0	49.0	51.3	6.0
Skilled workers as a percentage of the labor force ^c	55.8	50.0	38.8	3.2
White-collar workers as a percentage of the labor force	36.3	30.3	21.1	78.5

^a From *Census of Population, 1970, Subject Reports: Industrial Characteristics* (Washington: U.S. Department of Commerce, 1972).

^b From Richard Freeman and James Medoff, "New Estimates of Private Sector Unionism in the United States," *Industrial and Labor Relations Review* 32 (January 1979), pp. 143-74.

^c From *Census of Population, 1970, Subject Reports: Occupations by Industry* (Washington: U.S. Department of Commerce, 1973).

of a summary review of a number of studies presented by Ahlburg et al. (1981, Table 5), it would seem that a 3½ percent (or about 430,000 students) decline in total enrollments from 1980 to 1990 is a rough consensus minimum. An increase in foreign student enrollments from 306,000 to 1 million would more than offset this fall, but implies annual growth rates of some 12½ percent—a record not achieved in 1978-1980 (about 10 percent p.a.) and fallen far short of in 1980-1982 (about 3

percent p.a.). Aside from the recent historical record, two broader questions can be raised about the possibility of maintaining 12½ percent growth in foreign enrollments throughout the 1980s. (1) Will a fiscally harder-pressed America be willing to have 8 percent of its college students foreigners by 1990 (i.e., 1 million out of some 12½ million)? (2) Will the rest of the world, especially the presently distressed oil-rich states like Nigeria or Iran, and the Arabs which have been big contributors to the inflow of recent years, be able to maintain such rates of increase? Certainly, the prospects would seem slim.

One major implication of this paper must, however, be evident by now: how little we know of the "information industries" of the future which are expected to supplant the industries of the past. Who would have thought that foreign human capital processing is a more significant employer than some of our much publicized dying industries? Efforts to "save" the specialty steel industry (1978 employment: 14,000⁵) are front-page news; a growing world-beating industry with five times the employment is a note for the IRRA meetings.

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⁵ *Daily Mainichi*, March 23, 1983. p. 1.

International Convergence With U.S. Wage Levels

DANIEL J.B. MITCHELL

University of California, Los Angeles

There has been growing concern with American “competitiveness” in world markets, both in terms of export goods and imports that displace U.S. production. Along with this concern there has developed an increased focus on the role of labor costs in determining the success or failure of American goods in the world marketplace. Obviously, many factors enter into the cost of production; labor costs are only one. But the evolution of world markets has tended to erode differences in nonlabor costs, thus highlighting the importance of international wage differentials.

Capital costs are an obvious example. Financial markets still retain a considerable domestic independence; real interest rates are not the same in every country. Nevertheless, international borrowing and lending is a commonplace phenomenon. And physical capital—machinery and equipment—can be exported and imported.

Technology, too, can be transmitted across international boundaries. It is difficult to measure the degree of world technology exchange, but the spread of the multinational corporation suggests that technology exports have become easier. Between 1950 and 1960, the book value of U.S.-based direct investment abroad increased 19 times. From 1970 to 1980, American receipts of royalties and similar charges from foreign affiliates rose 276 percent. Presumably, multinationals represent an important channel for technology transfers, since what one branch of a firm “knows” can be easily made known to other branches.

Obtaining a global measure of man-made barriers to trade—protective measures—is virtually impossible. There are many forms of nontariff barriers that are difficult to quantify, or even enumerate. However, successive negotiations have reduced tariff levels, especially at the “Kennedy Round” of the 1960s and the “Tokyo Round” of the 1970s. For example, in 1960, before the Kennedy Round, U.S. customs revenue

Author’s address: Institute of Industrial Relations, University of California, Los Angeles, Los Angeles, CA 90024.

amounted to 7.5 percent of the value of imports; by 1981 the ratio had fallen to 3.4 percent.¹

Empirical Evidence on Comparative Wage Levels

Given the growing importance of wages in determining international competitiveness, what has been the U.S. record in wage-setting compared with other countries? Table 1 provides some evidence on trends in wage differentials in the U.S. relative to nine other countries over the period 1960–1980. Columns (1) and (3), respectively, present the ratio of hourly compensation in manufacturing and of economy-wide annual compensation per employee in each country to the corresponding U.S. figures. In all cases, the ratio rose over the period, frequently by a substantial margin. That is, foreign wages were catching up with U.S. levels and, in some instances, exceeding them.

A significant portion of the adjustment appears to have occurred during 1970–1980, a period of floating exchange rates. But even during 1960–1970, years when the old Bretton Woods fixed exchange rate system generally prevailed, a tendency for a wage catch-up appears in all cases in column (1) and in all but two cases in column (3).

Columns (1) and (3) convert foreign wage levels into U.S. dollars at prevailing exchange rates. They are the kind of figures that a multinational firm might consider in determining where to site a plant. They do not, however, measure comparative living standards. To fill in this gap (partially), columns (2) and (4) make the comparisons in “real” terms, using 1960 U.S. dollar levels as a base.² The figures suggest that there has generally been a catch-up in living standards, but not as dramatic as the nominal figures in columns (1) and (3) might have indicated.

The figures of Table 1 refer to only nine developed countries. How representative are they of world-wide trends? Data availability is a severe constraint in answering this question. The countries of Table 1 are quite significant in American trading and investment relationships. They accounted for almost half of U.S. exports in 1980 and 44 percent of U.S. imports. In 1977, 56 percent of the gross product of U.S.-based multinational foreign affiliates originated in these countries (U.S. Bureau of the Census 1982, pp. 836–38; Howenstine 1983, p. 26). Nevertheless, it would be useful to know what was happening to wages in other parts of the world.

¹ The figures cited are from Whichard (1982, pp. 13, 19), U.S. Bureau of the Census (1982, pp. 549, 833), and U.S. Bureau of the Census (1975, Part 2, p. 870).

² The consumer price indexes of the various countries were used to convert their wage levels for each year into 1960 purchasing power in the respective foreign currencies. These values were then converted into U.S. dollars at the 1960 exchange rate for each currency. Note that picking 1960 as the base year determines the level of the ratios shown in columns (2) and (4) of Table 1, but not the rate of increase of the ratios.

TABLE 1
Ratio of Foreign-to-U.S. Wage, 1960-1980

Country and Year	Hourly Compensation in Manufacturing		Annual Compensation per Employee	
	Nominal (1)	Real ^a (2)	Nominal (3)	Real ^a (4)
Belgium				
1960	31%	31%	33%	33%
1970	49	48	45	44
1980	132	79	115	69
Canada				
1960	80	80	79	79
1970	82	89	76	82
1980	90	107	82	97
France				
1960	31	31	31	31
1970	41	43	44	46
1980	92	62	105	71
Germany (West)				
1960	32	32	30	30
1970	56	49	49	43
1980	122	69	111	63
Italy				
1960	23	23	17	17
1970	42	38	33	29
1980	82	58	64	45
Japan				
1960	10	10	9	9
1970	24	18	23	17
1980	56	24	64	27
Netherlands				
1960	25	25	29	29
1970	51	42	51	43
1980	122	59	130	62
Sweden				
1960	45	45	48	48
1970	70	62	69	61
1980	125	79	118	75
United Kingdom				
1960	32	32	40	40
1970	36	37	40	41
1980	74	46	81	51

Sources: U.S. Bureau of Labor Statistics for manufacturing wage data; International Monetary Fund for exchange rate; OECD and United Nations for compensation per employee.

^a In 1960 U.S. dollars.

One source of information comes from the multinationals themselves. In 1966 and again in 1977, the U.S. Department of Commerce conducted surveys of U.S.-based multinationals which included questions about labor costs. Table 2 presents comparative wage ratios (foreign to U.S.) for the two years in 31 countries. In all but ten of these countries, the wage ratios rose. Eight of the ten deviating countries are less developed.

Although multinational wage levels may not always reflect local conditions (ILO 1976), it appears that there was a world-wide wage convergence trend for countries in the developed category; for those in the less-developed classification the trend is not so clear. Some of the less-developed countries showed a relative wage gain, while others did not.

TABLE 2
Foreign-to-U.S. Wage Ratio for U.S.-Based
Multinational Firms, 1966–1977

Country	1966 ^a	1977 ^b	Country	1966 ^a	1977 ^b
Western Hemisphere			Europe (cont.)		
Argentina	41%	32%	Netherlands	79%	111%
Brazil	28	42	Norway	57	127
Canada	86	97	Portugal	27	38
Chile	47	44	Spain	37	61
Columbia	30	34	Sweden	76	127
Mexico	38	32	Switzerland	67	137
Panama	52	37	Turkey	38	57
Peru	35	33	United Kingdom	48	47
Venezuela	63	58			
Europe			Other Regions		
Belgium	50	113	Australia	49	75
Denmark	67	111	Hong Kong	19	27
France	62	89	India	15	13
Germany (West)	53	101	Japan	36	97
Ireland	34	47	New Zealand	53	46
Italy	54	74	Philippines	18	10
Luxemburg	56	109	South Africa	32	35

Sources: U.S. National income accounts; U.S. Bureau of Economic Analysis, *U.S. Direct Investment Abroad, 1977* (Washington: U.S. Government Printing Office, 1981), p. 292; U.S. Bureau of Economic Analysis, *U.S. Direct Investment Abroad, 1966*, Part II, Group 2, "Preliminary Report on Foreign Affiliates of U.S. Manufacturing Industries," National Technical Information Service, COM-72-10096, undated.

^a Payroll per employee of U.S. manufacturing-based affiliates in foreign country divided by wages and salaries per employee in U.S. manufacturing for all employees.

^b Compensation per employee of U.S.-based affiliates in foreign country divided by compensation per employee in U.S. manufacturing for all employees.

Theories of Wage Convergence

In the developed world, there was a trend toward wage convergence during 1960–1980. What accounted for this trend? Two competing explanations might be offered. One is that international trade itself caused the convergence; the other is that foreign countries simply "built up" their economies faster than the U.S. and that these gains were reflected in wage levels.

The impact of trade on relative wage levels has long been a staple of international economics textbooks. Such texts generally expose the student

to the “Heckscher-Ohlin” model of trade. In the H-O model, capital-abundant countries have a comparative advantage in the export of capital-intensive goods; labor-abundant countries have an advantage in the export of labor-intensive goods. Trade shifts production in capital-abundant countries toward capital-intensive outputs, while the opposite occurs in labor-abundant countries. In the latter, the demand for labor is enhanced, thus raising wage levels, while in the former the opposite occurs. A further extension of this theory in the late 1940s by Paul Samuelson showed that in theory—with rarified assumptions—international wage levels would equalize due to trade.³

There are many problems with the H-O theory—problems best explored in other forums. However, even if one does not accept the theory as applicable, trade could be a vehicle for producing wage convergence. As noted at the outset of this paper, various developments in the world economy suggest that nonlabor costs may have diminished in relative importance. If so, international competition based on labor costs itself could have had a leveling effect. Attempts by unions to “take wages out of competition” on a world-wide scale have as yet had only a minor impact.

But domestic economic development could also be an explanation for wage convergence. If foreign countries devoted resources toward investment, for example, they might raise their capital/labor ratios faster than the U.S. and produce relative wage gains. The two explanations—trade versus development—are not mutually exclusive, of course. Both influences could be felt at the same time.

Some Empirical Evidence

It is difficult to propose a test that will discriminate between the two competing theories of wage convergence. However, the results of some simple correlational work are instructive. Table 3 presents correlations between the relative manufacturing wage variable (*RMW*) and a proxy for the relative capital/labor ratio (foreign to U.S.), *RDEP*. *RDEP* is the ratio of depreciation per employee in the foreign country relative to the corresponding ratio in the U.S. A similar correlation is run between *RDEP* and the ratio (foreign to U.S.) of economy-wide (or comprehensive) annual compensation per employee (*RCW*). The countries used in the analysis are the nine previously shown in Table 1. Periods of observation are 1960, 1970, and 1980, plus a pooled cross-section with all three years and dummies for 1970 and 1980.

³ For a textbook exposition, see Lindert and Kindleberger (1982, pp. 31–32, 62–73).

TABLE 3
Nine-Country Regression Results, 1960-1980

	Period							
	Dependent Variable: <i>RMW</i>				Dependent Variable: <i>RCW</i>			
	1960	1970	1980	1960 70, 80 ^a	1960	1970	1980	1960 70, 80 ^a
	<i>Correlation Coefficients</i>							
<i>RDEP</i>	.98	.85	.60	.89	.96	.84	.81	.92
<i>XMGDP</i>	.71	.63	-.03	.26	.68	.60	-.14	.23
	<i>Regression Coefficients</i>							
Constant	.06	.06	.22	.04	.07	.05	.04	.03
<i>RDEP</i>	.84 ^o	.87 ^o	.90	.81 ^o	.87 ^o	.87 ^o	1.10 ^o	.89 ^o
<i>XMGDP</i>	-.007	-.001	-.030	-.000	-.008	-.003	-.001	-.003
<i>D70</i>	—	—	—	.05	—	—	—	.01
<i>D80</i>	—	—	—	.28 ^o	—	—	—	.21 ^o
\bar{R}^2	.95	.63	.15	.83	.96	.62	.55	.89

Definitions of variables: *RWM* = ratio of foreign-to-U.S. manufacturing hourly compensation for production workers; *RCW* = ratio of foreign-to-U.S. all-economy annual compensation per employee; *RDEP* = ratio of foreign-to-U.S. depreciation per employee; *XMGDP* = ratio of sum of U.S. exports and imports to and from foreign country relative to foreign country's GDP; *D70* = dummy = 1 in 1970, 0 in other years; *D80* = dummy = 1 in 1980, 0 in other years.

^a The top two rows are partial correlation coefficients. Also included in the regressions were dummy variables for 1970 and 1980.

^o Coefficient significant at the 5 percent level.

RDEP is a measure of economic development in the foreign countries relative to the U.S. In all cases except Canada, the ratio rose from 1960 to 1970 and 1970 to 1980. To measure the significance of trade between foreign countries and the U.S., a second measure—*XMGDP*—was calculated. *XMGDP* is the ratio of the sum of U.S. exports to, and imports from, the country, relative to the foreign country's gross domestic product. In five of the nine cases, this ratio rose during 1960–1980; in the other four it fell.

Table 3 shows that the simple correlation between *RDEP* and *RMW* (or *RCW*) was relatively high in all three periods, although it tended to decline in each subsequent year. In contrast, the simple correlation between *RMW* (or *RCW*) and *XMGDP* is always lower than with *RDEP* and becomes insignificant by 1980. Placed in multiple regressions with *RDEP*, variable *XMGDP* never appears as a significant explanatory factor for relative wage levels.

Obviously, there are many questions that could be raised about the nature of this test, including the specification of the two key variables, *RDEP* and *XMGDP*. The two variables may not adequately capture the respective development versus trade explanations of comparative wage levels and, hence, of wage convergence. Nevertheless, it does appear that economic development plays a major role in wage levels. As foreign countries develop their economies to the point where they resemble the U.S., their wage levels tend to emulate U.S. levels.

Exchange Rates and Relative Wage Levels

Table 1 indicated a divergence between relative wage movements in nominal terms and in real terms. Although wage convergence appeared in both computations, the degree of foreign relative gain was less in the latter. This result may suggest that exchange rates were “distorted” in 1980—perhaps currency speculators underestimated the degree to which the U.S. could bring down its inflation rate—and that the U.S. dollar was undervalued. To the extent that the exchange rate is a forecast of its own future value, the 1980 value of the dollar was indeed an underestimate. There was considerable subsequent dollar appreciation which would have permitted substantial speculative gains to any transactor who had predicted it.⁴

The impact of the change in the dollar's value can be seen in the first

⁴ Some evidence for a distortion effect can be found in regressions explaining the percentage rate of change of the two relative wage ratios, *RMW* and *RCW*, over the periods 1960–1970 and 1970–1980. The percentage change in the exchange rate was a significant positive influence on the ratios during the latter period, but not the former, in regressions also including the percentage change in *RDEP* and *XMGDP*. Of course, the latter period was one of much more active exchange-rate changes.

two columns of Table 4. Depreciation rates of the nine countries shown varied between 5 and 37 percent during 1980–1982, producing large changes in relative wage ratios. Even these movements were not sufficient to reverse the convergence trend since 1970. But if the 1982 results are a more reliable index of fundamental developments, they suggest that future wage convergence will proceed more slowly than might have been projected based on the 1970–1980 data.

However, it should not be concluded that recent problems of wage cost competitiveness in the U.S. are solely an exchange-rate phenomenon. Competitiveness is ultimately the sum of the results for the various trading industries. Two industries, autos and steel, have frequently been cited as having special problems with foreign competition. But as can be seen in columns (3) and (4) of Table 4, their relative wage cost disadvantage compared with foreign suppliers is larger than for manufacturing as a whole. This larger disadvantage results, in part, from a tendency for auto and steel wages to have risen faster than other U.S. wages. Depreciation of the dollar would not change this interindustry discrepancy, although steel and autos would obviously be helped by dollar depreciation. Recent union wage concessions are also helpful at the margin.

Conclusion

Foreign wages in developed countries have tended to catch up with U.S. levels over a long period. This tendency accelerated in the 1970s, but was partially reversed in the early 1980s by dollar appreciation. Even so, the long-term trend which makes wage levels less central in international competition among developed countries is likely to reassert itself. For less-developed countries, the trend is less clear. Labor-intensive products from such nations will remain a competitive threat to corresponding import-competing industries in the U.S.

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TABLE 4
BLS Calculation of Foreign-to-U.S. Wage Ratios, 1980-1982

Country	Foreign-to-U.S. Compensation Ratios				Change in Exchange Rate, 1980-82 ^c
	Manufacturing 1980 (1)	Manufacturing 1982 (2)	Iron & Steel 1982 (3)	Motor Vehicles ^b 1982 (4)	
Belgium	133%	76%	53%	54%	-36%
Canada	91	92	67	70	-5
France	93	68	43	46	-36
Germany (West)	124	88	53	67	-25
Italy	82	63	40	37	-37
Japan	57	49	46	37	-10
Netherlands	123	85	56	51	-26
Sweden	126	89	58 ^a	56	-32
United Kingdom	74	57	35	36	-24

Source: Unpublished data provided by the U.S. Bureau of Labor Statistics.

Note: 1982 estimates are preliminary. Figures for 1980 differ slightly from those of Table 1 due to the use of different exchange rates by the Bureau of Labor Statistics.

^a Includes foundries.

^b Includes equipment.

^c Percent change in U.S. dollar per foreign currency unit.

XII. ECONOMIC APPRAISAL OF THE VALUE OF A HUMAN LIFE: APPLICATIONS TO THE WORKPLACE

New Issues in Appraising The Value of a Human Life

MICHAEL L. BROOKSHIRE AND WILLIAM E. COBB
West Virginia College of Graduate Studies

The development of appropriate methods for estimating the value of a human life or, as it is frequently measured, the earning capacity of an individual, is increasingly relevant to issues arising out of the workplace. In estimating private and social “net benefits” from expenditures on occupational safety and health, projections of earning capacity are important. Lost earning capacity estimates also are needed in instances of on-the-job injury or death, as in railroad industry cases under the Federal Employers’ Liability Act. Such projections are increasingly necessary in actions concerning various types of discrimination and wrongful discharge.

In many jurisdictions, legal parameters are placed on the methods used in projecting earning capacity. Such parameters may include the specification of factors to be used in estimating future wage growth and then in discounting future wages to present values, whether or not the personal consumption expenditures of a deceased person must be subtracted from those wages and, recently, whether or not wage projections should be gross earnings or after-tax earnings. It is important that these legal limitations be evaluated and changed when not supported by logic or fact. It is also important that appropriate economic and actuarial techniques be developed for consideration by employers, labor unions, and government decision-makers.

Authors’ address: West Virginia College of Graduate Studies, Institute, WV 25112.

Cases involving the value of earnings capacity might involve either a total elimination of that capacity or a partial diminution. In the first category are death cases and, when reemployment after discharge seems unlikely, age discrimination cases. In the partial diminution category are injury cases and certain wrongful discharge and Equal Employment Opportunity cases. For the purposes of this paper, no distinction will be made between these two categories of cases.

Here we focus on two major issues—the impact of work-life expectancy and the impact of federal income taxes on earning capacity estimates. The basic techniques used in projecting earning capacity are relatively simple. Based upon historical data, the wages and employer-provided fringe benefits of an individual are projected into the future and then “discounted” or reduced to their present value or lump-sum equivalent. Such projections can be based upon estimated future inflation or can be based upon “real” (inflation factored out) rates of increases in earning capacity and real interest rates. An adjustment is then made to account for the “work-life” expectancy of the individual.

The Life-Participation-Employment (LPE) Approach

Conventional work-life tables are based upon data collected in each ten-year census. Such tables show the remaining work-life expectancy for a worker at each age. Both the methodology and interpretation of the most commonly used tables are flawed. First, the conventional approach assumes only one entry into, and one exit from, the labor force. That is, once an individual begins participating in the workforce, he or she is assumed to continue participating without interruption until death, retirement, or total permanent disability. This assumption is contradicted by the fact that an individual enters and exits from the labor force several times over his lifetime—a fact especially true of females during the child-bearing years.

A second flaw in the conventional approach exists if it is applied to projections of earning capacity. The conventional approach does not account for the probability that a worker will be unable to find a job at some time during his life. With the national unemployment rate higher than 10 percent in the early 1980s, this assumption is unreasonable.

In 1982, the Department of Labor released a new set of work-life tables based upon 1977 data and developed with improved methodology. Unfortunately, the new methodology still needs to be adjusted when applied to projections of earning capacity. The new “increment-decrement” work-life tables are based upon measures of flows of individuals into and out of the workforce, no longer assuming a single beginning and a single ending of an active period in the labor force. Because of this

change, the Department of Labor admits that all work-life tables prior to 1977 are obsolete.¹

However, the increment-decrement model of work-life expectancy assumes that a worker will never be involuntarily unemployed—an obvious problem when applying this new version of the conventional approach. An alternative method of computing work-life expectancy, however, corrects this deficiency. This alternative approach will be called the Life-Participation-Employment (LPE) technique.

In order for a worker to earn a full year of income in a future year, he must be alive (let L represent the probability of life), attempting to find employment (let P represent the probability of labor force participation), and actually employed (let E represent the employment rate). The joint probability of life, participation, and employment, which is the product of these three probabilities, can be multiplied by earnings potential from full-time work at any age to determine *expected earning capacity* for an average worker of a given sex and race. In fact, the three probabilities are available by age, race, and sex from annual publications of the Department of Labor and the Department of Commerce. This LPE approach does have some difficulties, as the three variables may not be independent; however, the approach addresses the more substantial flaws of other work-life tables. The annual LPE factors can be summed for a work-life estimate in a form comparable to typical work-life tables.

The use of the life-participation-employment (LPE) approach versus the conventional approach in economic estimates is not just a theoretical issue: significant reductions in the earning capacity estimates occur. Assume the death of a white male who was about to turn age 40 at the time of death. Further assume that he was earning \$25,000 annually in wages. For simplicity, ignore lost earning capacity in fringe benefits and assume that the rate of wage increase in future years is exactly offset by the interest rate used in discounting to present values. Thus, \$25,000 would be the present value of lost earning capacity in wages in each future year, with no adjustment for work-life expectancy.

With the conventional approach to work-life expectancy, \$25,000 would be multiplied by the remaining 24.1 years of working life to produce a \$602,500 estimate of the present value of total loss. With the increment-decrement version of the conventional model, the deceased would have had 21.2 years of remaining work-life, and the present value of total loss would be \$530,000. In contrast, the LPE approach would include a reduction of the \$25,000 wage figure by the joint LPE probability for white males in each future year from age 40 to 69. The present value of

¹ U.S. Bureau of Labor Statistics, *Tables of Working Life: The Increment-Decrement Model*.

total loss would be \$508,099, which is 15.7 percent less than the conventional estimate and 4.1 percent lower than the increment-decrement estimate.

If one varies the example above by changing the race and/or sex of the wage earner, the differences between the three approaches become even more dramatic. As can be seen in Table 1, the greatest difference occurs in the estimate of the earning capacity of a white female.

TABLE 1
Alternative Work-Life Approaches to Estimating Expected
Earning Capacity Loss for a 40-Year-Old Worker

Race/Sex	Using LPE	Conventional		Increment-Decrement	
		Amount	% Over LPE	Amount	% Over LPE
White Male	\$508,099	\$602,500	15.7%	\$530,000	4.1%
Black Male	\$431,936	\$602,500	28.3%	\$530,000	18.5%
White Female	\$289,184	\$562,500	94.5%	\$367,500	27.1%
Black Female	\$302,697	\$562,500	85.8%	\$367,500	21.4%

While conceptually more sound than the conventional approach, the LPE approach may need to be refined or tailored in any given case. For example, in the case of a 40-year-old white male, one estimate of loss of earning capacity might be made using the standard LPE adjustments as described. If this person were clearly above average in historical participation and employment, another estimate might set these two probabilities equal to 100 percent, at least up to some assumed retirement age. On the other hand, the "average" LPE estimate would be too high for the individual with a sporadic or marginal work history.

In addition, for a female with continuous employment over many years, use of average participation and employment statistics would result in an unreasonably low estimate of earning capacity. Finally, the LPE probability for the partially disabled worker is usually lower than the preinjury LPE factor. When both a diminution of earning capacity *and* a reduction in the LPE factor are considered, partial disability can have a profound impact on the expected loss of earning capacity for such workers.

The conventional approach to the production of work-life tables is seriously flawed, at least to the extent that these tables are used in the adjustment of estimates of loss of earning capacity. The LPE approach to work-life expectancy considers all three relevant variables and provides

additional advantages. Since economic estimates produced by the two approaches differ, sometimes substantially, it is important that the new approach receive broader interest and use.

After-Tax Earning Capacity

When a projection of earning capacity is desired *from the point of view of a worker* who is killed, injured, or discriminated against, it is necessary to examine the net impact of the loss to the worker. Although society may lose the full productive capacity of such a worker, the worker and his family lose only the after-tax and disposable income that would have been earned. Although several authors have addressed the issue, none has presented a detailed model that is capable of dealing with the *variable* tax rates involved.

The tax-adjusted model is considerably more complex than the no-tax model. The difficulty arises from the fact that the income tax is a progressive tax under which the tax rate changes as income changes. In addition, although a lump-sum award for damages is not taxable, the interest necessary to maintain the purchasing power of the award is fully taxable. In order to determine the present value of the tax-adjusted loss of earning capacity, both of these factors must be considered.

The tax-adjusted lump-sum equivalent to wages must earn enough after-tax interest to permit the payout of the after-tax wages. As in the no-tax case, the lump sum should be fully consumed after the final payout of wages. The problem is that even if we know wages, wage trends, effective tax rates on wages, and future interest rates, the tax rates on the interest earned on the lump-sum equivalent depends upon those same tax rates. Simply put, there are too many unknowns to be easily solved.

However, there is a technique which will generate all the unknown elements needed to find the tax-adjusted lump-sum equivalent of earning capacity. The procedure focuses on the lump-sum interest, taxes, and after-tax payout in a single future year, beginning with the last year involving a wage payout. By beginning with the last year we have one extra piece of information—the lump sum must be zero at the end of that year. That is, after paying out the wages over the work-life, the lump-sum amount has fulfilled its purpose and is no longer needed. Using this technique and iterating backwards year by year will yield the *precise* amount necessary to compensate a worker for his loss of after-tax wages.

A mathematical description of the technique is as follows: In the *i*th year, the lump sum at the beginning of the year—starting lump sum (SLS_i)—is related to the ending lump sum (ELS_i) in that *i*th year by:

$$(1) \quad SLS_i[1 + r_i(1 - t'_i)] - W_i(1 - t_i) = ELS_i$$

where r is the interest rate, t' is the tax rate on the interest, W is the annual wage, and t is the tax rate on the annual wage.

To solve for SLS_i :

$$(2) \quad SLS_i = \frac{ELS_i + W_i(1 - t_i)}{1 + r_i(1 - t'_i)}$$

Furthermore, the ending lump sum for a specific year is the starting lump sum for the next year, or:

$$(3) \quad ELS_{i-1} = SLS_i$$

However, the ending lump sum in the final payout year must be zero in order not to overcompensate the worker. From equation (2), therefore, we know that when $ELS_n = 0$, then

$$(4) \quad SLS_n = \frac{W_n(1 - t_n)}{1 + r_n(1 - t'_n)}$$

Since only two unknowns exist in equation (4), the starting lump sum in the last year can be easily found.

An iterative routine will find both SLS_n and t'_n . The process involves successive estimates which converge to the solution. Initially t'_n is set to zero, and a value for SLS_n is calculated using equation (4). After determining the interest earnings on this estimate of SLS_n , a second estimate of t'_n is found. If this second estimate of t'_n is equal to the first estimate, then the necessary starting lump sum (SLS_n) has been found. If the second estimate of t'_n differs from the first estimate, the process continues through a new iteration. The insertion of the second estimate of t'_n into equation (4) yields a second estimate for SLS_n . As before, the tax rate on the interest earnings on this second estimate of the starting lump sum is determined and becomes the third estimate of t'_n . If estimate 2 and estimate 3 are identical, the necessary starting lump sum has been found. Otherwise, the process continues until two successive estimates of t'_n are identical and SLS_n has been found. This iterative process works because it always begins with estimates below the actual values. Usually no more than four iterations are required to find the starting lump sum for any particular year.

