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The Impact of Collective Wage Agreements in China: A Firm-Level Study

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Abstract

This paper examines the impact of collective wage agreements in China. We use firm-specific data to estimate the effect of collective wage contracts on average wages and benefits of workers and on the performance of firms. This is the first empirical study that uses firm survey data to examine this issue. We find that collective wage agreements significantly increased the average wages of blue-collar workers without significantly affecting the average wage of administrative employees. Other determinants of wages affect the two groups in a similar fashion. We also find weak evidence that collective wage agreements may increase firm performance.

Introduction

Collective consultation has been endorsed in recent years by the Chinese government as a system to regulate the relationship between employers and employees. The introduction of this system is in response to the growing divergence of interests among employers, employees, and the state, expressed by the dramatic increase in the number of formally registered individual and collective labor disputes (the number of registered labor disputes increased from 48,121 in 1996 to 692,942 in 2008 and in the growth of spontaneous strikes and mass social protests. Collective consultation is also aimed at reducing income inequality and protecting the rights of the workers. The term “collective consultation” rather than “collective bargaining” is used in legal documents, perhaps to downplay the conflicts between employees and employers. In practice, however, collective consultation and collective bargaining are sometimes loosely used interchangeably.

The implementation of collective consultation and the contract system was first endorsed in 1996 jointly by four government bodies, including the All-China Federation of Trade Unions (ACFTU; Clarke et al. 2004). In 2001, a new trade union law was passed, and a national system of tripartite consultation was introduced. The campaign gained a further boost in 2010 when the ACFTU issued more official documents calling for the establishment of the collective consultation system in all firms. By September 2010, 2.4 million firms had signed collective contracts, and 1.1 million firms had signed special collective wage contracts. According to the documents issued by the ACFTU, the goal is to have 80% of unionized firms establish a collective consultation system by 2013 (see <http://acftu.people.com.cn/GB/67560/14188332.html> [in Chinese]).

Most research on labor relations in China so far has focused on analyzing the properties of the new system under development in the country. Some survey studies on the early introduction of the system have shown that the practice of collective contracts is one of formalism. The contracts signed often closely follow the model contracts provided by the Party state (Warner and Ng 1999; Li 2000). According to more recent observations, the new framework of collective consultation has centered on the legal and contractual

regulation of labor relations, a system for the tripartite resolution of labor disputes (Clarke et al. 2004). Clarke et al. (2004) described the collective consultation process after interviews with workers and officials, and a series of case studies of 12 enterprises in a few cities. They concluded that “the role of collective consultation in the Chinese enterprise is not to negotiate the terms and conditions of employment between the employer and employees, but at best to monitor the enforcement of labor law and the implementation of labor regulations” (251). Some researchers have argued that the collective contract system in China is far from the establishment of a system of collective bargaining (even with “Chinese characteristics”; Zhu and Warner 2000; Taylor et al. 2003), but it has been developed as a means of attempting to secure “harmonious labor relations.”

Clarke et al. (2004) have also observed that wage contracts are usually conducted separately from the collective contract, although some agreement on wages, usually specifying only the minimum wage to be paid in the enterprise, may be appended to it. The role of the trade union is primarily to communicate the response of employees to management proposals and to convince employees of the justice of management’s final decision. Wage increases seem to have responded to the labor market pressures (particularly in Beijing and Dalian) and labor bureau guidelines. They found no evidence to support the suggestion that the decentralization of wage determination had led to any significant wage bargaining, though “wage consultation” might have been an effective way for the authorities to moderate wage increases (Ng and Warner 2000:106). Some also have observed forced settlement by state officials in the process of mediating labor conflicts (Chen 2010).

A large body of the empirical literature has examined the impact of union and collective bargaining on wages outside of China (Hirsch 2004; Blanchflower and Bryson 2004; Freeman and Medoff 1984). The consensus is that unions do raise wages for workers, and the question is by how much. In the United States, it has been shown that the union wage premium experienced a rise in the 1970s and a decline in the 1990s, ranging between 13% and 30% (Blanchflower and Bryson 2004). Most of these studies use individual-level data to estimate the union wage gap between union workers and non-union workers. Studies of this nature have been rare in China due to the lack of micro-level data. It is important to examine whether the collective consultation system is providing the workers any wage premium.

