The Effects of Privatization on Labor in Turkey

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Abstract

The effect of privatization on labor has been one of the least addressed issues. This paper evaluates the impact of privatization on dismissed workers in Turkey. Earnings equations at state employment and after dismissal are estimated and compared to evaluate the changes in worker's welfare. Dismissed workers experienced significant earnings losses upon reemployment. Earnings losses were smaller for the self-employed than for the wage employed. Post-dismissal jobs were not only characterized by lower earnings but also by a lower quality of non-monetary attributes. The magnitude of the true welfare losses is inferred from the subjective evaluations provided by the workers themselves. Workers felt that what they had lost had not been fully compensated by the severance pay they received.

JEL Codes: J45, J33

Key Words: Privatization, Labor Retrenchment, Compensation, Turkey

1. Introduction

This study, on the impact of privatization on dismissed workers in Turkey, is the first of its kind. It is based on interviews with dismissed workers in the cement and the petrochemical sectors. Dismissed workers were interviewed about both the conditions of their state employment and their post-dismissal labor market experience; they were also asked to make pre- and post-dismissal welfare comparisons. Data from these interviews are analyzed in this paper, mainly through the estimation of earnings equations at state employment and after dismissal.

The results show that dismissed workers suffered significant earnings losses upon re-employment, losses that amounted to an average of 66 percent of their state earnings. Nonetheless, those earnings losses were smaller for self-employed workers (as opposed to the wage employed), for better-educated workers, for younger workers and for cement workers (relative to petrochemical workers). Earnings losses were not significantly influenced by the tenure at state employment, although a longer tenure significantly reduced the probability of employment after dismissal.

There was evidence that the losses may reflect the loss of noncompetitive rents at state employment. To the extent that most post-dismissal jobs lacked formal arrangements and social benefits this implies that most workers moved to the informal sector. Welfare losses were probably higher than those indicated by the earnings losses, since the post-dismissal jobs not only paid lower monetary remunerations but were also of lower quality than the state jobs. The non-monetary aspects of losses are captured by two questions, which required workers' subjective evaluations of their pre- and post-dismissal welfare. The overwhelming majority of workers considered their current welfare worse than it had been during state employment and would have preferred to go back if they could. This suggests that the attractive monetary and non-monetary conditions of state employment were unattainable in the private sector.

The organization of this paper is as follows. Section 2 gives information about privatization in Turkey. The details of the data collection process are given in Section 3 along with major characteristics of the interviewed workers. The estimation results for

earnings equations and welfare loss equations are provided in Sections 4 and 5 respectively. Finally the concluding remarks appear in Section 6.

2. Privatization in Turkey

The history of State Owned Enterprises (SOEs) in Turkey goes back to the early 1930s; by the early 1980s, however, a move for privatization of those enterprises was under way. Reducing the economic activities of the state was one of the aims of the January 24, 1980 Structural Adjustment and Stabilization Program. Privatization was on the agenda of successive governments and gained momentum in the late 1980s. Although the public employment share in Turkey's total employment is not very high (9.8 percent in the civil service and 3.2 percent in SOEs in 1993) it nonetheless accounts for a large share of wage earners (about 30 percent in 1993) (OECD, 1996).

The state cement industry owned 26 plants scattered around the country. Five of its plants were sold in 1989 to a French concern by block sale. Three of them are included in the present study. The four other plants included in this study were privatized partly by offering shares to public and partly by block sale. The cement plants, particularly those located in the west of the country, were highly profitable. This was partly due to market power. There were marked improvements in labor productivity in some of the plants after privatization, which was attributed to a decline in employment, a policy pursued by the new management.

The state petrochemical industry, Petkim Petrochemicals A.S., owned two plants. A first complex had been established in 1965; the second one was added in 1984. Petkim assumed the status of under consideration for privatization in 1987. In 1990, partial privatization was achieved by selling 8 percent of Petkim's shares. Throughout its history Petkim has been a profitable SOE, possibly due to its monopoly power in the product market. Profitability increased in the 1990s, due to the rehabilitation process undertaken in the industry.