Since the starting lump sum in year n (SLS_n) is the ending lump sum in year $n - 1$ (ELS_{n-1}), ELS_{n-1} has also been found. The iterative procedure for the year $n - 1$ will now find the starting lump sum in year $n - 1$ (SLS_{n-1}). Repeating this procedure will eventually result in the solution; the tax-adjusted lump-sum equivalent will have been found to be SLS_1 .

In summary, accurate estimates of the value of a human life are increasingly important as more applications to workforce events occur. Most of the widely used approaches to work-life estimates were not designed for these applications and will likely be succeeded by a more relevant life-participation-employment approach. In addition, if the analyst is projecting loss of earning capacity from the point of view of a worker who is injured, killed, or discriminated against, the loss would be projected on an after-tax basis. Models for both the LPE probability adjustment and the tax adjustment were presented herein.

Consumption by Family Size: A Labor Relations Study*

JOHN F. BURKE, JR., AND HARVEY S. ROSEN
Business Research & Econometrics, Inc.

The focus of this study is on how the percentage of personal consumption expenditures of the head of household ($\%HHCON$) changes as family size and the family characteristics change. Earlier studies have shown (Doublin and Lotka 1946) that consumption per adult unit is inversely related to family size and that family size, in turn, is inversely related to age. Prais and Houthakker (1955) showed that as family size increases, the household reduces expenditures on luxury items and substitutes inferior goods in their consumption pattern. These results indicate that the effect on consumption expenditures caused by additional spending units is a reduction in the percentage of the family total accounted for by the individual family members. The magnitude of the change will depend on the disposable income of the family. At very low levels of income, most luxuries and quality goods have already been eliminated. Thus, the pattern of consumption of the family members out of the family income ($F.E.P./FAMSIZE$) is relatively fixed.¹ The introduction of an additional family member will reduce the consumption expenditures accounted for by the original family members, but only very slightly, as only necessities were being purchased by the low-income family prior to the addition. For middle-income families there is room for more adjustment. More luxury and quality items are purchased, and an addition to the family size will result in a larger percentage change in the family consumption pattern.² Higher income families may show a less elastic

Author's address: Business Research & Econometrics, Inc., 2800 Euclid Avenue, Suite 300, Cleveland, OH 44115.

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¹ ($F.E.P./FAMSIZE$) represents an elasticity here, giving the percent change in the Family Expenditure Pattern (F.E.P.) given a percentage change in Family Size (FAMSIZE). Note that the F.E.P. is the pattern of family consumption given by the percent of the total family expenditures accounted for by individual family members.

² The CES used to generate our sample was based upon the Census Bureau's survey booklet entitled *Record of Your Daily Expenses*, OMB No. 1220-00 50, Form CE-801. For more information on our survey methodology, contact our office.

(*F.E.P./FAMSIZE*) variable due to the marginal relationship of the additional person's needs to total family income. As one goes up in income, the "burden" of the additional person becomes less and less noticeable, and so changes in the F.E.P. pattern become less and less pronounced.

In a more recent study (Cheit 1961), it was found that the head of household's propensity to consume out of family income varies in the directions that the above theories predict, but not at the magnitude of the Doublin-Lotka data. The Doublin-Lotka study fails to take into consideration the economies of scale involved in family consumption, and thus their static estimates of (*F.E.P./FAMSIZE*) are considerably larger than the Cheit estimates.

Though important contributions, these studies are now deficient because:

1. Important demographic changes have occurred within the American family structure. Family size is declining; the age of parents and the number of elderly couples are increasing; and incidence of two-income families is sharply higher, as is the number of single-parent families.

2. Previous studies make no mention of the methodology used to obtain their results.

3. No statistical analysis was given to evaluate the validity of their models.

This study was undertaken to overcome these deficiencies, to update past results with current data, and to provide the methodology and model used to analyze the above changes.

In order to estimate the percentage of consumption of the head of the household by family size, it is necessary to obtain expenditure data for each family member. Unfortunately, such data are not collected by the Bureau of Labor Statistics or the Census Bureau. The Consumer Expenditure Surveys (CES) carried out by these organizations are designed to gather data on all forms of family expenditures; however, no attempt is made to allocate these expenditures to the various family members. Therefore it was necessary to conduct a survey designed to collect data that would allow each family member's expenditures to be determined.³

Coding and Classification of Data

A survey was administered to a number of families using the diary techniques employed by the Bureau of the Census. The participants were asked to record expenditures and allocate them to each family member where possible. Total purchases fall into three classifications: fixed,

³ More detailed information on the CES used to generate the data for this report is available from the authors upon request.

variable, and family variable expenditures. The difference in allocation is easily distinguished here. Fixed costs, such as rent, do not vary in the short run when family size changes. Variable costs fall into two categories: those that change with family size and can be attributed to one of the family members, such as allowances and clothing purchases, and those expenses that represent joint family consumption, such as shampoo, which will vary with family size. Allocation of these joint family expenses is difficult since it appears that they do not change in proportion to family size, making them difficult to allocate. Thus, it would be incorrect to allocate joint family costs by splitting them evenly among the family members. For this reason, joint family costs were left as a separate category and were not allocated to individual family members. The average value for this category of expenditure was 14.9 percent of total family expenditures. The fixed expenditure component averaged 26 percent of total family expenditures, with the remaining percentage attributable to each family member.

The Model

The basic model tested was:

$$\%HHCON = f(FAMSIZE, INCOME)$$

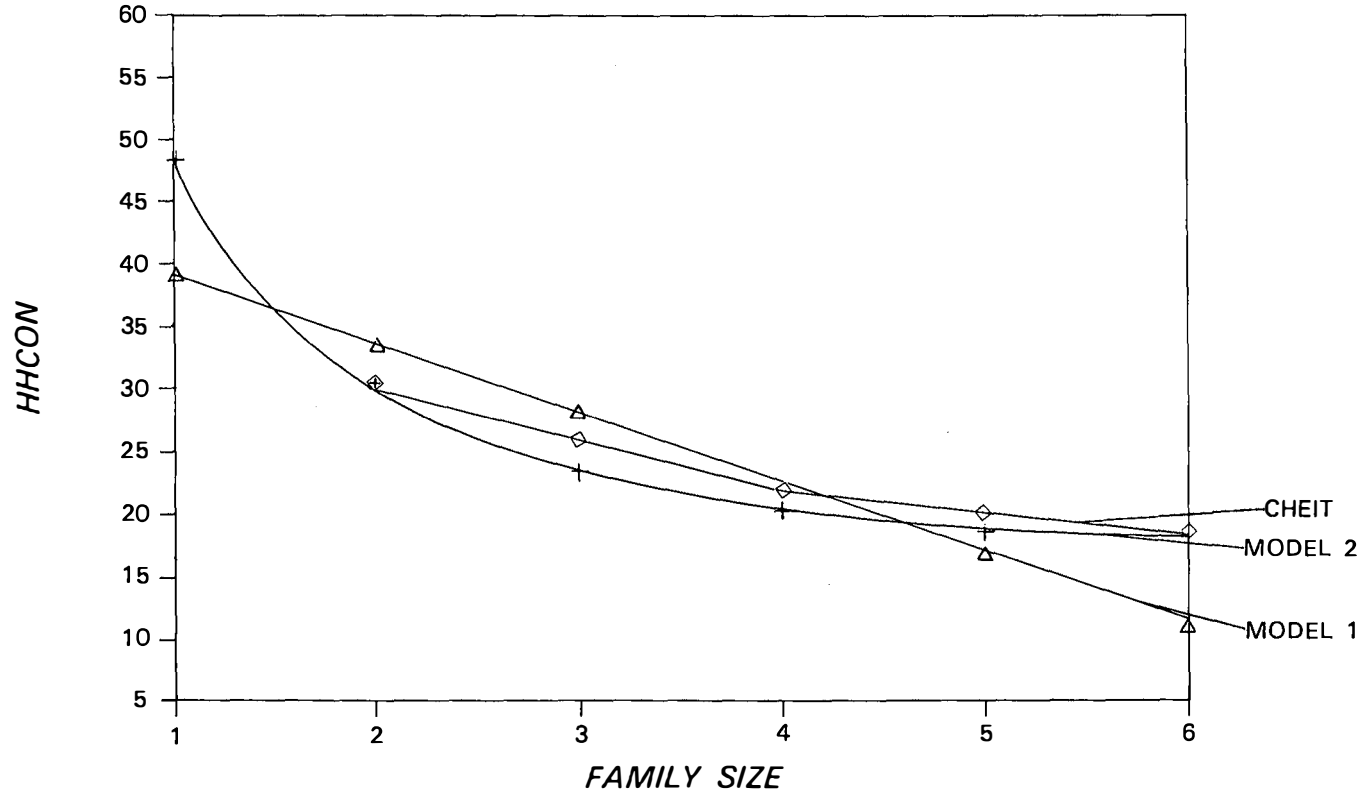
Since the families in the study had similar backgrounds, there was not enough variability in the income variable to include it in the regressions. Although it is expected that income would be significant, it was not possible to analyze its effects in this study.

The dependent variable, $\%HHCON$, is defined as being the percentage consumption of the employed parent. In those families where both parents were employed, the male was chosen as the head of household. In an attempt to test the significance the definition has on the results, another model was estimated using the female's consumption data for the two-parent, two-income families. The resulting change was very minor.⁴

The first model tested was linear and appears as Model 1 in Figure 1. This linear specification has serious shortcomings in theory. First, and most obvious, is the negative values for the dependent variable in families larger than eight. While this result is due in part to a lack of families of eight or more members in the sample, clearly all linear regressions with this specification will have the constant slope coefficient, and if they show a significant relationship, these models will result in negative values for $\%HHCON$ over some high values of the $FAMSIZE$ variable. With this

⁴ The use of the female's expenditure data for two-parent, two-income families resulted in a B-coefficient for $1/FAMSIZE$ of 39.0391, which yields a t -statistic of -3697 . Thus the model was not significantly changed by redefining the $\%HHCON$ variable.

FIGURE 1
MODEL 1, MODEL 2, & CHEIT



type of specification, the $\%HHCON$ variable will show the same percentage change when a family grows from size 2 to 3 as it does when a family grows from 7 to 8. In theory, however, economies of scale in fixed family costs as well as changes in the basket of goods normally purchased will cause a much larger change in the dependent variable when the family size changes from 2 to 3 than when it increases from, say, 5 to 6 (Cheit 1961).

To overcome this deficiency, a curvilinear model was estimated using the following specification:

$$\%HHCON = a + b(1/FAMSIZE)$$

This specification results in a function where:

$$\frac{d \%HHCON}{d (1/FAMSIZE)} < 0 \text{ and } \frac{(d)^2 \%HHCON}{d (1/FAMSIZE)^2} > 0.$$

Thus, the function is convex from below and yields consumption behavior with a declining rate of change that is more consistent with economic theory. The results of this regression, Model 2, can also be seen in Figure 1.

When the two regression models are compared, it is clear that the nonlinear version fits the data better. The R^2 , F-test, and t -statistics all verify this conclusion. The equation statistics for the two models that estimated consumption by family size are as follows:

$$\begin{aligned} \text{(Model 1)} \quad \%HHCON &= 44.2136 - 5.449 (FAMSIZE) \\ &\quad (1.55) \end{aligned}$$

$$SEE = 10.5036 \qquad R^2 = .381631$$

$$\begin{aligned} \text{(Model 2)} \quad \%HHCON &= 10.5968 + 36.3396 (1/FAMSIZE) \\ &\quad (7.3027) \end{aligned}$$

$$SEE = 8.92835 \qquad R^2 = .553200$$

The $\%HHCON$ results by Model 1, Model 2, and Cheit model are shown in Table 1.

Sample Data Problems

In dealing with microeconomic data, it is possible that heteroskedasticity will be caused by certain binding constraints on the dependent variable. For example, in cases of consumption we would expect less variation for low-income families than for high-income families. In this

⁵ To show this expression is negative, see the reciprocal of family size. Thus, going from a family of size 1 to 2 we get: $(1/2 - 1/1) \cdot b = -18.1698$; for 2 to 3: $(1/3 - 1/2) \cdot b = -6.0578$; etc. The same procedure is used for the second derivative analysis.

study, it may be expected a priori that family size could create the same constraints on %HHCON (Kmenta 1971, p. 249). Accordingly, the model was tested for heteroskedasticity. None was found, as the error variances were well behaved.⁶

The majority of the data used in this model was obtained from union families, which limited the variances of the income and education variables. As a result, they could not be used as explanatory variables in the model. It was expected, however, that these two variables would be significant, and with them not included, application of this model to families with different income and education levels should be done carefully.

Future Efforts

The authors have several goals for the continuation of this project. First and foremost is enlarging the data base. Sample bias problems caused by dependence on union families must be eliminated and the sample variance of the income variable must be improved if we wish to model the income elasticity of F.E.P. As the size of the sample increases,

TABLE 1
%HHCON Given by Model 1, Model 2, and Cheit

FAMSIZE	Model 1 ^a	Model 2 ^a	Cheit ^b
1	38.765	47.936	Missing
2	33.316	29.767	30.000
3	27.867	23.709	26.000
4	22.418	20.682	22.000
5	16.969	18.865	20.000
6	11.520	17.655	18.000
7	6.071	16.788	Missing
8	0.622	16.139	Missing

^a Estimated from Model 1 and Model 2.

^b The Cheit data refer to the percent of consumption out of family income accounted for by the head of household. Models 1 and 2 estimate %HHCON out of total family expenditures, which does not include family savings. The result of this difference in specification is that Cheit's estimates for %HHCON are expected to be slightly lower than the estimates produced by the models developed in this study.

⁶ To test for heteroskedasticity, the following statistic was used: $1 = (-4.60517 \cdot \log M)/(1 + N)$ (Kmenta 1971, pp. 267-69). The resulting value for 1, which has a chi-square distribution with $N - 1$ degrees of freedom, was -1.8796, well below the 5 percent significance value of 11.07. Due to the possibility that heteroskedasticity may occur in our data base as more data are collected, we estimated the "corrected model" outlined in Kmenta (1971, pp. 252-56). The results of this correction were:

$$HHCON = 10.2896 + 39.275 (1/FAMSIZE) \\ (2.718) \quad (7.7660)$$

$$R^2 = .5495$$

the distribution of family sizes in the sample should approach the distribution found in the general population.⁷

Finally, as the sample becomes sufficiently large, an estimate of a more complete model will be made, having as its goal to model the F.E.P. as it relates to all members of the family and not just the head of household.

In addition to modeling the specific family members, the use of additional variables can add to the explanatory power of the models by including such factors as age and gender of children, employment and occupation status of the parents, as well as others.

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⁷ The possibility of persistent bias in the frequency of family sizes in our data base exists due to a higher refusal rate for survey participants in larger families. Due to the design of a CES, large families require more time and effort to complete the survey. As a result, fewer such families will be willing to participate. More information on the data base used for this study is available from the authors upon request.

Union Effects on the Valuation of Fatal Risk*

ALAN E. DILLINGHAM
Illinois State University

ROBERT S. SMITH
Cornell University

Estimates of compensating wage differentials for risk of fatal, on-the-job injuries have been the subject of much interest in the past few years—for essentially two reasons. First, economists have turned to estimates of compensating wage differentials for fatal risks as the principal source of behavioral evidence concerning willingness-to-pay for risk reduction (see Mishan 1971, for an excellent discussion of various methods for evaluating the benefits of lifesaving programs). The second reason why compensating differentials for fatal risks have been the subject of much interest has to do with the issue of labor market performance. For these differentials to be generated, workers must be both *informed* about risks facing them and *mobile* enough to avoid risks for which they feel insufficiently compensated—and it is of both theoretical and practical interest to determine if there is enough information and mobility in the labor market to generate compensating wage differentials.

Our research grows out of this second reason for interest in compensating differentials, in that we wish to shed light on how unions affect labor markets. The standard economic analysis of trade unions emphasizes their status as labor monopolies; in recent years, however, economists have begun to investigate conditions under which unions could improve the functioning of labor markets. This paper reports on our research regarding the effects of unions on compensating wage differentials for fatal job injury risks.

Smith's address: New York State School of Industrial and Labor Relations, Cornell University, P.O. Box 1000, Ithaca, NY 14853.

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Unions and Compensating Differentials—Theory

As indicated above, compensating wage differentials can exist in nonunion markets only if workers are informed and mobile (in such markets, mobility is the vehicle through which preferences are expressed). Unions may help markets to function better by introducing improved *information* into the job contracting process and/or by acting as a *preference-revealing* mechanism. Both of these potential roles suggest that compensating wage differentials might be larger or more likely to exist in the union, as compared to the nonunion, sector. This possibility, of course, depends entirely on the goals of unions, as we show below.

Union Effects: Information and Revealed Preferences

Information. If union members have more and better information about working conditions, and if lack of knowledge leads to an underestimate of risks faced on the job, then one might expect to observe larger compensating wage differentials in the union sector. There are several reasons why union workers might be better informed than nonunion workers: (1) Unions can exploit economies of scale in information provision. (2) Workers probably pay more attention to information provided by unions than to that provided by the employer. (3) Unions offer workers an alternative to quitting as a means of obtaining more preferred conditions of employment and, as a result, information that would be rendered useless by turnover tends to accumulate.

Revealing Preferences. The sale of labor services is also the simultaneous purchase of a set of working conditions or job traits. Many job traits—such as job safety—can be considered quasi-public goods (Stafford 1979), in that the good is consumed by all equally, and one individual's consumption does not reduce the consumption of another. This creates a well-known incentive for people to understate their true preferences and attempt a "free-ride." Unless a worker is willing to transform safety into a private good by quitting to look elsewhere for a more preferred level of risk, true willingness to pay for safety may exceed individually revealed preferences. A union, as a collective voice for workers, could effectively increase the demand for safety, thus creating larger compensating wage differentials.

Other Union Effects

There are other effects that unions could have on compensating wage differentials that do not directly reflect improved market performance. Unions are almost universally perceived as disengaging, at least to some degree, wages from market forces. The wage increments associated with

additional years of education and experience, for example, are typically found to be smaller in the union sector. It would not be surprising, then, to find that the wage increments associated with higher risk levels are likewise smaller, reflecting the weaker influence of market forces on union wages.

However, the above analogy between the returns to human capital investments and the “return” to risk may be flawed. Many unions clearly articulate an ethic of seeking greater wage equalization across skill (human capital) levels, whereas there may be no such ethic regarding risk differentials. Indeed, if unions fully reflect their members’ preferences regarding risk, the monopoly power of unions may render the observed wage-risk relationship *more concave* (from above) than the relationship in a perfectly functioning nonunion market. We explain below.

The costs of quitting one’s job in a nonunion firm are normally smaller than they are in a union firm (quitting entails giving up a union “rent”). Likewise, the benefits of quitting a union job in response (say) to increased risk are generally smaller, because redress can be sought through “voice” mechanisms. Thus, turnover is a less frequent adjustment to changes in working conditions in the union than in the nonunion sector—a fact that implies greater heterogeneity of preferences there.

Suppose there are three types of workers: those with weak, average, and strong preferences for safety. In the *nonunion* sector, these groups self-select themselves into firms with high, average, and low injury rates, respectively. If workers lucky enough to obtain union jobs are selected randomly with respect to safety preferences and are less likely to quit as working conditions change, we would expect to find that high injury-rate union firms have workforces whose median preferences for safety are stronger (more average) than found in similar nonunion firms. Likewise, low injury-rate union firms will have workforces in which the median safety preference is weaker (again, more average) than in comparable nonunion firms.

Because the willingness to pay for safety is higher in high-injury union firms, one might expect the wage-risk curve to be correspondingly steeper there than it is for high-injury nonunion firms. Similarly, because the willingness to pay for safety is smaller in low-injury rate union firms, one would expect the wage-risk curve to be flatter there than in comparable nonunion firms. In sum, then, a positively-sloped wage-risk curve in the nonunion sector would be bent upward at both ends by unionization, leading to a more concave trade-off curve in the union sector.

Previous Research

Previous research on unions and compensating wage differentials is rather sketchy and inconclusive. Thaler and Rosen (1975), Viscusi (1979), Olson (1981), and Dorsey (1983) have all found wage risk premiums to be larger for union workers; however, Marin and Psacharopoulos (1982) find them to be smaller. While the latter study is of data from the United Kingdom, the disparate findings do raise questions concerning the mechanisms at work in the union sector. In none of the above studies has the question of union-related mechanisms been of central research interest, and the union effects have typically been studied through the use of interactive terms in the estimating equations. Our study seeks to more thoroughly analyze these potential union effects, and to see how robust they are to different specifications of the risk measures. Further, we depart from most of these studies in our specification of the estimating equation and the restrictions placed on our sample of observations.

Empirical Model and Data Sources

For estimating injury risk wage premiums, virtually all researchers have relied on a single-stage hedonic wage equation augmented with injury risk variables. With two major qualifications this general model has been adopted here, so that all estimated regression equations have the general form of equation (1);

$$(1) \quad W = b_0 + \sum_{i=1}^m b_i HC_i + \sum_{j=m+1}^n b_j C_j + b_{n+1} R + e$$

where W is hourly wage, HC is a set of human capital variables, C is a set of control variables, and R is a measure of labor market injury risk. Since the key issue is a potential union-nonunion risk premium differential, and it is well known that the earnings structure for these two groups is different (Freeman and Medoff 1982, Duncan and Leigh 1980), separate union and nonunion equations are estimated.¹

The measurement of injury risk presents a problem since at best it is crudely measured. Moreover, estimated wage premiums seem to be quite sensitive to the specific risk variable employed in the estimation (Dillingham 1983). The most widely observed risk measures are available from the Department of Labor (DOL), and these represent the average risk experience by *industry*. We obtained these risk data for 1976 and 1979

¹ U.S. Bureau of Labor Statistics, Tables of Working Life: The Increment-Decrement Model.

and adjusted them to reflect the risk faced by nonoffice workers in the relevant industries.² Because using even adjusted industry averages can create an errors-in-variables problem (which would bias our estimates toward zero), we also employ a set of risk measures that have been calculated by industry *and* occupation from New York State Workers' Compensation records for the year 1970. Using these measures of risk with the data set described below clearly introduces another errors-in-variables problem; however, in the absence of *completely* satisfactory data, we believe it is useful to use alternative measures to establish the robustness of any particular set of results.³

All statistical tests are carried out on a sample drawn from the May 1979 Current Population Survey. The sample was restricted to white, male, blue-collar workers in manufacturing who reported hourly wages.⁴ The human capital variables are the traditional measures of formal education and work experience. Control variables include measures of geographic location, firm size, marital status, and both industry and occupation dummy variables. Another independent variable—the percent of production workers unionized—is industry-specific and assigned to sample members on the basis of their industry classification.

Empirical Results

A number of estimating equations were specified, each of which employed a different measure (or measures) of risk in the workplace. Our primary interest is in the compensating differential for fatal risk, so that only the coefficients related to fatal risk are presented in Table 1.⁵ All reported results relate to equations in which the natural log of the hourly wage is the dependent variable.

In judging the estimates of compensating wage differentials presented in Table 1, it is important to note that the overall results exhibit some previously established differences between the union and nonunion sector (see Freeman and Medoff 1982, Duncan and Leigh 1980). The explanatory power of the union equation is less than that of the nonunion equation, and the extent of unionization in an industry has a significantly positive influence on union wage levels but no effect on nonunion wages.

² In making the adjustments, we assumed that office workers face zero risk.

³ The Workers' Compensation data on risk are not strictly comparable to the DOL data because the former are based on exposure hours, while the latter are on a per worker basis. A crude conversion, assuming yearly hours of 2000 for all workers, yields an average yearly risk of death of about .06 per 1000 workers in the DOL sample, and a risk level of about twice that in the Workers' Compensation sample. The derivation of the Workers' Compensation data is discussed in Dillingham (1979). Also, see Dillingham (1983) for an example of another study looking at how different measures of risk influence estimated risk coefficients.

⁴ The definition and sample mean values of all variables in the sample are available from the authors upon request.

⁵ Complete sets of regression coefficients can be obtained from the authors upon request.

TABLE 1
 Estimated Fatal Injury Risk Wage Differentials
 by Union Status and Risk Definition

Fatal Risk Variable and Equation Specification	ln(W) as Dependent Variable	
	Union	Nonunion
DOL, 1976	0.0148 (0.0944)	0.1825** (0.0904)
DOL, 1976 with nonfatal rates included in estimating equation	0.0343 (0.0967)	0.2253** (0.0932)
DOL, 1979	-0.0844 (0.2187)	0.2341 (0.2506)
DOL, average of 1976 and 1979	-0.0013 (0.1586)	0.3100** (0.1541)
DOL, 1976, office worker adjusted	-0.0268 (0.0724)	0.1520** (0.0710)
DOL, 1976, office worker adjusted with nonfatal rates	0.0279 (0.0752)	0.1664** (0.0734)
DOL, 1979, office worker adjusted	0.0128 (0.1461)	0.2196* (0.1718)
DOL, average of 1976 and 1979, office worker adjusted	0.0393 (0.1173)	0.2741** (0.1162)
Industry/Occupation (N.Y.W.C.)	.2057** (.0710)	.0358 (.0636)
Industry/Occupation (N.Y.W.C.) with nonfatal rates	.2218** (.1054)	.1119* (.0875)
R ²	~0.30	~0.38
F statistic	~13.0	~17.0
Number of observations	879	736

Note: One-tail tests of significance were performed on all estimated coefficients. An asterisk indicates significance at 10 percent; a double asterisk significance at 5 percent. Standard errors are in parentheses.

Nonunion workers in large firms earn a premium over workers in smaller establishments, but within the union sector there is no "large firm" effect after controlling for extent of organization in the industry.

The first set of results to note in Table 1 is that when the DOL measures of fatal risk are employed, a compensating wage differential is observed in the nonunion sector but not in the union sector. All estimated coefficients of the risk variable are smaller than their standard errors in the union sector, while in the nonunion sector these coefficients range from .152 to .310 and are significantly different from zero at conventional levels in 7 of 8 cases. Moreover, the magnitude implies a willingness to pay for a one-in-one-thousand reduction in fatal injury risk of \$1,724 to \$3,515 per year, a magnitude consistent with previous findings (Smith 1979).

The second set of estimates—using the more detailed industry/occupation risk data from New York—yields opposite results. With these data,

statistically significant compensating wage differentials of roughly equal magnitude to those found using the DOL data are estimated, but only in the *union* sector (with a hint of a much smaller differential in the nonunion sector).⁶ Thus, our results are quite sensitive to the risk measure employed.

Similar ambiguities surround estimates that allow for the *shape* of the wage-risk curve to differ in each sector. As suggested earlier in the paper, there are theoretical reasons to believe that the wage-risk curve in the union sector might be more steeply sloped at high risk levels, and flatter at low risk levels, than the comparable curve in the nonunion sector. We thus estimated equations containing a *squared* risk variable along with the others.⁷ The results using our DOL measures of risk weakly suggest patterns in the union and nonunion sectors that conform to our theoretical expectations, but those obtained when using the Workers' Compensation data suggest the opposite.

In brief summary, we are persuaded at this point that estimates of compensating wage differentials for fatal injury risk are very sensitive to details of the estimating procedure. The study reported upon here, which splits the sample by union status and attempts to compare risk premiums in the union and nonunion sectors, obtains conflicting results when alternative measures of risk are used. Even more disturbing is that contemporaneous research by Dickens (1984), using the same data and the same general approach but not confining the sample to white, male, blue-collar workers, obtains diametrically opposite results! We have to conclude at this point that we do not know what effects unions have on compensating wage differentials and that all results should be interpreted with a good deal of caution.

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⁶ For comparative purposes, we tabulated the New York data on risk by industry *only*, in order to make them as comparable as possible with the DOL data. When these measures of risk were incorporated into the estimating equation, the results were qualitatively similar to those obtained with the industry/occupation data. That is, a compensating wage differential was found in the union sector, but not at all in the nonunion sector.

⁷ A table of results may be obtained from the authors upon request.

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XIII. URBAN TRANSIT LABOR RELATIONS

A New Era in Transit Bargaining

RICHARD U. MILLER AND JAMES L. STERN
University of Wisconsin-Madison

Collective bargaining in the urban mass transit industry has a rich history extending back 100 years to the days when the trolley car superseded the horse-drawn cart as the primary means of local public transportation (Schmidt 1937). In this paper we examine the factors leading us to characterize present-day developments as a new era, and we briefly review current bargaining trends.

Throughout transit history (or at least since the days of the Knights of Labor), participants on both sides of the bargaining table have regarded the industry as unique. Managers did not consider themselves as part of municipal management, and the leaders of the unions did not think of themselves as public-sector union leaders. They had their own separate and different labor relations system and, on the whole, were well satisfied with it. Even though there are substantial variations in the transit bargaining procedures in different major cities, transit bargainers in one city typically have looked to transit bargaining in the other cities to establish benchmarks for their own settlements (Stern et al. 1977a).

In this new era, the industry's insularity is being undermined in several ways. In some cities local bus service is becoming just another of the many city functions rather than a specified function with its own labor relations system. In other cities new public authorities have been created and they, in turn, are substituting a public-sector model of labor relations for the traditional one with its private-sector roots.

