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Restructuring state-owned enterprises—labour market outcomes and employees' welfare

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State-owned enterprises (SOEs) have undergone reform over the past few decades, with the objective to increase the economic efficiency of enterprises. It was not until the mid 1990s that privatisation began, and even then it was a piecemeal rather than a 'big bang' approach. By the end of 1990s, most SOEs had experienced some form of restructuring. At the extreme end of the spectrum firms were fully privatised. Most firms, however, were leased out, becoming shareholding companies or joint venture partners with other enterprises. These dramatic changes to the structure of SOEs had significant effects on the employment, wages and welfare of workers.

Background to restructuring

State sector reform took a significant step in the mid 1990s when a large number of SOEs experienced losses and could not afford to continue operations. In 1995, the central government implemented a 'keep the large and let go of the small' policy that left the structure of between 500 to 1000 large state enterprises unchanged, but allowed most SOEs to be leased or sold.

Since then, the share of the state sector in the economy has quickly shrunk. The number of state enterprises in the industry sector was 118,000 in 1995 and by 2001, had fallen to 46,800—an annual reduction rate of 15 per cent. Total state

sector employment decreased from 113 million in 1995 to 76 million in 2001—a reduction of almost 50 per cent (National Bureau of Statistics, various years). Within the state sector, most enterprises experienced some internal restructuring, resulting in some arrangement of partial privatisation. According to a national survey, 87 per cent of industrial SOEs had undergone restructuring by the end of 2001. Among them, 70 per cent were partially or fully privatised (China Economy and Business Program and China Center for Economic Reform 2003).

Such significant restructuring has no doubt affected enterprise behaviour in many important ways. Several important issues arise for the labour market. Previous research on the behaviour of SOE firms suggests that state ownership, when coupled with soft budgetary constraints, induced SOEs to behave like labour-managed firms, maximising workers' income and welfare. As a result, the inability to fire redundant workers was a common problem for SOE firms (Walder 1989, Byrd 1992, Sicular 1994, Meng 2000). The question naturally arises—did SOEs change their behaviour with regard to hiring, firing and wage determination after restructuring? In addition, has restructuring caused significant retrenchment and a reduction in the welfare conditions of workers?

The negative effects of SOE restructuring on employment are commonly acknowledged. As early as 1993, the central government set up a security fund to cover the costs of compensation for retrenched workers, and to reduce adjustment costs (China Economy and Business Program and China Center for Economic Reform 2003). In 1998, when large-scale retrenchment began, the State Council issued an eight-point document to ensure that retrenched workers were properly protected (State Council 1998). New rules were established that covered retrenched workers with the 'retrenched worker living allowance' for no more than three years, before becoming eligible for unemployment benefits for no more than two years. The burden of supporting retrenched workers and their social welfare payments was mainly shouldered by the enterprises themselves, with some assistance from the central and local governments. Many enterprises already faced financial crisis due to poor economic performance. As a result, many firms became indebted to their current and retrenched workers for wages, living allowances and social welfare payments.

Retrenchment and the inability to pay wages and welfare payments are directly related to the process of restructuring and the factors that induced restructuring. As mentioned, the restructuring of state enterprises was initiated because many small and medium-sized enterprises were making losses. In 1995–96, approximately 50 per cent of SOEs were making a loss (East Asian Analytical Unit 1997).

Facing financial difficulties and increased market competition, many enterprises laid off workers and delayed the payment of entitlements long before formal

restructuring began. If this was the case, restructuring was not the cause for retrenchments and delayed entitlement payments. On the contrary, both restructuring and retrenchments were caused by poor performance by the SOE sector.

The effect of restructuring on employment has also raised some important issues for female workers. It is commonly believed that firms prefer to lay off female rather than male workers when facing retrenchment decisions. Using household level data, many studies have found that women are more likely to be retrenched or dismissed than men (Meng 2003, Giles, Park and Cai 2003). However, it is not clear that the restructuring of SOEs in China is responsible for the disproportionate dismissal of women workers.

Methodology and data

The behavioural changes induced by the restructuring of SOEs, with regard to employment and wage determinants, are of particular interest. Previous studies have found that SOEs aimed to maximise income per worker rather than profit, implying that part of the profit earned was to be shared among workers. In addition, because managers were responsible for the welfare of employees, firing was seldom used to achieve optimal labour demand. Instead, SOEs were overstaffed (Walder 1989, Byrd 1992, Sicular 1994, Meng 2000). These factors contributed to the collapse of the SOE sector.