In the cement factories, the new owners conducted the dismissals after the privatization process. This provides an example of a case where labor restructuring was left to new investors who are in a better position to judge their own labor needs. However,

in the petrochemicals complex government assumed the responsibility for labor restructuring before privatization. The petrochemicals firm was given the status of under consideration for privatization. This period was used to dismiss workers. Such restructuring prior to privatization was expected to increase the attractiveness and the value of the firm to the prospective buyers.

Until the promulgation of the privatization law (Law No. 4046) in November 1994, the Labor Law was used to dismiss workers from privatized organizations. Workers interviewed for this study were dismissed according to Article 13 of the Labor Law. According to Article 13, an open-ended contract can be terminated through a written notification of the employer and the worker is entitled to severance compensation. It is the lump-sum payment given to a worker whose contract is terminated and who has at least a year of continuous service in that employment. Each year of employment at an establishment is rewarded with thirty days of pay in the severance compensation. The last daily gross wage to which wage supplements of a continuous nature are added is the basis for severance. Further details can be found in Tansel (1999). While dismissed workers from cement factories were of all ages, those from petrochemicals firms were substantially older. They were chosen from among those eligible for retirement. This strategy helped to resolve potential labor conflicts.

3. Data

I collected the data analyzed in this paper through interviews with dismissed individual workers. The interviews took place during the period of May through December of 1995. A total of 563 former workers of the cement factories in Ankara, Balıkesir, Denizli, İskenderun Niğde and Söke were interviewed in each of these cities and their environs. A total of 682 former workers of Petkim in İzmir, İzmit and environs were interviewed. Of the total 1245 workers interviewed, 859 of which were retired after dismissal while 240 of the retirees continued to work. This provided a total of 579 currently working people on which the tables and regressions in this paper are based. About half of the retirees stated that they were looking for a job and would work if they find a suitable one.

With the help of the cement workers' union (Çimse-Is), some of the cement plants agreed to provide a list of all the workers dismissed since privatization. In some cases, the local chapter of the union provided partial lists. It was possible to interview, on average 63 percent of the workers in the lists. Some of the workers had moved, some had died and some refused to interview. When the cost of going to another town was reasonable and when there were two or more workers to be interviewed, I attempted to track down the migrant workers. Since many of their addresses were in rural areas, the sample may under represent those workers who moved and took up farming after dismissal. Potential selectivity bias introduced by this process is not addressed in this work due to lack of necessary data.

As seen in the Appendix Table, there were twice as many Petkim as cement workers with a regular or vocational high school education or higher. Furthermore, the overall mean years of schooling (7.5 years) of sample workers in both industries were about a year and one-half greater than the mean years of schooling (5.95 years in 1990) of the male labor force of Turkey (Tansel and Güngör, 1998).

The current earnings of both cement and petrochemical workers dropped after leaving state employment.[1,2] Current earnings actually dropped even if the potential income from the severance pay received, calculated under the assumption of a 10 percent real rate of return, was taken into account. When asked to compare pre -and post-dismissal levels of income, about 92 percent of the cement and 87 percent of the Petkim workers said that their post-dismissal level of income was lower or much lower than their level of income during state employment.

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[1]   All of the monetary figures in this study are deflated by the monthly consumer price index (CPI) of base 1987. The cities of Ankara, Izmir and Konya are assigned their monthly CPIs. The other cities in the study are assigned the monthly CPI of the region in which they are located. They are assigned the regional urban or rural monthly CPI according to whether their population is over or under 20,000. Since the severance compensation is asked retroactively, the figures are deflated by the similar indices applicable to the layoff dates. Since the interviews were implemented during May-December 1995, the current earnings are deflated by the monthly CPIs. The annual rate of inflation was 97 percent in 1995.