Although we have arbitrarily chosen 1983 as the starting date for this new era in transit labor relations, it is unquestioned that this change in

Authors' address: Industrial Relations Research Institute, University of Wisconsin, 4226 Social Science Building, Madison, WI 53706.

labor relations was preceded by the change from private to public ownership that has been taking place over the past several decades. If one has to pick a watershed date for this shift, it would be 1964 when the Urban Mass Transportation Act (UMTA) became law (Barnum 1971). This act provided federal funds for the purchase of private systems and capital equipment as well as subsidies to help meet operating expenditures.

Public ownership was not accompanied in most instances, however, by an immediate change in the existing labor relations system. This took another decade or two, primarily because of the willingness of both sides to continue to use the system that existed at the time they went public. More recently, local government officials, facing financial problems, have initiated actions that are changing the complexion of transit labor relations.

Causes of Changes in Labor Relations

First of all, the U.S. Supreme Court decision in *Jackson Transit Authority v. Local 1285, Amalgamated Transit Union*¹ in June 1982 made clear that labor relations in the urban bus industry was to be governed by state law applied in state courts. Although the cases that led to *Jackson* involved the question of whether the federal courts would enforce rights set forth in 13(c) agreements, the underlying issue was whether the union could compel arbitration of the terms of a new collective bargaining agreement.

Section 13(c) agreements—so named after Section 13(c) of the UMTA—are required as a condition for receipt of federal assistance. Typically, they provide that existing benefits shall not be lessened and that disputes shall be resolved by arbitration. This would mean that a dispute arising in the course of renegotiating the labor agreement would be resolved by arbitration. Once the enforcement of this obligation to arbitrate is excluded from federal courts and placed before state courts and decided under state laws, arbitration may be prohibited rather than protected, as it is in some of our southern states.

Practically speaking, this means that federal protection of either the private-sector right to strike or traditional transit practices such as the use of interest arbitration has been eliminated. Transit unions must come up with *other defense mechanisms* if they are to maintain their differentiation from public-sector unions. For reasons discussed below, it seems more likely to us, at this point, that transit unions will become more like other public-sector unions.

¹ 110 LRRM 2513 (1982).

It should be noted that the Supreme Court has created one exception to *Jackson*. In its *United Transportation Union v. Long Island Rail Road Company* decision,² it maintained the Railway Labor Act framework and denied the claim that transit workers on the Long Island commuter railroad were public employees covered by New York's Taylor Law. Also, Congress passed special legislation putting employees of another New York commuter rail line (Metro-North) under legislation similar to the Railway Labor Act. This meant that under the *Jackson* decision, New York City bus and subway workers were covered by state legislation (the Taylor Act), while other employees of the Metropolitan Transportation Authority on the Long Island Rail Road or Metro-North were covered by the RLA.

We regard all of this as proof of the oft-cited statement that New York is different and, for that reason, we exclude it from this analysis. For those of you who wish to learn more about the New York transit situation, we refer you to the excellent paper by Arvid Anderson (1983).

Another development causing a change in transit labor relations is the declining acceptability of the "Memphis formula." This was a plan that was widely adopted by newly public systems in the 1960s to maintain their private-sector labor relations systems and thereby qualify for aid under the UMTA (Stern et al. 1977b). The Memphis formula was a clever tactic requiring the assent of both the union and the management to the notion that day-to-day operation of the transit system by a private transit manager or private management firm on behalf of a public owner meant that the labor relations system was still the same private-sector one that existed before public takeover.

When either party challenged this pseudo-private status, however, there was some doubt as to whether the assumption of private-sector status would hold up. The *Jackson* decision decreased the value of the Memphis formula as a means of meeting Section 13(c) requirements because it took the judgment of the validity of the formula out of federal jurisdiction. Although the U.S. Department of Labor had accepted these Memphis formula arrangements, it seems doubtful whether state courts operating under state laws will do so.

Another factor undermining the usefulness of the Memphis formula was the refusal of the NLRB to consider systems operated under the formula to be within its jurisdiction. This was not too significant so long as neither the management nor the union had a need for a statutory framework. But when the parties disagreed on such matters as increasing the size of the bargaining unit or some other matter that led to the filing of an unfair labor practice charge, they found that their assumption of

² 455 U.S. 678 (1982).

private-sector status was unwarranted. The NLRB applied its “degree of control” test and usually found that the public body was the employer, or at least a joint employer, and therefore that the transit labor relations problem lay outside its jurisdiction (Stern et al. 1977b, pp. 413–14).

A further development leading the union to place less faith on protection through the federal government has been the change in policy of the U.S. Department of Labor under the Reagan Administration. The Assistant Secretary for Labor Management Relations has indicated that disputes over 13(c) agreements will not hold up federal aid. The Department also will no longer require that 13(c) agreements include the mandatory use of arbitration to resolve interest disputes.³

At the same time that federal protection is decreasing, the protection available in the public sector is increasing. More than 20 states have passed comprehensive public-sector bargaining statutes offering an alternative framework within which to conduct transit bargaining. Although the majority of the public-sector statutes provide a framework that is less satisfactory to the transit unions than is the private-sector framework, the comparison is no longer as unfavorable as it was in the past. For example, statutes passed in Illinois and Ohio in 1983 give most public employees the right to strike.⁴ In contrast, Wisconsin and Iowa laws now give local public employees the right to arbitrate disputes over the terms of a new agreement.⁵

A specific illustration of the consequences of these changes was provided in La Crosse, Wisconsin, where management did not want to arbitrate and was prepared to take a strike. The union preferred to arbitrate and went into federal court to seek enforcement of the Section 13(c) right to arbitrate impasses concerning the terms of a new agreement. Although the union view in the La Crosse dispute prevailed initially in federal court, this was one of the cases decided by *Jackson*. The Supreme Court ruling in *Jackson* has the effect of denying the union claim to arbitrate under its Section 13(c) rights in federal court and put the matter under the framework of Wisconsin law. However, since the Wisconsin law gave public-sector workers, including the La Crosse transit workers, the right to invoke a “med/arb” statute that provides for final-offer package arbitration of wages, hours, and working conditions, the denial of the union claim of federal jurisdiction has resulted in giving the union what it wanted under state law.

A further development driving transit unions toward the public sector and away from their own special system is the passage of second-generation

³ Special Report, 21 GERR 292-301 (2/7/83).

⁴ 21 GERR 1954 (10/3/83) and 51 GERR RF-225 4411 (8/15/83).

⁵ 51 GERR RF-223 2411 (5/16/83) and 51 GERR RF-215 5811 (5/17/82).

transit legislation that is less favorable to the transit unions than the earlier laws. The first-generation legislation was passed shortly after the enactment of UMTA. It established transit authorities that were given the right under state law to bargain with unions and thereby preserve the employees' 13(c) rights. The second-generation legislation reflects management's dissatisfaction with the results of those procedures.

The earlier legislation facilitated the use of parallel interest arbitration cases in which an arbitration case in one major city set the pattern for wages in several others. The system tended to give less weight to local conditions than managements desired. Transit managers coming out of the public sector are more likely to want to compare their bus drivers with city truck drivers. The traditional manager from the transit industry was accustomed to comparisons among transit systems. As managements came to be more dominated by public-sector managers, the pressure to change the old system increased.

In Massachusetts and Georgia, the new legislation drastically changes the procedures followed by transit unions in Boston and Atlanta. The Massachusetts law restricts the scope of bargaining, protects management rights, prohibits cost-of-living clauses unless authorized by law, and requires that the arbitrator be a resident of Massachusetts and experienced in state and local public finance (Miller 1983). The Georgia law is similar to the Massachusetts statute in protecting management rights and requiring the use of a local arbitrator, but it also prohibits the arbitration of wages unless both parties agree.

The factors discussed here—the *Jackson* decision, the diminished acceptance of the Memphis formula, the changed view of the Labor Department, and the passage of more favorable comprehensive public-sector legislation—have led us to the conclusion that transit bargaining will become more and more similar to public-sector bargaining generally. We believe that the implications of this new era in transit bargaining can be seen by a brief examination of several problems that are of great concern today. They are interest arbitration, cost-of-living clauses, and the use of part-time employees.

Current Bargaining Problems

First, the evidence suggests that the use of interest arbitration is declining and will continue to decline. Although the availability of arbitration under public-sector statutes in a few states will slightly offset the decline, the prevailing public framework will not force management to arbitrate, and it is clear that in most cities management does not want to arbitrate.

Second, cost-of-living clauses have been common in major city transit

agreements. Some of them have provided for percent increases in wages equal to the percent increases in the consumer price index. In recent years, however, as in many other industries, transit managements have succeeded in capping or eliminating escalator clauses. The effect in transit is greater than elsewhere because the clauses were so widely used in the past and were relatively strong. Also, the use of COLAs in transit may be further restricted by legislation such as the recent Massachusetts amendment that excludes COLA from the scope of bargaining.⁶

Third, peaks and valleys in the public's use of transit services make it a logical goal of transit managers to use part-time employees. Although the unions have fought this development, they have not been successful. Either through negotiation, arbitration, or legislation, an increasing number of managements have secured the right to use part-timers. This trend had spread rapidly over the past five years, and by 1983 more than half the cities used part-time drivers (APTA 1983). It appears that this development will also tend to dilute the strength of the transit unions.

Conclusion

It appears to us that the new era is one that will pose many problems for transit unions. Management is on the offensive and transit unions will be hard pressed to maintain gains achieved in recent years. The legal framework for bargaining will be locally determined, and transit worker bargaining will become less unique and more like bargaining of other employees. And, although the use of arbitration to settle disputes over the terms of new contracts may be diminishing at present, this well may be a short-term phenomenon if public-sector workers generally are successful in gaining greater access to this procedure.

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⁶ Ch. 161A, Sec. 19 as amended in 1980, Massachusetts General Laws (commonly referred to as Ch. 581).

Union Member Attitudes And Bargaining Unit Stability In Urban Transit

HAROLD L. ANGLE
University of Minnesota

JAMES L. PERRY
University of California, Irvine

Increasing instability in the leadership and organization of transit labor unions has been reported in recent years. This instability mirrors turbulence elsewhere within the industry—reflected in changing ownership forms, subsidy levels, and legislative and regulatory reforms. Does the instability in transit labor organizations conform to any predictable pattern? In this paper we investigate a particular facet of this question: namely, the relationship between member attitudes and bargaining unit stability.

A shrinkage has occurred in the U.S. labor movement in recent years, for a number of reasons including labor's demographic shift toward the service sector and away from traditional blue-collar employment (long the mainstay of organized labor). Deauthorization and decertification elections have played no small part in what, from a union perspective, represents a disturbing trend (Anderson, O'Reilly, and Busman 1980, Dworkin and Extejt 1979).

Actually, union members are, simultaneously, members of two systems—the union as manifest in the local bargaining unit, and the employing organization. The quality of their relationship with their employer would appear to be conditioned by the efficacy of the union in representing their interests. Where members have a voice (or a vote), it would appear that the bargaining unit's continued existence would become jeopardized when attitudes fall below some critical threshold level. In addition to this relatively straightforward relationship between members' attitudes toward their union and bargaining-unit stability, we suggest that there could be similar relationships for certain attitudes toward the job

Perry's address: Graduate School of Management, University of California, Irvine, Irvine, CA 92717.

and the organization—at least to the extent that members see their satisfaction as dependent on the union's advocacy on their behalf.

The Study

The present study investigated the relationships between bargaining-unit stability and members' attitudes toward several aspects of their union (or employee association), as well as their work and employing organization. The study was conducted in 20 West Coast public transit organizations (fixed route bus systems). Sixteen of the bargaining units were unionized while the other four were local employee associations. Questionnaires were administered on-site and were filled out anonymously by 1244 members of the bus operators' bargaining units during the summer of 1977.

Measures of union attitudes were adapted from the University of Michigan Organizational Assessment Package (Institute for Social Research, 1975). Job satisfaction was measured with the short form of the Minnesota Satisfaction Questionnaire (MSQ) (Weiss et al. 1967). Commitment to the organization was measured by means of Porter's Organizational Commitment Questionnaire (OCQ) (Porter et al. 1974). Attitude measures and their scale reliabilities are listed in Tables 1 and 2. Response rate was 64 percent.

During a period which began 18 months after questionnaire administration and ended 21 months later (i.e., 39 months after administration), four of the unionized bargaining units were decertified, while two of the employee associations were replaced by unions. This left a residue of 14 participating bargaining units which remained stable. This study, then, investigates systematic attitude differences across members of the three types of bargaining units; i.e., those which subsequently moved toward unionization, those which moved away from unionization, and those which did not change.

Data Analysis and Results

One-way analysis of variance (ANOVA), including analyses of between-category differences, revealed a number of systematic relationships between pre-existing member attitudes and subsequent bargaining unit changes. Tables 1 and 2 present the results of these ANOVAs. In comparison with the 14 stable bargaining units, members of decertified bargaining units were less satisfied with union efforts on their behalf, with their jobs in general, and specifically with such extrinsic factors as pay and job security. They perceived less personal influence in bargaining-unit decision-making, and saw their unions as having less influence with management. This group also indicated less union solidarity, less tendency

toward dual allegiance, and a lower level of commitment to the organization—particularly commitment to continued membership (cf. Angle and Perry 1981).

TABLE 1
ANOVA Results: Union/ Association Attitudes
and Dual Loyalty with Bargaining-Unit Stability
as the Categorical Variable

Independent Variable ^a	Alpha ^b	Category (N=) ^c	Mean	F-Ratio	Cell	Contrasts
Satisfaction with union or association efforts on member behalf (15)	.94	1 (104)	4.54	16.6***	1-2**	2-3***
		2 (913)	4.16			
		3 (111)	3.52			
Commitment to the union or employee association (4)	.76	1 (94)	4.81	1.8 (n)		
		2 (867)	4.66			
		3 (95)	4.47			
Union/association solidarity (7)	.78	1 (94)	4.30	3.8*	1-2(n)	2-3*
		2 (866)	4.53			
		3 (95)	4.24			
Satisfaction with union or association leadership (10)	.94	1 (95)	4.58	4.3*	1-2*	2-3(n)
		2 (871)	4.14			
		3 (97)	4.04			
Members' evaluation of union or association process (10)	.89	1 (93)	4.51	2.1 (n)		
		2 (870)	4.24			
		3 (94)	4.17			
Union's or association's perceived influence with management (10)	.90	1 (96)	2.71	14.7***	1-2*	2-3***
		2 (891)	3.04			
		3 (104)	2.34			
Members' perceived influence in union/ association decision making (12)	.92	1 (91)	3.71	7.2***	1-2*	2-3***
		2 (861)	3.34			
		3 (93)	2.92			
Dual allegiance to union/ association and to management (5)	.71	1 (90)	4.91	15.2***	1-2***	2-3***
		2 (869)	4.38			
		3 (98)	3.95			

^a Number in parentheses indicates number of items in scale.

^b Cronbach's alpha was employed in assessing scale reliability.

^c 1 = association-to-union; 2 = no change; 3 = decertification.

* p < .05. ** p < .01. *** p < .001.

By way of contrast, attitude differences for members of the two employee associations that were subsequently replaced by actual unions were generally in the opposite direction. In comparison to members of the stable bargaining units, they expressed greater satisfaction with association efforts on their behalf, as well as with the effectiveness of their association leadership, and with their jobs—particularly with respect to the way they were treated by the organization, and such intrinsic aspects as the work itself, their level of influence, and their sense of accomplishment. They expressed greater personal influence in bargaining-unit

TABLE 2
ANOVA Results: Attitudes Toward Organization
and Job with Bargaining-Unit Stability
as the Categorical Variable

Independent Variable ^a	Alpha ^b	Category (N= ^c)	Mean	F-Ratio	Cell	Contrasts
Organizational commitment (15)	.89	1 (110)	4.94	12.7***	1-2***	2-3*
		2 (974)	4.48			
		3 (121)	4.22			
Value commitment (9)	.89	1 (110)	4.98	8.3***	1-2***	2-3(n)
		2 (973)	4.55			
		3 (121)	4.31			
Commitment to membership (5)	.72	1 (110)	5.06	10.9***	1-2***	2-3**
		2 (973)	4.63			
		3 (121)	4.32			
Job satisfaction (20)	.91	1 (110)	5.23	11.9***	1-2***	2-3*
		2 (982)	4.80			
		3 (124)	4.56			
Satisfaction with treatment by the organization (5)	.86	1 (110)	4.63	15.1***	1-2***	2-3(n)
		2 (981)	3.84			
		3 (124)	3.59			
Satisfaction with personal influence on the job (4)	.78	1 (110)	4.79	5.3**	1-2**	2-3(n)
		2 (981)	4.39			
		3 (124)	4.20			
Satisfaction with sense of accomplishment (3)	.81	1 (110)	5.41	6.7**	1-2***	2-3(n)
		2 (981)	4.87			
		3 (124)	4.81			
Satisfaction with the work itself (2)	(r=.28)	1 (110)	6.05	3.6*	1-2*	2-3(n)
		2 (984)	5.83			
		3 (124)	5.70			
Satisfaction with pay and job security (2)	(r=.32)	1 (110)	5.50	12.6***	1-2(n)	2-3***
		2 (983)	5.59			
		3 (123)	4.98			

^a Number in parentheses indicates number of items in scale.

^b Cronbach's alpha was employed in assessing scale reliability.

^c 1 = association-to-union; 2 = no change; 3 = decertification.

* $p < .05$. ** $p < .01$. *** $p < .001$.

decisions, and a stronger tendency toward dual allegiance. This group also disclosed a higher level of organizational commitment, including value commitment as well as commitment to membership (Angle and Perry 1981).

Only one relationship ran counter to this pattern. Oddly, the association-to-union group indicated that their association had a lesser amount of influence with management than did members of the stable bargaining units. Although directional differences in means were as expected, the overall F-ratios were not statistically significant for either of the two remaining attitudinal variables: union commitment and members' evaluation of the union/association process.

Discussion

The study reported herein is something akin to a naturally-occurring field experiment. It was fortuitous that six bargaining-unit changes occurred in a relatively brief period of time after collection of survey data. The temporal ordering of these events allows at least a modicum of causal inference.

The overall pattern of findings provides a compelling case that the attitudes of bargaining unit members are predictive of bargaining unit changes. In general, bargaining units whose members are disaffected appear strongly prone toward decertification. In contrast, there is the finding that members of employee associations which dissolve, in favor of unionization, actually have more positive attitudes toward their present bargaining units than do members of units which are to remain intact. We suggest that, rather than voting their distaste for collective bargaining (as appears to be the case with the decertified unions), what may be happening in such instances is a sort of escalation of unionism. Members of "successful" employee associations may become motivated to "go the rest of the way"; that is, members of such bargaining units become inclined toward an even deeper commitment to collective bargaining. Thus, a group of employees who have successfully "experimented with unionism" through participation in an in-house employee association would extend their involvement by voting in a bona fide union. This, too, is bargaining-unit instability, but of a rather different sort from the decertification of an existing union.

There is one striking anomaly in the pattern of findings. Members of *both* types of unstable bargaining units saw their units as having less influence with management than did members of the stable units. While consonant with the overall pattern for the decertified units, this seems out of alignment with the overall attitudinal patterns for the "association-to-union" group. This anomaly, however, can be readily explained by Hirschman's (1970) concepts of exit, voice, and loyalty. Hirschman's central argument is that individuals confronted by exit (represented here by decertification) and voice (represented by the association-to-union change) options will usually choose to exit unless compelled otherwise by special attachment to an organization. This special attachment is what Hirschman terms loyalty. The likelihood of voice increases with the degree of loyalty.

A comparison of patterns between the decertification group and the association-to-union group indicates significant differences in attitudes related to Hirschman's loyalty concept. Among the attitudes expressed by members of the decertification group are low satisfaction with their organization's efforts, a perceived lack of influence with management,

and a lack of influence within the union or association. These negative attitudes are compounded by low commitment to membership in the employing organization, reflecting low attachment to the labor organization as well.

In all respects, these loyalty factors are just the opposite in the association-to-union group. Members of this group express satisfaction with their association's efforts, as well as their influence within the association. Moreover, they exhibit high commitment to membership in their transit organization. Given this structure of positive attitudes, the "activation of voice," as Hirschman terms it, is an attempt to modify the association's perceived lack of influence with management, that is, the apparent anomaly in the data. This interpretation of our results is also consistent with the theory of cognitive dissonance upon which Hirschman's loyalty concept is based.

Another interesting aspect of this study is the finding that attitudes toward the union or employee association and toward the employing organization tended to go hand in hand. Bargaining-unit members whose attitudes were more positive toward one system tended also to have more positive attitudes toward the other. This touches upon an ancient issue in labor-management relations—that of dual-allegiance (Martin 1981, Purcell 1960). Taken as a variable in its own right, dual loyalty was more pronounced in the association-to-union group, and less so in the decertified bargaining units. The overall pattern of results indicates that there is no inherent incompatibility between attitudes toward management and toward the union.

We would anticipate that these results could be replicated outside of the urban transit industry. However, there are several facets of this study that may be of particular concern to the transit industry. First, there is the surprisingly large number of decertifications within our sample of organizations. While we have no readily comparable data upon which we could base a more objective assessment, this may be symptomatic of serious problems at the local level. Second, maintenance of member loyalty is becoming increasingly difficult, with the emergence of federal subsidy cutbacks, quality of working life issues, and the "new breed" of transit employees whose attachments to work are reportedly quite different from their more senior counterparts. Finally, the rules and regulations governing transit labor-management relations that have evolved in federal, state, and local governments in the past decade may have eroded some of labor's once-dominant legal position, making it more difficult to maintain member loyalty in the future.

As an overall conclusion from the research, it seems fair to state that employee attitudes are important precursors of significant changes in

bargaining unit status. In particular, the study discloses some attitude-behavior relationships of major importance to unions. Indeed, we may be so bold as to suggest that these findings ought to contribute toward the reopening of a long-lost collaboration between the psychologist and the union (see Gordon and Burt 1981, Rosen and Stagner 1980).

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Confrontation in the Urban Mass Transit Industry: Is Legislation the Answer?

JAMES J. HEALY
Harvard University

Changes in the economics of the urban mass transit industry over the past 30 years have been extensive. The increase in personal incomes and the growth of suburban residences and employment have led to a steady decline in the number of riders. And although some reversal in the trend has been evident in very recent years, its effect has been minimal. There has been a consistent widening of the gap between passenger revenues and expenses, resulting in a concomitant increase in public subsidy and public ownership. Despite the grave financial problems confronting the industry, there has been a reluctance to adjust fares to a realistic level or to effect still further reductions in the service provided. The problem has been exacerbated further in many cities by the more pronounced peaking of transit trips in the early morning and late afternoon.

For a period the subsidy concept was accepted with reasonable complaisance, almost indifference, by the public. The riders grumbled about the service provided, but the general taxpayer, who was bearing an increasing share of the total cost, was not quickly aroused by the mounting cost and share.

Within the past decade there has been a marked change in this attitude. The magnitude of the subsidy could no longer be ignored. It became an easily exploited political issue. The general taxpayer rebellion, reflected in the enactment of Proposition 13 in California and Proposition 2 1/2 in Massachusetts, forced elected representatives to examine critically each budget component.

Inevitably, and to a certain extent unfairly, special attention was directed to the product of transit labor settlements achieved through collective bargaining or through the use of interest arbitration, which has had historical acceptance in the industry. These settlements were sensitive because total labor compensation accounts for approximately 70 percent of the operating expenses of a transit company. Attention was also focused on restrictive work rules, oftentimes without adequate understanding of

Author's address: Emeritus Professor, School of Business, Harvard University, 342 Beacon Street, Boston, MA 02116.

the logical genesis of such rules. There was a widespread belief that the phenomenon of low productivity in the industry was correlated directly with practices imposed by the labor agreement.

Public officials, often inexperienced in labor relations, began to intervene in the conduct of negotiations. Initially this took the form of placing pressure on transit managements to adopt tougher attitudes at the bargaining table. Recently, impatient with results, officials started to intervene in more direct, overt ways.

In an opinion involving the Massachusetts Bay Transportation Authority and the Boston Carmen's Union, I made the following prefatory comment:

In effect, a great variety of socio-economic forces as well as the questionable conduct of the parties when left to their own devices in the past have transformed a traditional 2-party relationship into an unwieldy multi-party structure. Realistically the caption for these proceedings should not be limited to Massachusetts Bay Transportation Authority and Amalgamated Transit Union, Local Division 589. It should be enlarged to include the MBTA Advisory Board, each of the 79 cities and towns which comprise that Board, the State Legislature and Executive Branch, the courts, the MBTA patrons, and the plebiscite at large. All of these groups, many amorphous by nature, are in one way or another, directly or indirectly, involved in the bargaining process.

This observation is apposite in most urban centers today, though the degree of formal intrusion in the bargaining process may be less in most cities than in the Boston metropolitan area. Adjustment by the parties to this development presents a formidable challenge.

The so-called Massachusetts experience provides a valuable and manifestly painful lesson of the risks. Crises, frustration, and disillusionment in recent years led to the enactment by the Massachusetts State Legislature of two substantive laws affecting the conduct of labor relations at the MBTA.

The first important change occurred in 1978, with the passage of Chapter 405 of the Massachusetts General Laws. Chapter 405 sets forth certain requirements governing interest arbitration procedures between the employee organizations and the directors of the MBTA.

Among its provisions is a procedure for the selection of a single arbitrator instead of the tripartite arbitration board structure used traditionally for interest arbitration in the transit industry, and the single arbitrator must be a legal resident of the Commonwealth and experienced in state and local finance.

Presumably the intent was twofold: to eliminate the intrusion of partisan arbitrators in the proceedings or, stated differently, to avoid the phenomenon of double advocacy for each party, and also to eliminate the compromise syndrome often characteristic of board deliberations, an activity which was perceived as more advantageous to the union. The accuracy of this perception has little empirical support. Perhaps the intent reflects a tacit acknowledgment that, for a variety of reasons, the transit industry board designees often were less forceful and knowledgeable than those named by the union.

Except for one reservation, I am unconcerned about this statutory restriction. Assuming an effective presentation on the merits by both parties, I am more comfortable in sifting through the evidence and deriving my own conclusion than going through what is often a time-consuming, costly rehearing of the case in a board executive session. Moreover, the effort to achieve a majority decision sometimes does lead to what has been referred to as a "high elasticity of conviction." It would be desirable, however, to permit and encourage the sole arbitrator to meet jointly with the spokespersons of the parties during the deliberation process. In the sterile presentation of hundreds of exhibits and in the strategic evenhandedness with which each issue is dealt, it is often impossible to discern priorities. Where appropriate, a testing of tentative ideas with the parties may yield valuable insights and a more balanced final award.

The second important feature of the 1978 Chapter 405 was the inclusion of statutory standards to be relied upon by the arbitrator in determining the basis for an award. "Factor" legislation is not uncommon where interest arbitration is provided in the public sector. And, as William Fallon has stated, such legislation does not alter the substance of the interest arbitration because normally the factors are those which have already evolved over the years in common law.

However, the Massachusetts "factor legislation" for the MBTA must be regarded as more than a mere codification of traditional criteria, such as ability to pay, total compensation and benefits, comparable wage rates, cost of living, and the hazards, qualifications, and skills involved in the work. For example, the elements to be considered in determining the financial ability of the Authority to meet additional costs are unusually detailed. They include the following: (a) the statutory requirement of advisory board approval of the authority's fiscal budget; (b) the financial ability of the individual communities and the Commonwealth to meet additional costs; and (c) the average per capita tax burden, average annual income and sources of revenue within the Commonwealth, and the effects of any arbitration award on the respective property tax rates of the cities and towns within the Authority's district. An analysis of these

elements, given the enactment of the Massachusetts tax-restraint referendum, Proposition 2 1/2, is a formidable task.

The "factor" legislation is also distinctive in its treatment of the criterion of comparable wages and conditions of employment. In interest arbitration in the urban transit industry, it has been customary to make comparisons among such cities as Boston, Chicago, San Francisco, and other dominant centers. In fact, David Young, transportation editor of the *Chicago Tribune*, portrayed an illustrious and gifted union spokesman in the industry as one who "traveled from city to city at contract time parlaying a concession gained in one city into a national labor mandate." The Massachusetts law does not bar large inter-city comparisons, but it is more specific in requiring comparisons with other employees within the Commonwealth in both public and private employment. The legislature undoubtedly intended to restrain what it considered an excessive, exaggerated reliance on reference points far removed from Massachusetts. Citizens and elected officials, confronted with mounting MBTA deficits affecting municipal budgets and taxes, wanted a more parochial orientation of MBTA labor conditions.

On occasion "factor" legislation has been accorded only perfunctory acknowledgment by interest arbitrators in their supporting opinions. Allusion to some evidential matters and the assurance in dicta that "the legislative criteria have been considered fully and carefully" are deemed sufficient satisfaction of the legal requirement. Massachusetts law requires that the arbitrator's written opinion include "an analysis of all statutory factors applicable to the proceedings." It is doubtful if bland self-serving phrases would survive judicial review, and the possibility of such review in the current atmosphere is considerable. This enforced discipline is not undesirable.

In summary, there is no evidence that Chapter 405, fairly interpreted, is onerous or seriously detrimental to the bargaining process or to interest arbitration. It reflects a legitimate public interest in an industry which has become part of the public sector.

Much more controversial is the enactment in Massachusetts of Chapter 581 in 1980. The financial difficulties of the MBTA had worsened considerably. The recently enacted Proposition 2 1/2 was a portent of reduced revenues. Fares, which accounted for well below 50 percent of the operating budget, remained unreasonably low. The 79 cities and towns which absorbed the steadily increasing deficit gave notice that a further bail-out would not be forthcoming. On December 6, 1980, the entire system was closed down for 18 hours because of inadequate funding.