The existing studies of China’s current collective consultation system seem to have reached the consensus that it does not show a clear bargaining process between labor and management. The unions lack a “monopoly” face without the legal weapon of strike. It is not clear, however, whether, despite its formality, the current system can give the workers any wage premium, with the “collective voice” face of the union. Ge (2007) is the only known empirical analysis of union effect on wages at the firm level. He found that the average wage level in unionized enterprises is significantly higher than that in non-unionized firms, controlling for other firm characteristics and for industrial and regional effects. His study was based on data from the First National Economic Census in 2004. While it includes information about workplace unions, it does not provide any information on collective consultation. Since unions in China do not traditionally bargain with management over wages for workers, unionization alone does not automatically imply the presence of collective agreements. To evaluate the effectiveness or wage impact of the collective consultation system, it is imperative to have information about the presence of collective bargaining at the firm level, especially information about collective wage agreements.

The purpose of this paper is not to focus on the detailed properties of the current collective consultation system in China but to evaluate the result of the current system using some unique data resources. We empirically evaluate the impact of collective wage agreements on wages, workers’ benefits, and firm performance. The special feature of our data set is that it contains firm-level information about collective wage agreement not seen in previous studies. We examine the impact of collective wage agreements on average wages of two groups of employees—blue-collar workers and administrative employees. We find the following results: (1) Collective wage agreements significantly increase blue-collar workers’ average wage without significant impact on the wages of white-collar workers, (2) collective wage agreements significantly reduce the difference between the wages of the two groups, (3) collective agreements also increase the benefits of workers but not as much as it did of the wages, and (4) collective agreements significantly increase sales of the firms.

This is the first study that has used firm-level data that include information about collective wage agreements. The rest of the paper is organized as follows: Section 2 describes the data resources; Section 3 specifies the analytical model; Section 4 reports the results; and Section 5 concludes the paper.

Description of the Data

The data used in this study derive mainly from two resources. The first is the China Enterprises Development Quality and Sustainability Survey (CEDQSS, conducted in 2006 jointly by the State Development and Reform Commission, State Bureau of Statistics, and the International Finance Company). A sample of 1,257 firms responded to a questionnaire consisting of nine sections about different management issues, including one section of 54 questions on labor management. This is the first known survey that contains information both about unionization and collective bargaining. The relevant questions are whether the firm is unionized, whether the firm allows collective bargaining on wages, and whether collective wage agreements have been signed. The average wages are given for two groups of the employees—blue-collar workers and other employees (including white-collar employees and middle- and higher-level managers). In the rest of the text, we use “workers” to refer to the first group of employees.

Our second main data source is the China Industrial Enterprises Database (CIED), provided by the National Bureau of Statistics of China, which contains large and medium-size enterprises (LMEs) surveyed annually, including all state-owned enterprises and those non-state-owned enterprises with annual sales more than 5 million Yuan. The firm-specific variables include average wages of employees, sales, profits, and other production and accounting information. The purpose of combining this data source with CEDQSS is to make use of its information about the firms in the years between 2004 and 2006 and some other statistics not available in CEDQSS.

The merging of the two data sources resulted in a sample of 786 firms covering 36 industries (according to the two-digit Standard Industrial Classification category). Among these firms, 93 are state or collectively owned (hereafter referred as SOE); others are transitioned from SOE, privately owned, or foreign owned. While 403 of these firms allow collective wage bargaining, only 218 (28%) of them actually did sign collective wage agreements. The average number of employees in these firms is 679. Since the survey did not ask the time when the collective agreement was signed, we assume that the agreement was in effect at the beginning of the year surveyed in 2006. Our choices of independent variables that explain wages will be based on this assumption.

Table 1 summarizes the derived sample of firms according to their status of unionization and collective wage agreements. Those companies that have collective wage agreements but do not have unions are smaller firms with, on average, 164 employees.