[2]   Obviously, the workers do not work the same amount of hours in their current jobs. Rather than computing the hourly wage I have instead used the monthly wage since there were very few (2.2 percent), less than full-time workers. The majority of the workers worked eight hours or more.

Almost all the workers had subsidized lunch, free transportation service to work, heating fuel, and child support at their state jobs. In the post-dismissal jobs however, more than half of the sample had no such payments in kind. Whereas the social security coverage was 100 percent at the state employment, in the post-dismissal period this coverage dropped substantially. In their state jobs, about 97 percent of the cement workers and 87 percent of the Petkim workers were union members. In the post-dismissal sample, union membership was nil. Thus, the post-dismissal jobs not only paid lower wages, but were also lower quality in terms of payments in kind, fringe benefits, job security and probably in the work effort required.

The 50 percent labor force participation rate among the dismissed workers is lower than the urban male participation rate of 85 percent for the 25-54 age group in Turkey (SIS, 1996: 103). Among the post-dismissal labor force participants, the unemployment rate was 6.7 percent, which is about the same as the urban male unemployment rate of 6.3 percent for the 25-54 age group in Turkey (SIS, 1996: 135). The unemployment rate and the unemployment spell were higher among the cement than the Petkim workers. This may be related to their lower educational attainments or to regional characteristics.

About half of the active workers were self-employed. This is much higher than the 19 percent rate for self-employed among Turkey's urban male population (SIS, 1996:121). The severance payment received, in the current environment of high cost credit, may have facilitated the dismissed workers in the sample to establish their own business. Among the self-employed, retail trade was the most common sector of work compared to other service sector activities or manufacturing.

The average spell of unemployment was 6.6 months among the self-employed and 9.1 months among the wage earners. In the sample, 35 percent of the self-employed and 15 percent of the wage earners experienced no spell of unemployment following dismissal. This suggests that the self-employed experienced easier transitions to the private sector than the wage employed. Longer spells of unemployment among wage earners relative to the self employed could be the result of the search for hard to come by formal sector wage earner positions, similar to those positions once held. These patterns

are similar to those observed in Britain. In the Michelin Redundancy Study, Leslie (1990) found that self-employment proportion adjustment times were substantially shorter than those for contractual employment to equilibrium.

4. Earnings Equations

i) Mincerian Earnings Equations

In order to examine the factors that influence state and post-dismissal earnings, Mincerian earnings equations of the following form are estimated:

$$\log W_i = \beta X_i + \varepsilon_i$$

where log W is the natural logarithm of the monthly earnings, X is a vector of independent variables that includes personal and human capital characteristics of the workers and ε_i's are the independently distributed disturbances with zero mean and constant variance. For the state earnings equation, hourly earnings is not considered since hours worked is not at worker's discretion. For the post-dismissal earnings equation to control for the different hours of work, I included unearned income and dummy variable indicating age 50 and over among the explanatory variables since they may affect the decision on hours of work. Education levels are the dummy variables indicating graduation at that level. Primary school graduation is the base. State tenure is the number of years of work at the state employment. Pre-state tenure is the number of years of work before state employment. A dummy variable, indicating that the worker is a wage earner is also included in the post-dismissal earnings equation.

ii) State Earnings Equations:

A test of the hypothesis of equality of the earnings equations for the cement and petrochemical sectors rejects the null at the five percent level of significance. Accordingly, equations for the cement and Petkim workers are presented separately in Table 1. The education coefficients were jointly statistically significant and individually

significant except at the university level for cement workers (possibly due to small number of observations at this level) and at the middle school level for Petkim workers. Years of tenure at the state employment were statistically significant with a larger impact for Petkim than for cement workers. The coefficient estimates on the dummy variables indicating marital status, gender and family size, were statistically insignificant. However, earnings in the cement sector were about 15 percent lower than earnings in the petrochemical sector. This sectoral gap is consistent with the findings of Krueger and Summers (1988) regarding the inter-industry wage structure in the US, where the cement sector also pays less than the petrochemical sector.

