

## **HOW DOES CHINA'S NEW LABOR CONTRACT LAW AFFECT FLOATING WORKERS?**

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### **ABSTRACT**

China's new Labor Contract Law took effect on January 2008 and required firms to give migrant workers written contracts, strengthened labor protections for workers and contained penalties for firms that did not follow the labor code. This paper uses survey data of migrant workers in the Pearl River Delta before and after the law and a retrospective question on when workers received their first labor contract to assess the effects of the law on labor outcomes. The evidence shows that the new law increased the percentage of migrant workers with written contracts, which in turn raised social insurance coverage, reduced the likelihood of wage arrears, and raised the likelihood that the worker had a union at their workplace.

JEL NO: J01, J28, J53, K31

A massive flow of low wage migrant workers from rural areas to urban factories and construction sites fueled China's economic growth. Between 1980 and 2010 some 150-160 million persons without official household permits for urban residence migrated to work in cities.<sup>1</sup> With limited skills and little access to legal protection, many migrants faced “sweatshop conditions” that included wage arrears (in which firms delay wage payments or do not pay them in full), unhealthy work environments, violations of their legal rights at work, poor treatment by employers, and limited provision of the social insurances that Chinese law requires employers give to workers. Informal employment became widespread among both migrant workers and urban workers (Kuruvilla et al., 2011). In response to these conditions, workers increasingly engaged in protests ranging from wildcat strikes to civil disobedience – blocking roads, surrounding work sites in large numbers, and the like – that the government viewed as threatening social stability (Lee, 2007).

To improve the way employers treat workers and to direct workers' grievances to legal channels, the Chinese government passed a new Labor Contract Law on June 29, 2007 to take effect on January 2008. The new law sought “to specify rights and responsibilities of management and labor, protect labor's rights, develop harmonious labor relations” and to tilt the labor-management system toward workers (Chang and Qiu, 2011:43-7). The law generated considerable debate within China and in the international business and labor community as well. Proponents and opponents of the law based their positions either on prior beliefs or ideological preconceptions or on a limited number of cases and interviews (Lee and Liu, 2011).

Did the new contract labor law increase the likelihood that migrant workers would gain an individual contract? If so, did gaining a contract improve the working lives of migrants?

In this paper we use cross-section surveys of migrant workers in 2006, 2008, and 2009 in nine cities of Pearl River Delta in South China – Guangzhou, Shenzhen, Dongguan, Foshan, Huizhou, Zhaoqing, Jiangmen, Zhongshan and Zhuhai, to answer these questions. The surveys asked workers about their current labor situation, including their contractual status. Since the 2006 survey precedes the new law and the 2008 and 2009 surveys follow the law, we analyze implementation of the law by a before-after design. The 2008 and 2009 surveys also asked workers about the first time they received a contract. We use this question to conduct a “retrospective longitudinal analysis” of the contract status of the *same* worker before and after the law. We assess the effects of gaining a contract on the receipt of social insurance, wage arrears, and union status by comparing these outcomes for workers who obtained their first labor contract after the law with workers who lacked contracts before and after the law.

Our principal findings are (1) that the new contract labor law substantially increased the likelihood that migrant workers obtained a written contract; and (2) that workers who gained a contract were more likely to have social insurance and a union at their workplace and less likely to experience wage arrears.

The paper unfolds in the following structure. Section one places the contract labor law into the context of China's movement to a modern labor market and labor relations system and summarizes the debate over the laws' enactment. Section two introduces the Pearl River Delta surveys and presents our estimates of the effect of the law on the likelihood that migrants obtain a written contract. Section three analyzes the effects of the change in coverage on provision of social insurance, wage arrears, and unionization. It decomposes the law's effects into its impact into changes in firm policy, the movement of workers from firms without contracts to those with contracts, and the contract status of new entrants relative to exiting workers during the period when the law took effect. We conclude by situating the experience of the Labor Contract Law in social and economic analysis of changes in the institutions that govern labor practices.

## 1. Why the new labor contract law?

China's shift from a planned economy to a market economy changed the status of labor. When the state ran China's economy, the country did not have an operating labor market. Virtually all firms were state-owned. The government assigned workers to firms, where most stayed for their working lives. A national wage grid based on industry and skill determined wages in state-owned enterprises. Managers had little if any control over hiring or firing or over wages or benefits. The result was the effective absence of firm-based demand for labor. On the worker side, the hukou household registration system which registers people where they initially live limited migration from agricultural areas to cities and reserved urban jobs and amenities to those with urban hukou. Workers in state-owned enterprises had "iron rice bowl" guarantees of permanent job security and wages and benefits ranging from housing to health care. But they paid for this with the loss of the freedom to move among employers. The result was the effective absence of individual-based labor supply behavior.

The movement toward a market economy opened the door for a genuine labor market. The state gave greater decision-making power to management in state-owned firms. As reforms proceeded managers gained increasing freedom to set wage policies and to hire and fire workers at their discretion (Gallagher, 2007). The state allowed new organizational forms to produce goods and services – town and country enterprises, foreign owned firms, and private enterprises – and to determine labor policies according to their business needs. The state allowed individuals to choose where to work instead of allocating them to jobs. Although cities maintained hukou residence privileges for urban workers, they permitted or acquiesced to rural migrants working in urban areas, albeit providing them with minimal public services.

In 1995 the government sought to regularize employment relations in state enterprises and in the growing non-state enterprises with a labor law that regulated labor contracts, minimum standards of work conditions, and modes of resolving disputes between labor and management (Josephs, 2009: 380-84; Zheng, 2009). The law's main aim, however, was to remove inefficiency in state-owned enterprises rather than to protect workers (Liu, 2011; Zheng, 2009). It did not penalize employers sufficiently to induce compliance and thus gave little protection to the "floating population" of migrant workers in factories and construction sites in urban China (Chan, 2001; Lee, 2007).

Without formal labor contracts or union protection, the migrant workers were vulnerable to ill treatment by employers. Firms made money skirting labor laws. Some did not pay wages properly or on time. Most avoided legal obligations for social insurance, for which the law provided no penalties. Some firms had unhealthy workplaces. Some treated workers poorly.<sup>2</sup>

Migrant workers had two ways to seek redress for their workplace problems.

The first way is to use legal procedures, either by petitioning local authorities to assist them or by bringing disputes to the labor dispute arbitration committees responsible for dealing with labor-management problems. Most local governments, however, favor business over migrant workers. The career success of officials depends on their area's rate of economic growth, which makes them sensitive to business concerns. Some officials are corrupt and open to bribes. Increasingly workers have brought disputes to the labor dispute arbitration committees. The numbers that the committees dealt with nationally increased from 47,951 in 1996 to 693,000 in 2008 and purportedly reached 1,280,000 in 2010 (China Daily, 2011). But migrants without a written contract have little chance of succeeding before these committees.