TABLE 1
Collective Wage Agreement of the Merged Sample

Collective Wage Bargaining Status		With Union		Without Union	Total	
Allowed	Signed	179		28	207	
	Not signed	125	Subtotal 339	78	Subtotal 192	531
Not Allowed		214		114		
Total		535		229	764	

Note: The total in the table is less than the number of firms in our sample because values are missing for some of the questions.

Table 2 summarizes the descriptive statistics of the variables to be used in our empirical analysis. The salary variables will be logged when they are used as the dependent variables in our regressions.

TABLE 2
Some Descriptive Statistics

Variable Name	Description	N	Mean	Std Dev.	Min.	Max.
Salary (RMB)	Average salary of workers	766	1056.716	514.9366	400	8500
Salary_m (RMB)	Average salary of administrative employees	769	1288.924	664.3234	400	8200
Coll_barg	Dummy for collective wage agreement	738	.295393	.4565286	0	1
Union	Unitization status	762	.7020997	.4576358	0	1
Workers	Number of employees	784	681.1824	2279.894	15	38186
College (% level)	Employees with college or higher education	774	1.505168	.7574377	1 (0–20%)	4 (>60%)
SOE	State/collective ownership	775	.12	.3251714	0	1
K_L	Capital–labor ratio	784	101547.9	147580.1	125	1970919
Sales (RMB)	Sales per person	784	439737.4	597930.8	2647.287	6364000
PGDP (RMB)	Provincial per capita GDP	784	20093.03	9505.574	10594	45993
Unemployment	Provincial unemployment rate	786	3.80458	.8694852	2.1	5.6
Retire (% level)	Employees covered by retirement insurance	724	3.573204	1.623275	1 (0–20%)	5 (80–100%)
Medical (% level)	Employees covered by government medical insurance	663	3.144796	1.803027	1 (0–20%)	5 (80–100%)
Medical_C (% level)	Employees covered by commercial medical insurance	593	1.927487	1.606512	1 (0–20%)	5 (80–100%)
Acci_ins (% level)	Workers covered by injury insurance	686	3.941691	1.545262	1 (0–20%)	5 (80–100%)
Unem_ins (% level)	Workers covered by unemployment insurance	684	3.210526	1.801124	1 (0–20%)	5 (80–100%)
Workyear	Average tenure of workers	757	6.656301	6.380973	0	35

Empirical Specifications

Since our analysis is based on firm-level data, it is important to consider how firm-level variables affect wages. Currie and McConnell (1992) studied the firm-specific determinants of wages using information collected from negotiated contracts. They based their analysis on a simple Nash bargaining model, which suggests that wages should be determined by factors that affect the threat points of the union and the firm. The party that is best able to withstand a breakdown in negotiations will have the advantage during bargaining. Intuitively, the wage increases with the minimum the union is willing to accept, the alternative wage in the labor market, and the maximum the firm is willing to pay, sales per employee. They use the capital–labor ratio and the financial liquidity of the firm to proxy the firm’s threat point. The unemployment rate and the average industry wage are used to proxy the union’s threat point.

There may be caveats to use the method of Currie and McConnell for our analysis. First, their information is from wage contracts negotiated between the firms and workers, but our sample contains firms with collective wage bargaining and those without. We can assume that even without collective bargaining, individual workers enter the firm with their own reservation wages, so the observed firm average wages can be viewed as the aggregate results of the bargaining between the individual workers and the firm. Then the

determinants of collective wage contracts also affect the aggregate results of individual contracts. The role of collective bargaining is perhaps to increase the bargaining power and the threat point of the workers.

Second, we do not have a complete panel data to use the exact method used by Currie and McConnell. Ideally, the wage level as the dependent variable should be observed after the collective bargaining agreement. However, we do not have the dates of the collective agreements available. All we know is whether the firm had signed collective wage agreements by 2006. We can use future wages as the dependent variable to mitigate this problem. However, the CEDQSS of 2006 provides average wages for two groups, and the CIED has only the average wage of all employees. Therefore, we choose to use the wages of 2006 provided in CEDQSS as the dependent variable. When controlling for other determinants of wages, we use firms' accounting variables in 2005 as the independent variables, which can mitigate the problem of simultaneity between the wage dependent variable and the independent variables. We also tested using lagged values as the instruments for some independent variables.