Table 1: OLS Estimates of State Earnings Models

	Cement		Petkim		Total	
Variables	Coefficient	t-Ratio	Coefficient	t-Ratio	Coefficient	t-Ratio
Education:						
Middle School	0.1343	1.64	-0.0065	0.11	0.0403	0.88
High School	0.1271	2.16	0.1540	2.52	0.1462	3.47
Voc. High School	0.1066	2.15	0.1439	4.12	0.1332	4.76
University	0.1178	0.69	0.4248	6.29	0.3942	6.60
State Tenure	0.0104	2.82	0.0159	2.75	0.0134	4.41
Pre-State Tenure	0.0088	1.47	0.0018	0.30	0.0030	0.78
Age≥50	0.0389	0.77	-0.0068	0.20	0.0021	0.08
Married	0.0361	0.37	0.0204	0.17	0.0374	0.49
Family Size	-0.0018	0.14	-0.0029	0.24	-0.0026	0.30
Women	-0.1046	0.89	-0.1264	1.11	-0.1180	1.46
Cement	-	-	-	-	-0.1489	2.22
Constant	7.6475	57.0	7.7424	43.4	7.7659	69.8
R-Squared	0.1144		0.0868		0.2506	
F(K,N-K)	4.4097		5.7883		22.78	
SER	0.3667		0.3908		0.3754	
Sample Size	563		682		1245	

Notes: K is the number of independent variables, N is the sample size. The equations also included the location dummy variables for Balıkesir, Denizli, İskenderun, Konya, Niğde, Söke for the cement equation; Yarımca for the Petkim equation and all of them for the total equation to take the local labor market differences into account. For brevity, they are not reported.

Probit for Working:

Fifty percent of the dismissed workers continued to participate in the labor force, while the other fifty percent were no longer economically active. Results from a probit estimation for working are presented in Table 2. Being a graduate of vocational high

school or university increases the probability of working by about 9 or 32 percent respectively, while being a graduate of high school or middle school does not contribute significantly to the probability of working, as compared to being a primary school graduate.

Years of tenure at state employment significantly reduce the probability of post-dismissal work. This may be due to several influences. First, older workers have less to gain from investing in a new job because they have fewer active years left. Second, more experienced workers have built up more savings. Third, workers with more tenure have rights to larger severance pay and thus have less need to invest in a new job. The last possibility suggests that a negative estimated coefficient should be expected on the variable log severance pay.

Nonetheless, the estimated coefficient for log severance pay shows that severance significantly increases the probability of post-dismissal work, probably because it enables the self employed to set up a business in the current environment of high cost credit. This result is consistent with the findings of Alderman et al. (1996) for Ghana. But it is at odds with the findings of Mills and Sahn (1995) for Guinea, where severance pay significantly reduces the probability of being employed.

Other individual characteristics influence the probability of working as well. The probability is lower for those who are 50 years old or more and for those who retired after dismissal. The probability is also lower for women and for those with high-unearned income. High-unearned income can be expected to raise the reservation wage.

iii) Post-Dismissal Earnings Equation:

The estimated post-dismissal earnings equation is given in Table 2. It is corrected with selectivity using Heckman's (1979) two-stage method with the above discussed probit selection rule that predicts the probability of working. The coefficient estimate of the Inverse Mills Ratio is statistically significant indicating a negative selection bias.

Post-dismissal earnings increase with education and work experience. The coefficients on education are statistically significant both jointly and individually, except at the middle school level. Pre-state years of work significantly increase post-dismissal

earnings as well. But the coefficient on tenure at the state employment is only marginally significant, implying that the specific skills gained at state employment may not be easily transferable to the private sector. This is contrary to what Kletzer (1989) found with US data: that previous job tenure is positively related to the post-dismissal earnings.