The second way for migrants to seek redress is through direct protest, conducting wildcat strikes or civil disobedience such as by blocking streets. Some workers have gone so far as to commit suicide in protest of bad treatment by their employer. Migrant protests often concentrate around the annual Spring Holiday, when some firms fail to give workers the wage payments that migrants planned to

bring back to their families. The Chinese and international press report strikes and protests in different parts of the country with enough frequency to make it clear the government's concern over social stability is rooted in reality.

To appease the discontent and anger of workers who experienced substandard labor conditions and vented their fury and frustrations in social unrest, in the 2000s various government agencies began considering ways to amend the 1995 labor law. The Research Office of the State Council set up a Project Team to document the extent of the problems of China's Migrant Workers (Li, 2008). In 2005 the government proposed a new labor bill, and the following year a Committee of the National People's Congress reviewed the proposal and called on the public for opinions and comments. This stirred great debate within China and among business and labor groups around the world.

Pro-worker rights forces in China, led by the government-run All China Federation of Trade Unions (ACFTU), favored the new initiative. The ACFTU "participated in over 30 meetings with the Ministry of Labor and Social Security, the Legislative Office of the State Council, and the Legislative and Law Commissions of the NPC... (and) submitted over 100 opinions to the Standing Committee", most of which the ACFTU later claimed were adopted in the new law (Wharton, 2007). Jichen Liu, legal work minister of the union, asserted that long term stable labor relations would stimulate efficient work and improve business.

Labor and human rights groups in the U.S. and other advanced countries endorsed the proposed law. A delegation of union leaders from the US's Change to Win coalition went to China to speak out in favor of the law. In 2006 the Democrats in the Congress wrote to President Bush "protesting efforts of US corporations to undermine basic human rights of Chinese workers" (Oct 31, 2006) and on Dec 8, 2006 proposed legislation calling on the President "to support workers rights in China".

Business groups opposed the law. Ms. Yin Zhang, CEO of Nine Dragons Paper and a member of National Committee of the Chinese People's Political Consultative Conference, spoke against the provisions of the law that favored giving workers open-ended contracts on the grounds that this would bring back the 'iron rice-bowl' of the planned economy. The American Chamber of Commerce in Shanghai, representing over 1,300 firms, the U.S.-China Business Council representing 250 firms, and the European Union Chamber of Commerce in China with over 860 members lobbied against the law (21st Century Economic Report, 2006). The EU and US Chambers of Commerce submitted recommendations and opinion papers on the draft law to the Standing Committee of the National People's Congress, warning that if the law was enacted some companies might move to countries with less strict labor laws. Pressure from European trade unions forced the EU Chamber to drop its public opposition to the law but the American Chamber kept pressing for changes in the proposed legislation. The multinationals feared that while they would comply with the new law domestic competitors would not, putting the multinationals at a competitive disadvantage (Liu, 2010:151-160; Smith et al., 2007).

Academics divided over the merits of the proposed legislation. Steven Cheung of Hong Kong claimed "the new law is a threat to the booming economy and will cause a tremendous rise in unemployment". Prof. Baohua Dong from Shanghai argued that strict restrictions on dismissing employees would prevent businesses from integrating and optimizing human resources. He feared that the new law would add to operating costs and short run layoffs and decrease migrant employment, but he also anticipated that in many cities the law would be of no practical use because local governments would protect businesses who did not implement it (Chinacurrents, 2008). Chen and Funke's (2008) analysis of the inter-linkages between labor market regulation and employment suggested that the Labor Contract Law would have only small direct impacts upon employment but that it would raise unit labor costs and reduce employment indirectly. Prof. Yijiang Wang proposed that medium and small enterprises be exempted from the Labor Contract Law.

On the other side, Prof. Kai Chang of Renmin University argued that improving the labor contract system, formalizing labor relations, and building stable employment relations would protect workers and bring in stable employment relations that would also benefit business. Prof. Liu Cheng of Shanghai Normal University stressed that existing law had many loopholes and that “there were very limited clauses on legal liabilities, which result in low cost of violating laws” (Liu, 2007). Denouncing the American Chamber of Commerce in Shanghai's letter to the National People's Congress against the proposed law, he declared, “Laws with low cost of violation are paper tigers, which encourages the behavior of violations. The real purpose of AmCham Shanghai is to let labor laws be paper tigers forever (Liu, 2007).”

But the most impressive voice during the public consultation period was that of ordinary Chinese citizens, who sent over 190,000 comments to the government regarding the law (Blanchette, 2007; Gallagher and Dong, 2011).

Taking account of the diverse comments and criticism the government modified the initial draft of the law. It weakened the provisions on open-ended contracts that most upset the business community. But the government kept the thrust of the law toward strengthening the interests of workers rather than expanding the law to be “dual” with clauses protecting managerial rights over ordinary workers.

On June 29, 2007, shortly after the Chinese media reported that thousands of workers had been kept in slavery in brick kilns in Shanxi province (Wikipedia, 2007), the Standing Committee of the National People's Congress voted to enact the law and President Hu Jintao signed it: *Order of the President of the People's Republic of China (no 65). The Labor Contract Law of the People's Republic of China, adopted at the 28th Session of the Standing Committee of the 10th National People's Congress of the People's on June 29, 2007, is hereby promulgated and shall come into effect on January 1, 2008. Hu Jintao, President of the People's Republic of China .*

### **The New Law**

The final Labor Contract Law has 98 articles dealing with labor issues (Cornell University ILR School, 2007). The provisions strengthen the protections given workers in the 1995 law and add additional protections. The law reiterates the rights of workers to have unions represent them and the requirement that firms deal with unions at their workplace and for the first time contains explicit penalties for firms that do not comply with the law (Cooney, 2007:673-86; Cooney et al., 2007: 786-801). Most relevant to our analysis the law requires firms to give workers labor contracts in written form “on the date the worker is recruited” or “within one month after the date the Unit starts using the laborer”, with the penalty that a firm which does not do so was obligated to pay severance fees of double wages and had to treat the worker as if the person had an open-end contract with no completion date and terminable only for cause (Cornell University IR commons, chapter 2). To reduce the wage arrears problem, the new law further obligated employers to pay employees on time, in full and in accordance with their contracts and state regulations.

The subsequent Labor Disputes Mediation and Arbitration Law effective in May 1, 2008 gave workers the right to use the arbitration process without charge in disputes or disagreements over wages. If there was no disagreement about the wage amount during arbitration, workers had the right to apply to the local people's court for an order of payment and the people's court had the power to issue the payment order.