Previous bargaining models have predicted that it is the real wage level and not the change in the nominal wage that the firm and the union care about (Currie and McConnell 1992). We use the following wage model in our empirical analysis:

$$y_i = \alpha + \beta_1 \text{Coll_bar}_i + \beta_2 X_i + \varepsilon_i$$

where y_i is the logarithm of average monthly wage as the dependent variable, reported separately for the blue-collar workers and the administrative employees; Coll_bar_i is a dummy variable that indicates whether the firm has signed collective wage agreements; and X_i represents all control variables including whether the firm is unionized, ownership of the firm, sales per employee, capital-labor ratio, percentage of employees who have obtained college or higher education, industry dummies, regional dummies, regional unemployment rate, and regional GDP.

The determinants expected to increase wages include sales and capital-labor ratio, which are expected to be positively related to the reservation pay of the firm. These variables are divided by the number of employees (in 2005, the latest full financial year before the assumed contract year 2006).

The regional unemployment rate is expected to reduce the workers' threat point and have negative impact on wages. The GDP variable can be the proxy for the alternative wage in the local labor market, expected to increase the workers' reservation wage.

In addition to the impact on average of workers, we will also test the effect of collective wage agreements on the wage difference between the two types of the employees. Unionization and collective bargaining have been shown to affect wage distribution among workers. This is because the union wage premium affects different working groups differently. In the United States, unions have been found to be particularly good at protecting the wages of the most vulnerable workers, which may provide moral and ethical grounds for supporting unions (Blanchflower and Bryson 2004). Studies have shown that falling unionization rates have contributed to the increase in income inequality (Card 2001). In Germany, econometric studies have found a positive impact of work councils on the wage level and a negative effect on the wage differential between skilled and unskilled workers within establishments (Hübler and Meyer 2001; Hübler and Jirjahn 2003).

We also use the same models for wages to estimate the impact of collective bargaining on benefits for workers, including retirement and insurance.

To some degree, our analysis may be subject to the same problem pointed out in Ge (2007) when firm-level data is used to study the impact of unionization and unionization may not be exogenous. The presence of collective wage agreements in the firms may also not be exogenous in the wage equation. If so, the causality might run in the opposite direction so that enterprises with higher wage levels are more likely to allow collective wage bargaining. It is argued, however, that since the State-Party political influence plays an important role in unionization, it is unlikely that enterprises with high wages are targeted by unions. If unions are interested in targeting certain enterprises, those with low wages are likely to be targeted. The same argument applies to the presence of collective wage agreements.

The Empirical Results

Wages for Workers

Table 3 reports the estimates of the wage model with the average wage of the blue-collar workers as the dependent variable. When only the dummy for collective wage agreement is used as the explanatory variable (in column 1), it shows significant positive effect. In all other estimates, we control for industry, ownership, and regional effects.

TABLE 3
Average Wage for Workers (ln_salary)

	(1)	(2)	(3)	(4)	(5)
Coll_barg	0.073** (0.028)	0.081*** (0.024)	0.067*** (0.025)	0.045* (0.026)	0.044* (0.026)
Union			0.055** (0.026)	0.058** (0.026)	0.057** (0.028)
SOE		0.138*** (0.037)	0.122*** (0.038)	0.055 (0.047)	0.145*** (0.041)
Coll_barg_SOE				0.177** (0.072)	
College		0.087*** (0.015)	0.088*** (0.015)	0.089*** (0.015)	0.084*** (0.016)
Sales ('000)		0.00003 (0.00002)	0.00003 (0.00002)	0.00003 (0.00002)	0.0001 (0.00003)
Workers ('000)		0.021*** (0.006)	0.020*** (0.006)	0.020*** (0.006)	0.018*** (0.006)
K_L ('000)		0.0002** (0.00009)	0.0002*** (0.00009)	0.0002*** (0.00009)	0.0001 (0.001)
Unemployment		-0.084*** (0.029)	-0.078*** (0.029)	-0.079*** (0.029)	-0.090*** (0.032)
PGDP('000)		0.007** (0.003)	0.008*** (0.003)	0.008** (0.003)	0.007** (0.003)
Province		Y	Y	Y	Y
Industry		Y	Y	Y	Y
Adjusted R ²	0.01	0.37	0.37	0.37	0.37
N	728	719	704	704	610