Post-dismissal earnings also vary across jobs. Particularly, they are 26 percent lower for wage earners than for the self-employed. But a dummy variable for workers from the cement sector is insignificant in the pooled sample; this suggests that post-dismissal earnings, although smaller for the cement workers, do not statistically differ from those of Petkim workers. And regional factors do not matter much either. Both the share of industrial output in provincial GDP and the provincial unemployment rate were also included in order to examine the impact of these local labor market indicators on current earnings; their coefficient estimates were, however insignificant.

Finally, the post-dismissal earnings equation also takes other potential influences into account. It shows that post-dismissal earnings increase significantly with unearned income. It also shows that workers who are 50 or more years of age earn significantly less than the younger. Marital status, family size and gender, on the other hand, do not significantly influence post-dismissal earnings.[3]

I now compare the state earnings and post-dismissal earnings equations provided in Table 2 for the 579 currently employed. The impact of educational attainment, ignoring the insignificant coefficient for the middle school level, is somewhat larger on post-dismissal earnings than on state earnings. The impact of work experience prior to state employment is larger as well. And even the impact of tenure in the public sector appears to be larger on post-dismissal earnings, although it is only marginally significant.

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[3]   Since the wage earners earned significantly less than the self employed in their post dismissal jobs, I estimated their post-dismissal earnings equations separately, correcting for selectivity by using Heckman's (1979) two-stage method with a probit selection rule that predicts the probability of choosing wage employment conditional on working. The results indicated that selection bias was not important in the both wage earner sample and the self employed sample. In the results for the wage earners, among the education variables only the university level was statistically significant, with a large coefficient estimate. Years of work at state employ also significantly increased wage earnings. In the results for the self employed, high school, vocational high school and university education significantly increased earnings. Years of work at state's employ were not statistically significant while pre-state years of work significantly increased self-employed earnings. These results are available from the author upon request.

Table 2: Estimates of Earnings Models for the Currently Working and Probit for Working

Variables	OLS Estimates of State Earnings for Currently Working		Probit Equation for Working		Selection Corrected Estimates of Post-Dismissal Earnings	
	Coefficient	t-Ratio	Marginal Effect	t-Ratio	Coefficient	t-Ratio
Education:						
Middle School	0.0777	1.24	0.0920	1.29	-0.0543	0.56
High School	0.0930	1.67	-0.0384	0.56	0.2298	2.64
Voc. High School	0.1095	2.75	0.0856	1.86	0.1696	2.78
University	0.4805	6.14	0.3188	3.49	0.5315	4.25
State Tenure	0.0091	2.36	-0.0253	3.82	0.0140	1.64
Pre State Tenure	-0.0045	0.84	-0.0035	0.54	0.0159	1.89
Age $\geq$ 50	-0.0033	0.07	-0.1181	2.80	-0.1480	1.79
Married	0.0610	0.64	-0.1290	1.02	0.0351	0.24
Family Size	0.0008	0.07	0.0396	2.85	-0.0031	0.15
Women	-0.0725	0.53	-0.5098	3.73	0.1252	0.56
Cement	-0.1693	1.76	-	-	-	-
Wage Earner	-	-	-	-	-0.2635	5.66
Retired	-	-	-0.5157	7.67	-	-
Log Severance	-	-	0.1505	3.01	-	-
Unearned Income ($\times 10^{-3}$)	-	-	-0.8340	2.24	0.1643	2.62
Inverse Mills Ratio	-	-	-	-	-0.2106	1.80
Constant	7.8729	54.6	-2.2463	1.67	7.1559	33.5
R-Squared	0.3571		-		0.2374	
F(K,N-K)	17.28		-		8.68	
SER	0.3486		-		0.5273	
-Log Likelihood	-		586		-	
Chi-Squared (K)	-		541		-	
Sample Size	579		1240		579	

Notes: K is the number of independent variables, N is the sample size. The equations also included the location dummy variables for Balikesir, Denizli, İskenderun, Konya, Niğde, Söke and Yarımca to take the local labor market differences into account. For brevity, they are not reported.