With respect to legally mandated social insurance premiums, the new law ordered that violators of the law pay default social insurance payments. Articles 46(1) and 38(3) gave workers who did not receive insurance the right to terminate the contract with the employer. Article 47 raised the level of

severance pay, generally calculated at one month's pay per year of service. The section on enforcement directed government agencies to assure the firm followed its legal obligations of enrollment in the various types of social insurance and payment of social insurance premiums

The article that most upset the business community required firms to give workers open-ended contracts if "the employee has been working for the employer for ten consecutive years, or where a labor contract was concluded as a fixed-term labor contract on two consecutive occasions or if a written contract is not concluded where it should be". Most businesses preferred short term contracts with workers and US style employment-at-will to European style employment protection. While the government changed its initial draft regarding open-ended contracts in response to business objections, the new law still tilted toward employment security as opposed to management control of the job.

In the aftermath of the laws' passage, there was widespread uncertainty about whether firms would follow it to a sufficient degree to impact labor outcomes. Weak enforcement of labor laws is chronic in China. While the law was national, provincial and sub-provincial level officials had the right to implement it according to the local situation as long as their policies were consistent with national regulations. Workers lacked the "muscle" to pressure firms for their legal rights; and the ACFTU unions who could defend worker interests were usually more aligned with the government and firms than with workers (Zheng, 2009:601). Even if local officials sought to enforce laws, they had few inspectors to investigate and pressure firms to comply (Li Jing, 2008:1102). Some analysts believed that only SOEs or multinationals would implement the law (Liu et al., 2010:159; Smith et al., 2007) whereas most other employers would not take it seriously.

But there are reasons to expect this law to be more effective than earlier labor regulations. The national publicity given to the law increased workers' awareness of their rights, which could potentially change the bargaining power between workers and enterprises, and set in place local pressures to implement it. Strong central government support meant that local governments could not ignore the concerns of migrant workers as they had in the past. An entire section of the law dealt with enforcing and overseeing its implementation, identifying responsible groups from the State Council's Labor Administration Department to local governments at the county level.<sup>3</sup> ACFTU advocacy of the law meant that it would commit resources to making the law a success.

Still, as best we can tell, the prevalent view among persons concerned with worker well-being in China was that it would have little impact. In spring 2008 the activist web site China Labor Watch conducted an Internet poll that asked people: Do you believe that Chinese labor laws can protect labor rights? The poll drew nearly 5,000 responses. Just over a third thought the law could protect labor; 18% saying that it could give full protection and 18% saying some protection. On the other side, 39% said it offered no protection at all, and 23% said it would be hard to carry out (China Labor Watch, 2008).

## **2.The surveys and contract status**

The Pearl River Delta surveys that we use offer a unique chance to assess the law's effects.<sup>4</sup> The surveys of migrant workers took place in the nine cities in South China's Pearl River Delta (PRD) area – Guangzhou, Shenzhen Dongguan, Foshan, Huizhou, Zhaoqing, Jiangmen, Zhongshan and Zhuhai – in July 2006, July 2008 and July 2009. Millions of migrant workers from inland provinces come to the PRD to work in plants that manufacture shoes, apparel, toys, and other products for export worldwide. According to the 2009 Migrant Worker Report from National Bureau of Statistics of China there were 33 million migrant workers in the PRD, 22.6% of its estimated national total.

The PRD survey used quota sampling rather than pure random sampling to obtain participants. It

gave a quota to the nine cities according to their share of PRD migrant workers and then segmented respondents in the cities into groups by gender, ownership, education, based on 2005 census data. The survey team found participants through random interceptions on the street near factories, screened the workers to those having full time jobs without an urban Hukou, and with less than university education. To assure that the team implemented the survey similarly at all sites, the same team conducted the surveys following a detailed handbook and training. The survey team paid 10 to 15 yuan to each respondent (about twice their hourly income) and asked migrant workers who had previously worked with the researchers to help other migrants with the survey. As a result most migrants responded to the request to take the survey.

One problem with the quota sample was that it had imposed a maximum of three workers from a single firm, which will lead to under-coverage of workers at larger firms. As firm size is positively related with contract coverage this could bias estimates of the effects of the new law on coverage and on outcomes associated with coverage. But only 2.5% of firms hit the three worker barrier, accounting for 6.8% of all respondents. Since these statistics are an upper bound on the bias at the quota barrier – those in firms who in a random sample would have yielded four or more workers – the magnitudes of bias are likely to be small. Comparing the distribution of migrants by gender, age, education, contract coverage, and monthly income of the 2008 PRD survey data with a workplace-based *random survey* of migrant workers (RUMIC, 2008: <http://idsc.iza.org/?page=86&wid=778>) covering 15 cities, we found similar proportions of migrants by characteristics in the PRD survey as in the random survey, which suggests no major peculiarity in our sample. Whatever its problems, the PRD survey is the most comprehensive and representative survey of migrant workers in the period when the government introduced the new law.

For our analysis, we created a sample of workers with age higher than 16 and lower than 65 and who had minimal missing information problems. We obtained 2613, 2093 and 1721 observations for years 2006, 2008 and 2009 respectively. The 2006 survey is the before data for our study. The 2008 survey provides after data for the period prior to the world economic crisis impacting China. The 2009 survey provides data after the crisis hit China and as the economy was beginning to recover.

Table 1 summarizes key statistics from the surveys. The numbers give each respondent the same weight and thus count respondents from large and small firms equally as if the survey were based on random sample. Weighting respondents by the number of workers reported in their establishment gives similar patterns. The first line in the table relates to the contract status of workers. It shows that the percentage of workers covered by contracts increased from before the law (2006) to after the law by 18 (2008) to 20 percentage points (2009) -- the first indication that the law succeeded in boosting the contractual position of workers.

To probe this interpretation of the change, we pooled the samples and estimated a logistic regression linking the dichotomous variable “have a contract” to dummies for survey year and for factors that might influence the worker receiving a contract, notably age, type of schooling, gender, number of workers at the firm, firm ownership, and city. Changes in these characteristics over time could potentially explain some of the increased contract coverage between 2006 and the later years. Column 1 of table 2 gives the estimated coefficients on explanatory factors from the logistic analysis. The coefficients on the school variables show that more educated workers were more likely to have contracts, presumably because they are more knowledgeable of their legal rights and more adept at pressing for those rights than less educated workers.

The coefficients also show that workers in larger firms are more likely to have contracts than workers in smaller firms. One reason for this is that government inspectors are more likely to focus enforcement efforts on them. Assuming a fixed cost of inspecting and pressuring a firm to comply,



inspectors will gain compliance for more workers per enforcement activity by focusing on larger firms. In addition, some small firms may survive for such short periods that contracts would be irrelevant to them and their workers. The estimates also show that firm ownership affects whether a worker obtains a contract. Chinese domestic private employers are least likely to have contracts relative to the reference group of state-owned enterprises. Foreign-owned firms and those with Hong Kong, Macao, or Taiwan ownership are more likely to have contracts compared to the reference group.