Though the causes of the problem were myriad, most of them did not

lend themselves to a "quick fix." Thus attention was focused primarily on the widely publicized labor costs and unproductive labor practices prevalent at the MBTA. In the high inflation years of 1979 and 1980, the uncapped, full-offset escalator formula for MBTA employees was the subject of much critical comment. Horror stories of labor's excesses were abundant.

It was in this atmosphere that the Massachusetts legislature met to consider an emergency bail-out for the Authority. In enacting Chapter 581 to provide supplemental funds for reopening the MBTA, the legislature imposed an unusual quid pro quo. It forbade the board of directors of the MBTA from entering into collective bargaining agreements with respect to matters of inherent management rights. Among the rights specifically identified in the law were the following: the assignment and apportionment of overtime; the classification of positions and the assignment of duties and standards of productivity for the positions; the hiring of part-time employees; the direction, appointment, employment, assignment, and promotion of officers, agents, and employees; the determination whether goods or services should be made, leased, contracted for, or purchased on either a temporary or permanent basis. The Authority was also prohibited from entering into a contract which provided for any automatic adjustments based on changes in the cost of living.

Legal research discloses little information concerning the legislative intent behind each of the restricted items. It is doubtful the legislature considered in any depth the significance of its unusual action. In part, the law's imperfections arise from the crisis period in which it was fashioned. But in part they reflect the awareness by some that this was a rare opportunity to effect drastic change.

Both Chapters 405 and 581 were challenged by the union in the courts. The United States district court, while affirming the "factor" legislation in 405, held that 581 violated Article I, Section 10, of the United States Constitution and was therefore invalid. This ruling was reversed by the U.S. court of appeals and a subsequent request for certiorari was denied by the Supreme Court. Thus both statutes remain the law of the Commonwealth.

However, the legal challenges continue. An interest arbitration award in early 1983 placed a restriction on the number and use of part-time employees during the life of the agreement. The Authority, though willing to accept the balance of the award, has chosen to disregard the limitations concerning part-timers. This matter is now being litigated. Equally troubling is the uncertainty about which portions of the agreement may be impermissible under the litany of management rights in Chapter 581. The grievance arbitration machinery is being used by the union to resolve

these unanswered questions, but decisions at this level are likely to be the subject of court challenge.

A balanced assessment of the effect of Chapter 581 is difficult. There is persuasive evidence that short-run savings have resulted, particularly through the use of part-time employees, the related reduction in overtime and spread-time penalties, the combination or elimination of classifications, and the subcontracting of work. But the cost of seemingly endless legal battles, of continued tension, and of low morale cannot be ignored. In my 1983 opinion I commented that "unilateral decision-making on matters frequently within the purview of the bargaining process may have long-run risks."

It is my conclusion that a draconian measure such as Chapter 581 is justified only if there is a dispassionate, well-documented finding that the obduracy or inefficiency of one or both of the parties results in a complete disregard for the legitimate public interest. Even then, a statutory statement of management rights should avoid the ambiguities inherent in the Massachusetts law.

A lesson to be learned from the Massachusetts experience is not that something akin to Chapter 581 should happen, but that it could happen. It is a painful, unnecessary lesson for both management and labor. A critical lack in most transit systems is a mechanism for developing long-run consensus planning—an effective working group composed of the immediate labor and management principals and representatives from the public interest groups in the urban center. The concern of such a group would not be with the collective bargaining process as such. It should be with the many faceted interrelated problems of the system. This type of government-sponsored continuing committee or commission is likely to spare other cities from Chapter 581s. It might even relieve Massachusetts of the need to endure further the negative consequences of this ill-conceived enactment.

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XIV. CONTRIBUTED PAPERS: COLLECTIVE BARGAINING

Union Gains Under Concession Bargaining*

PETER CAPPELLI
University of Illinois

Recent research has suggested that the events associated with concession bargaining are relatively widespread (Cappelli 1983) and represent significant changes from previous arrangements (Kassalow 1983), but there is considerable debate as to whether these developments will lead to long-term changes in union-management relations. If long-term changes are to occur, the most likely source for them will not be the wage moderation upon which so much attention has been focused, but the wide-ranging improvements, or *quid pro quos*, that many unions have secured in return for agreeing to labor cost concessions. These improvements include union security provisions, contingent compensation plans, participation in management decisions, and other arrangements that have expanded the range of integrative bargaining issues and may permanently change union-management relations where they are introduced. It is important to consider how these improvements are secured, what their characteristics are, and how they may change the current relationship between management and labor. A unique data set on concessions compiled by the Bureau of National Affairs will be used to help address these questions.

Concession bargaining occurs where unions consider moderating labor costs in an effort to improve employment security. Management has an interest in securing union approval of concession deals, particularly where the firm needs such concessions to stay in business, and they agree

Author's address: Institute of Labor and Industrial Relations, University of Illinois, 504 East Armory Avenue, Champaign, IL 61820.

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to improve other aspects of employment relations to help secure that cooperation. The BNA sample of concession cases finds that improvements were secured in about one-third of the cases where labor cost concessions were agreed.¹ Just how badly management needs these labor cost concessions will determine how much they are willing to give the unions in order to secure them. Improvements are most likely to occur, first, where firms are under the greatest economic pressure to cut costs and secure concessions (i.e., where firms have the greatest incentive to secure union cooperation), and second, where the union can deliver relatively large labor cost savings because it covers a large proportion of the labor force.

The first conclusion to draw is that improvements of this sort are much less likely to occur at plant-level bargaining than at higher levels because the fate of the firm as a whole (the decision-making unit) rarely depends on events at individual plants. Plants can be sacrificed, often with relatively little cost to the firm, especially when there is excess capacity (as has been the case in many manufacturing industries). In addition, plant-level management rarely has the authority to bring new issues into collective bargaining; these decisions are made at the corporate level. Improvements made in return for union concessions are therefore less likely to occur at the plant level than at corporate or firm-level bargaining. Of the cases where unions secured improvements in return for concessions, only about 4 percent were at the plant level (the sample of concession cases was split almost evenly between plant and higher levels of bargaining). Further, virtually every one of the concession agreements secured at the corporate level included significant union improvements, suggesting that the level of negotiation plays an important role in determining union gains in concession bargaining.

Table 1 indicates the incidence of securing improvements, given concession agreements. The results clearly vary across industries. Industries such as mining and wholesale and retail trade, not listed in the table, also had labor cost concessions, but there were no union improvements.

The distribution of agreements with improvements is concentrated in basic manufacturing and other industries where the economic pressures to cut costs through concessions have been greatest. These pressures—mainly import penetration, declining union coverage, and deregulation—have been considered elsewhere as a cause of concession bargaining (Cappelli 1983). While the sample here is too small to attempt statistical comparisons, casual observation suggests that the probability of union gains is increased in industries where economic pressures are greater. One might

¹ The BNA data on concessions is discussed in Cappelli (1982). The sample analyzed here is for the second half of 1982.

TABLE 1
Union Improvements, by Industry

Industry	Concessions with Union Improvements	Industry	Concessions with Union Improvements
Construction	6%	Stone, Clay, Glass	10%
Food	25	Primary Metals	55
Printing	12	Nonelectrical Equip.	23
Chemicals	40	Elec./Electronic Equip.	70
Petroleum	40	Trans. Equip.	74
Rubber and Plastics	60	Truck Trans.	66
		Air. Trans.	50

TABLE 2
Concessions with Improvements, by Union

Union		Union	
IAM	45%	Boilermakers	15%
ALPA	60	Bricklayers	5
UAW	80	Carpenters	5
IBT	75	Ironworkers	25
URW	55	IUE	35
USW	60	ACTWU	15
ILGWU	15	AFCWU	40

imagine that these industries need concessions more and would be more likely to grant improvements in order to get them. This distribution is not accounted for by differences in the amount of plant-level bargaining (where improvements are less likely) as bargaining at that level tends to be concentrated in basic manufacturing where the largest percentage of improvements occur.

Improvements are also more likely to occur where the unions can deliver relatively large savings through concessions. Table 2 indicates the probability of securing improvements, given concessions, for the principal unions involved in concession bargaining. The unions that were likely to have secured improvements of this sort are almost uniformly industrial unions. In part, this reflects the fact that concession bargaining is primarily associated with production industries. But even when craft unions have engaged in concession bargaining, they have been much less successful in securing improvements; of the 17 cases of concessions in the construction industry, for example, in only one case did the craft unions there secure any improvements. This difference would seem to be due to

the different form of bargaining power that accompanies concession bargaining. A union's ability to secure improvements depends on how badly the firm needs labor cost concessions from the union; industrial unions have been better able to win improvements because they represent a large proportion of a firm's workforce and can therefore deliver large cost savings in the form of concessions. Craft unions usually represent a small fraction of the workforce, and the cost savings that these smaller workgroups can generate are also smaller in absolute terms and are less important to the firm. Greater coverage of the workforce may explain the greater success of some industrial unions in gaining improvements, such as the UAW which covers virtually all production workers in the firms it has organized.

Perhaps the most interesting questions concern the characteristics of the improvements that unions are getting in return for labor cost concessions. The range of potential improvements is constrained by economic pressures outside the firm; improvements in current wages, benefits, and workrules, for example, would all raise current labor costs, which would defeat the purpose of negotiating the concessions in the first place. The improvements that unions can gain are likely to be in areas other than those that raise current labor costs. They include virtually every other aspect of the employment relationship, however. They are summarized below:

1. *Symbolic Improvements*: These include management actions which essentially leave the union with no material improvements, but demonstrate that it still has bargaining power. Perhaps the best examples are equality-of-sacrifice provisions in the auto industry which force management to suffer cuts in employment and wages proportional to those accepted by the unions. The UAW, for example, forced General Motors management to rescind an improved bonus plan instituted just after the union agreed to new concessions. Similar actions occurred at International Harvester. Equality-of-sacrifice provisions may also give unions power over unorganized white-collar workers. After these provisions were introduced at GM, for example, white-collar workers there invited the UAW to discuss with them the advantages of organizing (*Dun's*1982). Other examples include management "pledges" to consider union interests in future actions, etc. These symbolic gestures serve a political function for the unions by demonstrating to their members that the union is not being pushed around by management and that the crisis is a genuine one, the burden of which is being shared with management.

2. *Job Security*: Some improvements attempt to improve job security directly. At Xerox, for example, the company agreed to employment security and no-layoff clauses at one plant in return for union concessions

over workrules. United Airlines made a similar trade with their pilots. The most common of these cases, however, are those where employers agree not to go ahead with a planned closing or layoff in return for concessions.

3. *Implicit Job Security*: These changes improve job security indirectly by influencing business decisions that affect employment. Promises to limit out-sourcing at Ford, for example, or to guarantee plant investment in the rubber industry create the circumstances that will improve job security. One could also argue that improved supplemental unemployment benefit plans, the guaranteed income stream arrangements at Ford and General Motors plants, improved severance payments, etc., all increase the fixed costs of labor (given the same level of costs) and make layoffs less likely (Cappelli and Nalebuff 1983).

4. *Contingent Compensation*: Arrangements of this sort promise improvements in future compensation in return for current labor cost concessions. They include not only stock-ownership plans and profit-sharing, particularly common in air transport, but also arrangements that tie future wage levels to improvements in the firm's economic performance. At American Motors and the Quality Aluminum Company, for example, wage concessions are to be paid back based on improved company performance.

5. *Say in Company Decisions*: Formal arrangements to involve the unions in company business decisions have been the most publicized, although perhaps the least common, form of improvements. They range from putting union leaders on company boards in return for concessions, as at Pan Am, Eastern, Chrysler, and McCreary Tire, to shop-floor participation plans such as job committees in the auto industry. These arrangements are often limited to particular issues at a given point in time, however, such as decisions about equipment purchases and subsequent manning levels.

6. *Union Bargaining Gains*: These improvements cover a whole range of issues, all of which help to meet the union's particular needs with respect to its bargaining relationship with the employer. They include union recognition arrangements such as the one between the URW and Goodrich, prohibitions on double-breasted operations secured by the Teamsters' Master Freight agreement, and continuous information about company performance and future plans, such as meatpacking companies are providing at the plant level to the United Food and Commercial Workers. Arrangements of this sort help to meet the union's current problems and improve its bargaining position with employers.

The distribution of these improvements is weighted toward gain-sharing and job security items. One would expect the improvements secured by unions to reflect not only their needs in specific situations, but

TABLE 3
Types of Union Improvements (Distribution)

Equality of sacrifice	3%
Gainsharing:	
Profit sharing	10
Stock investment	5
Bonds	1
Product discounts	2
Contingent compensation	8
Job security:	
Implicit commitment	15
Explicit commitment	18
Closing notice, rights	5
Severance, SUBs	8
Retraining/placement	3
Say in business decisions	10
Union organizational gains	5
Firm information	7

also the needs and interests of management. It has been argued elsewhere that the most pressing concern for unions in this recent period has been job security (Davis 1983). It is therefore not surprising to find improvements concentrated in areas concerned with improving job security. Indeed, one might have expected more explicit job guarantees; a recent survey reported by Mills (1983), for example, notes that, at least in their bargaining demands, unions were overwhelmingly concerned with gaining job security in return for labor cost concessions. Resistance from employers appears to explain why explicit guarantees were not more common. A *Business Week* poll found that only 2 percent of those firms surveyed were willing to give unions explicit employment guarantees in order to gain concessions (*Business Week* 1982). Guarantees of this sort would bind management to potentially expensive and uncertain commitments, and there is also some doubt whether such guarantees could actually be enforced, particularly if the firm is in financial difficulty. Most of the explicit guarantees in this sample are simply reversals of decisions to close plants or lay off workers—reversals that were made in return for concessions; few guarantee employment in the future. It is not surprising, therefore, to find concerns with job security manifested in a different way through some implicit arrangements. Forty-two percent of the firms surveyed by *Business Week* were willing to strengthen employment security through implicit arrangements in return for concessions. This indirect approach is reflected in promises to keep plants open, to maintain production levels, etc.—promises that the firm could reverse in different economic circumstances.

The widespread acceptance of gain-sharing and contingent compensation arrangements reflects not only acceptance by management (85 percent of the *Business Week* respondents were willing to improve future pay levels in return for concessions), but also similar interest from the unions. For the unions, the “give-backs” associated with concession bargaining cause political problems with the members, and it is important for the union not just to get back something in return for concessions, but to get back something that looks a lot like that which was given up. Contingent compensation fills that role. It also places an ostensible limit on the duration of the concessions (e.g., until business picks up), making them seem temporary. It does shift some aspects of business risk from the firm to the workers, one consequence of which is that pay levels are no longer likely to remain stable or predictable. For management, these contingent arrangements buy time now and cost them money only if conditions improve—an advantageous trade for firms currently facing a crisis.

One conclusion that could be drawn from this is that these quid pro quos are likely to increase union interest in areas of business decision-making that were previously thought to be within management’s prerogative. Contingent compensation arrangements and gain-sharing, for example, which tie future income to the performance of the firm, are likely to increase labor’s interest in the factors that influence that performance. Stock ownership plans provide a clear mechanism for influencing some of these business decisions. The Steelworkers union, for example, has recently been called upon to advise their stockholding members on proxy votes initiated by employers (*Dun’s* 1982). In air transport, pilots at some carriers who have swapped stock for concessions have tried to influence the market strategy of those carriers, at least in part to improve the value of that stock. Other arrangements such as profit-sharing plans require considerable administration (Aussieker 1983) and provide another, albeit more limited, opportunity for union influence.

Similar arguments can be made about arrangements for ensuring job security. The fact that employment levels are now topics of bargaining is an important change, but perhaps the most interesting inroads have been made through the implicit commitments of firms to job security. These include commitments such as continued investment in plants, the maintenance of production levels and product lines, limits on subcontracting, etc. While explicit arrangements for union participation, such as board appointments, offer new channels for influence, collective bargaining is likely to remain the most important mechanism through which unions can influence business decisions. The reason for this is simply because unions

have bargaining power in collective negotiations, particularly in those concession situations where firms genuinely need labor cost concessions to survive.

Improvements secured in return for concessions also provide an opportunity for unions to deal with underlying problems that traditional bargaining agendas have not addressed. The problems contributing to the current crisis for unions are not due to insufficient wage and benefit levels in negotiated contracts, but to forces outside of the immediate bargaining relationship, such as lack of organizing success and difficulties in securing contracts from recalcitrant employers. Union security and automatic recognition arrangements, for example, directly address these problems in a manner that traditional bargaining agendas could not. Other provisions, such as restrictions on out-sourcing, double-breasting, and plant closings may counter employer efforts to circumvent or scuttle the union through strategic business decisions taken outside of bargaining (Kochan et al. 1984). Some of these arrangements may improve the union's bargaining power vis-à-vis the employer; chief among these are those that provide detailed information on firm performance and on its plans for the future. These improvements in many cases provide a means for addressing threats to the health and stability of unions that are not available through traditional bargaining arrangements.

Perhaps the most important point about these improvements or *quid pro quos* is that they have allowed the unions to salvage some gains from the otherwise disastrous circumstances associated with concession bargaining. In some cases, these improvements provide a way for the unions to address fundamental problems that would otherwise be outside the bargaining agenda. In virtually all cases, they expand the range of issues over which the parties negotiate, giving the unions additional influence over important decisions which affect the security and conditions of future union employment. Now that these improvements have been written into contracts, the inertia associated with negotiations suggests that they will remain as topics in collective bargaining for some time. It is important to note, however, that unions have been able to secure these improvements only at the corporate level and that unions representing large numbers of workers (perhaps in coalitions) are more likely to win them. Some of these improvements provide integrative outcomes where the parties have common interests, but it would be unrealistic to think that these changes signal a shift in attitudes away from adversarial bargaining. At best, these gains might make the unions better informed about the firm's situation and the two sides more willing and able to pursue negotiated solutions to their respective problems.

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Professional Worker Attitudes And Trade Union or Professional Association Membership*

KENT F. MURRMANN
*Virginia Polytechnic Institute
and State University*

BRUCE S. COOPER
Fordham University

The success of trade unions in attracting members from professional occupations should be related to professional employees' acceptance of certain practices and doctrines that typically are emphasized more by trade unions than professional associations. Research to date on professional workers' attitudes toward unionism has concentrated on explaining differences in attitudes concerning the acceptability of collective bargaining and strikes as methods for pursuing job-related objectives (Alutto and Belasco 1974). Empirical studies of professional workers' attitudes toward other traditional components of unionism are not available. For instance, professionals' attitudes concerning the acceptability of such practices as arbitration or affiliation with other labor groups in order to increase political influence have received little attention in previous research. At a more fundamental level, the extent to which professional employees perceive a conflict of interest with their employers over job conditions has not been investigated.

This study examined the attitudes of school principals and assistant principals toward several traditional union practices and issues. Principals and assistant principals comprise an important professional occupation that has recently experienced a significant increase in collective bargaining representation through both union and professional association membership.¹ This development provided an opportunity to study attitudes

Murrmann's address: Industrial Relations Center, Department of Management, Pamplin Hall, Virginia Polytechnic Institute and State University, Blacksburg, VA 24061.

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¹ More than 1800 (14 percent) of the nation's 13,000 school districts, distributed over 28 states, now negotiate collective agreements with school principals, in contrast with almost none prior to 1970 (National Center for Education Statistics 1970, 1982).

toward trade unionism in a group of professionals for which collective bargaining has become a realistic alternative.

Our purpose was first to determine whether principals² attitudes toward components of unionism constitute distinct dimensions that can be studied as separate variables. The factor analysis results reported here identified several distinct attitude dimensions. Our second purpose was to investigate attitude differences between union and association members. The findings reported below reveal disagreement between the members of each type of organization on several issues, though the most significant differences found concerned strike rights and affiliation with other labor organizations. The resulting profile of each group's preferences suggests the existence of basic differences in philosophy that will favor professional associations as long as attitudes remain unchanged.

Method

Data for the study were collected through questionnaires administered to 308 respondents, including 175 school principals and 133 assistant principals employed in K-12 districts in New Jersey. The sample was stratified by school district size on the basis of student enrollment and included 194 members of the Principals Association (PSA) and 114 members of the American Federation of School Administrators (AFSA), AFL-CIO. Both organizations represent their members in collective negotiations.

Previous research on attitudes toward unionism has not resulted in any generally accepted and rigorously validated instrument. Therefore, a set of 17 attitude statements was developed specifically for this study, on which respondents could indicate on a scale of one (strongly disagree) to five (strongly agree) their acceptance of certain traditional union practices and beliefs. The individual items were scored so that higher scores reflect more agreement or less disagreement with the anticipated union position on the issues presented by the attitude statements. The survey items are listed below in predetermined topic categories.

Relationship with the employer

- The job-related interests of principals conflict with the interests of their employer.
- Principals should take an adversarial approach in dealing with their employer concerning job-related interests.

² "Principals" is defined as including assistant principals and principals.

Collective bargaining rights

- Teachers should have collective bargaining rights.
- Principals should have collective bargaining rights.

Strike rights

- Teachers should have strike rights.
- Principals should have strike rights.
- Principals should respect teachers' strike rights.

Arbitration

- Principals should have the right to appeal grievances to arbitration.
- Principals should have the right to appeal negative performance evaluation results to arbitration.
- Principals should have the right to appeal discharges to arbitration.

Job security

- Principals should receive tenure automatically after an appropriate number of years of employment in a district.
- Tenure for principals interferes with effective management by the superintendent (reverse scored).
- Tenure for principals is inconsistent with the professional service-oriented nature of school administration (reverse scored).

Uses of seniority

- Layoffs of principals should be based primarily on seniority.
- Promotions of principals should be based primarily on seniority.

Affiliation with other labor organizations

- Principals' organizations should affiliate with other labor organizations in order to enhance their political influence.
- Principals' organizations should avoid affiliation with other labor organizations in order to prevent a "conflict of interest" in supervising unionized teachers (reverse scored).

These items were designed to capture several of the most critical practices and beliefs that a principal would have to consider in evaluating the acceptability of unionism. To determine whether the predetermined attitude categories constitute distinct attitude dimensions on which principals provide common responses, the 17 items were subjected to principal components factor analysis. Factors were then rotated obliquely utilizing the promax method, in order to allow for the possibility of factor intercorrelation. The scree test was used to determine the number of

factors needed to account for most of the nontrivial common variance (Cattell 1966).

Estimates of factor scores were computed using only those items that had factor loadings of .30 or higher (Nunnally 1967). To assure that estimates of factor scores based on subsets of items capture the majority of common variance of the factor, the factor score estimate computed from the subsets of items was regressed on the factor score based on all the items. The variance explained (R^2) by the factor scores calculated from the subset of high loading items ranged from .976 to .999. These high values indicate that the subset of items used to compute factor scores for each factor adequately accounts for a majority of the common variance of each factor.

The reduced factor scores were used as measures of attitude dimensions. Two-way analysis of variance was used to analyze attitude differences. Organization membership and administrative rank were specified as main effects.

Results

The scree plot analysis of eigenvalues indicated that the first nine factors accounted for most of the nontrivial variance. The factor analysis results for those nine factors are presented in Table 1. The factor loadings conformed to our initial item groupings except for the items pertaining to "uses of seniority" and "relationship with the employer."

The two items regarding the "uses of seniority" emerged as separate factors with an interfactor correlation of .09. This result indicates, somewhat surprisingly, that principals' attitudes toward the use of seniority for promotion decisions are unrelated to their attitudes concerning seniority for layoffs. The items pertaining to "relationship with the employer" also loaded separately, but were moderately correlated ($r = .30$). This suggests that there is a tendency, though not particularly strong, for principals who perceive that their job interests conflict with their employer's interests also to prefer an adversarial approach to dealing with their employers.

Overall, the interfactor correlations were small, with $r \leq .19$ for 26 of 33 factor pairs, $.20 \leq r \leq .30$ for 6 pairs, and $r = .48$ for the correlation between strikes (Factor I) and affiliation (Factor VIII). These data indicate that attitudes toward the aspects of unions represented in the 17 survey items line up on distinct and largely independent factors which appear to correspond to plausible and analytically useful variables. This means, for example, that the respondents' attitudes toward strikes are distinct and vary independently from their attitudes toward collective bargaining or their perceptions of whether principals' interests conflict with their employers' interests.

TABLE I
Factor Analytic-Results^a
(Iterations = 36, oblique (Promax) Rotation Employed)

Factor Name	Questionnaire Items	Factor I	Factor II	Factor III	Factor IV	Factor V	Factor VI	Factor VII	Factor VIII	Factor IX	R ²
I Strikes	Teachers' rights	.792	.029	-.082	-.029	-.025	-.009	.001	-.041	.024	.58
	Principals' rights Principals' respect for teachers' rights	.652	.012	.009	.012	.044	.006	.022	.115	.044	.54
II Tenure	Seniority based	.596	-.080	.110	.005	-.009	-.027	.003	.000	.023	.39
	Interferes with employer's discretion Inappropriate for professionals	.093	.721	-.076	.053	.005	.147	-.068	-.093	-.067	.57
III Collective Bargaining	Teachers' rights	-.097	.696	.021	-.019	.028	-.102	.023	.055	-.001	.47
	Principals' rights	-.024	.539	.090	-.054	-.031	-.037	-.072	-.059	-.110	.33
IV Conflicting Interests	Teachers' rights	.040	-.022	.787	-.038	.015	.014	-.033	.010	.010	.64
	Principals' interests conflict with employers' interests	-.024	.050	.787	.047	-.012	.015	.023	-.042	-.044	.62
V Arbitration	Discharge cases	-.010	-.015	.009	.934	-.001	-.010	.005	.010	.022	.88
	Negative performance evaluations All other grievances	-.094	-.043	-.089	-.017	.713	.042	.036	-.033	-.021	.47
VI Seniority	Decisions to layoff principals	.073	.041	.032	.030	.569	-.083	-.032	.001	-.072	.35
	Decisions to promote principals	.058	.018	.097	-.014	.551	.033	-.014	.037	-.119	.42
VII Seniority	Enhance political interest Avoid "conflict of interest" in supervisory responsibilities	-.023	-.014	.028	-.010	-.005	.942	.011	.024	.006	.89
	Decisions to promote principals	.018	.018	-.008	.005	-.002	.010	.960	.012	-.012	.93
VIII Affiliation	Enhance political interest Avoid "conflict of interest" in supervisory responsibilities	-.007	.030	-.005	-.020	-.032	-.005	-.042	.815	-.031	.65
	Adversarial approach should be used by principals in dealing with employer	.080	-.012	-.033	.037	.032	.037	.033	.703	.015	.58
IX Adversarial Approach	Adversarial approach should be used by principals in dealing with employer	.007	.025	-.030	.023	-.003	.006	-.013	-.017	.897	.82
	Eigenvalue	3.10	1.88	1.71	1.48	1.33	1.05	.93	.85	.75	
	Variance explained	16.0%	14.1%	13.5%	11.6%	9.4%	7.6%	7.1%	5.6%	5.0%	

^aInterfactor correlations in parentheses.

The ANOVA results presented in Table 2 reveal that AFSA and PSA members' attitudes differ with regard to the need for strike rights, affiliations with other labor organizations, the use of seniority in layoff decisions, and adversarial relations with their employers. Their attitudes converge on such issues as the need for collective bargaining rights, arbitration rights, tenure protection, seniority-based promotion decisions, and the existence of conflicting interests. In the comparison of attitudes between job levels, principals and assistants differed in their attitudes concerning strike rights, collective bargaining rights, and adversarial relations, but agreed on all other issues. On issues for which disagreement was found, AFSA members and assistant principals were closer to the anticipated trade union position for those issues than were PSA members or principals.

TABLE 2
ANOVA Results

Variables	F Ratios		
	Membership	Job Level	Interaction
Strike rights	21.37***	3.80**	.61
Tenure	.33	.09	2.53
Collective bargaining rights	.74	9.97***	2.43
Conflicting interests	.01	.28	.24
Arbitration rights	1.97	1.32	.53
Seniority layoff	3.51**	.27	.21
Seniority promotion	1.86	.25	1.49
Affiliation	89.03***	1.46	.37
Adversarial approach	2.82*	4.46**	.30

* $\alpha < .10$; ** $\alpha < .05$; *** $\alpha < .01$.

df = 1,304 (membership); 1,304 (rank); 1,304 (interaction).

Discussion

These results indicate that research on professionals' attitudes toward trade unionism should not be limited to attitudes concerning collective bargaining and strikes. Additional attitude dimensions exist that are at least equally important to our understanding of professionals' preferences for trade union or professional association membership. Even though both organizations in this study represent their members in collective bargaining, the existence of significant attitude differences was revealed concerning affiliation, strike rights, seniority rights, adversarial approach, and bargaining rights.

The most prominent differences detected between union and association members were on attitudes toward strike rights and affiliation with

other employee organizations. Attitude differences toward affiliation were particularly strong and perhaps reflect the most consequential difference between the two organizations. AFSA is affiliated with state and national AFL-CIO bodies which gives it highly visible ties to the larger community of organized labor. In contrast, PSA is a state-based independent employee association with no formal ties to organized labor. The evidence presented indicates that members perceive this to be a very important distinction between the two organizations and, in fact, may be the most important consideration in determining membership preferences among the principals studied. Differences in attitudes toward strike rights also were substantial. However, since public employees in New Jersey lack strike rights, it appears that this difference, though important, is probably more of a philosophical than a practical consideration in the individual principal's determination of organizational preference.