Note: Standard errors are in parentheses. Parameters noted by *, **, or *** are significant at the 10%, 5%, or 1% level, respectively. In regression (5), Sales, Workers, and K_L are instrumented with their lagged values. We also estimated the models in this and other tables with robust standard errors, and the significance levels were not changed.

Collective wage agreements have a positive impact on wages for workers. The estimated increase ranges between 4% and 8%. Most of the controlling determinants affect this group's average wage in the same way, as expected according to the Nash bargaining model. Columns 3, 4, and 5 show that unionization significantly increases workers' average wage level. SOE, college education of the employees, number of employees, capital-labor ratio, and the provincial per capita GDP all have positive impacts on workers' average wage. Unemployment has a negative impact, as expected.

Column 4 adds the control for the interaction of a collective wage agreement and SOE, which is shown to have a significant positive impact. This means that collective wage agreements in SOE firms provide workers with higher wage premiums than firms of other ownership types. This could be because the unions in the SOE firms have more political or financial resources to invest in the collective consultation

process. Ge (2007) has shown that unions in the SOE firms enjoy a higher ratio of union funds to wages compared with other firms.

Column 5 contains the same independent variables as in column 3, except that the variables for sales per employee, number of workers in the firm, and capital–labor ratio are instrumented with their one-year lags. The results with the instruments are not significantly different from those without using the instruments except that the impact of the capital–labor ratio is no longer significant.

Wages for Administrative Employees and Managers

Using the same wage models as for the workers, we run regressions with the wage for administrative employees as the dependent variable. The results are shown in Table 4. We found no significant impact of collective wage agreement or union on this group’s average wage level. However, the impacts of other independent variables, such as the number of employees, capital–labor ratio, and regional unemployment rate, are significant and all in the same direction as those for blue-collar workers. This provides strong evidence that collective wage agreements mainly benefit low-income workers rather than all employees. This is consistent with the usual findings in other countries that unionization reduces wage inequality (Card 2001; Hübler and Jirjahn 2003).

The fact that we find different effects of collective agreements on the two groups of employees also provides another support that our analysis is not affected by the endogeneity problem between wages and collective wage agreements.

TABLE 4
Wage of Administrative Employees (\ln_salary_m)

	(1)	(2)	(3)	(4)
Coll_barg	−0.011 (0.035)	0.022 (0.028)	0.014 (0.028)	−0.004 (0.031)
Union			0.032 (0.030)	0.033 (0.033)
SOE		0.054 (0.042)	0.043 (0.043)	0.041 (0.047)
College		0.139*** (0.017)	0.142*** (0.017)	0.135*** (0.019)
Sales (‘000)		0.00003 (0.00003)	0.00003 (0.00003)	0.00009** (0.00004)
Workers (‘000)		0.03*** (0.007)	0.03*** (0.007)	0.03*** (0.007)
K_L(‘000)		0.0004*** (0.0001)	0.0004*** (0.0001)	0.0004** (0.0001)
Unemployment		−0.090*** (0.033)	−0.088*** (0.033)	−0.101*** (0.037)
PGDP (‘000)		0.01*** (0.003)	0.02*** (0.003)	0.01*** (0.003)
Province		Y	Y	Y
Industry		Y	Y	Y
Adjusted R ²	−0.001	0.45	0.45	0.45
N	731	722	707	613

Note: Standard errors are in parentheses. Parameters noted by *, **, or *** are significant at the 10%, 5%, or 1% level, respectively. In regression (4), Sales, Workers, and K_L are instrumented with their lagged values.