The coefficients for assessing the law are those on the year dummies. They indicate that in the presence of multiple covariates, contract coverage was significantly higher in 2008 and 2009 than in 2006, consistent with the table 1 estimated levels of mean coverage.

We probed the interpretation of increased contract coverage as reflecting the impact of the law further by analyzing a 2008 survey question that asked workers when they received their first written employment contract. Respondents reported getting their first contract monthly from Jan 2006 through July 2008. Figure 1 uses the responses to this question to calculate the number of first contracts given every month and the associated hazard rate of gaining a contract (the ratio of the number of workers obtaining a new contract in a month divided by the number without a contract at the beginning of the month). The frequencies show an abrupt rise in contract density around the Jan 2008 implementation of the Labor Contract Law. The hazard rate shows a rise in the hazard at the end of 2007 that increases in early 2008 and remains high throughout the year. The 2009 survey asked workers the same question and gives a similar pattern (not reported in the figure).

To determine the characteristics of workers who gained a contract after the new law, we estimated a logistic function relating the probability of gaining a contract after the law to measures of worker and firm characteristics. This estimation given in column 2 of table 2 shows that younger workers and those with polytechnic or technical school training are especially likely to have obtained a contract; and that workers in larger firms and foreign owned firms with owners from advanced countries were more likely to gain contracts while workers employed by domestic private employer are less likely to gain contracts.

Finally, we used the retrospective longitudinal information in the 2008 sample to decompose the increase in contract coverage from 2006 to 2008 into three types of changes:

- 1) Changes due to increased coverage for workers employed at the same firm before the law and in 2008. For these workers the increase in coverage represents *changed policies of the same firm*;
- 2) Changes due to workers changing firms from before the law to 2008. For these workers increased contract coverage represents *mobility of workers* among firms toward coverage;
- 3) Changes due to the difference in contract coverage rate between new entrant workers – those who did not hold jobs before the law – and exiting workers – those who held jobs in 2006 but not in 2008. For this group, the change in coverage reflects the *changed pattern of market coverage*.

In addition, we have a group of workers with missing information about when they entered the market. For simplicity, we treat them as new entrant workers.

Table 3 presents the results of these calculations. Two thirds of persons in the 2008 sample reported holding jobs in 2006. Line 1 shows that most of these workers were employed by the same firm after the law as before the law and that these workers had a 14.1 increase in coverage -- the result of changed firm policy. Given the large share of this group in the 2008 survey, this increase accounts for about one-half of the 17.7 percentage point increase in coverage between 2006 and 2008. Line 2 shows that the small proportion of workers who switched jobs from 2006 to 2008 moved from firms where coverage rates were low to firms with higher (but still below average) coverage rates. Given the small share of this group, their increase in coverage accounts for just 5% of the 2006-2008 increase in coverage.

The remaining two lines give coverage rates for new entrants and for persons for whom we are

unable to tell when they first entered the job market. To estimate the effect of the difference in the coverage of new entrants relative to exiting workers on the 2006-2008 increase in coverage we used the data in table 3 to estimate the coverage of persons who worked in 2006 and then exited the market. We did this by decomposing the 2006 coverage rate into the part due to the 2/3rds of persons in 2008 who reported coverage in 2006 and the remaining part due to the 1/3rd who exited. We estimate that the exiting workers had a coverage ratio of 31.6%. The greater coverage among workers who entered after passage compared to the exiting workers accounts for 14% of the increase in coverage. Because the number of workers whose entry into the market is undetermined is so large, under the assumption that they were not working in 2006 they account for 30% of the increased coverage. This is an upper bound.

Overall, the data from the three Pearl River Delta surveys shows that the law raised contract coverage substantially, with half of the impact occurring among workers in the same firm after the law as before, and is thus attributable to changes in firm policy.

### 3. The impacts of contract status on social insurances and other outcomes

China has an extensive system of mandates for social insurance. All firms and workers contribute funds for age insurance (social security retirement), medical insurance, injury insurance, and unemployment insurance, with variations by region and categories of workers. The largest payments are for age and medical insurance, with only small contributions for injury and unemployment insurance. For example, in 2011 Guangzhou enterprises were obligated to pay 12% of the wage bill for age insurance, 8% for medical insurance, and small amounts for injury and unemployment insurance. Workers were obligated to pay 8% for age insurance and 2% for medical insurance but nothing for injury or unemployment insurance. The minimum amount enterprises paid for all four social insurances was 446 yuan (about 70 dollars), which was 34% of the 2011 minimum wage in Guangzhou. The minimum amount paid by workers for all social insurance was 194 yuan (around 30 dollars), which was 15% of the minimum wage of Guangzhou. However, in the absence of clear penalties many enterprises especially small and domestic private firms ignored the law and failed to contribute for their employees.

As noted, the Labor Contract Law explicitly penalized firms that do not buy social insurance for their workers, creating an economic incentive for them to carry out their legal responsibilities (Article 46(1), 38 (3) and 47). To what extent, if at all, did the law induce firms to pay legally required social insurance?

The summary statistics in lines 3-6 of table 1 show the proportion of workers with the four forms of legally required insurance increased between 2006 and 2008, 2009, which suggests that the contract labor law may have induced more firms to provide these insurances.

To determine whether this is the case, we pooled the observations for all three PRD surveys into a single data set and estimated the following logistic equation for whether or not having a contract affects the provision of the insurances:

$$(1) Y = a X + D08 + D09 + \text{CONT08} * D08 + \text{CONT09} * D09 + \text{CONT06} * D06 + e,$$

where Y is a dichotomous variable for the presence of a given benefit; X is a vector that measures the characteristics of workers and their firm, including dummy variables for city; D0i is a dummy variable for year 200i; CONT0i is a dummy variable for whether the worker has a written contract in year 200i. The residual group contains workers without a contract in 2006.

In this specification the coefficients on the interactions of the dummy variables for contract and year give the estimated effects of the contract on an outcome variable in the specified year. For example, the coefficient on the interaction of 2008 and the contract variable shows the difference between the values of the outcome in 2008 for workers with a contract compared to the residual

workers without a contract in 2006 group. The statistical results, given in table 4, show that all of the estimated contract-year interactions are significant positive, which implies that having contracts substantially affected having all forms of insurance. Moreover, the coefficients increase slightly after the law, which implies that workers who obtained contracts after the law were as or more likely to gain social insurance as did workers who had contracts before the law.