A preliminary examination of the mean attitude scores for each group indicates that the attitude differences found concerning the other issues (i.e., bargaining rights, seniority rights, and the need for an adversarial approach) are more a matter of degree than kind; for these issues it appears that both groups tend either to favor (or to oppose) the practice with only the degree of support (or opposition) being significantly different.³ Further analysis of these data through multiple comparisons of group means is needed before conclusions can be provided concerning these differences.

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³ Mean attitude scores are not reported here because of space limitations, but are available from the authors on request.

Interest Arbitration And Grievance Arbitration: The Twain Do Meet*

JOHN THOMAS DELANEY
Columbia University

PETER FEUILLE AND WALLACE HENDRICKS
University of Illinois

Grievance procedures culminating in arbitration may be ubiquitous in private-industry collective bargaining agreements, but the same may not be true in the public sector. For instance, our data show that police contracts cannot be assumed to contain a grievance procedure, especially one which culminates in arbitration. Further, our analyses show that selected environmental variables, especially interest arbitration, systematically contribute to the presence and strength of negotiated grievance procedures in police contracts.

Background

Grievance procedures have been a continuing research subject over the years (see Lewin 1981, and Peterson and Lewin 1982, for two recent reviews of this research literature). The methods and findings in these studies are too diverse to permit a succinct summary, but we can say that almost all of this research has been concerned with various aspects of grievance procedure operations. Further, existing research has given very little attention to whether or not grievance procedures exist, to whether or not these procedures culminate in arbitration, and to the conditions associated with the existence of grievance procedures and arbitration. Instead, most of the research appears to assume the existence of a procedure culminating in arbitration (see the opening paragraph in Lewin 1981, and in Peterson and Lewin 1982).

Feuille's address: Institute of Labor and Industrial Relations, University of Illinois, 504 East Armory Avenue, Champaign, IL 61820.

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This assumption is warranted for the private sector, for indeed almost all contracts contain a grievance procedure and almost all of these procedures culminate in arbitration (U.S. Bureau of Labor Statistics 1981). In turn, the widespread existence of grievance arbitration in private-sector contracts reflects the quid pro quo whereby unions have relinquished their right to strike over contract interpretation disputes in return for the employers' promise to arbitrate such disputes.

However, our research on police collective bargaining indicates that this assumption is unwarranted in the police industry. Table 1 describes selected grievance procedure characteristics in a national sample of municipal police contracts we collected covering the years 1975–1981.¹ The data in this table describe the likelihood that a police contract will contain a grievance procedure (which we defined as *any* written procedure, no matter how rudimentary, designed to handle employee complaints or disputes about the interpretation of the contract), the likelihood that these procedures will culminate in (binding) arbitration, and a measure of the average “strength” of the procedure from the union’s point of view (see the Appendix for the complete Grievance Procedure Index).

The Table 1 data indicate that grievance procedures in police contracts are becoming increasingly frequent but are hardly universal, and that grievance arbitration is still a stranger to many contracts. For instance, as recently as 1981 15 percent of the contracts had no grievance procedure and 30 percent did not have grievance arbitration. These results are not surprising; presumably they reflect the fact that municipal employers have little incentive to agree to grievance arbitration (for police unions have no right to strike to offer as a quid pro quo) and the fact that police officers usually are covered by a civil service appeals procedure which is independent of any negotiated grievance procedures.

Our Table 1 results imply that a carefully specified model and analysis may shed some light on why grievance procedures and arbitration exist in some police contracts but not in others, and it is to this model and analysis that we now turn.

Model

We developed a model to estimate the existence of a grievance procedure, the existence of grievance arbitration, and the strength of the grievance procedure. These grievance-specific dependent variables are bargaining outcomes which may be influenced by the same environmental variables identified in previous research (Anderson 1979, Bartel and

¹ Most of our contracts were collected via a mail survey. We supplemented this survey, however, with field visits to police contract archives in interest arbitration states. Consequently, our sample contains a disproportionate number of contracts from interest arbitration states.

TABLE 1
Grievance Procedure Characteristics of Police Contracts

Year	Number of Contracts ^a	Number (Percent) of Contracts With Grievance Procedure	Number (Percent) of Procedures With Grievance Arbitration	Average CPI Score ^b
1975	197	138 (70.1%)	105 (76.1%)	50.6
1976	295	203 (68.8)	153 (75.4)	51.2
1977	353	256 (72.5)	202 (78.9)	51.9
1978	389	303 (77.9)	241 (79.5)	51.6
1979	394	316 (80.2)	253 (80.1)	51.8
1980	405	333 (82.2)	271 (81.4)	52.4
1981	429	364 (84.8)	298 (81.9)	52.8

^a These contracts cover the patrol officer bargaining unit.

^b The Grievance Procedure Index has a range of zero to 80 points. In 1981, the actual range was 5 to 70 points with a standard deviation of 13.3 points. The higher the score, the more favorable is the procedure to the union.

Lewin 1981, Delaney and Feuille 1983, Kochan and Wheeler 1975). More specifically, we expect that our three dependent variables may be affected by various city characteristics, regional bargaining patterns, bargaining relationship characteristics, and legal influences.

For instance, police unions in different cities have displayed differing amounts of bargaining aggressiveness, and different cities have differing tastes for police services. As a result, we will include measures of population, per capita income, the crime rate, and the form of city government to determine if contracts negotiated in cities with particular characteristics are more or less likely to contain grievance procedures and arbitration. Similarly, we know that police unions are more widespread and bargain more vigorously in certain parts of the country than in others. Consequently, we have included three regional dummy variables to isolate any region-specific bargaining patterns. In addition, police unions may be able to bargain more favorable (or "mature") contracts as they accumulate increased opportunities to do so, and therefore we will include the age of the bargaining relationship as an independent variable.

Finally, there are several legal variables which may influence the substance of police union contracts. First, the presence of a state bargaining law which protects police bargaining rights should provide police unions with a stronger negotiation foundation than would exist otherwise. Second, some states have bargaining laws which specifically list grievance procedures within the scope of bargaining or which specifically require the negotiation of a grievance procedure. Third, a few states have bargaining laws which require police contracts to contain grievance arbitration. Fourth, several states have police interest arbitration

statutes, and these statutes should enable police unions to negotiate favorable outcomes. In particular, the presence of an interest arbitration statute will enable a police union to override an employer's refusal to agree to a contractual grievance procedure culminating in arbitration. In contrast, police unions in nonarbitration states have no such convenient mechanism to persuade employers to agree to the unions' preferred grievance procedure.²

Consequently, we will estimate three different equations with the following model:

$$\begin{aligned}
 (1) \text{ } & \textit{PROBGP} \text{ (or)} \\
 (2) \text{ } & \textit{PROBGARB} \text{ (or)} \\
 (3) \text{ } & \textit{GPI} = B_0 + B_1 \ln \textit{POP} + B_2 \ln \textit{PCI} + B_3 \ln \textit{CRATE} + B_4 \textit{CMGR} \\
 & + \sum_{i=1}^3 B_{5i} \cdot \textit{REGION} + B_6 \textit{CBAGE} + B_7 \textit{BARGLAW} \\
 & + B_8 \textit{GPLAW} + B_9 \textit{GALAW} + B_{10} \textit{IARB} + e
 \end{aligned}$$

where *PROBGP* = the presence of a contractual grievance procedure (grievance procedure in contract = 1, no procedure = 0); *PROBGARB* = the presence of a grievance procedure culminating in arbitration (binding arbitration is final step = 1, any other final step = 0); *GPI* = the strength of the grievance procedure from the union point of view; $\ln \textit{POP}$ = log of city population; $\ln \textit{PCI}$ = log of city per capita income; $\ln \textit{CRATE}$ = log of city crime rate; *CMGR* = form of government dummy variable (city manager form = 1, all other forms = 0); *REGION* = region dummy variable for Northeast, South, and West (North Central is the excluded category); *CBAGE* = age of bargaining relationship (in years); *BARGLAW* = a dummy variable = 1 in states that have police bargaining laws which do not explicitly mention grievance procedures (except that in equation (2) *GPLAW* is also included here); *GPLAW* = (in equations (1) and (3) only) a dummy variable = 1 if the police bargaining law requires the negotiation of a grievance procedure or explicitly lists a grievance procedure in the scope of bargaining; *GALAW* = (in equation (2) only) a dummy variable = 1 if the police bargaining law requires grievance arbitration; *IARB* = a dummy variable = 1 if the state has a police interest arbitration statute; and *e* = error term.

Because equations (1) and (2) have dichotomous dependent variables (the presence or absence of a grievance procedure and grievance arbitration), ordinary least squares (OLS) multiple regression estimation is inappropriate. Consequently, equations (1) and (2) are probit estimations;

² A complete list of our data sources is available from the authors.

derivatives of the probit coefficients measure the approximate percentage impact that each independent variable has on the probability that the “average” police contract contains a grievance procedure or grievance arbitration, respectively. In contrast, equation (3) is an OLS multiple regression estimation of the standard form, and these coefficients measure the approximate impact that each independent variable has on the strength (i.e., number of *GPI* points) of the grievance procedures which do exist.

Results and Analysis

Our estimations for 1975 and 1981 are reported in Table 2 (space constraints prevent us from reporting the results for each year of the 1975–1981 period). Each equation is strongly significant (this was true for each equation in all intervening years), though equation (3) explains only a small portion of the total variation in the strength of these grievance procedures.

Only a few environmental influences are consistently statistically significant over time. City size is positively associated with one or more of the dependent variables in both 1975 and 1981 (and in each intervening year as well). A Western location is negatively and strongly associated with all three dependent variables in 1975 (and in each intervening year as well) and with two dependent variables in 1981 compared to a North Central location. This is the only consistent and strong regional effect. Rather unsurprisingly, the presence of a bargaining law which requires that police contracts contain grievance arbitration is positively and strongly associated with the presence of grievance arbitration in 1975 and 1981 (and in each intervening year).

Most of the remaining variables are never significant or else their early significance disappears over time. For instance, the age of the bargaining relationship makes no difference in 1975 or 1981 (or in any intervening year); the city manager form of government ceased having an impact after 1977; and the presence of an ordinary bargaining law or a bargaining law which requires a grievance procedure no longer (i.e., by 1981) makes a difference. Similarly, the crime rate and the wealth of a city have no consistent impact over time.

The strongest environmental influence is the presence of an interest arbitration statute covering police. These coefficients are strongly positive on all three dependent variables in almost each year during the 1975–1981 period. By 1981 the presence of such a statute, controlling for other influences, was associated with a 43 percent increase in the probability that a police contract contained a grievance procedure, with a 62 percent increase in the probability that such a procedure culminated in grievance

TABLE 2
Influences on Police Grievance Procedures

	1975			1981		
	Probit ^a		OLS	Probit ^a		OLS
	<i>PROBCP</i>	<i>PROBGARB</i>	<i>GPI</i>	<i>PROBCP</i>	<i>PROBGARB</i>	<i>GPI</i>
Intercept	-.216 (0.12)	3.14 (1.57)	23.35 (0.40)	-.459 (0.45)	-1.44 (1.18)	-25.03 (0.81)
lnCRATE	.423** (3.57)	-.176 (1.41)	-2.27 (0.69)	.061 (0.97)	-.009 (0.13)	2.13 (1.20)
lnPOP	-.059 (1.20)	.128** (2.04)	4.33** (2.69)	.068** (2.13)	.012 (0.40)	1.30* (1.65)
lnPCI	.278 (1.35)	-.613** (2.63)	-4.14 (0.62)	.019 (0.17)	-.173 (1.25)	7.81** (2.25)
CBAGE	-.007 (0.57)	-.005 (0.39)	0.29 (0.87)	-.004 (0.74)	-.009* (1.67)	-0.24 (1.61)
NEAST	-.130 (0.91)	-.198 (1.49)	-2.06 (0.66)	-.076 (0.73)	-.297* (1.86)	-2.20 (1.21)
SOUTH	-.253 (1.28)	-.213 (0.98)	-0.48 (0.07)	.206* (1.86)	.076 (0.72)	3.79 (1.24)
WEST	-.628** (4.48)	-.291** (1.96)	-9.51** (2.33)	-.138* (1.68)	-.152 (1.55)	-6.54** (2.70)
CMGR	-.221** (2.28)	.089 (0.90)	7.24** (2.63)	-.029 (0.49)	-.049 (0.82)	1.14 (0.78)
GPLAW	.168 (1.08)	—	4.83 (0.95)	-.120 (1.14)	—	-4.04 (1.36)
GALAW	—	.528** (2.32)	—	—	.280** (1.97)	—
BARGLAW	.218 (1.43)	.390** (2.34)	-0.74 (0.14)	-.090 (1.14)	.059 (0.66)	-4.86* (1.82)
IARB	.364** (3.36)	.153 (1.37)	6.12* (1.69)	.426** (4.13)	.616** (4.02)	13.50** (5.17)
-2 x log-likelihood ratio	80.1**	36.4**	—	117.9**	117.2**	—
F	—	—	2.5**	—	—	8.7**
R ²	—	—	.11	—	—	.19
N	197	138	138	429	364	364

* Significant at the .10 level. ** Significant at the .05 level.

Note: Absolute (asymptotic) *t*-statistics in parentheses for the OLS (probit) equations.

^a The probit coefficients presented are the derivatives calculated at the mean of the dependent variables.

arbitration, and with an increase of 13.5 points in the strength of the procedure (i.e., one full standard deviation).

Table 3 demonstrates more visibly the difference that location in an interest arbitration state can make to police unions and managements. This table provides the same kind of information as presented in Table 1, except that in Table 3 the police contracts are grouped into arbitration and nonarbitration states. These results show that by 1981 police contracts

in interest arbitration states almost always contained a grievance procedure culminating in arbitration. However, police contracts in other states are much less likely to have a grievance procedure or grievance arbitration. For example, police contracts in interest arbitration states are more than twice as likely (94.6 percent vs. 42.8 percent) to contain grievance arbitration as police contracts negotiated elsewhere. Clearly, then, the presence of an interest arbitration law does something to contribute to stronger grievance procedures (from the union point of view).

TABLE 3
Interest Arbitration and Grievance Procedures

Year	Number of Contracts	Number (Percent) of Contracts With Grievance Procedure	Number (Percent) of Procedures With Grievance Arbitration	Average GPI Score ^a
<i>Nonarbitration States</i>				
1975	101	53 (52.5%)	30 (56.6%)	46.8
1976	171	88 (51.5)	53 (60.2)	48.0
1977	166	80 (48.2)	48 (60.0)	47.9
1978	181	102 (56.4)	63 (61.8)	48.2
1979	187	116 (62.0)	70 (60.3)	47.6
1980	192	129 (67.2)	78 (60.5)	47.5
1981	208	148 (71.2)	89 (60.1)	47.2
<i>Arbitration States</i>				
1975	96	85 (88.5%)	75 (88.2%)	52.9
1976	124	115 (92.7)	100 (86.9)	53.6
1977	187	176 (94.1)	154 (87.5)	53.6
1978	208	201 (96.6)	178 (88.6)	53.3
1979	207	200 (96.6)	183 (91.5)	54.3
1980	213	204 (95.8)	193 (94.6)	55.5
1981	221	216 (97.7)	209 (96.8)	56.6

^a See Table 1 for description of the GPI. In 1981, the standard deviation of the GPI score in nonarbitration states was 15.7 points while in arbitration states it was 9.8 points.

Discussion and Implications

These results indicate that police contracts do not uniformly contain grievance procedures and grievance arbitration. Instead, our analyses show that by 1981 the presence of a police interest arbitration law has positive and very strong impacts on the presence of police grievance procedures which culminate in arbitration and on the strength of these procedures.

We cannot say anything about the *use* of interest arbitration to obtain desired grievance procedures, for we have measured only the effect of the *availability* of an interest arbitration statute. Similarly, we are unable

to determine if our interest arbitration variable is measuring some “pure” impact of interest arbitration’s availability or is acting as a proxy for some unmeasured police bargaining characteristics in these interest arbitration states. However, we can say that the existence of a state interest arbitration statute is a convenient shorthand indicator of the almost universal existence of grievance procedures and grievance arbitration in the police contracts in that state.

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Appendix

*Grievance Procedure Scoring Index*³

Grievance definition: 0 = no provision; 2.5 = grievances are narrowly defined, specific items are explicitly excluded from the grievance procedure; 5 = grievances are disputes arising from the contract; 7.5 = grievances are disputes arising from the contract, personnel policies, or other aspects of work; 10 = grievances are not specifically defined in the grievance procedure.

Representation by union: 0 = no reference; 5 = no union representation prior to arbitration; 10 = union representation occurs prior to arbitration.

Time limits at initial step of the procedure: 0 = no reference; 3.33 = grievance must be filed in 5 days or less; 6.67 = 6 to 10 days; 10 = more than 10 days.

Employer response to grievances: 0 = procedure does not require the employer to respond within a particular number of days; 5 = grievance is denied if the employer exceeds a stated time period; 10 = grievance is sustained if the employer exceeds a stated time period.

Grievance procedure final step: 0 = police department official lower than chief; 2 = police chief; 4 = local official or council; 6 = civil service officer or police commission; 8 = advisory arbitration or fact-finding; 10 = binding arbitration.

Limits on submission of grievances to arbitration: 0 = certain grievances may not go to arbitration; 10 = all grievances may go to arbitration.

Limits on arbitrator: 0 = arbitrator is specifically limited beyond normal (cannot amend the contract)—e.g., limits on the amount of back pay that may be awarded in certain cases, etc.; 10 = arbitrator faces only normal limitations (cannot amend contract).

Cost of arbitration: 0 = loser pays; 5 = cost is equally divided; 10 = management pays.

³ Eight items—maximum score of 80 points.

DISCUSSION

DOUGLAS M. McCABE
Georgetown University

My assignment, as the moderator of this group, is to provide a critique of the presentations of the three speakers in the group. A critique includes both criticism and praise. I do not feel like, and I hope I shall not be like, what Shakespeare put in the mouth of the Roman senator who delivered the funeral oration at the death of Julius Caesar: "I come to bury Caesar, not to praise him." That is too drastic.

The title of Peter Cappelli's paper is "Union Gains Under Concession Bargaining." By definition, all bargaining involves concessions, with the parties starting at extremes and working toward an agreement in the middle by means of concessions from their extreme positions. Although the paper does not specifically say at the beginning what is meant by the phrase "concession bargaining," the understanding develops that it means, in my opinion, what might be indicated by some such title as "Collective Bargaining During a Recession."

By emphasizing the background of a recession, the paper's picture falls immediately into focus and leads logically, as indeed the paper leads, into the interesting question of whether the special features of collective bargaining during a recession have long-range consequences.

Another feature which the emphasizing of a recession spotlights is the fact that the customary situation at the bargaining table, which is one of labor obtaining concessions from management, is reversed, with the hard times facing management forcing, or at least inducing, labor to grant concessions to management.

One of the facts developed in the paper is very informative, namely, that in some situations during a recession, a union will grant concessions to management without management reciprocating by giving some concessions of its own, whereas in other instances both parties give concessions to each other. Cappelli calls the latter situation "equality of sacrifice provisions."

It is interesting to note that, as the paper shows, collective bargaining during a recession preserves the paramount characteristic of collective bargaining at all times, namely, the fact that, at any given moment in

Author's address: School of Business Administration, Georgetown University, Old North, Suite 315, 37th and O Streets, N.W., Washington, D.C. 20057.

labor-management relations, the party holding the greater power at that moment prevails over the other party in reaching an agreement. The paper provides clear examples of the result of preponderant bargaining power being on one side of the table or the other, the extreme case being where a company faces bankruptcy. Even then, however, as Cappelli indicates, bargaining power is not exclusively in the hands of management because the union, while required to grant wage and workrule concessions, still is able to say it will help management only on the condition that management will pay a price for the help.

The paper performs a very useful service, in my opinion, for both labor and management in providing a historical background by means of which they can predict the outcome of collective bargaining during a recession. That is, the paper delineates various specific situations that can occur, in each instance indicating whether labor or management has the greater bargaining power, or whether the parties are approximately equal in power. Another excellent feature of the paper is its revealing of such differing situations in various industries and, secondly, for various unions. For example, craft unions are shown to represent, as a rule, such a small fraction of a company's workforce that management cannot gain much by exacting wage concessions from them.

One of the best features of the paper, in my opinion, is its concentration on the various types of bargaining agreements that have resulted from the present recession. They are recorded in considerable detail, showing that both parties have lost or gained in the form of contract provisions. During the remainder of the present recession, and during the next recession, this documentation will have high predictive value for both parties as they approach the bargaining table.

The final portion of the paper is devoted to a question raised at the beginning: What will be the long-range effects on the parties of the concessions which they granted each other during the present recession? The paper emphasizes the fact that the recession has forced onto the collective bargaining table various negotiable matters which are new to it, or at least have received little attention in the past, such as wage rates geared to a company's annual profit status, opening of corporate records for union inspection, profit-sharing by employees, and various methods for employees to share in management decisions affecting them.

Extrapolating from the present situation into the future, Cappelli arrives at the conclusion that it would be "unrealistic" for the present situation to alter fundamentally the long-range basic bargaining positions of the parties. That statement is, in my opinion, the only weak point in the paper, inasmuch as it lacks supporting documentation. The statement means, as I understand it, that, following the recession, collective bargaining will

revert to its traditional status, traditional issues, and the traditional power relationships between labor and management. I would have liked to have seen some supporting evidence for such a thesis. I personally am hesitant to accept it, if only because change is a fundamental characteristic of human affairs.

The paper by Murrmann and Cooper is titled "Professional Worker Attitudes and Trade Union or Professional Association Membership." When we delve into the paper, we gradually realize that a different title would be appropriate, because it would reveal more specifically the paper's scope. I suggest this title: "Attitudes of New Jersey School Principals Regarding Their Membership in Trade Unions versus Professional Associations." In my personal experience as a writer, I find myself confronted with two titles—the one I set out to write about, and the one I actually wrote about, with the second one usually being more factual.

The authors surveyed principals and assistant principals in one trade union, the American Federation of School Administrators, which is affiliated with the AFL-CIO, and one professional association, the Principals Association, which is an independent group. Both groups represent their members in collective bargaining.

Three hundred eight persons responded to their questionnaire, 114 of whom were union members and 194 who were members of the association. In other words, according to my computation, 63 percent of the respondents favored the association over the union. I personally feel that that statistic is of major importance, but there was no explanation of it in the paper; nor did the authors provide the related statistics on the number of New Jersey principals and assistant principals in each group. If the total membership were also 63 percent in favor of the association, leaving only 37 percent in favor of the union, then a simple question immediately pops up: Why? I am disappointed that the respondents were not asked to answer that question in their own words, with, of course, emphasis on brevity.

It seems to me that the respondents' own words would be the most authentic source of information, even though probably difficult to subject to statistical analysis. I would like to see the respondents' own words reduced from sentences to their critical phrases, with the phrases tabulated in similar groups, and reasonable deductions extracted from the tabulation, with statistical analysis utilized to whatever extent it is practicable.

My assumption, from the format of the paper, is that statistical analysis was selected as its primary feature, with other considerations made subservient to that arrangement. Then, instead of asking the respondents for their own opinions, the authors developed 17 attitude statements and asked the respondents to express their reaction to each. The problem here

is that respondents might, and probably did, have one or more important attitudes respecting a union versus an association that were not included in the list of 17. The paper states: "These items [that is, attitudes] were designed to capture several of the most critical practices and beliefs that a principal would have to consider in evaluating the acceptability of unionism." However, the list was not submitted to the principals, or a representative sample of them, for verification of the list's validity or completeness. For example, to take an extreme but possible reason for 63 percent of the respondents' favoring the association over the union, the union's president might be suspected of shady deals.

A statistical surprise was noted—that the principals' attitude toward the use of seniority for promotion decisions was unrelated to their attitude toward seniority as a basis for layoffs. This is an example of a situation in which a statistical finding should be submitted also to nonstatistical examination.

It is interesting that some of the statistical findings regarding the attitudes of the union members agree with the nonstatistical general opinion of the public as to how union members usually feel about such matters as the need for collective bargaining rights, arbitration rights, tenure protection, seniority-based promotion decisions, and the existence of conflicting interests between employees and management. However, a question not addressed was whether school principals identify themselves as employees, as the matter of conflict of interest implies, or as members of management, as teachers probably deem principals to be. It is worth noting in that regard that, at the college level, the question of whether professors are employees or members of management is controversial and depends partly upon interpretation of federal labor law.

The paper departed from its statistical structure by introducing a few nonstatistical explanations to substantiate the statistical findings, such as the statement that the independent association of principals does not have formal ties with organized labor and, by inference, therefore is not influenced by the policies and practices of organized labor. That is what I like to see, namely, statistical and nonstatistical methods coordinated in joint pursuit of information. Both of those methods are available, and their joint use conforms with the old adage that "two heads are better than one."

The paper by Delaney, Feuille, and Hendricks is titled "Interest Arbitration and Grievance Arbitration: The Twain Do Meet." The meaning of the phrase "grievance arbitration" is self-evident—the arbitration of grievances—but the meaning of "interest arbitration" requires a definition. The authors assume that the meaning is known, but it is preferable in a scientific paper to avoid assumptions. Interest arbitration means that,

when an impasse occurs at the collective bargaining table, the parties summon an arbitrator, whose decision is binding on those portions of the contract on which the parties failed to agree, causing the impasse.

The title of the paper states that the two kinds of arbitration "do meet," but the meaning of the word "meet" in that context is not explained in the text. I assume that it means that labor contracts sometimes provide for both forms of arbitration. A more serious defect in the title is its failure to define the scope of the paper. It would have been helpful to include the fact that the paper pertains to the labor contracts of municipal police departments.

The paper notes that grievance procedures, as well as their culmination in grievance arbitration, are nearly universal in private-sector labor contracts. Then the paper's tabulation of police contracts shows that, between 1975 and 1981, grievance procedures increased from 70 to 85 percent, while grievance arbitration rose more slowly from 76 to 82 percent. It is surprising that, in 1975, more police contracts stipulated grievance arbitration than grievance procedure, but that was true for only that one year.

In their paper, the authors develop a statistical analysis model which, it is stated, may shed light on why grievance procedures and grievance arbitration exist in some police contracts and not in others. However, the findings regarding the question "why" were not informative, and it should be noted that this negative situation was not the fault of the model. The point that should be emphasized in this matter is that there is a limit to what statistical analysis can accomplish, and this paper is an example of the need in some studies for statistical analysis to be supplemented by nonstatistical methods of investigation, such as the use of known facts as a basis for deducing unknown facts by a process of reasoning. For example, the authors rely on a nonstatistical method for their statement that "several states have police interest arbitration statutes, and these statutes should enable police unions to negotiate favorable outcomes."

While on the subject of interest arbitration, which is given prominence in the paper's title, it should be pointed out that the paper really does not discuss interest arbitration except for noting that if a state has a law permitting interest arbitration, then that state's police departments are twice as likely to have grievance procedures and grievance arbitration.

Although the paper states that the purpose of the statistical model is to determine why some police contracts have grievance procedures and grievance arbitration, it later states that the purpose is to estimate the existence of those two things; it succeeds in the latter objective. It is interesting to note that the authors eliminate the various factors that might contribute positively to the presence of grievance procedures and

grievance arbitration, such as population size, per capita income of the community, crime rate, and form of city government, finding that the only significant factor, at least at the present time, is the existence of a state law permitting interest arbitration, with city size having some influence.

A feature which the authors did not examine, but which I would find very informative, is whether there are important differences in the wording of the interest arbitration laws of the states that have them, or whether the differences are inconsequential.

XV. COLLECTIVE BARGAINING IN HIGHER EDUCATION

Union Campaign Effects in University Faculty Representation Elections*

JOHN J. LAWLER
University of Illinois

J. MALCOLM WALKER
San Jose State University

An extensive literature on union growth, most recently reviewed by Fiorito and Greer (1982), has developed over the past decade. Published studies examine a wide range of issues, utilizing a variety of conceptual perspectives and ranging from highly aggregate to individual levels of analysis. Research on the determinants of faculty unionism is similarly diverse.¹ Yet although nearly a decade has passed since the 1976 publication by Getman, Goldberg, and Herman of their pathbreaking study, further research into the impact of union and employer campaign activities on election outcomes and/or union growth is limited at best.² Efforts to test the principal conclusions of Getman et al. in other contexts, such as higher education, are nonexistent so far. This paper reports the preliminary findings of a panel study of faculty members in the California State University (CSU) system, focusing on the relationship between

Lawler's address: Institute of Labor and Industrial Relations, University of Illinois at Urbana-Champaign, 504 East Armory Avenue, Champaign, IL 61820.

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¹ See, for example, Garbarino (1980), Feuille and Blandin (1974), Hammer and Berman (1981), and Lawler and Walker (1984).

² For a review of recent research in this area, see Freeman (1983).

union campaign tactics and faculty member sentiments toward collective bargaining in that system.