Wage Differentials

We estimate the impact of collective consultation on the difference between the wages of the two groups. The results are presented in Table 5. Collective wage bargaining significantly narrows the difference between workers' average wage and administrative employees' average wage by more than 70 Yuan on average. Other independent variables that affect the wage differential include firm ownership (negative impact of state ownership), percentage of highly educated employees (positive impact), capital–labor ratio (positive impact), and regional GDP level (positive impact). It is interesting to note that unionization itself does not reduce wage inequality between the two levels of employees.

TABLE 5
Wage Difference Between Administrators and Workers

	(1)	(2)	(3)	(4)
Coll_barg	-110.096*** (37.654)	-78.541** (35.531)	-74.692** (36.537)	-68.624* (41.650)
Union			-6.657 (38.114)	-2.864 (44.006)
SOE		-106.306* (54.397)	-103.375* (55.707)	-132.851** (63.026)
College		82.918*** (22.370)	85.192*** (22.739)	91.425** (25.419)
Sales ('000)		-0.00294 (0.032)	-0.00572 (0.032)	-0.07 (0.053)
Workers		0.015* (0.009)	0.015* (0.009)	0.013 (0.010)
K_L		0.0004*** (0.0001)	0.0004*** (0.0001)	0.0006*** (0.0002)
Unemployment		-17.040 (42.332)	-18.001 (42.821)	-25.954 (49.662)
PGDP		0.016*** (0.004)	0.016*** (0.004)	0.015*** (0.005)
Province		Y	Y	Y
Industry		Y	Y	Y
Adjusted R ²	0.01	0.23	0.24	0.23
N	725	716	701	607

Note: Standard errors are in parentheses. Parameters noted by *, **, or *** are significant at the 10%, 5%, or 1% level, respectively. In regression (4), Sales, Workers, and K_L are instrumented with their lagged values.

Benefits to Workers

We next estimate how employee benefits are affected by a collective wage agreement, mainly focusing on insurance coverage. Table 6 shows that collective wage agreements increase workers' retirement coverage, government medical insurance, injury insurance, and tenure in the firm. However, the significance levels for these estimates are not as high as in the wage models. In contrast, the impact of the union variable is more significant on the benefit variables. This serves as evidence that the role of the union is more to make sure that workers' basic legal rights are protected, while a collective wage agreement has a stronger impact on raising the wages of workers.

Firm Performance

Previous studies on the impact of unions on firm performance are not clear cut (Freeman and Medoff 1984; Metcalf 2003; Hirsch 2004). While we do not think our data is particularly suitable for examining the impact of collective wage bargaining on firm performance, we will attempt a simple regression analysis. To do this, we use firms' next year's performance variables, the growth rate of profit and the growth rate of sales, as the dependent variables. The results are presented in Table 7. The independent variables in columns 3 and 4 are instrumented. The results indicate that collective wage bargaining did not affect a firm's profit growth rate, but it did increase its sales growth rate. At the same time, we found a negative effect of unionization on sales growth rate, which is consistent with the finding of Ge (2007). It is possible that, with the reduced income inequality brought by collective wage agreements, worker productivity has been increased.