Another way to assess the impact of the Labor Contract Law on the provision of social insurance is to organize the data into a difference-in-difference model. We treat workers who did not have a contract before the law but received one afterward as compliers and workers who did not have a contract before or after the law as non-compliers. The change in insurance coverage for the compliers before and after the law minus the change in insurance coverage for the non-compliers is the diff-in-diff estimator of the law's effect on insurance coverage.

The natural way to estimate the diff-in-diff model would be with data from retrospective questions on insurance coverage for a worker before the law. But the PRD surveys did not ask about insurance on previous jobs. The evidence in tables 2 and 4 that the characteristics of workers with contracts or social insurance differ substantively from those without contracts or social insurance, moreover, makes it potentially misleading to assume that migrants who obtained contracts after the law had the same likelihood of having social insurance in 2006 as migrants who did not gain contracts after the law. The evidence that workers in large firms, those with greater schooling, and those working for foreign-owned firms were more likely to have gained a contract and to have social insurance than other workers suggests that we would risk overstating the effect of the new law on the provision of insurance if we assumed workers who gained a contract and those who did not gain a contract had similar likelihood of insurance before the law.

To deal with this problem, we estimated the likelihood that workers who obtained contracts between 2006 and 2008 had insurances in the before period from a regression analysis of the likelihood that persons *with their characteristics* had insurances in 2006. Similarly, we estimated the likelihood that workers who did not obtain contracts had insurances in the before period from the likelihood that persons *with their characteristics* had insurances in 2006. Thus, we created separate estimates of the proportion of workers without contracts who had insurances in the before period for the group that got contracts in the future and for the group that did not get contracts.

Table 5 presents the resultant “difference-in-difference” estimates for each of the four insurances and for a summary measure of whether workers had any social insurance. The numbers in each box give the mean percentage of workers in the group and year with a given insurance coverage. The number in parentheses is the standard error of the estimated mean. The 0.1447 for percentage of workers with medical insurance in the “before 2006” and “compliers” space means that 14.47% of workers had medical insurance in 2006. The (0.0037) is the standard error on the percentage.

The difference in difference line gives the difference between the change in the percentage with the specified insurance for compliers and for non-compliers before and after the law. The positive diff-in-diff for all social insurances and for the proportion of workers having at least one social insurance suggests that the increased contract coverage associated with the law increased the provision of social insurance. We lack the longitudinal or retrospective psuedo-longitudinal data to control for unobservable characteristics and test the contract coverage effect further. Assuming the effect is real, our calculations indicate that around 6 million workers in the PRD gained contracts as a result of the law and about 1.1 million (0.18 x 6 million) gained some social insurance as a result of the new law.

To see if the law affected wage arrears and the presence of a union, we conducted a similar analysis to that just described for social insurance. We examined the change in means of the variables across surveys in table 1; estimated logistic equations (1) for the effect of observables on arrears and

unionization and then used a difference in difference analysis to estimate the effect of the law on arrears and unionization, with the before group varying for workers based on the characteristics of those with post-law arrears and unionization status.

For the comparison of means, we direct the reader to lines 7 and 8 of table 1. These statistics shows that the percentages of workers reporting wage arrears fell from 2006 to 2008 only to rebound in 2009, though not to the 2006 level. The 2008-2009 increase in arrears may reflect the impact of the recession. The percentage of workers reporting a union at their workplace increases from 2006 to 2008 and then remains essentially unchanged in 2009.

Table 6 estimates the logistic relation between the arrears and unionism and contract status with covariates for the characteristics of the worker and the firm. As in table 4, the key coefficients are those on the interaction of having a contract and the year of the survey. The coefficients in the wage arrears regression show that having a contract reduces wage arrears in all years, with statistically significant coefficients in 2006 (-0.35) and in 2008 (-0.86) but not in 2009, when the 2009 year dummy variable captures the drop in the percentage with arrears.

The estimated interaction effects for the presence of a union at the workplace are uniformly sizable and significant. One interpretation of this result is that firms who implemented the labor contract law may also have implemented the laws on collective bargaining and union recognition as well, altering their labor practices in one fell swoop. But it is also possible that the relation reflects pressures from existing or newly formed ACFTU unions on firms to introduce contracts and implement the law fully. Table 6 makes the union variable the dependent variable but does not rule out the latter line of causality.

To get a better indication of the potential causal effects of the Labor Contract Law on arrears and unionism, we applied the difference-in-difference methodology to assess the effect of increased contract coverage on social insurance to these outcomes. The calculations in table 7 show a 2.67 percentage point reduction in wage arrears and a 10.63 percentage point increase in union status associated with workers who changed contract status.

Opponents of the new Contract Labor law feared that it would increase labor costs and induce firms to layoff many migrant workers (Chang, 2008). Our findings imply that implementation of the law did indeed increase labor costs, primarily through increased payment of social insurance by compliers to the law. Assuming that compliers pay minimum social insurance fees for migrant workers, their labor costs would rise by about 20% (12% of the wage bill for age insurance+8% for medical insurance, and small amounts for injury and unemployment insurance). This in turn would increase labor costs for the average firm by about 4.5% (= the product of an increase in age insurance coverage of 0.22 and 12% of the wage bill for age insurance + the product of an increase in age insurance coverage of 0.24 and 8% of the wage bill for medical insurance). According to the 2008 survey, 52% of the new compliers are domestic private firms and family owned firms in China, and 26% of the new compliers are firms with Hong Kong, Macao and Taiwan investment, and only less than 9% of them are firms with US, EU, Korea and Japan investment.

Did firms lay off workers or reset employment contracts in ways to circumvent the new law? The 2008 questionnaire asked “did your firm carry out large scale layoffs in the past year” and “did your firm force the termination of existing employment contract and reset new employment relations?” Only 4.6% of respondents reported large scale layoffs in their firm since 2007, and only 1.68% of migrant workers report reset of employment contracts in their firms. Most (around 90%) of the layoffs or labor contract reset happened in domestic private firms or Hong Kong, Macao, and Taiwan investments.

Finally, the PRD survey provides limited information on the effects of the provisions for open-ended contracts that upset opponents of the law more than any others. The surveys ask whether the contract is open-ended or fixed term. The line “open-ended contract” in Table 1 shows a modest uptick

in the proportion of migrant workers with open-ended contracts from 15.19% in 2006 to a bit over 17% after the law. As the law requires that firms that comply with law give workers an open-end contract either after two fixed contracts or after working for the same employers for ten years, this provision is unlikely to have a substantial impact on the labor market in the period studied.

#### **4. Conclusion**

Lin (1990:13) divides institutional changes into those that individuals/groups voluntarily initiate in response to profitable opportunities and those that governments or some other higher level body institute to re-distribute income among different groups. Other economists note that changes due to government/higher groups often seek to address externalities or other forms of market failure that individual market participants do not address (Blau and Kahn, 1999: 1404-7).