Increasing market competition and tighter budgetary constraints have made it difficult for SOEs to survive. The objective of SOE restructuring therefore was to change the behaviour of firms. The key to evaluating the effect of SOE restructuring lies in examining counterfactuals—that is, the effects on labour market outcomes and employee welfare had restructuring not taken place. This is expressed as

$$\Delta_i = (Y_{i1} - Y_{i0} / D_i = 1) \quad (9.1)$$

Where Y_{i1} is firm i 's outcome after restructuring and Y_{i0} is firm i 's outcome had restructuring not taken place. Δ_i indicates the effects of SOE restructuring on outcome Y , and $D_i = 1$ indicates that firm i has undertaken SOE restructuring.

Fortunately, the SOE Restructuring Survey 2002 (SRS) has data for seven years. Each firm was asked about employment, wage, financial indicators and production details for the period of 1995 to 2001. Firms, having undertaken restructuring, can compare the pre and post-restructuring circumstances and observe the effects of restructuring.

Labour demand and wage equations are specified to examine the behavioural changes with regard to employment and wage determination.

$$\ln(L_{it}) = \alpha_{11} + \alpha_{12}gz_{it} + \beta_{11}\ln(OP_{it}) + \beta_{12}\ln(W_{it}) + \beta_{13}\ln(OP_{it})^*gz_{it} + \beta_{14}\ln(W_{it})^*gz_{it} + \varepsilon_{it} \quad (9.2)$$

$$\ln(W_{it}) = \alpha_{21} + \alpha_{22}gz_{it} + \beta_{21}LP_{it} + \beta_{22}(\pi/L)_{it} + \beta_{23}LP_{it}^*gz_{it} + \beta_{24}(\pi/L)_{it}^*gz_{it} + \varepsilon_{it} \quad (9.3)$$

Where L_{it} and W_{it} are firm-level employment and average wages at time t , gz_{it} is the dummy variable indicating whether firm i at time t has restructured ($gz_{it} = 1$) or not ($gz_{it} = 0$), OP_{it} is output of firm i at time t , LP_{it} is firm-level labour productivity, and $(\pi/L)_{it}$ is the average profit per worker for firm i at time t . ε_{it} and ε_{it} are the residual terms for the labour demand and wage equations respectively. In these equations, α_{12} and α_{22} capture the effect of restructuring at the level of labour demand and wages, while β_{13} , β_{14} , and β_{23} , β_{24} indicate the additional effects of the restructuring on the relationship between the explanatory variables and dependent variables. In addition to the variables specified, year dummy variables, regional dummy variables and industry dummy variables are also controlled.

Due to the panel nature of the data, equations 2 and 3 are estimated using a fixed effect model. The fixed effect model controls for all unchanging firm-specific effects not included in the explanatory variables, for example, the degree of product markets competition, quality of management and level of human capital. In addition, controlling for the firm-specific effects results in an unbiased estimator of the restructuring effects, if firm-specific effects are correlated to restructuring.

The effects of restructuring on the welfare of workers are also of interest. Welfare measures examined include the proportion of workers laid-off or dismissed, and the proportion of female workers laid-off or dismissed as a proportion of total retrenchment and arrears of wages, salary and social welfare payments workers.

To ensure that the estimated effects of restructuring are within the firm effects, the sample size is restricted to firms that undertook restructuring during the timeframe of the dataset. Firms needed to have both pre and post-restructuring data to allow the effects of restructuring to be evaluated. Firms that had not undertaken or experienced restructuring prior to the timeframe were excluded. The SRS survey was conducted in 2002–03 and included 683 enterprises from 11 cities. However less than one-half of the surveyed firms or 311 enterprises indicated that they had undertaken restructuring and among them, only 229 enterprises revealed the exact timeframe of restructuring, allowing the pre and post-restructuring periods to be identified. Of the 229 firms, 24 undertook a process of restructuring prior to 1995 and 21 after 2001. These timeframes were outside the dataset period and the 45 firms were excluded from the calculations. Only 184 firms were included. The final, restricted sample includes 70 to 90 firms, depending on the variables

considered. It is a small sample and may not be representative, which is regrettable.