Conceptual Issues

Early research on organizing and counterorganizing activities of unions and employers is largely descriptive, consisting of qualitative case analyses of particular organizing drives.³ Karsh (1982, pp. 99–118), in particular, stresses the role of the external organizer in mobilizing opposition to an employer and maintaining solidarity in the face of stiff competition. More recently, Craft and Extejt (1983) identify a variety of nontraditional organizing strategies employed by unions—techniques that generally involve applying pressure to an employer beyond the immediate workplace. Voos (1982), Block (1980), and Elliot and Hawkins (1982) examine the impact of the allocation of union resources to organizing activities on aggregate levels of union effectiveness in representation elections. All three studies conclude that union resource commitment significantly enhances the chances of union victory. Other studies focus on the nature and impact of employer resistance. Efforts to resist union organizing by legal maneuvering (e.g., use of election) seem strongly associated with a decrease in union victory rates in representation elections (Cooke 1983). In addition, the use of a consultant in a representation election appears to decrease the probability of union victory, though excessive employer resistance efforts seem to be associated with a kind of “backfire” effect, leading to an increased probability of union victory (Lawler 1982).

Getman et al. (1976) provide the only empirical evidence to date as to the direct impact of employer and union campaign activities on voting behavior in elections. Their results are based on personal interviews with participants in approximately 30 NLRB certification elections, all of which were either P & M or clerical units. Two interviews were conducted, the first taking place shortly after the fixing of an election date and the second following the election. One of their more significant findings is the apparently minimal effect of campaign activities on voting behavior. The precampaign voting intention of an election unit member was found to be by far the strongest single predictor of the vote actually cast, with approximately 80 percent of the sample reporting that they voted in accordance with their precampaign intentions. Although employer campaign activities were found to be unrelated to changes in voting intentions over the course of the preelection campaign, union activities did appear to exert at least some marginal effect on voting

³ See, for example, Strauss (1953) and Karsh, Seidman, and Lilienthal (1953).

preferences. Getman et al. conclude that, contrary to the implicit assumptions underlying NLRB election standards, employees are apt to have strong sentiments regarding unionization prior to the campaign, to attend selectively to campaign messages depending on their precampaign sentiments, and, consequently, to be relatively unaffected by campaign statements or tactics. The theoretical framework that derives from these findings has been developed in greater detail by Brett (1980) and Brett and Hammer (1982).

Several authors have criticized Getman, Goldberg, and Herman on methodological and conceptual grounds. A major concern of ours is with the campaign exposure measures they use. By relying on respondent self-reports of exposure to campaign activities, which were elicited in the second wave of interviews, estimated campaign effects may be biased because of the endogenous nature of campaign exposure measures. Unfortunately, controlling for precampaign intentions is not an adequate solution for this problem; rather, an exogenous measure of campaign activity is needed. In addition, we feel that the relatively limited campaign period studied by Getman et al., although relevant for their immediate purpose, is insufficient to assess the long-term effect of campaign activities, especially in protracted organizing drives.

Research Context and Method

Efforts to obtain bargaining rights for faculty in the CSU have been under way since the early 1970s and are described elsewhere.⁴ The campaign has been characterized by intense rivalry between two organizations contending for recognition: the CFA (Congress of Faculty Organizations, which is a coalition of the NEA, AAUP, and the California State Employees Association) and the UPC (United Professors of California, an AFT affiliate). Although the CSU administration took a strong position against bargaining, a substantial majority of faculty voted in favor of bargaining in a representation election held in December 1981. However, the election was closely contested with respect to bargaining agent, necessitating a run-off election, in which the CFA prevailed.

Data for this study were collected in two waves, with mail questionnaires sent to the same sample of faculty members in both instances. The first wave of questionnaires was distributed in the spring of 1976 and the second in November 1981, just prior to the initial representation election. Respondents were asked a number of questions regarding their attitudes toward and perceptions of their jobs in the CSU and the competing faculty organizations. About 25 percent of the sample responded to the

⁴ See, for example, Lewin (1980) and Walker and Lawler (1979).

first questionnaire *and* provided their names (for the second interview). The demographic characteristics of the sample generally paralleled known population characteristics, except that part-time faculty members were substantially underrepresented. There was considerable attrition in the sample between the first and second wave of questionnaires (approximately 30 percent of the 1976 respondents were no longer employed in the CSU by 1981). Data from the questionnaires were supplemented by data obtained from on-campus interviews of union, administration, and faculty senate representatives in all but two of the 19 CSU campuses. These interviews were conducted following the election and were used to construct indices of campaign activity specific to each of the 17 campuses studied.

Findings

Given the exploratory focus of this paper, our analysis proceeds by addressing, in turn, each of the following key questions:

1. Did distinct strategies emerge differentiating the competing parties?
2. Were the bargaining sentiments of faculty members relatively stable over the five-year interim separating the two surveys?
3. To what extent did different organizing tactics affect attitudes regarding bargaining and voting behavior?

Our initial evaluation of the interview data suggests that there was little discernible variation across campuses with respect to either administration or faculty initiated opposition to bargaining (the latter being virtually nonexistent). Consequently, our study does not allow for an assessment of both pro- and antibargaining campaign activities, and we concentrate exclusively on the activities of the competing unions.

Campaign Tactics and Strategies

Local campus representatives of both the CFA and UPC (usually the campus president) were asked a series of questions relating to a range of campaign activities. These questions were intended to provide quantitative indicators of the campus-level campaign activities of the union. Unlike the measures of campaign exposure used by Getman et al., our measures can be treated as exogenous to the individual, thus eliminating the problems created by the endogenous character of self-reported campaign exposure. Initially, we asked union representatives to provide activity estimates for the various items listed in Table 1 for the two years preceding the election. However, it became clear that virtually all formal campaign activity occurred in the three months or so immediately preceding the election. We therefore restricted our questions to that period.

TABLE 1
 Union Campaign Activities
 (Campus Averages, n = 17)

Activity	CFA		UPC		Significance Level
	\bar{X}	(SD)	\bar{X}	(SD)	
1. Personal contacts (% of faculty reached)	58%	(22)	71%	(17)	(.07)
2. Telephone contacts (% of faculty reached)	58%	(30)	72%	(20)	(ns)
3. Flyers (number issued)	11.2	(7.7)	15.7	(6.8)	(.08)
4. Parties (number held)	4.02	(3.5)	7.3	(8.8)	(ns)
5. Newspaper advertisements (number placed)	.35	(.60)	.41	(.79)	(ns)
6. Newsletters (number issued)	4.7	(9.2)	4.6	(1.7)	(ns)
7. Probargaining meetings	1.47	(1.6)	1.88	(1.7)	(ns)

Hotelling's $t^2 = 13.08$ (ns)

We observe considerable variance within both faculty organizations as to the extent various bargaining tactics were employed across the 17 campuses studied (Table 1). Coefficients of variation range from 25 to more than 100 percent. Little of this variation is related to global differences between the UPC and CFA. Although the UPC appears to have waged a generally more aggressive campaign (perhaps because it was something of an underdog in the election), as witnessed by its higher average contact rates, issuance of flyers, and holding of parties, none of these differences is significant at even the .05 probability level. If we define organizing strategy in terms of the overall pattern of tactical methods employed in the campaign, then, applying a multivariate test of significance (Hotelling's t square), we also observe no statistically significant difference between CFA and UPC strategies (though the small sample size makes this test questionable).

Stability of Bargaining Sentiments

The orientation of respondents to collective bargaining was measured in two ways: (1) their expressed degree of support or opposition to implementing bargaining in the CSU (a 5-point Likert scale), and (2) their intended voting behavior. These questions were asked in both the 1976 and 1981 questionnaires. The rank correlation between support for bargaining in 1976 and in 1981 is .67 ($Pr < .01$), indicating considerable stability for general bargaining sentiments. As for voting behavior, nearly 70 percent of our sample intended to vote in 1981 as they had intended in 1976. Table 2 suggests the degree to which individuals remained loyal to the faculty organization they supported in the first survey. Note, however,

that nearly half of those opposed to bargaining in 1976 had changed their positions by 1981, with CFA gaining more than twice as many no-agent switchers as the UPC. Similarly, the CFA far outdistanced the UPC in attracting undecided voters. Though the CFA appears to have suffered marginally greater attrition among its 1976 supporters than did the UPC, the data clearly suggest that the CFA victory was attributable largely to its having won over such a substantial share of the undecided and no-agent supporters.

TABLE 2
Comparison of 1976 and 1981 Voting Intentions

Intended Vote (1981)	Intended Vote (1976)			
	CFA (35%) ^a	UPC (36%)	No Agent (23%)	Undecided (65)
CFA (42%)	74% ^b	14%	33%	50%
UPC (40%)	17	81	15	25
No agent (18%)	9	5	52	35
	<u>100%</u>	<u>100%</u>	<u>100%</u>	<u>100%</u>

$X^2 = 155$ ($Pr < .01$)

^a Proportion of respondents in category.

^b Percentages represent conditional probability of 1981 voting intention *given* 1976 voting intention (columns sum to 100%).

Impact of Tactics/Strategies

The stability of bargaining sentiments and voting intentions suggests that the campaign tactics of the faculty organizations were probably of minimum impact. With respect to overall attitude toward faculty bargaining, the rank correlation between shift in bargaining attitude (difference between 1981 and 1976 attitude) and campus-level organizing activities of the UPC and CFA (Table 3) clearly confirm this conjecture. Only three of these correlations are statistically significant and two of the significant coefficients are opposite the expected (positive) sign. It is possible, of course, that campaign activities are most effective in reinforcing the commitment of existing supporters. That is, only CFA (UPC) supporters might have been positively affected by CFA (UPC) campaign activities, while UPC (CFA) supporters and those opposed to bargaining might have been unaffected, or negatively so, by CFA (UPC) activities. To check for such an interaction effect, we recomputed the rank correlations reported in Table 3, holding constant 1981 voting intention. We found little impact of CFA activities on the commitment of CFA supporters. UPC direct contact activities did, however, appear to increase UPC supporters' commitment to bargaining (both personal contact and telephone

contact activity coefficients were positive and significant at the .05 level for the subsample of UPC supporters).

TABLE 3
Shift in Attitude Toward Bargaining
Correlated with UPC and CFA Campaign Activities
($n = 285$) (Spearman's ρ)

	CFA Activities	UPC Activities
1. Percent personal contacts	-.05	.07
2. Percent telephone contacts	.10	.05
	(Pr < .05)	
3. Number of flyers distributed	-.00	-.05
4. Number of parties held	-.02	-.08
		(Pr < .10)
5. Number of newspaper ads	-.02	.01
6. Number of newsletters	.06	-.10
		(Pr < .05)
7. Number of meetings	.001	-.001

Although sentiments regarding collective bargaining may have been unaffected by campaign activities, the intended vote of respondents—of greater practical significance—might well have been influenced. For example, individuals opposed to bargaining in principle, but reconciled to its likely victory in the election, might have voted for the faculty organization seen to be less onerous, a perception possibly affected by campaign activities. Thus, we have computed the rank correlations between changes in intended voting behavior between 1976 and 1981 and campus-level campaign activities. Correlations between 1981 voting intention with respect to CFA (= 1 if CFA, = 0 if not) and campaign activities (both UPC and CFA) are reported in Table 4, col. 1, for the subsample of respondents *not supporting the CFA in 1976*. In general, most campaign activities did not influence these individuals to shift in the direction of the CFA. However, there are a couple of exceptions. The frequency of CFA parties and the frequency of CFA meetings did exert a modest impact on defections to the CFA, while similar activities by the UPC tended to reduce the likelihood of defections: the frequency of UPC newsletters also acted to reduce shifts to the CFA. A similar analysis with respect to shifts in voting intentions among respondents not supporting the UPC in 1976 is reported in col. 2. Interestingly, none of the UPC campaign activities exerted a significant effect on shifts to the UPC, though CFA telephone contacts and the frequency of CFA newsletters did exert some pressure in limiting these shifts.

TABLE 4
Shift in Voting Intentions
Correlated with Campaign Activities

Campaign Activities		1976 Voting Intention	
		UPC, No Agent, or Undecided ^a (1)	CFA, No Agent, or Undecided ^b (2)
1. Personal contacts:	CFA	.04	.06
	UPC	-.06	-.00
2. Telephone contacts:	CFA	-.04	-.10 ^o
	UPC	-.07	-.07
3. Flyers distributed:	CFA	.05	-.05
	UPC	-.06	-.01
4. Parties held:	CFA	.11 ^o	.02
	UPC	-.13 ^{oo}	.04
5. Newspaper ads:	CFA	.05	-.01
	UPC	.01	-.08
6. Newsletters:	CFA	.03	-.12 ^{oo}
	UPC	-.14 ^{oo}	.02
7. Meetings:	CFA	.13 ^{oo}	-.02
	UPC	-.12 ^{oo}	.01

^a Shift in voting intention = 1 if 1981 intention is CFA; = 0 otherwise.

^b Shift in voting intention = 1 if 1981 intention is UPC; = 0 otherwise.

^{oo} Significant at .05 level.

^o Significant at .10 level.

Conclusions and Implications

We posed three key questions that were addressed in our empirical work. Our findings with respect to these questions may be summarized as follows:

1. Faculty organizations differed to some extent in terms of campaign strategy, with the UPC appearing to be somewhat more aggressive than the CFA (though the difference is not statistically significant).

2. Faculty bargaining sentiments and voting intentions were remarkably stable over the extended period between the first and second questionnaires (5 years). That this was the case, despite substantial variations in environmental conditions and influence efforts by faculty organizations (and the administration), reinforces the finding of Getman et al. that initial voting intentions persist despite strong countervailing forces. This finding is supported theoretically by a substantial body of behavioral literature that stresses the tendency of individuals to become committed to a course of action and then to reconcile beliefs and expectations with intended or actual behavior.

3. What changes did occur in voting intentions and attitudes toward bargaining are found to be only marginally influenced, at best, by

campaign tactics and strategies. Bargaining attitudes appear to be totally insensitive to union campaign activities, although there is some reason to believe that voting intention (which may reflect considerations other than the intrinsic appeal of bargaining) are moderately influenced by such activities. In either case, our research does not demonstrate the relatively strong effects attributed to union campaign activities by Getman et al.

The results presented here are preliminary and we intend to develop and evaluate a more rigorous model using multivariate techniques. Since this study is an intensive case analysis of a single institution, variations in campaign activities across campuses may have been of insufficient magnitude to capture important campaign efforts. Thus, a comparative study of several different institutions seems warranted.

As for the major policy implications of this study, we would concur with Getman, Goldberg, and Herman that close monitoring of campaign activities by administrative agencies charged with conducting elections is not warranted (although this conclusion cannot be drawn with respect to employer activities because of the limitations of this study). As for participants in representation elections involving university faculty, it would appear that heavy investment in efforts intended to influence the opinions of bargaining unit members is apt to yield minimal results. This is not to say that campaign activities are irrelevant. Given the stability of voting intentions, it is obvious in closely contested elections that the side which is most effective in mobilizing its existing supporters and assuring that these individuals vote in an election has an improved likelihood of victory. Thus, participants in an election ought to concentrate limited organizing resources on identifying supporters and "getting out the vote."

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Faculty Perceptions of Decision-Making Influence And Support for Collective Bargaining

MARK THOMPSON

University of British Columbia

ALLEN PONAK

University of Calgary

One of the major controversies surrounding collective bargaining among university faculty has been its potential impact on traditional systems of governance (Garbarino 1975, Baldrige and Kemerer 1976, Kleingartner 1981). Two views of this relationship have been advanced. One may be termed the competitive model, i.e., unions and collective bargaining will compete with existing bodies, such as senates, for influence on university policies. Alternatively, a dual-track model has also been suggested, whereby unions and academic bodies establish separate jurisdictions, the former assuming responsibility for economic matters, and the latter, for purely academic affairs (Kemerer and Baldrige 1975, p. 150). Though few observers believe that one model will predominate, early investigators typically expected that the competitive model would be most likely to emerge where faculty senates were weak. However, administrators and union officials have reported little intrusion of faculty unions into the affairs of academic senates where these bodies had existed prior to certification (Kemerer and Baldrige 1981, pp. 257-61).

One problem underlying this controversy has been the wide range of decisions in which faculty may participate. Depending on the university, faculty can have a voice in the determination of their own salaries and fringe benefits, central issues for collective bargaining. But subjects such as admission requirements or curriculum have few parallels in other work situations and normally are the responsibility of academic senates or similar bodies. Finally, there are areas of overlapping jurisdiction, i.e., topics which either a union or a senate might regard as within its

Thompson's address: Faculty of Commerce, University of British Columbia, Vancouver, B.C., Canada V6T 1W5.

jurisdiction (Kemerer and Baldrige 1975, p. 149). These decisions include procedures for faculty appointments and promotions, evaluation of teaching, or selection of department heads.

Another difficulty is the lack of specification of "traditional systems of governance." Most attention has been concentrated on the role of academic senates in conjunction with collective bargaining (Kleingartner 1981, pp. 65–68), although one study concluded tentatively that the importance of senates has been overstated in discussions of academic governance (Kemerer and Baldrige 1975, p. 139). Many significant decisions within the universities may be made in departments or intermediate bodies ("faculties" in Canada and "colleges" in the U.S.), even if subject to formal ratification by senates. Moreover, central administrations invariably are influential in universities, even in academic decisions.

This paper will examine faculty views of influence within their universities and the relationship of these views to their support for collective bargaining. It will focus on the so-called "overlap" issues which could be subject either to traditional decision-making or to collective bargaining. Measurement of decision-making influence will include departments and faculties in addition to senates, in universities with different forms of collective bargaining.

Collective bargaining at Canadian universities (where the research was conducted) falls into three distinct categories (Thompson 1975, p. 257). A majority of all institutions are unionized, i.e., their faculty associations have been certified by labour relations boards and enjoy bargaining rights identical to private-sector unions. A smaller number, including several of the largest universities, operate under a regime known as "special plan" collective bargaining. Under this system, the university administration recognizes the faculty association as the exclusive bargaining agent for academic staff without recourse to any proceedings under labour legislation. The recognition agreement specifies the scope of bargaining (typically restricted to economic issues), a grievance procedure, and systems of rights and interest arbitration. In a third category are the few universities with no collective bargaining. Faculty, in addition to their participation in senates, are represented by an association which presents briefs on salaries and other economic issues to appropriate administrative officials, with the administration retaining final authority to decide these matters. The associations may also negotiate internal appeal procedures for personnel decisions. Overall, the three categories represent a range of experience with collective bargaining. Faculty in the certified universities have the right to negotiate all terms and conditions of employment and to strike, special plan universities have a narrower scope

of bargaining and no right to strike, and faculty have traditional rights of consultation in universities without bargaining.

Within this context, several propositions can be stated. First, because faculty themselves choose their collective bargaining status, it is expected that support for collective bargaining will be highest on certified campuses, followed by special plan and nonbargaining universities in that order. Second, the influence of central administrations should be highest in certified universities, either because autocratic administrators provoked certification or the pressures of bargaining caused authority to move toward them. As well, if we assume that individual faculty members value a strong faculty voice in decision-making, support for collective bargaining should be positively related to perceptions of administration influence.

Third, we would expect certain patterns to emerge depending on whether the competitive or dual-track model is predominant. If the competitive model prevails, we would expect: (1) faculty association influence to equal or exceed department, faculty, and senate influence; (2) the influence of traditional bodies should be lowest in certified universities and highest in the bargaining universities; and (3) faculty who perceive high degrees of influence for traditional bodies should have low support for collective bargaining. Alternatively, the dual-track model implies that faculty associations should not influence "overlap decisions," there should be little or no association between bargaining and traditional forms of governance, and thus little correlation between perceptions of influence and enthusiasm for collective bargaining.

Sample and Methods

To examine these propositions, a questionnaire was distributed at eight Canadian universities located in five provinces,¹ ranging in size from about 500 to 2000 faculty. In the smaller institutions, each faculty member received a questionnaire, while half to two-thirds of the faculty were randomly surveyed in the large universities. The total number of replies was 1796, with a response rate of 38 percent. Comparisons of the demographic characteristics of respondents and the total faculty at each university indicated that the sample was representative. In addition, one author visited each university and interviewed faculty association and administration officers about faculty-administration relations and collective bargaining. Of the eight universities, three are certified, three are under a special plan, and the remaining two have no bargaining. The

¹ The provinces were in all regions of the nation except Quebec.

faculty association on each campus is affiliated to the national body of Canadian university faculty, the Canadian Association of University Teachers.

Each of the institutions in the survey is a "university" in North American terminology in that it includes several professional schools as well as departments of arts and sciences. All consider research to be a significant feature of their activities, though the emphasis given to this function and qualitative standards vary considerably among them. Canadian universities normally fall under private-sector provincial labour legislations, but are also regulated by university statutes. The latter require that each have a representative senate, with varying proportions of members chosen by faculty, students, alumni, the government, plus administrators as *ex officio* members.

Perceptions of decision-making influence were measured by asking participants to rate the influence of five bodies—their faculty association, their department, their faculty, the central administration, and the senate, on eight decisions that are neither clearly academic nor economic (e.g., teaching evaluation, travel grants). A four-point scale from "virtually no influence" (1) to "a very great deal of influence" (4) was used.

Attitudes toward collective bargaining were based on responses to 18 items on the questionnaire. The items were combined into three scales; one measured perceptions of the *disadvantages* of collective bargaining, another was based on faculty views of the *advantages* of bargaining, and the third measured support for *militant tactics* (Ponak and Thompson 1983). Each of the collective bargaining scales was calculated on a four-point basis. The higher the scale score, the stronger the support for collective bargaining (i.e., the less they agree there are disadvantages and the more they agree there are advantages) and the use of militant tactics.²

Results

A summary of faculty attitudes towards collective bargaining is presented in Table 1. Consistent with expectations, support for collective bargaining is highest at the certified universities and lowest on the nonbargaining campuses. For all three categories of institutions, however, faculty perceive that the advantages of bargaining outweigh the disadvantages. Not unexpectedly, the advantage/disadvantage gap is much greater at the certified universities. Overall, the differences among the three categories of university are least for the militancy scale.

² Reliability scores for the three collective bargaining scales and the five decision-making influence scales were calculated using Cronbach's alpha: bargaining disadvantages (.83), bargaining advantages (.76), militancy (.68), department influence (.81), faculty influence (.81), administration influence (.78), senate influence (.79), and faculty association influence (.77).

TABLE 1
Mean Collective Bargaining Attitudes by Collective Bargaining Status

Bargaining Status	Collective Bargaining Disadvantages	Collective Bargaining Advantages	Support for Militancy
Certified universities (N = 681)	2.72	2.91	2.55
Special plan universities (N = 723)	2.68	2.73	2.41
Nonbargaining universities (N = 391)	2.29	2.35	2.46
Analysis of variance (F between rows)	49.3 ^a	89.1 ^a	5.9 ^b

^a Probability < .001.

^b Probability < .01.

Table 2 reports faculty members' views of decision-making influence within their university. It is apparent that faculty consider senates unimportant in "overlap decisions" no matter what the collective bargaining status; respondents clearly believed that senates had virtually no influence over issues such as department head selection procedures or allocation of office and research space. Senior administrators and faculty association officers confirmed this view. The results also show, consistent with prediction, that central administrations are perceived as substantially more influential on the certified campuses than at special plan and nonbargaining universities. Furthermore, central administrations are seen as significantly more influential than either faculties (colleges) or departments at the certified universities while at the special plan and nonbargaining institutions, the reverse is true.

Table 2 also provides evidence of a relationship between collective bargaining status, traditional governance influence, and faculty association influence. The influence of faculties and departments is viewed as much weaker at the certified universities than at the other two kinds of institutions. As well, perceived influence of the faculty association clearly increases with stage of collective bargaining development. But even at the certified universities, the influence of the departments and faculties exceeds that of the faculty association by a significant margin, contrary to the prediction from the competitive model.

Table 3 presents Pearson correlations between perceptions of influence and collective bargaining attitudes.³ As predicted, support for collective bargaining and militant tactics is positively related to perceptions of administration influence, regardless of collective bargaining status. Perceptions

³ Partial correlations, controlling for respondents' age, salary, rank, tenure status, and seniority, also were calculated. The results were virtually identical with the Pearson correlation in all cases.

TABLE 2
Perceptions of Influence, by Collective Bargaining Status

Bargaining Status	Senate Influence	Faculty Influence	Department Influence	Administrative Influence	Faculty Association Influence
Certified universities (N = 681)	1.46	2.41	2.32	2.68	1.82
Special plan universities (N = 723)	1.40	2.75	2.76	2.44	1.35
Nonbargaining universities (N = 391)	1.45	2.72	2.66	2.33	1.28
Analysis of variance (F between rows)	2.5	41.8 ^a	59.1 ^a	30.2 ^a	184.8 ^a

^a = Probability < .001.

of the faculty association's influence and collective bargaining support are positively associated at the universities with some bargaining (certified and special plan), but the relationship is inverse and weaker at nonbargaining institutions. There is virtually no relationship between perceptions of the influence of faculties and departments and attitudes toward collective bargaining at the certified campuses. At the special plan and nonbargaining universities, however, a significant negative relationship was evident. Finally, consistent with the faculty view of senate's role in university affairs, correlations between its influence and attitudes to bargaining were very low.

TABLE 3
Correlation of Perceptions of Influence to Collective Bargaining

Collective Bargaining Attitudes	Senate Influence	Faculty Influence	Department Influence	Administrative Influence	Faculty Association Influence
Disadvantages					
Certified	.08	.03	-.03	.16	.17
Special plan	.05	-.13	-.16	.09	.12
Nonbargaining	-.05	-.15	-.20	.11	-.12
Advantages					
Certified	.04	.01	-.01	.23	.17
Special plan	.10	-.05	-.16	.20	.18
Nonbargaining	-.01	-.17	-.24	.10	-.06
Militancy					
Certified	.02	-.06	-.08	.17	-.01
Special plan	.12	-.15	-.14	.14	.04
Nonbargaining	.05	-.18	-.16	.13	-.06

Discussion and Conclusions

The results of this survey demonstrate that collective bargaining status, support for collective bargaining, and decision-making influence are interrelated. As expected, faculty in certified universities were more enthusiastic about bargaining than their counterparts in special plan and nonbargaining institutions. Not only did they highly rate the advantages of bargaining, faculty in certified institutions also were clearly convinced that the advantages outstripped the disadvantages. But faculty in the other two categories of institution were much less certain; they saw advantages and disadvantages as more nearly equal. In fact, the surprisingly small advantages/disadvantages margin at the special plan universities highlights the ambivalence that faculty hold toward collective bargaining on these campuses, an ambivalence connoted by their adoption of the hybrid special plan approach.

Also as predicted, the influence of the central administration is strongest at certified campuses. But an important issue remains: Is the influence of the administration a cause or an effect of full collective bargaining? A comparison of administration and traditional body influence at the nonbargaining and special plan universities suggests that highly centralized authority is more a cause of certification than a result since the differences are slight. In other words, faculty believed that bargaining over a limited range of subjects does not lead to increased authority for administrators, so it appears unlikely that full-scale bargaining would produce a contrary result. The link between administrative power and bargaining is reinforced by the uniformly strong positive correlations between perceived administration influence and support for collective bargaining. Indeed, faculty association representatives at certified campuses were virtually unanimous in citing an authoritarian administration as the single most important issue during faculty organizing, a view shared by earlier observers of the process (Thompson 1975, pp. 260-61).

The role of central administration authority is clearly relevant to the debate about the impact of collective bargaining on traditional systems of governance. The data in this study suggest that faculty see certification as a response to managerial power (Hammer and Berman 1981, pp. 419-20). Thus, at both special plan and certified campuses, faculty associations are perceived to have considerably less influence than departments and faculties on issues that easily could fall in the bargaining arena. Furthermore, there is no relationship between faculty support for collective bargaining and the influence of faculties and departments at certified universities, where exposure to collective bargaining is greatest. There is a negative relationship between the two sets of variables at special plan and

nonbargaining universities, confirmation of the competitive model. The focus for faculty concern is at the departmental and faculty level, so that concern for reduced senate influence due to collective bargaining may have been misplaced. Senates exercise almost no influence over decisions not purely academic, regardless of collective bargaining status.

Although the results are mixed, this evidence is more consistent with a dual-track model of the bargaining-governance relationship than a competitive model. Faculty members endorse collective bargaining to counterbalance strong administration authority, not to replace the governance role exercised by senates, faculties, and departments with the faculty association. Preoccupation with the impact of collective bargaining on one area, academic governance, may have led us astray. Depending on the issues, the shifts in power associated with collective bargaining are between faculty associations and central administrations or between central administrations and traditional university governance bodies.

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Collective Bargaining's Effects On Higher Education

W. LEE HANSEN
University of Wisconsin-Madison

HIRSCHEL KASPER
Oberlin College

The purpose of this paper is to lay out several researchable questions about the effects of collective bargaining in higher education. We pose these questions as economists rather than industrial relations experts. Our interest is focused heavily on what might be described as the economic effects of collective bargaining, though we are acutely aware of the difficulty—perhaps even the impossibility—of trying to isolate economic effects from other types of effects.

After a brief discussion of the environment surrounding the history of collective bargaining in higher education, we discuss needed research on the growth of collective bargaining, on faculty compensation, on the tradeoffs between gains in compensation and improved governance, and on the process itself. Our list of topics is by no means exhaustive.

Background

An appraisal of the state of research on the effects of collective bargaining in higher education is timely because we are approaching the end of the second decade of efforts to unionize college and university faculties. While both the National Education Association (NEA) and the American Federation of Teachers (AFT) had for some years promoted collective bargaining in higher education, it was not until 1972 that the American Association of University Professors (AAUP) opted to embrace collective bargaining for those of its members who wanted it. This led to a period of spirited competition among these three organizations to organize college faculties, a competition that continues to the present.