China introduced the 2007 Labor Contract Law to improve the well-being of underprivileged labor. Proponents of the law claimed that it would increase efficiency; while opponents believed it would reduce efficiency, possibly by enough to have adverse distributional effects as well. How labor institutions affect efficiency depends on how well the labor market operates absent the institution (Freeman, 2009: 10). If absent the institution the labor market operates as an efficient competitive system, then the institutional change invariably reduces output by distorting an otherwise perfectly functioning market. But this does not mean that the given change is socially undesirable for it may, as Lin notes, reflect the desire of society/decision-makers to re-distribute income among groups. Indeed, the debate of the Contract Labor Law highlighted the desire of the Chinese government and of Chinese society to improve the working conditions and human rights at work of migrant labor even if this had some cost in economic efficiency. Coase's efficient bargaining perspective adds another dimension to the discussion by pointing to the incentive that firms and workers who accept the new institutional structure have to adjust to the change in ways that minimize losses of efficiency.

If, however, the labor market operates imperfectly, appropriately designed interventions can improve efficiency as well as equity. Advocates of the contract labor law viewed labor law and security of working rights as a valuable public good in production parallel to business law which gives security to property rights. For instance, they cited the part of the law that encouraged long-term attachment between workers and firms as potentially facilitating workers' investment in specific skills and increasing workers productivity along lines noted by Blank and Freeman, (1994: 33). Here too, however, there are distributional consequences. Tang and Zhao (2009:122) argued that greater job protection would benefit skilled workers at the expense of low skilled workers.

Our analysis has shown that, despite the generally weak implementation of labor laws in China, the 2007 Contract Labor Law had some of its desired effect on migrant workers. It increased contract coverage, giving workers greater ability to defend their contractual rights, raised their receipt of legally mandated social insurances, lowered wage arrears, and increased their likelihood of having a union at their workplace. While we find little evidence of the feared adverse effects on layoffs or of substantial changes in the share of open-ended contracts, the increase in labor costs could possibly reduce migrant employment in the future, and it will take considerable time before they affect the work force to a great extent. In the short run at least the Labor Contract Law seems to have gone some way toward accomplishing its goals without producing the adverse effects that its opponents feared.

<sup>1</sup> Different studies report different numbers of migrant workers. The 160 million number comes from Li Shi (2008). Li Bin (2011), head of the National Population and Family Planning Commission, also estimated that the floating population numbered 160 million but put the total floating population at 221 million. Li Jing (2008, p 1083) reports 200 million on the basis of a report from the Research Office of the State Council. And The 2011 Migrant Worker Report from National Bureau of Statistics of China the total amount of migrant workers is 250 million.

<sup>2</sup> Absent national representative surveys, it is difficult to measure the magnitude of the ill treatment. Studies cited by the government agencies in assessing the need to protect migrant workers report sizable numbers with wage arrears and related problems in different years (Li Jing 2008, Cooney, 2007b). The Chinese press and labor rights monitoring groups in Hong Kong regularly reports on various scandalous situations in which employers abuse workers in different ways, but whether these are tips of an iceberg of abuse or rare events is hard to tell. Perhaps the strongest evidence of ill treatment are the widespread protests of migrant workers (Lee and Liu, 2011).

<sup>3</sup> In addition to the Contract labor law, China introduced the Employment Promotion Law of the People's Republic of China (enacted on 1st January 2008), and Labor Dispute Mediation and Arbitration Law of People's Republic of China (Enacted on 1st May 2008). They target areas of labor relations sufficiently different from the Labor Contract Law that we can rule them out as potentially confounding the effects on which we focus.

<sup>4</sup> The few extant studies of the effect of the contract labor law rely on limited interviews or time series comparisons that do not isolate its effects from trends. Wang (2009: 136) finds that workers' income increased and that young low income male workers in coastal areas are more likely be affected by the new law. Wang and Zhang (2009:37) estimated that inter-temporal labor supply elasticity declined after the implementation of the new law. Becker and Elfstrom's (2010:7) interviews with workers and businesses find that the new law increased the contract coverage.

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**Table 1: Summary Statistics of Three Pearl River Delta Surveys, by Year**

	2006	2008	2009
1.Contract coverage (%)	42.76	60.54	62.36
2.Open-end contract (%)	15.19	17.35	17.28
3.Medical insurance (%)	33.02	47.11	52.03
4.Age insurance (%)	21.94	34.56	37.91
5.Injury insurance (%)	42.91	55.96	56.79
6.Unemployment insurance (%)	8.30	13.51	20.46
7.Wage arrears (%)	8.88	5.85	7.22
8.Union existence (%)	16.00	18.68	18.57
Number of observations	2613	2093	1721

Notes: the variables are dummy variables, with 1=yes, 0=no, statistics are calculated by giving the same weights to all participants.

**Table 2: Logit Estimates of the Relation of Worker and firm characteristics on Contract Coverage and Contract Gained**

Dependent variables	(1) Contract at time of the survey	(2) Gained contract after Labor Contract Law
Year dummy 2008	0.95***	-
Year dummy 2009	0.99***	-
Age	0.00	-0.03*
Junior high	0.32***	0.16
Senior high	0.56***	0.28
Polytechnic school, Technical school	0.79***	0.61**
College	0.90***	0.1
Women=1	-0.15**	-0.27*
10-29 workers	0.53***	0.79*
30-99 workers	1.10***	1.08**
100-299 workers	1.72***	1.76***
300-999 workers	2.31***	2.24***
1000-2999 workers	2.80***	3.17***
more than 3000 workers	2.83***	2.63***
Domestic private	-0.58***	-0.68**
US, Europe, Japan, Korea	0.60***	1.14**
HK, Macao or Taiwan	0.29**	0.43
Constant	-2.48***	-1.45**
City dummies	yes	yes
Pseudo R2	0.22	0.25
Survey	Pooled	2008
Number of Observations	5316	1399

Notes: entries give the coefficients of the logit regressions, and \*, \*\*, \*\*\* stand for 0.1, 0.05, 0.01 significance level. Reference group are single male workers with primary or less education, who work in state owned firms with less than 9 workers in Guangzhou city.