The sensitivity of the sample exclusions was tested on all firms that had indicated their restructuring timeframe, an unrestricted sample, to estimate equations 2 and 3.

The distribution of the region, industry and firm ownership at the survey year were compared between the restricted sample and the unrestricted samples (Figure 9.1a) Relative to the total sample, distribution was more concentrated in Tangshan, Huangshi and Chengdu and less concentrated in Haerbin and Hengyang.

The proportion of firms corporatised in the total sample is less than the proportion of firms corporatised in the restricted sample, while the number of limited-liability firms in the restricted sample is greater than the number in the total sample (Figure 9.1b). This is because most uncorporatised firms have not undertaken restructuring.

There are very few differences in the distribution of industry between the three samples (Figure 9.1c). The degree of representation of the restricted sample is high when compared to the total sample, but differs more significantly for location and ownership structure.

Firms in the restricted sample are on average larger than those in the total sample, have fewer retired, laid-off and dismissed workers and have a higher level

Figure 9.1a Distribution of region, ownership and industry for three samples, regions

Source: Author's calculations.

Figure 9.1b Distribution of region, ownership and industry for three samples, ownership

Source: Author's calculations.

Figure 9.1c Distribution of region, ownership and industry for three samples, industry

Source: Author's calculations.

of value-added (Table 9.1a). Internal restructuring and shareholding companies account for the majority of firms that undertook restructuring, in both the restricted and unrestricted sample (Table 9.1b). The share of internal restructuring was slightly higher for the restricted sample than the unrestricted sample.

Empirical results

OLS and fixed-effect estimates were calculated (Table 9.2). Although the magnitude of the coefficients differed between the restricted and unrestricted samples, and between the OLS and fixed-effect estimations, the signs of the coefficients and significant levels were consistent across the two samples and between the two different estimations

The fixed-effect estimation from the restricted sample is of particular interest. The model fits well. The adjusted R^2 is 0.73 for the OLS estimation and between R^2 is 0.46. All variables have the expected sign. Output, as measured by the value-added, has a positive effect, and price (or wages) has a negative effect on labour demand. In addition, there is a negative time trend for labour demand. Since 1998, demand for labour has diminished. Between 1998 and 1999, the demand for labour decreased by 9 per cent. By 2000, demand had fallen a further 6 per cent and in 2001 another 5 per cent. Firms that had not undertaken restructuring experienced the same diminishing demand. In fact, data from a sample of 177 firms that did not undertake restructuring reveals that the reduction in labour demand was larger than for firms that had undertaken restructuring.

Table 9.1a **Summary statistics of the three samples**

	Total sample		Unrestricted sample		Restricted sample	
	Mean	CV	Mean	CV	Mean	CV
Total number of on-duty workers	657.28	1.75	876.52	1.74	1022.76	1.85
Retired workers	271.38	1.94	318.52	2.07	384.13	2.25
Retired as per cent of on-duty workers	41.29		36.34		37.56	
Layoff workers	205.39	1.51	156.39	1.81	168.78	1.69
Layoff as per cent of on-duty workers	31.25		17.84		16.50	
Dismissed workers	22.18	2.75	9.58	5.23	12.11	4.62
Dismissed as per cent of on-duty workers	3.37		1.09		1.18	
Value added	1185.78	2.26	1637.40	1.98	1667.62	2.24

Source: Author's calculations.

Table 9.1b **Distribution of the forms of the restructuring**

	Restricted sample	Unrestricted sample
Float	6.17	6.88
Internal restructuring	32.10	22.48
Bankruptcy and reorganisation	6.17	10.09
Shareholding	32.10	33.03
Open sales	12.35	11.47
Leasing	7.41	11.01
Joint venture	3.70	5.05

Source: Author's calculations.

The most important estimator is the effect of restructuring, which reduces the demand for labour. In addition, the effect of output on labour demand is stronger after restructuring has taken place than before. Restructuring increases labour productivity significantly, particularly for smaller firms (Figure 9.2).

Prior to restructuring, firms that produced 30,000 yuan value-added per annum hired on average 235 workers. After restructuring, the number of workers hired was 137 workers—a 42 per cent reduction. The reduction of hiring for firms that produce 200,000 yuan value-added per annum was about 32 per cent—from 317 to 217 workers. At 23 million value-added per annum, the effects of restructuring on the demand for labour disappeared.