Our interest is also stimulated by the depressing fact that the economic condition of higher education has deteriorated significantly since the latter half of the 1960s when organizing began in earnest. Although

Hansen's address: Industrial Relations Research Institute, University of Wisconsin, 4226 Social Science Building, Madison, WI 53706.

student enrollments continued to rise throughout the 1970s and into the early 1980s (but at a declining rate of increase), the real resources available per student steadily shrank. Coincident with this shrinkage, the salaries of college and university faculty members declined over the past decade by almost 20 percent in real terms ("A Blip on the Screen" 1983).

Finally, there is continuing concern among faculty members with their role in institutional governance. This is the result of several factors: adjusting to the much larger scale of operations at many institutions after the sharp growth of the 1960s, concern about future uncertainties as the size of the typical college-age cohorts declines in the later 1980s, and the growing number of legal decisions and federal requirements that have forced institutions to be more explicit about a wide variety of their policies and practices. The fact of the matter is that there is some kind of tradeoff between gains in compensation and an increased role in governance.

These and other developments in higher education make the task of isolating the impact of collective bargaining exceedingly difficult. Indeed, the absence thus far of many firm generalizations about the economic effects of collective bargaining on higher education stems as much from the nature of the already published research as the inherent difficulty of the problem. Typical for any new area of interest, much of what has been done describes the attitudes, reactions, or views of persons on a particular campus about some aspect of collective bargaining or presents a statistical comparison of wage or other differences based on a "matched" set of seemingly comparable campuses. The authors of such studies invariably warn against hasty generalizations from their results but the research hypotheses underlying these studies often are not without discomfiting ambiguity. Over time the knowledge to be gained by well-thought-out behavioral models should complement the insights produced by rich and detailed case studies. While there will always be greater heterogeneity in higher education, especially in collective bargaining, it should prove possible to distinguish whether the presence of collective bargaining and its effects on campuses are largely random events or the systematic result from, and cause of, regular recognizable arrangements.

Union Growth

Changes in the rate and pattern of union growth among faculty members and institutions are not well understood. A variety of explanatory variables can be assembled but our real interest is in knowing the relative importance of each of these variables.

First, on growth: Faculty representation in unions reportedly grew from a little over 5,000 at 23 institutions in 1966 to 36,000 in 1969 and to

84,000 at 285 institutions by 1972 (Garbarino 1975). Progress slowed in the later 1970s, and the movement toward wider unionization reached a virtual standstill in the early 1980s. Several factors seem to account for this, including the impact of the *Yeshiva* decision in the private sector and the reluctance of additional states to pass legislation permitting faculty to bargain in public institutions. The economic conditions of the later 1970s and the early 1980s should have encouraged unionization, one might have thought; the fact the growth slowed is something of a puzzle.

Nor do we have a good understanding as to why it is that the penetration of unionism in higher education has varied so considerably by type of institution. By the early 1980s about a quarter of all full-time faculty members and about one-fifth of all institutions of higher education were organized.¹ However, unionism is much more evident in two-year as contrasted to four-year institutions. About three-eighths of all full-time faculty members at an equal proportion of two-year colleges are unionized; this contrasts with one-fifth of full-time faculty members at one-eighth of the four-year institutions. If we separated universities from four-year institutions, we would no doubt find the smallest proportions of membership and/or organized institutions in the university sector. Why this marked difference by institutional type?

The geographical distribution of unionism also varies, reflecting among other things the mix of institutions (two-year vs. four-year), favorable legislation, and no doubt the strength of the labor movement in different geographic regions. How strong is the spillover from strong local unionism?

Faculty Compensation

The necessity to develop clear and unambiguous hypotheses on the effects of collective bargaining has been recognized more often in analyses of wage determination than any other aspect of collective bargaining. Thus, although there is wide interest in whether collective bargaining raises faculty salaries (and fringe benefits), the empirical question which can be most satisfactorily answered is whether collective bargaining raises salaries (and fringe benefits) for covered faculty *relative* to that paid to similarly situated noncovered faculty.² The most extensive and sophisticated study is that by Freeman (1978) whose results indicate

¹ Based on information from the AAUP.

² See Lewis (1983), p. 1, for an analysis of the kinds of questions that can be answered empirically. The fact that we admit that we can answer only some questions empirically in no way lessens the frustrations of those who are interested in other (more?) important questions, such as whether bargaining has produced fair salaries or brought academic salaries into line with those of nonacademics.

that faculties which organized in the later 1960s and early 1970s fared better than those which organized later. The former group may enjoy salaries as much as 6-8 percent higher than unorganized faculty, who in turn may be as well off as faculties which organized in the mid-to-late 1970s. Freeman's results are intriguing because he pictures the economic effect of the process of collective bargaining as increasing during the early years of faculty organization, peaking in the early 1970s and, thereafter, tapering off. Of course, his picture would have to be sharply revised if the apparent "peak" were a statistical artifact, reflecting the peculiar stop-go wage-price controls of the early 1970s, or simply mirroring the economy-wide slowing of real salary gains in the 1970s.

The swings reported by researchers in the parameter estimates of the effect of collective bargaining on relative wages, when combined with conflicting cross-section estimates and disappearing levels of statistical significance as cost of living and other variables are added to the models, leave many readers uncomfortable and puzzled (see Hu and Leslie 1982). It is possible that some of the discrepancies in the reported estimates of the economic consequences of collective bargaining arise from ignoring the possibility that the unionization of campuses may be an endogenous variable. If we were to treat collective bargaining as an exogenous variable in a reduced form single equation model, the parameter estimate of the effect of bargaining on wages (or any other dependent variable) would be biased if faculty and campuses which selected collective bargaining were different from those which either rejected it or had no means to choose it. And since few studies have used the unionism variable as an interaction term with other independent variables, we can only wonder whether the wage effects of collective bargaining differ by type and size of institution.³

Any analysis of the wage effect over time must also consider whether the nature of the faculty's bargaining objectives remained the same throughout the period. Most if not all analyses assume implicitly that a set of unchanged goals is being pursued; this flies in the face of evidence that faculty members at some institutions have voted to change bargaining agents. Moreover, the statistical use of a "dummy" variable to capture all the economic and political differences between private and public institutions seems likely to obscure the underlying forces at work shaping compensation levels.

Nor do we know much about the relative weight that faculties gave to wages compared to other elements of compensation, such as fringe

³ Since unionism is but one variable in wage determination, it is important to start with a well-specified model of the academic labor market, as illustrated by Hansen et al. (1980).

benefits, research support, workloads, and other employment conditions. It would be useful, for example, to know whether collective bargaining has led to a change in the composition of compensation. There is substantial evidence that fringe benefits constitute an increasing share of compensation for all Americans, and that collective bargaining has increased fringes much faster than wages for most public employees. The reasons for the shift toward fringes are not fully understood, although the fact that some benefits are not taxed, e.g., health insurance, may be one explanatory factor. Another is that much of the increase has been mandated, as in the case of social security. But if the shift toward fringes is for the benefit of employees, it would seem that employees with an organized voice would be better able to obtain an appropriately tailored package than employees whose opinions cannot be heard as clearly.

Tradeoffs Between Compensation and Governance

A frequent objective of faculty unionization has been to obtain a greater voice in institutional affairs. This is not to say that economic benefits are not important but rather that faculty unions may seek to maximize some combination of compensation levels and their role in managing the institution. The relative weights given to those two competing objectives will necessarily vary as conditions change. For example, in recent years when state budgets have been tight, faculties, whether unionized or not, have sought an increased role in governance. Thus, both institutions and faculty members must decide on the mix of objectives they wish to pursue and in the process consider the tradeoffs between these objectives.

The fact that there are tradeoffs between compensation and governance, as we hinted earlier, means that studies confining themselves to analyzing the determinants of compensation levels will produce biased results; most likely they will overstate the effects of the independent variables used to predict salary levels. The only way to deal with this problem is to attempt to construct some measures of the degree to which faculty members are involved in governance. Given that governance has several different dimensions, it will be necessary to identify these dimensions and assign weights to each of them so they can be aggregated into a single overall index. Lest we be depressed by the difficulty of this task, we should recall that compensation is comprised of many different elements, most of which can be reduced, but not always easily, to some dollar figure. While governance is not so easily reducible, it should be possible to devise some qualitative measures of any changes that may have occurred. This is no easy task but we must make a stab at it.

The Process

There are numerous other important aspects to collective bargaining beyond its effect on faculty compensation. The history of the three major competing organizations, AFT, NEA, and AAUP, is different and those differences may be associated with the faculties' choice of a representative. It might be expected that NEA chapters would appear unusually frequently at those public universities that at one time were predominantly teachers' colleges. Which organizations will appeal to the yet unorganized faculty is a question made no less interesting by the observation that the AFT has become active in organizing nurses and hospital workers as well as public employees in general; the NEA is embroiled in an argument, long settled at virtually all universities and most four-year colleges, about whether to (a) determine merit and (b) reward it; and the AAUP continues to have difficulty reconciling collective bargaining with its traditional concerns. Until we know why faculties chose their representatives, we can't know how these organizational developments will alter the collective bargaining scene.

It is a common observation that, with one exception, the faculties at none of the major research universities have voted to unionize and, according to some, the incidence of unionization is inversely related to the prestige of the institution. An alternative perspective is that the geographic scope of labor markets differs among institutions such that some professors work in a local or even campus-specific market while others face a national market. Thus, it is inevitable that unions with a local emphasis will have more success organizing in local rather than national (read research) markets. If this perspective is reasonable, it suggests that the research universities are unlikely to be organized until the structure and focus of unionization takes on a national character.

The movement toward collective bargaining in the public sector seems to have been accompanied by a movement toward more political activity by faculties in the states' budget-making process. Faculties, whether unionized or not, are trying to influence state legislatures to increase the appropriations to higher education. Their efforts have generally coincided with that of the administration and Boards of Regents who, traditionally, have spoken and lobbied on behalf of their universities. It is clearly too soon to decide how effective faculty efforts have been, but it seems reasonable to expect that organized faculties (though not necessarily unionized faculties) will speak with a louder political voice than those which are not.

Speculating about the structure of faculty unions necessarily leads to questions about the relation between nonfaculty unions, such as those of secretaries, grounds employees, and long-term laboratory and research

assistants, and the teaching faculty. Although each of these groups (crafts?) is organized on some campus, we know of no campus where all the employees are represented by a single union. Should we expect this to occur?

No less important is knowing more about both the structure and effectiveness of faculty complaint or grievance procedures. In the past it has been easy to voice individual complaints and, often, secure satisfaction because department chairs and deans had many degrees of freedom and, by tradition, faculty members had much autonomy. But increasingly the development of new institutional policies has reduced those degrees of freedom and made it more difficult to accommodate faculty. As a consequence, institutions have written new legislation to formalize the complaint system, thereby developing a full-blown grievance procedure. Although faculty collective bargaining usually results in an agreed-upon grievance procedure, grievance procedures exist on many campuses where there is no bargaining.

It is not obvious how to measure the effectiveness of grievance procedures. Nor do we know whether the rate at which grievances are filed has increased, the topics which may be grieved has expanded, or the number and kind of grievances filed have changed.

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DISCUSSION

WILLIAM DALE CRIST

California State College, Stanislaus

Scholarly papers presenting research on collective bargaining in higher education always seem to understate defensible conclusions. Such may be the nature of the beast. Papers delivered at this session of the 1983 IRRA meeting have followed suit by failing to articulate several useful conclusions that seem to be supported by the extensive research conducted by the authors.

Evidence presented by Ponak and Thompson and by Lawler and Walker support the analytically important conclusion that the traditions and practices of decision-making vary so widely from campus to campus that reliable generalities regarding the impact of collective bargaining on shared academic governance and university decision-making cannot be made. In fact, the nature of most decision-making within the academic community is such that the personalities and attitudes of the administration,¹ union representatives,² and faculty leaders³ involved in the process will determine the nature and extent of any impact collective bargaining is to have on the overall decision-making process. We could go so far as to admit that the "regular recognizable arrangements" referred to by Hansen and Kasper do not exist with enough regularity to be called reliably recognizable.

A second conclusion important to further research and deserving explicit recognition is that collegial participation and adversarial participation of all parties to the higher education decision-making process, with or without collective bargaining, cannot be analyzed as independent variables. Ponak and Thompson begin by noting that the lack of specification of "traditional systems of governance" makes analysis of the impact of collective bargaining difficult, and then conclude that the bargaining-governance relationship seems to be more of a dual track

Author's address: Professor of Economics, California State College, Stanislaus, Turlock, CA 95380.

¹ Especially deans, academic vice presidents, presidents, personnel management people, and boards of trustees (or the like) where they exert an influence.

² Especially elected "local" union officers and professional staff.

³ Especially academic senate chairs, standing committee chairs, and department heads.

relationship than a competitive relationship. The Ponak/Thompson contribution to our body of knowledge is considerable with their clear demonstration of higher education faculty interest in using collective bargaining to counterbalance perceived administrative dominance (dual track model) rather than to replace all other faculty governance mechanisms (competitive model). However, they fall short of the mark by not hazarding a conclusion that even the dual track model does not fit because collegial type decision-making is so pervasive in the line organization of a university that it defies specification as a discrete system. It is becoming apparent that it is impossible to establish totally separate jurisdictions within most higher education decision-making frameworks and, therefore, not only does the competitive model fail, but any simplistic dual track model relying upon a definitive separation of bargaining and nonbargaining decisions also fails.

Evidence presented by Lawler and Walker regarding faculty voting intentions during a representation election campaign appears to support an unstated conclusion that the final-choice preference for an exclusive bargaining representative relies heavily on precampaign prejudice against radical movement away from existing decision-making mechanisms. The shift of no-agent sentiment to support of the union most strongly postured in favor of maintaining as much of the decision-making status quo as possible indicates a strong preconceived general notion that collective bargaining can be compatible with perceived "traditional" decision-making, even when the structure of that decision-making process is not specified. Lawler and Walker are hereby encouraged to expand their study by relating their quantitative analysis to the actual campaign materials used in an attempt to determine whether or not the faculty wanted to replace the existing decision-making process, establish a clearly defined dual track process, or put in place some vague combination of bargaining and nonbargaining decision-making where methods are allowed to adjust to circumstances and personalities involved. We may discover what many already suspect—that most higher education faculty, both when they are considering a vote in a representation election and when they are already engaged in the collective bargaining process, wish to preserve their collegial cake and have their bargaining power too. Such being the case, we should expect them to behave accordingly.

Ponak and Thompson have made a second contribution to future research by calling our attention to the likelihood that "preoccupation with the impact of collective bargaining on one area of academic governance may have led us astray." Their research led them to the important observation that at all campuses considered, the focus of faculty concern was on how decisions were made within the line of

authority from the departmental decision-making level through decisions made by administrators in direct response to college operational needs. What academic senates are or are not doing in those policy areas that overlap with what the bargaining agent is doing appears to generate little concern. This observation should instruct us all that in attempting to understand how the collective bargaining process works for faculty in higher education, our research should begin with an assumption that decision-making within the university always involves a complex mixture of formal and informal consultation all along the line of authority from the academic department through the institution's president.

One final comment regarding unstated conclusions: Both Lawler/Walker and Ponak/Thompson support the conclusion that higher education management would be well advised to generate the perception, by deed and by rhetoric, that the faculty's ability to determine policy is almost as great as the administration's. Such a perception will almost certainly work to promote a more effective combination of the collegial and the adversarial decision-making processes where collective bargaining exists, and will probably stop faculty from adopting collective bargaining for the wrong reasons.

As to the stated conclusions of the research reported here, all of the Ponak/Thompson conclusions are well supported by their research and analysis. Their recognition of the cause-effect dilemma regarding strong centralized university management and the existence of "full" collective bargaining is well stated. The evidence does seem to support their conclusion that highly centralized authority is more a cause of bargaining than an effect. Likewise well supported by their research is the final conclusion that shifts in power caused by the advent and development of bargaining in higher education may be between the exclusive representative and the central administration or between the central administration and the traditional university governance bodies (whatever they are), depending on the issues. What they have not stated in this regard is that the shifts in power are more likely to be between each of the parties to a complex university decision-making process, whatever the issues.

Conclusions stated by Lawler and Walker are supported by their research and analysis. However, the significance of their conclusion that voting intentions are so stable over time that "heavy investment in efforts intended to influence the opinions of election unit members is apt to yield minimal returns" relies entirely on an assumption that the competing unions in a contested jurisdictional election expend about the same amount of money and volunteer time in the effort. Such was the case in the election they have studied. Were one competing union able to expend considerably more money and volunteer time than the other, their

conclusion might not be sustained. Another study is required to enhance (or diminish) the significance of their second conclusion.

There is a slight contradiction in the reporting of research results by Lawler and Walker. On the one hand they stated that "the data clearly suggest that the CFA victory was attributable largely to its having won over such a substantial share of the undecided and no-agent supporters." On the other hand they state that "what changes did occur in voting intentions and attitude toward bargaining are found to be only marginally influenced, at best, by campaign tactics and strategies." The evidence that "getting out the vote" is of paramount importance seems incontrovertible. The question that remains unanswered and thereby leaves the apparent contradiction is, was it a CFA strategy in the runoff election to get out the vote of those persons identified as no-agent voters in the initial election? If the answer to this question is yes, then voting intentions were more than moderately influenced by a campaign strategy.

Hansen and Kasper raise several questions, but arrive at no conclusions through research and analysis. They do make two observations useful for future research. First, they indicate that because of the increased scale of many university operations, the considerable uncertainty regarding future enrollments, and the general hard times in higher education, administrators have become more explicit and apparently "hard-line" in their determination and application of policy. These changes have, in turn, increased faculty concern regarding the faculty's role in the institutional governance. Given that this turn of events has taken place, does it follow that faculty are now more likely to give up salary increases to achieve greater decision-making influence on other matters? Such appears doubtful, but the prospect certainly provides grist for further study. The second, and related, observation is that we must be careful not to consider the determinants of compensation without simultaneously considering the determinants of other policies and practices (such as faculty role in governance). Similar cautions to those who study the determination of wages have been provided by others who study the same phenomenon since such study commenced. Little change in technique has been noted.

One statement found in the Hansen/Kasper paper requires reply. Existing literature and common knowledge of practitioners in the field contradict their suggestion that we do not have a good understanding of the reasons why certain types of higher education institutions are more organized for collective bargaining purposes than others. Further study of how well the collective bargaining process works in various different higher education institutions and why it works as it does is, of course, suggested.

DISCUSSION

LUBBE LEVIN

University of California, Systemwide Administration

The research results presented today provide thoughtful analyses of factors influencing a faculty vote in representation elections, faculty perceptions of influence in relation to support for collective bargaining, and questions for future study about the long-term impact of collective bargaining on faculty economic and other interests.

It may be accidental that the discussants today are all from California, but it must be acknowledged that in many respects the notions expressed in current research on faculty bargaining are in fact being tested here in California. It is too early to predict whether the California experience will confirm and reflect the history of faculty bargaining elsewhere in the United States and Canada, or whether the unique elements of the California law and of its higher education institutions will create a new set of dynamics.

Events in California to date suggest that a number of assumptions which seem to be held in common by the speakers today should be identified and perhaps put into question. The first and most evident assumption is the shared view that what we mean when we refer to “faculty” does not need to be defined. While the term often means tenure-track teaching personnel only, it sometimes refers to a broader range of academic professionals. Differences related to full-time or part-time appointment, or between tenure-track and nonregularized status, can have a definitive impact on support for or perceptions of the advantages of collective bargaining. For example, under the California Higher Education Employer-Employee Relations Act, the faculty bargaining unit for the University of California is limited specifically to members of the Academic Senate, while for the California State University system the faculty bargaining unit includes a much broader component of the academic professional staff. More significant than this question of unit composition is the fact that how an institution defines “member of the faculty” often holds the key to who may participate in academic governance and joint faculty/administration decision-making. In judging

Author's address: Assistant Vice President—Academic and Staff Employee Relations, University of California, Systemwide Administration, Berkeley, CA 94720.

campaign effects on voting results, or in determining whether the dual-track model of joint governance and faculty bargaining can survive, the commonality or divergence of interests held by members of the faculty unit can lead to dramatically different results. The nature of the bargaining process itself may vary in relation to the degree of influence in governance which a particular faculty group perceives to have achieved prior to bargaining. The regular rank faculty may in fact serve as a model of strong participation in decision-making to which not all academic professionals can aspire.

The second assumption which can be recognized in the research presented is the lack of differentiation between diverse kinds of unions. A grass-roots faculty organization internal to an institution may demonstrate a significantly different set of goals, image, and motivation than large labor unions with nationwide memberships. The degree of affiliation with such large nationwide unions by a local organization may even be viewed by some faculty members as a negative factor where the faculty association has strong roots in maintaining an educational institution's history and identity. A good example of where the traditional interests of some large unions and those of internal faculty associations have diverged is peer review and access to confidential documents. Ironically, the same example also highlights an area where faculty and administration interests appear to coincide more closely. The point here is that certain unions may be more likely to intrude into traditionally academic concerns than others, thereby affecting the viability of the dual-track model.

Thirdly, an assumption which has been made but which cannot be overlooked, at least as far as California higher education is concerned, is the political environment and context within which faculty bargaining occurs. Whether true or not, faculty unions may perceive themselves to be in a competitive posture with unions representing nonacademic employees, especially when public resources are scarce. The central theme in the faculty elections held several years ago at the Berkeley, Los Angeles, and Santa Cruz campuses of the University of California was the need to lobby for better salaries with the legislature, not the need to counter-balance perceived administrative authority. Additionally, research has shown that in times of economic stress, collective bargaining is not necessarily viewed as a panacea. This element is particularly applicable as concerns related to employment security and the threat of retrenchment settled into the fabric of higher education during the 1970s. An interesting area of study which has not yet been pursued is the impact of bargaining by nonacademic employees on faculty interests and on faculty members' perceptions of collective bargaining in times of economic stress.

These three elements—the composition of the faculty unit, the nature

of the faculty union, the economic and political climate for bargaining—may go far in determining whether the dual-track model or the competitive model prevails. These may also be significant factors in determining whether collective bargaining should be viewed as an effective response to faculty members' long-term interests and those of the institutions they serve.

DISCUSSION

DAVID E. FELLER

University of California, Berkeley

I have a great deal of skepticism as to the utility of the kind of statistical analysis represented by two of these papers, and proposed by the third, in discussing collective bargaining in higher education. That may, perhaps, stem from my lack of understanding of its technical aspects. But I remain convinced that there are some things which cannot be reduced to numbers, added together, and then applied in a meaningful way to other institutions. There are such differences in institutional arrangements and terminology between universities that such analysis is often either meaningless or, in the worst case, false. My specific comments on the three papers may have to be discounted for this prejudice.

I.

The Lawler-Walker paper gives no figures as to the actual votes in the December 1981 election. Comparison of that vote with the voting intentions shown in their November 1981 survey would, at the very least, serve to support the reliability of their survey.

I question the statement that UPC was the "underdog" in the campaign. It was not. The UPC was the predominant faculty organization in the CSU system for years. Indeed, the coalition which became known as CFA was only formed in 1974 as a result of the perception that, unless such a coalition were created, UPC, which had a much larger membership than all of the organizations forming the coalition combined, would become the collective bargaining representative. And UPC did get more votes than CFA in the initial election in December 1981. CFA became the collective bargaining representative because in the run-off more of the No-Agent voters switched to CFA than to UPC.

The statement that the CSU central administration took a strong position against bargaining should not be confused with an assertion that it waged an active campaign. Unlike the University of California (where No-Agent won by a narrow margin at Berkeley and UCLA as a result of a

Author's address: John H. Boalt Professor of Law, University of California, Berkeley, School of Law, Boalt Hall, Berkeley, CA 94720.

campaign by the administration), it is my understanding that the CSU administration did not wage an active No-Agent campaign.

Finally, statistical analysis showing that campaign activities have little or no effect on the outcome of an election must, in the nature of things, be overstated if not flatly wrong. *Last minute* campaign activities may have little effect. But clearly someone had to say something to the CSU faculty members to persuade them to prefer a newly created organization over the organization that had been the predominant voice of the CSU faculty. Similar comment applies to any inference drawn from the Getman, Goldberg, and Herman study. That study spoke only to campaigning in the 30 or so days before an election. A conclusion that all employer campaign activities have little or no effect on an election outcome is belied by the fact that unions win the vast majority, if not all, of the elections in which the employer does not make any campaign for a No-Agent vote.

The Lawler-Walker paper, since it covers a five-year span, does purport to show that campaign activities—at least those of unions competing against each other—have little effect on voter preferences. There are serious doubts as to the validity of that conclusion. First, the sample is skewed. Almost 40 percent of the unit at CSU consisted of nontenure track faculty with a high rate of turnover. They were the objectives of much campaign activity and are necessarily largely unrepresented in a survey of identified individuals who were members of the unit in both 1976 and 1981. Second, if the conclusions that campaign activities in that period had little effect is valid, then it must be true that campaign activities between 1974 and 1976 and between 1980 and December 1981 had a very substantial effect. CFA did not exist until 1974 and, at that time, UPC had over 6,000 members. Something important must have happened in that time interval. Then, in the election in December 1981 approximately 11 percent of those who the Lawler-Walker paper indicates intended to vote No-Agent must have switched, with most of them voting for UPC. (The actual votes were CFA 41.8 percent, UPC 42.1 percent, and No-Agent 16.1 percent.)

II.

The Thompson-Ponak paper does not list the eight exemplars of decisions it categorizes as neither clearly academic nor economic that it used to rate the influence of faculty associations, senates, departments, faculties, etc. I found five listed as “e.g.”s: teaching evaluation, department head selection, procedures for faculty appointments and tenure, allocation of office and research space, and travel grants. I would regard

all of them as within the sphere of academic governance. Certainly they are so regarded in the University of California.

They are clearly correct in the conclusion that on most of these "overlap" decisions traditional academic governance bodies such as departments and faculties have a greater influence than senates, strictly defined. But I had always assumed (perhaps colored by the fact that at the University of California faculties and departments exercise their academic governance functions as bodies subordinate to the Academic Senate) that in the discussion of the competitive versus dual-track models, faculties, departments, and similar lower level faculty bodies were subsumed under the "senate."

Aside from these quibbles, the conclusion of the Thompson-Ponak paper seems to me to be correct. The assumption that there was a serious possibility that faculty unions would compete with the existing bodies for influence on matters of academic governance always seemed to me to be analytically foolish. It is nice to have yet another demonstration of that conclusion.

The critical fact, it has always seemed to me, is whether there is an identity of the constituency to which the collective bargaining representative is responsible and the constituencies to which the senate and the intermediate bodies, such as faculties and departments, are responsible. If there is an identity of constituencies, there seems little reason to believe that a collective bargaining representative would attempt to compete with the traditional academic governance institutions. The wider the discrepancy between the constituencies, the more likely it is that those who have no voice in academic decision-making would seek to use the collective bargaining representative as a tool to gain such influence.

This principle is illustrated by the enormous difference between the collective bargaining agreement negotiated by the Santa Cruz Faculty Association and the University of California covering that campus and the agreement negotiated by CFA covering the CSU system. At the University the Academic Senate is a membership body which operates through divisions at each of the nine campuses. All tenure-track faculty and, with insignificant exceptions, *only* tenure-track faculty are members of the Senate and its divisions. The statute authorizing collective bargaining in state institutions of higher education permits either campus units of faculty or a statewide unit (with different scopes of bargaining) at the University. It also mandates that any collective bargaining unit which includes Senate members cannot also include any non-Senate members.

It is otherwise at the State University system. There the Senate is a representative body, the unit is statewide, and it includes part-time

lecturers, librarians, coaches and a host of other nontenure-track faculty. The CSU agreement deals with a great many of the matters designated as “overlap” areas in the Thompson-Ponak paper. The Santa Cruz agreement deals with no academic governance matters or “overlap” areas, however defined. Any generalization about the relative influence of senate and faculty unions on academic governance issues which lumps these two together would have absolutely no significance. Thus, I do not question the results of the Thompson-Ponak survey of Canadian universities, which I believe a priori are sound, but they cannot safely be applied to American universities without further definition of the institutional arrangements and the terminology used.

III.

The definitional problems in the Thompson-Ponak paper reach almost absurd proportions in the Hansen-Kasper paper. What do we mean by “collective bargaining”? The authors seem to have in mind an adversarial relationship in which, as in industrial collective bargaining, the objective is to get from the owners of the institution, as represented by the management, more of the economic returns available from the sale of the product. This clearly is not true at the institutions at which collective bargaining has shown the greatest increase in recent years: public institutions. At most of them, the essential determinant of compensation levels is made by the state legislature which appropriates the money. The bargaining with the university administration is not bargaining about the gross amount which will be available for compensation. The bargaining—if one can call it that—is about the proper tactics to use in influencing the legislature and the governor. That kind of consultation takes place, certainly in the University of California, whether or not there is formal collective bargaining.

One could, of course, still attempt to measure the effect the certification of a bargaining representative has on the legislative process. But the definitional problem remains. Let me illustrate. Some years ago in California, before there was a statute which provided for collective bargaining in higher education, the California State Employees Association, which represents state civil service employees, decided that one of the benefits that its members needed was a short-term disability payment to cover employees cut from the payroll because sick or disabled for reasons other than those compensated for by workers’ compensation. An equivalent amount was then appropriated to the University of California for its employees, including faculty. (Of course, to faculty that benefit was no benefit at all. When we get sick for short periods we aren’t cut from the payroll, but our colleagues assume our tasks without additional

compensation. But we got this nonbenefit.) Similarly two years ago the CSEA had difficulty with the dental program which it operated for its members. It therefore decided that the appropriate benefit to seek in legislation was a state-paid-for dental program. It succeeded in getting it, with the result that the faculty of the University got a dental program. How would one classify these benefits in determining the economic impact of *faculty* collective bargaining?