TABLE 6
Benefits for Workers

	Dependent Variables					
	Retire	Medical	Medical_C	Acci_ins	Unem_ins	Work Year
Coll_barg	0.229* (0.126)	0.4397*** (0.149)	0.221 (0.143)	0.225* (0.130)	0.127 (0.142)	1.145** (0.451)
Union	0.897*** (0.132)	0.800*** (0.155)	0.315** (0.149)	0.491*** (0.137)	0.993*** (0.150)	2.600*** (0.469)
SOE	0.772*** (0.189)	0.979*** (0.217)	-0.151 (0.229)	0.513** (0.199)	1.045*** (0.208)	7.225*** (0.691)
College	0.286*** (0.077)	0.3167*** (0.090)	0.343*** (0.088)	0.168** (0.081)	0.292*** (0.087)	-0.227 (0.277)
Sales ('000)	-0.0001 (0.0001)	-0.0002* (0.0001)	-0.000002 (0.0001)	-0.0002 (0.0001)	-0.0002 (0.0001)	-0.0008** (0.0004)
Workers	0.00002 (0.00003)	-0.000009 (0.00004)	0.00008** (0.00003)	-0.00002 (0.00003)	0.00003 (0.00003)	0.0003*** (0.0001)
K_L ('000)	0.001** (0.0004)	0.002*** (0.0005)	-0.0005 (0.0005)	0.0009 (0.0005)	0.002 (0.0005)	-0.0008 (0.002)
Unemployment	-0.454*** (0.111)	-0.879*** (0.177)	-0.768*** (0.167)	-0.677*** (0.152)	-0.816*** (0.167)	0.220 (0.527)
PGDP	-0.00003** (0.00002)	-0.00007*** (0.00002)	-0.00006*** (0.00002)	-0.00004*** (0.00002)	-0.00007*** (0.00002)	0.00003 (0.00005)
Province	Y	Y	Y	Y	Y	Y
Industry	Y	Y	Y	Y	Y	Y
Adjusted R ²	0.27	0.27	0.13	0.16	0.30	0.37
N	670	615	550	639	631	700

Note: Standard errors are in parentheses. Parameters noted by *, **, or *** are significant at the 10%, 5%, or 1% level, respectively.

TABLE 7
Performance of Firms

	(1)	(2)	(3)	(4)
	Profit_g2	Sales_g2	Profit_g2	Sales_g2
Coll_barg	3.131 (2.930)	0.0002** (0.0001)	3.273 (2.934)	0.0003** (0.0001)
Union	-0.187 (3.027)	-0.0002* (0.0001)	-0.248 (3.029)	-0.0002* (0.0001)
SOE ('000)	5994.440 (4486.017)	0.003 (0.181)	5888.704 (4493.512)	0.0001 (0.181)
College	0.246 (1.758)	-0.00003 (0.00006)	0.246 (1.760)	-0.00002 (0.00007)
Sales_F	-0.0006 (0.002)		-0.0006 (0.0007)	
Workers_F ('000)	-0.532 (0.655)	-0.00002 (0.00003)	-0.578 (0.661)	-0.00002 (0.00003)
K_L_F ('000)	2.055 (10.113)	0.0004 (0.330)	5.535 (12.081)	-0.0004 (0.0004)
Province	Y	Y	Y	Y
Industry	Y	Y	Y	Y
Adjusted R ²	0.03	0.02	0.03	0.02
N	678	682	678	682

Note: Standard errors are in parentheses. Parameters noted by *, **, or *** are significant at the 10%, 5%, or 1% level, respectively. Profit_g2, profit growth rate in next year; Sales_g2, the growth rate of sales per person in next year; Sales_F, Workers_F, and K_L_F indicate that these variables are taken from next year's observations.

Conclusion

We use firm-specific data in this study to estimate the effect of collective wage agreements on the average wage level and benefits of workers, and on the performance of firms. This is the first empirical study that uses firm survey data to directly examine the impact of collective wage agreements in China. We find that these agreement significantly increased the average wage of blue-collar workers in the firms, without significantly affecting the average wage of administrative employees. The difference between the two groups' wage averages is reduced by the collective wage agreements. Other determinants of wages do not have different impacts on the wages for the two groups of employees. The collective consultation system seems to play a lesser role in securing other legal benefits for workers such as insurance coverage, which is more important of a role played by the union.

These findings indicate that collective wage agreements have begun to meet one of the expected goals—reducing income equality among the Chinese. It is a possible sign that the collective consultation system in China will converge with the collective bargaining system in line with that of other countries. We also find weak evidence that collective wage agreements can increase firm performance while unionization itself, without collective bargaining, may reduce firm performance.

For future research, it is important to use more complete micro-level contract information in order to examine the impact of collective bargaining in China in more detail.

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