The most notable change in enterprise behaviour is revealed in the wage equation estimations (Table 9.3). Prior to restructuring, wages at the enterprise level were determined by both productivity and profitability. This is indicated by positive and significant coefficients per worker value-added and profits. The equation is specified as a semi-log form so the coefficients indicate the percentage change. The restricted sample indicates that prior to restructuring, every 10,000 yuan increase in value-added and profit per worker led to the average firm-level wage increasing by 4 and 5 per cent, respectively. Restructuring reduced average firm-level wages by 9 per cent and the impact of the value-added per worker on wages after restructuring was 7 per cent ($0.04+0.03$). Although the joint significance test (see F-test) indicates a significant effect, it is not statistically different from the period prior to restructuring (insignificant t-test).

Thus, from the restricted sample we find that before the restructuring every 10,000 yuan increased in value-added and profit per worker increases average firm level wages by 4 and 5 per cent, respectively. The restructuring reduced

Figure 9.2 Effect of the restructuring on demand for labour

Source: Author's estimations.

average firm level wages by 9 per cent (row (3)). The impact of the value-added per worker on wages for the post-restructuring period is 7 per cent ($0.04+0.03$). Although the joint significant test (see F-test) indicates that this is a significant effect, it is not statistically different from the pre-restructuring period (insignificant t-test).

The main difference is the impact on the profit per worker. The coefficient for the interaction term between the profit per worker and the restructuring dummy variable is negative and statistically significant. The joint significance test indicates that after restructuring the relationship between the profit per worker and the average firm-level wages is negative. This may be an accounting relationship—that is low costs and high profits. These results suggest that in the post-restructuring period, the objective of enterprises shifted from maximising the income per worker to profit maximisation, where wages were determined solely by labour productivity. The findings that profit-sharing behaviour diminished following restructuring is consistent with previous studies. Meng (2000) found using a panel dataset for 1990–93 that firm average profits were positively and significantly related to wages in the state sector but had no effect on wages in the private sector. Meng (2002) later found, using data from urban workers and rural migrant workers within state enterprises

Table 9.2 **Estimated labour demand equation**

	Restricted sample				Unrestricted sample			
	OLS		Fixed effects		OLS		Fixed effects	
	Coef.	Std. Err.	Coef.	Std. Err.	Coef.	Std. Err.	Coef.	Std. Err.
Constant	3.04***	0.36	5.31***	0.17	2.66***	0.31	5.15***	0.13
Log value added	0.51***	0.03	0.15***	0.02	0.56***	0.02	0.15***	0.02
Log wage	-0.34***	0.09	-0.44***	0.06	-0.40***	0.07	-0.44***	0.05
Dummy for gz ^a	-0.62***	0.27	-0.62***	0.15	-0.46***	0.22	-0.75***	0.14
Log value added*gz	0.07	0.04	0.08***	0.02	0.05	0.03	0.10***	0.02
Log wage*gz	-0.08	0.10	0.00	0.05	-0.04	0.08	-0.16***	0.05
1996	0.02	0.10	0.01	0.04	0.02	0.08	-0.02	0.04
1997	-0.03	0.10	-0.03	0.04	-0.01	0.08	-0.05	0.04
1998	-0.07	0.10	-0.09**	0.05	-0.05	0.08	-0.10***	0.04
1999	-0.16	0.10	-0.09**	0.05	-0.10	0.08	-0.13***	0.04
2000	-0.16	0.11	-0.14***	0.06	-0.13	0.08	-0.15***	0.04
2001	-0.18*	0.11	-0.19***	0.06	-0.17**	0.08	-0.20***	0.04
Regional effect	Yes				Yes			
Industry effect	Yes				Yes			
Number of observations	586		527		878		937	
Number of firms	90				184			
Adjusted or within R ^{2b}	0.73		0.46		0.74		0.48	
Between R ²	0.43				0.34			
Overall R ²	0.37				0.32			

Note: a. 'gz' is the abbreviation for 'restructuring'. b. This row indicates adjusted R² for the OLS estimation and between R² for the fixed-effects estimation.

Source: Author's calculations.