**Table 3: The Contribution of Changes in Contract Coverage for Workers in the Same Firm, Workers who Changed Firms, and New Entrants to the 2006-2008 Increased Contract Coverage**

	(1) # of observations	(2) Proportion of 2008 sample	% covered by contract			Contribution to increase in contract coverage	
			(3) Before law	(4) After law	(5) Change	Percentage point	Share of increase
1 Workers who held same job before and after law	1345	64.2%	50.2	64.3	14.1	9.1	51.00%
2 Workers who shifted job after the law	67	3.20%	10.1	39.1	29	0.9	5.00%
3. Workers who entered after the law	222	10.6%	-	54.4	22.8	2.4	14.00%
4. Workers with unknown time of labor market entry	460	22.00%	-	55.9	24.3	5.3	30.00%
Totals for 2008 or 2006 and changes from 2006 to 2008	2093	100%	42.8*	60.5	17.7	17.7	100.00%

Notes: Column (1) is the number of observations for each group. Column (2) is the proportion of the group in the 2008 survey. Columns (3) to (4) show the contract coverage ratio before the law and after the law. Since workers who entered the job market after the law have no contract status to report we put “-” in those columns. Similarly we put “-” for workers with unknown time of entry. The \* number for the total in column 3 is the before law estimate from the 2006 survey given in table 1. Column (5) gives the estimated change in the proportion for the different groups. As described in the text, this change compares the coverage of workers who entered after the law or for whom we lack data in the 2008 survey to the estimated coverage ratio of workers in the 2006 survey who did not continue working through the 2008 survey. This estimated coverage ratio is 31.6% (=54.4%-22.8%). Column (6) calculates each group's contribution to the change in total contract coverage by multiplying the share of the group in the 2008 survey from column (2) by the estimated change in the ratio in column (5). Column 7 gives the percentage contribution of each group to the increase in the coverage ratio from 2006 to 2008.

**Table 4: Logit Estimates of the Effects of Having Contracts on Social Insurance**

Dependent variables	(1)Medical	(4) Age	(3) Injury	(2)Unemployment
Year 2008	0.33**	0.17	0.23**	-0.16
Year 2009	0.56***	0.54***	0.39***	0.70***
Contract *year 2006	1.38***	1.58***	1.12***	1.39***
Contract *year 2008	1.43***	1.81***	1.28***	1.86***
Contract *year 2009	1.62***	1.80***	1.20***	1.64***
Age	-0.01*	0.02***	-0.01	0.01**
Junior high	0.09	-0.03	0	-0.39***
Senior high	0.54***	0.70***	0.25**	0.45***
Polytechnic school, Technical school	0.60***	0.92***	0.30**	0.50***
College	1.46***	1.65***	0.65***	1.44***
Women	-0.21***	0.01	-0.61***	0.02
10-29 workers	0.03	0.22	0.11	0.29
30-99 workers	-0.02	0.46*	0.36**	0.59*
100-299 workers	0.22	0.71***	0.41***	0.48
300-999 workers	0.41**	0.89***	0.51***	0.4
1000-2999 workers	0.60***	0.98***	0.83***	0.39
more than 3000 workers	0.82***	1.03***	0.81***	0.45
Domestic private	-0.71***	-1.00***	-0.35***	-0.97***
US, Europe, Japan, Korea	0.58***	0.37**	0.43**	0.21
HK, Macao or Taiwan	-0.01	0.06	0.15	-0.13
City FE	yes	yes	yes	yes
Constant	-1.47***	-3.19***	-0.96***	-3.68***
Pseudo R2	0.23	0.26	0.15	0.19
Observations	5110	5035	5024	4840

Notes: Entries give coefficients of logistic regressions. Reference group are single male workers with primary or less education, who worker in state owned firms, with less than 9 workers in Guangzhou city in 2006. \*, \*\*, \*\*\* stand for 0.1, 0.05, 0.01 significance level.

**Table 5: Difference in Difference Estimates of the Effect of Contract Coverage on Migrant Workers' Social Insurance**

		Compliers	Non-compliers
1) % of workers covered by medical insurance	Before (2006)	0.2350 (0.0061)	0.1447 (0.0037)
	After (2008)	0.5054 (0.0214)	0.1744 (0.0130)
	Difference	0.2704*** (0.0241)	0.0297** (0.0156)
	<b>Difference in Difference</b>		<b>0.2406*** (0.0287)</b>
2) % of workers covered by age insurance	Before (2006)	0.1282 (0.0051)	0.0697 (0.0033)
	After (2008)	0.3517 (0.0205)	0.0773 (0.0091)
	Difference	0.2234 (0.0229)***	0.0076 (0.0111)
	<b>Difference-in-Difference</b>		<b>0.2158*** (0.0254)</b>
3) % of workers covered by Injury insurance	Before (2006)	0.3278 (0.0053)	0.2490 (0.0040)
	After (2008)	0.5853 (0.0211)	0.2845 (0.0154)
	Difference	0.2574*** (0.0236)	0.0354* (0.0184)
	<b>Difference-in-Difference</b>		<b>0.2219*** (0.0300)</b>
4) % of workers covered by unemployment insurance	Before (2006)	0.0468 (0.0021)	0.0297 (0.0015)
	After (2008)	0.1119 (0.0135)	0.0269 (0.0055)
	Difference	0.0650*** (0.0149)	-0.0028 (0.0066)
	<b>Difference-in-Difference</b>		<b>0.0679*** (0.0163)</b>
5) % of workers with at least one social insurance	Before (2006)	0.4181 (0.0068)	0.2973 (0.0050)
	After (2008)	0.5853 (.0211)	0.2845 (0.0154)
	Difference	0.1672*** (0.0240)	0.0128 (0.0187)
	<b>Difference-in-Difference</b>		<b>0.1800*** (0.0304)</b>

Note: Compliers are those who changed from having no contracts to having contracts after the new Labor Contract Law, and the non-compliers are those who remained without contracts. The before estimates have adjusted for the compliers and non-compliers respectively by the characteristics of the

compliers and non-compliers after the Law: age, experience, gender, size of enterprise, and ownership. Data in parentheses is standard error. \*, \*\*, \*\*\* stand for 0.1, 0.05, 0.01 significance level. Standard errors for differences calculated using a z-test, based on pooled proportions of persons with social insurance. Let  $\hat{p}_1$  and  $\hat{p}_2$  be the proportions of two samples,  $\hat{y}_1$  and  $\hat{y}_2$  be the numbers of success of two samples, and  $n_1$  and  $n_2$  be the number of observations. The pooled proportions are:

$$\hat{p}_{pooled} = \frac{n_1 \hat{p}_1 + n_2 \hat{p}_2}{n_1 + n_2} = \frac{y_1 + y_2}{n_1 + n_2}$$

The differences are calculated as  $\hat{p}_1 - \hat{p}_2$ , and the standard error as  $\sqrt{\hat{p}_{pooled}(1 - \hat{p}_{pooled})(1/n_1 + 1/n_2)}$  using the `_prtest` or `_prtesti` command in STATA12.

The z statistic is the ratio of the differences to the standard error. See Hildebrand et al. 2005: 386-388; Bluman, 2008.