As president of the Council of University of California Faculty Associations, I have strongly urged the faculty to vote for collective bargaining. We were successful at Santa Cruz. Assuming that we were successful at all of the campuses, we certainly would not envisage a controversy with "management" about the size of the gross compensation package. Rather, we would hope to become more effective representatives of faculty in the negotiations which take place with the governor and the legislature, together with the University administration. We would expect, of course, to have a voice in the manner in which the gross compensation package was distributed. But, again, this would not be an adversarial relationship. Rather, it would be the conversion of what is essentially a paternalistic one in which the administration attempts to allocate the compensation package in the way it believes is best for the faculty to a system under which the faculty, through its own organization, can represent what it believes to be in its own best interest. Is this "collective bargaining"?

And how can one possibly construct an index of the degree to which faculty members are involved in governance? It is no answer to say that compensation is comprised of many different elements, most of which can be reduced to some dollar figure. But governance involves a host of both formal and informal elements, many of which do not appear in any organizational chart. And the effectiveness of what appears on a chart as "consultation" is very difficult to measure statistically. In any event, assuming that one could somehow construct an index of the effectiveness of faculty governance, how could one translate it into numbers commensurate with dollars so as to measure it against the compensation package? I suggest that the preoccupation which social scientists today, and particularly economists, have with quantification leads them to attempt to aggregate the unaggregateable.

This leads me to the suggestion that there are tradeoffs between compensation and governance. This seems to me a totally unwarranted assumption with no evidence whatsoever to back it up. I would suppose, rather, that if faculty unions seek to increase their role in governance, or (more likely) seek to strengthen inadequate academic governance machineries, they do so because they find that existing governance institutions

are unsatisfactory. The notion that somehow they trade off a role in academic governance for economic benefits, or vice versa, seems to me to be one which requires demonstration rather than mere assertion.

Finally, I am intrigued by a suggestion at the end of the paper that there is some difference between "organized" faculties and "unionized" faculties. Perhaps the authors would characterize the faculty associations at the University of California, if they obtained majority status, as "organized" faculties rather than "unionized" faculties because we do not regard our role vis-à-vis the administration as an adversarial one. If so, the statistical analysis which the authors propose involves yet another definitional problem.

I firmly believe that collective bargaining's effects on higher education will be positive. But I very much doubt that one can measure those effects in the manner proposed.

XVI. IRRA ANNUAL REPORT

IRRA EXECUTIVE BOARD SPRING MEETING March 16, 1983, Honolulu

The meeting was called to order by President Jack Stieber at 3:15 p.m. In attendance were President Stieber, President-Elect Wayne Horvitz, Secretary-Treasurer David R. Zimmerman, Editor Barbara D. Dennis, and Board members James H. Jordan, Karen S. Koziara, Solomon B. Levine, and Daniel J. B. Mitchell. Also in attendance were: Jack Barbash, 1983 Research Volume editor; Hervey Juris, 1985 Research Volume; Joyce Najita, 1983 Spring Meeting Local Arrangements Chairperson; Susan Holland, San Francisco Chapter representative for December 1983 Annual Meeting; and Marion Leifer, IRRA Executive Assistant.

The minutes of the New York 1982 Annual Meeting and the Milwaukee 1982 Spring Meeting were approved.

Secretary-Treasurer Zimmerman gave the membership and financial reports. He outlined plans for membership promotional efforts aimed at three groups: local chapter members who are not national IRRA members, students in the various industrial relations programs, and alumni of the larger IR schools. This campaign is to continue through most of 1984 and will be tied in with the mailing of the 1984 *IRRA Membership Directory* questionnaires and inclusion of new members in the 1984 *Directory*. Zimmerman said the present fund balance is about \$12,000, with hopes that by June 30 this might increase to \$18,000. He observed that such a reserve would be beneficial as the *Directory* is a costly publication, although methods of economizing are being explored.

Zimmerman elaborated on the annual report, distributed to the Board, from the Association's auditors, Smith and Gesteland. In regard to the Association's finances, he said they are now under the control of one IRRA staff person, who has a good knowledge of recording and reporting; computerization of quarterly reports will require discipline in account keeping; steps are being taken to "tighten up" collections of accounts receivable; and documentation for expenses vouchers will be standardized. In regard to the auditors' comments on the Newsletter, Zimmerman

said there is need for a "replenishment fund" for the Newsletter operations costs, and that individual costs will be documented in a form stipulated by the Treasurer.

A discussion of the Newsletter's future editors followed Zimmerman's announcement that one of the present editors, Michael Borus, was moving to Rutgers from Ohio State in late summer 1983. He explained that the Newsletter had been published by the IRRA's Madison office until 1979 when it was moved to Ohio State, partly as a response to the Lester Report. He noted that the Newsletter had been somewhat expanded and paper quality upgraded and also that the costs of the publication had risen. Zimmerman said that Borus had expressed general interest in continuing to edit the Newsletter at Rutgers, based on preliminary discussions with Rutgers. Zimmerman said that the IRRA Association staff had continued to prepare much of the Newsletter copy and is capable of again publishing it. He pointed out that the September Newsletters include all the ASSA forms and information for the Annual Meeting and require careful coordination, even by experienced people. It was decided by consensus that the Newsletters in September and November would be done by the National IRRA Office and that a discussion of its value, previously rising costs, and future publication location would be held at the December 1983 Annual Board Meeting. Board members not present were to be polled by telephone for their vote on this move. (Results of Poll: Agreed that September and November Newsletters be published by the National IRRA Office.)

Jack Barbash reported on the 1983 research volume, *The Work Ethic—A Critical Analysis*. He said this is the first time that the IRRA will take a popular concept, like the work ethic, and subject it to analytical treatment. He reported the publication might be delayed, but a panel discussion on the volume at the December meeting should stimulate interest.

A discussion of the 1985 research volume was led by Hervey Juris. Questions centered on: Can IRRA do the volume, find authors, meet deadlines? Should it center around regions rather than countries? It was agreed to poll the absent Board members for approval of Hervey Juris and Mark Thompson as editors, with the option of having one or two additional editors, and to request the Board to give opinions on Juris's written proposal by early May, so topics and authors could be assigned in June. (Results of Poll: Approval of Juris and Thompson as editors, with option to appoint two more editors.)

Marion Leifer reported on plans for the *Directory*. She said that questionnaires are being developed that are similar to those previously used; they will be sent initially with the 1984 dues notices in late August

and will have an October 15, 1983 deadline. Members not responding will be sent a duplicate questionnaire. Leifer hopes to have the *Directory* published in early fall 1984.

Editor Barbara Dennis gave the editor's report and stated that the Labor Law Journal will print the Spring 1983 Proceedings as usual in their August issue. She asked and received permission to get ISBN numbers for IRRA books.

Joyce Najita, chairperson of the 1983 Spring Meeting, welcomed the board to Honolulu and said 270 people had registered.

President Stieber raised the subject of the role of the Association's membership meeting. He proposed that an amendment to the IRRA Constitution in this regard be prepared for the December Annual Meeting.

Susan Holland was introduced as the representative of the San Francisco Chapter. She expressed the chapter's desire to work with the Association and their hope that many members would come to San Francisco.

President Stieber presented the 1984 Nominating Committee members for the Board's approval. As there was no quorum present, this will be part of the telephone poll. Proposed Nominating Committee members are: Chairperson: Bernard Anderson, Jeanne M. Bargmann, Sara Behman, Robert J. Flanagan, Sanford M. Jacoby, Raymond E. Miles, and Sander W. Wirpel. (Results of Poll: Approval of 1984 Nominating Committee.)

Zimmerman announced the two new members of the 1983 Program Committee, as appointed by Wayne Horvitz. They are Herbert G. Heneman III and Phillip E. Ray. He said that the Annual Meeting program is in the final planning stage and will include Clark Kerr as the Distinguished Speaker.

Dan Mitchell turned over materials from COSA and COPFSAS, two organizations involved in lobbying on behalf of social science research. Zimmerman will prepare the materials for circulation to the Board and the subject will be on the December meeting agenda.

The meeting adjourned at 4:30 p.m.

IRRA EXECUTIVE BOARD ANNUAL MEETING December 28, 1983, San Francisco

President Jack Stieber called the meeting to order at 7:45 p.m. In attendance were President Stieber, Past President Milton Derber, President-Elect Wayne Horvitz, Secretary-Treasurer David R. Zimmerman,

Editor Barbara D. Dennis, and Board members Mario F. Bognanno, Lydia H. Fischer, Karen S. Koziara, Edward B. Krinsky, Solomon B. Levine, Daniel J.B. Mitchell, Michael H. Moskow, and Mark E. Thompson. New Board members present were President-Elect Everett M. Kassalow, Lois S. Gray, Joyce M. Najita, Sidney W. Salsburg, and Lucretia Dewey Tanner. Others attending were Michael E. Borus, IRRA Newsletter editor; W. Kenneth Evans, Local Arrangements chairperson for the 1984 Spring Meeting in Cleveland; Maggie Jacobsen and Walter Slater, San Francisco Chapter Local Arrangements committee representatives; Jack Barbash, 1983 research volume editor; Bernard E. Anderson, Nominating Committee chairperson; and Marion Leifer, IRRA Executive Assistant. Absent were Board members Wilbur Daniels, Martin Ellenberg, John Gentry, and Kenneth Moffett, and new Board member Edgar Czarnecki.

The minutes of the Honolulu Spring Meeting were approved.

President Stieber explained that the agenda would be changed, for the convenience of some members present, and then called on Bernard Anderson to present the report of the Nominating Committee. Anderson announced the tentative slate of candidates for the next election of Executive Board members and the committee's recommendation that the slate be headed by Lloyd Ulman, as President-Elect. The Board approved Ulman's nomination and instructed the IRRA National Office to determine whether the recommended candidates for Board positions were willing to serve.

As a highlight of the Secretary-Treasurer's report, David Zimmerman announced that with the addition of 800 new members, the Association should have more than 5000 members in 1984. The increase reflects in part that 1984 is a Directory year, but also is a result of the ambitious 1983 promotion effort, conducted primarily through the local chapters and IR Centers. Due to the additional income from dues of new members, the Association's revenue has exceeded projections, and Zimmerman predicted a surplus of \$20,000–\$30,000, using an accrual basis of accounting. The Directory will cost approximately \$20,000, substantially below the cost of the previous Directory because of increased "in house" work and a lower bid from the printer. Zimmerman was optimistic that the membership will hold and that unpaid membership dues would be forthcoming. Consequently, he recommended, no dues increase at this time, but suggested that the matter be on the agenda for review at the Spring Meeting in Cleveland. The Association's cash position is very good, with most of the money invested in short-term paper. In response to a question, Zimmerman noted that the lower printing costs are due to the Work Ethic volume being shorter than anticipated, lower estimates from the printer, and more efficient use of office staffing time.

Secretary-Treasurer Zimmerman also reviewed the IRRA office salary policy and recommended increases for the administrative staff, which were approved by the Board. It was moved by Mark Thompson and seconded by Wayne Horvitz that the secretary-treasurer and editor honorariums be raised to \$4500. The Board approved the increases. It was suggested that in the future the president, the president-elect, and the immediate past president discuss the recommendation for the amount of the honorariums before the annual Board meeting.

The report of the Elections Committee was received: Everett M. Kassalow, President-Elect, and Edgar R. Czarnecki, Lois Spier Gray, Joyce M. Najita, Sidney W. Salsburg, and Lucretia Dewey Tanner, new Board members.

With regard to the 1983 Spring Meeting in Honolulu, Joyce Najita and David Zimmerman reported a good attendance by mainland members, an excellent turnout by Hawaii chapter members, and many compliments on the program, the local arrangements, and the link to the IIRA 6th World Congress in Kyoto. However, when national office expenses were included, the meeting generated a net loss.

Jack Barbash, reporting on the IIRA 6th World Congress and industrial relations seminar and tours in Japan, stated that arrangements for both the Tokyo seminar and tours, as well as the Congress itself, were well organized, the plant visits were quite valuable, and the Congress program in Kyoto was interesting in content. Those attending were widely representative of industrial relations scholars and practitioners from around the world. The next Congress will be in 1986 in Hamburg, West Germany, with Friedrich Fürstenberg, new IIRA president, presiding. Mark Thompson commented that he thought the tours were valuable as "ice breakers" and hoped that similar tours would be arranged in Germany. He also said that he hoped that papers on the program would not be limited to those requested. Barbash concluded his report with a summary of the deliberations of the IIRA Executive Committee.

Zimmerman presented an application for IRRA affiliation from Hoyt Wheeler for the South Atlantic chapter, based in South Carolina but also drawing members from North Carolina and part of northeastern Georgia. The chapter's constitution and bylaws are consistent with national IRRA requirements and the proposed chapter has a slate of officers. The chapter members are optimistic that they will generate interest among both management and labor representatives.

Kenneth Evans, Local Arrangements and Program chairperson, presented the tentative program for the 1984 IRRA Spring Meeting in Cleveland. The program, planned by Evans and Wayne Horvitz, promises to be an excellent one, and IRRA members were urged to attend.

President-Elect Horvitz, reporting on the deliberations of the Program Committee for the 1984 Annual Meeting in Dallas, stated that the committee agreed to use the same format as in previous years. With regard to contributed papers, a new method for reviewing them will be instituted, in response to a number of complaints in previous years. With the new deadline of April 2 for submission, there will be more time to arrange papers in topic categories and for two readers to review each of them. Authors whose papers are not accepted will have no "feed-back" this year unless a reader voluntarily offers comments, in which case they will be relayed to the author. A more formal feed-back procedure might be considered in future years. President-Elect Kassalow will be in charge of contributed paper and dissertation submissions. Horvitz listed suggested program topics. Mark Thompson suggested that there be more non-U.S. participation on the program, and Jack Barbash suggested that more effort be made to relate current events to previous developments in the field.

Invitations to host the 1985 Spring Meeting were received from the Chicago, Detroit, and Western New York chapters. Several points were made in favor of Detroit: 1985 will be the 30th anniversary of the chapter, it is one of the strongest local chapters with more than 540 members, and it has issued several invitations to the national organization. After some discussion of whether the IRRA should consider planning more than one year in advance, the Board approved a motion to hold the 1985 Spring Meeting in Detroit. The secretary was urged to encourage local chapters to host the Spring Meeting.

Barbara Dennis presented the Editor's report. Discussion of the IRRA's response to a request to microfilm the proceedings was deferred until the Spring Meeting, as was discussion of a topic for the 1985 research volume. Dennis said that questions had been raised concerning whether the IRRA should continue printing the discussions in the Proceedings. Other organizations, in general, do not print them. It was decided to continue to publish the discussions, given the unique composition of the IRRA membership. The Board also decided to continue the current limits on the length of session papers.

Jack Barbash reported that the Work Ethic volume, an academic analytical review of a current issue, has been distributed.

Marion Leifer announced that the Directory will go to press in late June for fall distribution. The copy deadline is March 1. Most of the format from the 1979 Directory will be continued, but a discussion of whether or not to retain all of the summary material in the back will be on the agenda for the Spring Meeting.

Reporting on the 1985 research volume, Mark Thompson said that the

tentative title was "Response of Industrial Relations to Economic Change" and that the editors, in addition to himself, are Hervey Juris and Wilbur Daniels. He listed the proposed chapters and authors. During the discussion, Board members offered suggestions for the editors' consideration. Thompson noted that the editors are going to seek possible funding for the volume.

Michael Borus presented a proposal for editing and printing the IRRA Newsletter at Rutgers University, where he is now located. Some of the advantages and disadvantages of publishing the Newsletter outside the national office were noted. The Board agreed that Borus had done a good job as editor in previous years and approved a motion to accept his proposal for a three-year period.

President Stieber brought to the Board's attention a letter from Charles Rehmus, a past chairperson of the Nominating Committee, suggesting that the Board address several issues pertaining to the committee's procedures. Discussion was deferred to the Spring Meeting, and it was suggested that Horvitz appoint a committee to review the letter and present recommendations to the Board at that time.

A resolution concerning the government's policy on gathering and disseminating statistics, passed by the IR Center directors, was presented to the Board by Paul Weinstein. Weinstein explained that the Bureau of Labor Statistics is looking for a response from user groups and that the IRRA would be remiss if it did not express its position. The resolution reads: "Resolved: That the IRRA establish a statistics committee whose purpose shall be to: (A) Monitor the development in statistical policy by those public and private bodies that produce, analyze and disseminate information; and (B) Disseminate information on statistical topics that are of interest to the professional and research concerns of the IRRA membership." The Board approved a motion to publish the resolution in the February Newsletter along with a statement explaining the proposal and the appointment of a committee, as the resolution proposed. The Board would take further action on the resolution at the Spring Meeting.

The meeting adjourned at 11:45 p.m.

IRRA GENERAL MEMBERSHIP MEETING December 29, 1983, San Francisco

Wayne L. Horvitz assumed the presidency of the IRRA and called the meeting to order at 5 p.m. He noted that actions of the Executive Board at its meeting on December 28 should be of great interest to the members.

Secretary-Treasurer David R. Zimmerman reported that the Association has 800 new members and, for the first time in the history of the organization, has a membership of over 5000. Part of the increase was a result of the intensive promotion effort in 1983 that concentrated on local IRRA chapters and IR Centers. Because of the increased revenue from the added memberships, a surplus of \$20,000–\$30,000 is anticipated. Zimmerman also reported that the IRRA Directory, to be published in 1984, will cost less than the 1979 Directory due to reduced production and publication expense. He recommended no increase in dues at this time and that this decision be reviewed by the Executive Board at the Spring Meeting.

Zimmerman also announced the election results: Everett M. Kassalow, President-Elect; and Edgar Czarnecki, Lois Spier Gray, Joyce M. Najita, Sidney W. Salsburg, and Lucretia Dewey Tanner, new Executive Board members.

Editor Barbara D. Dennis reported that the IRRA had received positive reactions to both 1983 volumes. She also noted that the Executive Board had decided to continue printing discussants' comments in the Proceedings. She reminded members that 1984 is the Directory year and urged them to turn in their questionnaires by March 1 for complete Directory listings. She reported that the tentative title of the 1985 research volume is "Response of Industrial Relations to Economic Change" and that a list of chapters and authors had been presented to the Executive Board by the editors, Hervey Juris, Mark Thompson, and Wilbur Daniels. A topic for the 1986 research volume will be considered at the Spring Meeting.

Zimmerman reported other Board actions. The application of the South Atlantic chapter, based in Columbia, S.C., was approved. It will cover areas of South and North Carolina and the northeastern tip of Georgia. Application approval is conditional on approval of the Atlanta chapter. The 1984 Spring Meeting will be May 2-4 at the Bond Court Hotel in Cleveland. W. Kenneth Evans is local chairperson. The next annual meeting will be December 28-30, 1984, in Dallas. The Board accepted the invitation of the Detroit chapter for the 1985 Spring Meeting; the Detroit chapter will be celebrating its 30th anniversary that year. The 1985 Annual Meeting will be in New York because it is the 100th anniversary of the American Economic Association. The 1986 Annual Meeting will be in New Orleans, and the 1987 Meeting will be in either Boston or Chicago.

Another Board action was the reappointment of Michael Borus as editor of the IRRA Newsletter, which will be published at Rutgers University.

In conclusion, Zimmerman announced that the following resolution was presented to the Executive Board by the IR Center Directors: "Resolved: That the IRRA establish a committee whose purpose shall be to: (A) Monitor the development in statistical policy by those public and private bodies that produce, analyze and disseminate information; and (B) Disseminate information on statistical topics that are of interest to the professional and research concerns of the IRRA membership." The Board will solicit members' opinions through the February Newsletter and will reconsider the resolution at the Spring Meeting.

President Horvitz reported on the Dallas program. No final decision was made on specific topics, but the program probably will follow the format of the San Francisco program. He said that there was concern about the handling of the contributed papers; the task of reviewing them is difficult due to the large number submitted and the few available readers. He plans to have more readers and to have each paper reviewed more than once. More sessions and more joint sessions may be scheduled.

Nominating Committee Chairperson Bernard Anderson announced that Lloyd Ulman is the nominee for President-Elect. Other nominees for the Executive Board will be announced in the May Newsletter.

A member suggested that one session be devoted to collective bargaining, the unions, and the role of the Association. During the subsequent discussion, another member suggested that the proposed topic be combined with others relating to the role of labor unions. Several members asked what criteria were used in the selection of topics, papers, and presenters; others questioned how the number of sessions and the number of published papers were determined. One member felt that the programs were very narrow in scope and expressed concern about the vitality of the organization.

Zimmerman responded that each year the Program Committee sets the criteria; he added that the logistics of running meetings as large as the Annual Meeting make it difficult to add more sessions. He suggested that perhaps there might be more continuity on the Program Committee and that the committee might not only plan the program but also recommend broadly defined topics to the Executive Board in order to achieve more diversity.

Another member advocated more emphasis on controversial subjects and felt it was regressive to use only contributed papers rather than to bring in speakers who are working on relevant issues. Past President Jack Stieber responded that members of the Program Committee are always drawn from various segments of the Association membership and that, after meeting for a few hours, pick twice as many subjects as could be used. The suggested topics are then published in the Newsletter and every

member is invited to indicate whether he or she is doing work in those or related areas and to suggest other ideas. He also noted that a form letter is the only way the President can respond to persons who submit a program proposal that is not accepted, given the number of suggestions and papers submitted. President Horvitz said he will take under advisement the recommendation for expanding the program, adding that he supported the subcommittee suggestion for providing more continuity in planning.

In response to another question, it was explained that the Spring Meeting program is determined by the President and the host area program committee in consultation with the Secretary-Treasurer and the IRRA national office. There are both financial and time constraints on Spring Meeting programs, as fewer members attend these meetings. Another member felt that the beginning of May was a bad time for the Spring Meeting, but it was pointed out that the choice of dates for these meetings was necessarily an arbitrary decision that depended on the availability of facilities and the convenience of the hosts.

A motion to adjourn was approved.

FINANCIAL STATEMENTS
Year Ended December 31, 1983

I have examined the balance sheet of the Industrial Relations Research Association as of December 31, 1983, the related statements of income, changes in fund balance and changes in financial position for the year then ended. My examination was made in accordance with generally accepted auditing standards and, accordingly, included such tests of the accounting records and such other auditing procedures as I considered necessary in the circumstances.

In my opinion, the statements referred to above present fairly the financial position of the Industrial Relations Research Association at December 31, 1983, and the results of their operations and changes in their financial position for the year then ended, in conformity with generally accepted accounting principles consistently applied.

Carol A. Stotler, CPA

INDUSTRIAL RELATIONS RESEARCH ASSOCIATION
Madison, Wisconsin
BALANCE SHEET
December 31, 1983

ASSETS		
Current assets		
Petty cash		\$ 50
Cash—checking		5,897
Cash—MMDIA		50,634
Certificates of deposit		55,000
Accounts receivable	\$ 2,958	
—Allowance for doubtful accounts	<u>273</u>	
Net of allowance for doubtful accounts		2,685
Accrued interest receivable		152
Prepaid expenses		355
Inventory		<u>13,911</u>
Total current assets		\$128,684
Property, plant and equipment		
Equipment	\$ 788	
Accumulated depreciation	<u>79</u>	
Net property, plant and equipment		<u>709</u>
Total Assets		<u>\$129,393</u>
LIABILITIES AND FUND BALANCE		
Current liabilities		
Accounts payable		\$ 13,945
Ford Foundation grant unexpended balance		308
Dues collected in advance		<u>75,983</u>
Total liabilities		\$ 90,236
Unrestricted fund balance		<u>39,157</u>
Total Liabilities and Fund Balance		<u>\$129,393</u>

(The accompanying notes are an integral part of the statements.)

 INDUSTRIAL RELATIONS RESEARCH ASSOCIATION
 Madison, Wisconsin

 INCOME STATEMENT
 For the Year Ended December 31, 1983

Income	
Income from operations	
Membership dues	\$116,389
Subscriptions	19,641
Chapter fees	4,399
Book sales, net of refunds	8,018
Royalties	520
Newsletter advertising	1,498
Mailing list rental	5,103
Meetings	5,405
ASSA refunds	3,503
Miscellaneous income	<u>2,248</u>
Total operating income	<u>\$166,724</u>
Expenses	
Compensation	
Salaries	\$ 42,577
Pension	1,187
Payroll taxes	3,013
Contract services	2,723
Officer honorariums	<u>9,000</u>
Total compensation expense	<u>\$ 58,500</u>
Publications	
Proceedings	\$ 30,750
Spring proceedings	6,045
Research volumes	20,620
Newsletter	<u>6,477</u>
Total publication expense	<u>\$ 63,892</u>
Meetings	
Meals	\$ 5,919
Officer/Staff travel expense	4,616
Miscellaneous	<u>781</u>
Total meetings expense	<u>\$ 11,316</u>
Officer and general expenses	
Membership promotions	\$ 4,196
Computer and label costs	773
Office supplies	2,756
Postage and freight	2,925
Telephone	1,399
Accounting and auditing	2,346
Bank charges	13
Insurance	233
Depreciation	<u>79</u>
Total office and general expense	<u>\$ 14,720</u>
Total expenses	<u>\$148,428</u>
Net operating income	<u>\$ 18,296</u>
Other income	
Interest	<u>6,294</u>
Net income	<u>\$ 24,590</u>

(The accompanying notes are an integral part of the statements.)

INDUSTRIAL RELATIONS RESEARCH ASSOCIATION
Madison, Wisconsin

STATEMENT OF CHANGES IN FUND BALANCE
For the Year Ended December 31, 1983

Unrestricted fund balance, January 1, 1983 before restatement	\$ 28,384
Prior period adjustment	<u>(13,817)</u>
Unrestricted fund balance, January 1, 1983 after restatement	\$ 14,567
Net income	<u>24,590</u>
Unrestricted fund balance, December 31, 1983	<u>\$ 39,157</u>

(The accompanying notes are an integral part of the statements.)

INDUSTRIAL RELATIONS RESEARCH ASSOCIATION
Madison, Wisconsin

STATEMENT OF CHANGES IN FINANCIAL POSITION
For the Year Ended December 31, 1983

Sources of Funds:	
Net income	\$ 24,590
Item not affecting cash and short term investments depreciation	79
Decrease in accounts receivable	2,738
Decrease in inventory	3,097
Increase in accounts payable	6,312
Increase in dues paid in advance	<u>36,722</u>
Total funds provided	<u>\$ 73,588</u>
Uses of Funds:	
Purchase of equipment	\$ 788
Increase in prepaid expenses	355
Decrease in Ford Foundation grant	2,535
Prior period adjustment	<u>13,817</u>
Total uses of funds	<u>\$ 17,495</u>
Increase in cash and short term investments	56,093
Cash and short term investments	
Beginning of period	<u>55,488</u>
End of period	<u>\$111,581</u>

(The accompanying notes are an integral part of the statements.)

*INDUSTRIAL RELATIONS RESEARCH ASSOCIATION
Madison, Wisconsin*

NOTES TO FINANCIAL STATEMENTS

NOTE 1—SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

This summary of significant accounting policies of the Industrial Relations Research Association is presented to assist in understanding the Association's financial statements.

Organization

The Association is a not-for-profit organization. Its purpose is to provide publications and services to its members in the professional field of industrial relations.

The Association is exempt from income tax under Section 501(c)(3) of the Internal Revenue Code. However, net income from the sale of membership mailing lists is unrelated business income and is taxable as such.

Investments

Cash-MMDIA represents the balance invested in a money market account held at Randall Bank, Madison, Wisconsin. Interest earned on the account has averaged 8% per annum during 1983.

The Association owns two certificates of deposit which are stated at cost. These certificates are:

<i>Amount</i>	<i>Purchased</i>	<i>Interest Rate</i>	<i>Maturity</i>
\$30,000	7/25/83	9.62	1/23/84
\$25,000	10/14/83	9.00	4/13/84

Inventory

The Association's inventory of research volumes, proceedings and prior newsletters is carried at the lower of cost or market value.

Property, Plant and Equipment

Property, plant and equipment are carried at cost. Depreciation is provided using the straight line method over an estimated five year useful life.

Membership Dues

Membership dues are assessed on a calendar year basis and are recognized on an accrual basis. Dues received for the upcoming 1984 calendar year are reflected as deferred income on the balance sheet.

2—RETIREMENT PLAN

The Association had a retirement annuity contract covering the former executive assistant. The amount of funding is treated as additional compensation to the former executive assistant.

3—RESTRICTED GRANT FUNDS

During 1981, a \$5000 grant was received from the Ford Foundation. These funds were to be available over a two-year period beginning August 1, 1981, for support of meeting and clerical time in preparation of a research volume on the work ethic. As of December 31, 1983, \$308 of the grant funds had not been expended. An extension has been obtained from the Ford Foundation approving disbursement of the grant monies beyond the two-year period.

4—PRIOR PERIOD ADJUSTMENT

The Association's fund balance has been restated to reflect the payment of expenses in 1983 attributable to the prior period. Such expenses had not been established as accounts payable as of December 31, 1982.

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INDUSTRIAL RELATIONS RESEARCH ASSOCIATION
7226 Social Science Building, University of Wisconsin
Madison, Wisconsin 53706 U.S.A.