Table 9.3 Estimated wage determination equation

	Restricted sample			Unrestricted sample		
	OLS	Fixed-effects	OLS	Fixed-effects	Fixed-effects	
	Coef.	Std. Err.	Coef.	Std. Err.	Std. Err.	
Constant	-1.40***	0.21	-1.39***	0.18	-0.77***	
Value added/Tworker	(1) 0.05	0.03	0.06***	0.02	0.05***	
Profit/Tworker	(2) 0.07	0.04	0.08***	0.03	0.07***	
Dummy for gz ^a	(3) 0.06	0.08	-0.01	0.06	-0.06	
Value added/Tworker*gz	(4) 0.02	0.03	0.02	0.02	0.02	
Profit/Tworker*gz	(5) -0.07**	0.04	-0.09***	0.04***	-0.07***	
1996	0.05	0.08	0.07	0.07	0.09***	
1997	0.15**	0.08	0.18***	0.07	0.18***	
1998	0.13*	0.08	0.18***	0.07	0.21***	
1999	0.30***	0.09	0.30***	0.07	0.35***	
2000	0.29***	0.09	0.31***	0.07	0.36***	
2001	0.33***	0.10	0.40***	0.07	0.44***	
Regional effect	Yes		Yes			
Industry effect	Yes		Yes			
F-test for (1)+(4)=0	12.86 (p=0.00)		65.88 (p=0.00)		67.16 (p=0.00)	
F-test for (2)+(5)=0	0.02 (p=0.88)		0.12 (p=0.73)		0.03 (p=0.87)	
Number of observations	441		650		691	
Number of firms					143	
Adjusted or within R ^{2b}	0.45		0.48		0.36	
Between R ²					0.23	
Overall R ²					0.23	

Note: ^a 'gz' is the abbreviation for 'restructuring', and it is equal to one for after restructuring period. ^b This row indicates adjusted R² for the OLS estimation and between R² for the fixed-effects estimation.

Source: Author's estimations.

that profit sharing behaviour only applied to urban workers but not rural migrant workers, who were treated as outsiders. These studies confirm the effectiveness of restructuring in changing the objective function of former state enterprises.

Welfare measures, before and after restructuring, including retrenched and dismissed workers as a proportion of total employed workers, retrenched and dismissed female workers as a proportion of total retrenched and dismissed workers and wages and welfare payments per worker in areas were compared (Table 9.4). The results indicate that apart from wages in arrears, restructuring appears to have reduced the welfare of workers for every measure. Restructuring takes place at different times for firms so the comparison may be contaminated by factors such as year effects and the length of time before and after restructuring.

Column two attempts to eliminate differences in the length of time before and after restructuring by comparing the year restructuring took place with that prior to restructuring (Table 9.4). The differences in welfare measures are no longer statistically significant. Firms that have never undertaken restructuring have on average a higher proportion of retrenched workers and owe more wages to workers for the period (Figure 9.3a).

Regression analysis for the restricted sample controls for the effect of profit per workers, debt per worker, firm size and year effects on welfare measures (Table 9.5). Larger and more profitable firms retrenched a smaller proportion of workers while firms with high levels of debt retrenched more workers. Compared with 1995, firms retrenched more workers over the period of the study. This trend is not the result of the time period (Figure 9.3b) because the time trend was observed for firms that had undertaken restructuring and for those that had not undertaken restructuring. In addition, profitable firms dismiss more workers but there is no time trend.

Restructuring has a negative effect on the proportion of retrenched workers but no effect on the dismissal rate for firms. Do these results contradict findings from the labour demand equation that indicates that restructuring reduces labour demand? Not necessarily. An increase in production or decrease in wages will generate a higher demand for labour, which may offset the effect of retrenchment. Controlling for the year effect, restructuring increased value-adding by an average of 5.8 million yuan for the restricted sample. Controlling for firm size, the figure is approximately 6 million yuan (Appendix B). Restructured firms also pay on average lower wages. When these two facts are combined, it is not surprising that after restructuring, labour productivity increased but the proportion of retrenched or dismissed workers did not increase (Table 9.3).

Currently-employed female workers, as a proportion of the total employed workforce, were included to control for the gender ratio within the firm (Table 9.5).

Figure 9.3a Welfare comparisons between restructured and non-restructured firms, proportion of retrenched workers

Source: Author's calculations.

Figure 9.3b Welfare comparisons between restructured and non-restructured firms, arrears of wages

Source: Author's calculations.