**Table 6: Logit Estimates of the Effects of Having Contracts on Wage Arrears and presence of a union at the workplace**

Dependent variables	(1)Wage arrears	(2) Union at workplace
year 2008	-0.09	-0.02
year 2009	-0.35*	0.14
Contract* year 2006	-0.35**	1.07***
Contract * year 2008	-0.86***	1.16***
Contract *year 2009	-0.12	1.03***
Age	0.003	0.02***
Junior high	-0.03	0.06
Senior high	-0.3	0.44***
Polytechnic school, Technical school	-0.35*	0.68***
College	-0.64*	0.63***
Women	-0.32***	-0.18**
10-29 workers	0.21	0.61*
30-99 workers	0.40*	0.65*
100-299 workers	0.35	1.08***
300-999 workers	0.33	1.48***
1000-2999 workers	-0.02	1.73***
> 3000 workers	-0.75**	1.85***
Domestic private	0.30	-1.24***
US, Europe, Japan	-0.41	-0.54***
Korea		
HK, Macao or Taiwan	-0.12	-1.08***
City FE	yes	yes
Constant	-2.07***	-3.37***
Pseudo R2/ R2	0.05	0.16
Observations	5456	5473

Notes: entries give the coefficients of the logistic regressions for dependent variables. Reference group are single male workers with primary or less education, who work in state owned firms, with less than 9 workers in Guangzhou city in 2006. \*, \*\*, \*\*\* stand for 0.1, 0.05, 0.01 significance level.

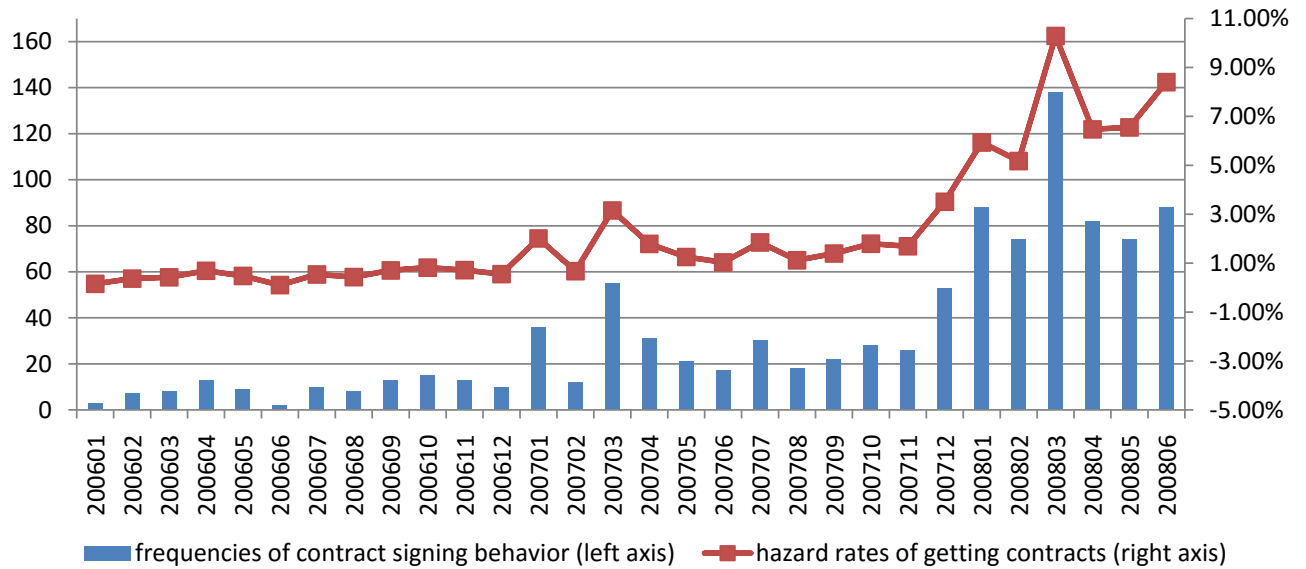


**Table 7: Difference in Difference Estimates of the Contract Labor Law on Wage Arrears, and Unionism**

		Compliers	Non-compliers
1) % of workers experienced wage arrears	Before (2006)	0.0837 (0.0018)	0.1094 (0.0017)
	After (2008)	0.0421 (0.0086)	0.0946 (0.0101)
	Difference	-0.0416 (0.0096)	-0.0149 (0.0119)
	<b>Difference-in-Difference</b>	-	<b>-0.0267*</b> <b>(0.0153)</b>
2) % of workers with union in their enterprises	Before (2006)	0.0955 (0.0029)	0.0643 (0.0020)
	After (2008)	0.1996 (0.0171)	0.0621 (0.0083)
	Difference	0.1041 *** (0.0190)	-0.0022 (0.0098)
	<b>Difference-in-Difference</b>		<b>0.1063***</b> <b>(0.0214)</b>

Note: Compliers are those who changed from having no contracts to having contracts after the new Labor Contract Law, and the non-compliers are those who remained without contracts. The before estimates have adjusted for the compliers and non-compliers respectively by the characteristics of the compliers and non-compliers after the Law: age, experience, gender, size of enterprise, and ownership. Data in parentheses is standard error. \*, \*\*, \*\*\* stand for 0.1, 0.05, 0.01 significance level.

**Figure 1: Frequencies and Hazard Rates in a Particular Month of Workers Who Changed Status from Being without Contracts to with Contracts.**



Notes: the histogram, with its vertical axis on the left show the frequencies of workers who changed their status from being without contracts to with contracts; the line with square, with its vertical axis on the right shows the hazard rates of getting contracts in a particular month, with all workers without contracts as the base.

**Appendix table A: Comparison of 2008 PRD Survey Data with a Random Sample Survey of Migrant Workers in 2008**

	2008 RUMIC survey	2008 PRD survey
<b>Gender(%)</b>		
Male	55.76	57
Female	44.24	43
<b>Age (%)</b>		
16-25years old	41.67	53.51
26-30 years old	15.65	14.73
31-40 years old	24.74	20.42
40-50 years old	12.58	9.38
50- 65 years old	5.37	1.96
<b>Education (%)</b>		
elementary school or less	14.39	15.41
Junior high	54.15	51.55
Senior high	17.82	17.63
Polytechnic school, Technical school	9.25	11.45
College	4.39	3.96
<b>Income</b>		
monthly income (yuan)	1546.83	1543.13
<b>Contract coverage (%)</b>		
with contract	65.85	60.17
with open-end contract	19.25	17.56

Notes: RUMIC survey is a random sampling survey data for 15 cities in China which covers the most important import and export places of migrant workers. For more information about this data, you could refer to <http://idsc.iza.org/?page=86&wid=778>.