Table 9.4 Differences in various welfare measures before and after the restructuring

	After restructuring		Before restructuring		difference	t-ratio
	mean	sd	mean	sd		
Proportion of layoff workers	0.155	0.187	0.092	0.126	0.063	4.08
Per cent of female layoffs	0.351	0.285	0.268	0.274	0.083	3.13
Proportion of dismissed workers	0.037	0.152	0.007	0.025	0.030	2.76
Per cent of female dismissals	0.086	0.188	0.039	0.110	0.047	3.15
Arrear of wages per worker	0.019	0.063	0.018	0.060	0.001	0.18
Arrear of welfare per worker	0.039	0.098	0.023	0.056	0.015	2.01
	The year of restructuring		1 year before restructuring		difference	t-ratio
	mean	sd	mean	sd		
Proportion of layoff workers	0.143	0.179	0.141	0.165	0.002	0.07
Per cent of female layoffs	0.336	0.293	0.332	0.265	0.003	0.07
Proportion of dismissed workers	0.026	0.097	0.009	0.022	0.017	1.38
Per cent of female dismissals	0.059	0.141	0.056	0.141	0.003	0.10
Arrear of wages per worker	0.020	0.075	0.026	0.072	-0.007	-0.51
Arrear of welfare per worker	0.031	0.073	0.033	0.070	-0.002	-0.14

Source: Author's calculations.

Table 9.5 Fixed-effects estimation of the effect of SOE restructuring on employees' welfare

	Proportion of laid-off workers		Proportion of dismissed workers		Proportion of females laid-off		Proportion of females dismissed		Arrears of wages per worker		Arrears of welfare payments per worker	
	Coef.	Std. err	Coef.	Std. err	Coef.	Std. err	Coef.	Std. err	Coef.	Std. err	Coef.	Std. err
Constant	0.138***	0.018	0.030	0.024	0.362***	0.085	0.033	0.061	-0.008	0.012	-0.008	0.024
Dummy for restructuring ^a	-0.021**	0.011	0.009	0.015	0.002	0.026	-0.005	0.019	-0.007	0.005	-0.005	0.009
Profit per worker	-0.021***	0.004	0.014***	0.005	0.010	0.010	0.010	0.007	0.000	0.002	-0.010***	0.004
Debt per worker*10 ⁻²	0.226***	0.028	0.211***	0.038	0.075	0.068	-0.010	0.049	0.022	0.014	0.033	0.026
Firm size*10 ⁻³	-0.091***	0.014	-0.037***	0.019	-0.023	0.033	0.002	0.024	0.004	0.007	-0.006	0.013
Per cent of female workers					-0.443**	0.214	-0.021	0.155				
Per cent of laid-off workers									0.167***	0.023	0.022	0.045
Per cent of retired workers									0.000	0.043	0.116	0.084
1996	0.004	0.012	0.003	0.016	0.044	0.029	0.022	0.021	0.004	0.005	0.008	0.010
1997	0.042***	0.012	0.002	0.016	0.089***	0.029	0.018	0.021	0.006	0.005	0.012	0.010
1998	0.063***	0.013	0.007	0.017	0.112***	0.030	0.030	0.022	0.004	0.006	0.014	0.011
1999	0.076***	0.014	0.001	0.018	0.110***	0.033	0.063***	0.024	0.005	0.006	0.016	0.012
2000	0.091***	0.015	0.002	0.020	0.168***	0.036	0.067***	0.026	0.004	0.007	0.022	0.014
2001	0.083***	0.017	0.001	0.022	0.139***	0.040	0.062**	0.029	0.007	0.008	0.044***	0.015
Number of observations	430	430	430	423	429	429						
Number of groups	71	71	71	70	71	71						
R-sq: within	0.54	0.13	0.16	0.05	0.27	0.15						
Between	0.08	0.01	0.11	0.020	0.34	0.00						
Overall	0.16	0.04	0.013	0.003	0.35	0.03						

Note: ^a after restructuring period=1.

Source: Author's estimations.

If a firm has more female workers than male, then the gender ratio for retrenched workers may vary in accordance with the overall gender ratio, but it does not indicate gender bias. Interestingly, firms with more male workers retrench more female workers—indicating male dominated firms may discriminate in the retrenchment of female workers more than female dominated firms. In addition, there also appears to be a strong time trend with retrenched and dismissed female workers. However, restructuring did not have an effect on the retrenchment and dismissal of female workers, which is indicated by a statistically insignificant coefficient for the restructuring dummy variable.

The results suggest that there is no relationship between the time trend and restructuring.

The estimated results for the arrears of wages and welfare payment equations include additional control variables—average wages of the firm, the proportion of retrenched workers, and the proportion of retired workers relative to the on-duty workers (Table 9.5). Firms with a higher proportion of retrenched workers owe more wages and salaries to employees, and perhaps to retrenched workers as well. While the coefficients for the proportion of retrenched and retired workers are positive for the arrears in welfare payment equation, it is not statistically significant. Profitability significantly contributes to the amount of welfare payments owed to employees. More profitable firms owe less in welfare payments to employees. There is no effect from restructuring on wages and welfare payments in arrears. In fact, both coefficients are negative but not significant.

Conclusion

The restructuring of SOEs has changed the behaviour of firms for employment and wage determination. After undertaking restructuring, firms use fewer workers to produce the same amount of output. In other words, the problem of overstaffing has been tackled. Prior to restructuring, SOEs shared profits with employees. After restructuring, no profit-sharing behaviour has been observed. These significant findings indicate that firms are behaving more like capitalist firms than SOEs, even though full privatisation has not yet been achieved.

Restructuring does not worsen the welfare of employees as commonly believed. In fact, there is a negative effect of restructuring on the rate of retrenchment of workers, indicating that firms retrenched more workers prior to restructuring than after. It should be noted, however, that due to data limitations, the study used a very small sample size, which limits the representative areas of the study.

Notes

- ¹ Walder indicated that a state enterprise is 'a socio-political community' and the managers are the leaders of that community. They are responsible for community welfare and they are judged both by their superiors and subordinates on their effectiveness in all areas concerning community welfare including employment, 'not just on meeting production and financial plans' (Walder 1989).
- ² For detailed information on sampling and survey design, see China Economic and Business Program and China Center for Economic Reform (2003).
- ³ See Appendix A for estimated labour demand equation using a sample of firms which did not experience the restructuring.
- ⁴ The prediction follows the following formula

$$e^{ln}(L_{it}) = \alpha_{11} + \alpha_{12} * gz_{it} + \beta_{11} * ln(OP_{it}) + \beta_{13} * ln(OP_{it}) * gz_{it}.$$
- ⁵ The variable profit per worker appears to be endogenous, and there is no attempt to establish a causal relationship between the profitability and dependent variables.

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Appendix table A9.1 **Labour demand equation for a sample of firms without restructuring**

	Coefficient	Std. Err	T-Ratios
Constant	4.74	0.09	50.20
Log value added	0.15	0.01	10.23
Log wages	-0.51	0.03	-17.42
1996	0.00	0.03	0.10
1997	-0.05	0.03	-1.37
1998	-0.13	0.03	-3.88
1999	-0.22	0.04	-6.14
2000	-0.27	0.04	-7.56
2001	-0.34	0.04	-9.32
Number of observations		963	
Number of groups		177	
Within R ²		0.53	
Between R ²		0.38	
Overall R ²		0.34	

Source: Author's calculations.

Appendix table B9.1 **Effect of the restructuring on value added**

	Without control for firm size			With control for firm size		
	Coefficient	Std. Err	T-Ratio	Coefficient	Std. Err	T-Ratio
Constant	1810.11	194.65	9.30	1317.12	388.09	3.39
Dummy for restructuring	570.08	246.83	2.31	609.83	247.93	2.46
Firm size				0.46	0.31	1.47
1996	6.68	268.87	0.02	2.48	268.47	0.01
1997	-12.98	268.11	-0.05	4.28	267.95	0.02
1998	-241.93	276.21	-0.88	-199.61	277.29	-0.72
1999	-400.49	297.74	-1.35	-350.27	299.24	-1.17
2000	-409.61	326.64	-1.25	-344.29	329.16	-1.05
2001	-932.00	360.52	-2.59	-833.45	366.16	-2.28
Number of observations		452			452	
Number of groups		75			75	
Within R ²		0.03			0.03	
Between R ²		0.00			0.67	
Overall R ²		0.01			0.53	

Source: Author's calculations.