Therefore, returns to education and experience were slightly higher in post-dismissal jobs than in state employment.

Earnings Losses

Based on the results in Table 2, the predicted value of the log of monthly earnings for a worker with the mean characteristics of those currently employed is 7.92 at state employment, compared to 6.91 in the current job. The fall in earnings was about 10 percent smaller for the self-employed than for the wage employed. And it was smaller for cement workers than for Petkim workers. The fall in earnings also varied with individual characteristics, as shown in Table 3. Among workers with different levels of schooling, general high school graduates experienced the smallest losses, whereas the largest losses were experienced by middle school graduates. Overall, the losses were smaller for the better educated. Workers under 50 years of age also experienced lower losses than older workers. On the other hand, the fall in earnings did not vary much with tenure in the public sector.[4]

The fall in earnings after dismissal may reflect the loss of a good job match or the loss of non-competitive rents associated with state employment. In the case of skilled workers, the fall in earnings could reflect the loss of a good job match. But non-competitive rents cannot be excluded in their case either. In spite of being more educated, these workers could have a low productivity. Their dismissal could actually reflect a decision by firms of getting rid of poorly performing workers (van Ours and Ridder, 1995).

5. Welfare Losses

Monetary earning losses represent only one aspect of the welfare losses; other aspects include welfare losses incurred for lost job security, fringe benefits, health and

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[4]   Alderman et al. (1996) found that dismissed Ghanaian civil servants lost about 48 percent of their civil service earnings. But the losses were smaller for those who found wage employment than for those who were self employed. Mills and Sahn (1995) found that earnings actually increased for those who found wage employment after dismissal in Guinea.

Table 3: Change in Earnings After Dismissal as a Percentage of State Earnings

	Wage Earners		Self Employed	
Primary School	-69	(175)	-59	(154)
Middle School	-73	(15)	-64	(21)
High School	-64	(22)	-53	(31)
Voc. High School	-67	(65)	-57	(63)
University	-67	(13)	-57	(17)
Age < 50	-68	(264)	-58	(247)
Age ≥ 50	-72	(26)	-64	(42)
Cement	-66	(209)	-56	(180)
Petkim	-73	(81)	-63	(119)
State Tenure=5	-70	(14)	-61	(9)
State Tenure=20	-67	(19)	-57	(19)

Source: State earnings and the post-dismissal earnings equations in Table 2.
Notes: The numbers of cases are provided in parentheses.

retirement benefits, and possibly a higher work effort. There may, however, be welfare gains associated with additional leisure when applicable. These other aspects of the changes in welfare are addressed by two questions touching on subjective evaluations of previous and current levels of welfare. In the first question, workers were asked to compare their pre- and post-dismissal welfare. After considering the severance pay received, whether they retired or not, and the characteristics of their new job when they had one, about 92 percent of the cement workers and 85 percent of the Petkim workers stated that their current situation was worse than during their state employment. The respondents were also asked if, had they the choice, would they have preferred to stay or leave state employment. About 93 percent of the cement workers and 85 percent of the Petkim workers stated that they would have preferred to stay. These overwhelmingly high percentages of workers who preferred the state sector and who considered their current situation worse than before suggest that workers have suffered significant monetary and non-monetary welfare losses.

Table 4: Maximum Likelihood Probit Estimates for Comparison of Current and Previous Situations and for Preference to Stay or Leave State Employment

Variables:	Comparison		Preference	
	Marginal Effect	**t-Ratio**	**Marginal Effect**	**t-Ratio**
Education:				
Middle School	-0.0170	0.29	0.0443	1.00
High School	0.1016	3.03	-0.0295	0.90
Voc. High School	0.0508	2.16	0.0013	0.06
University	0.1515	3.26	-0.0512	1.30
State Tenure	-0.0026	0.70	0.0040	1.15
Pre-State Tenure	-0.0011	0.30	0.0035	1.06
Age $\geq$ 50	0.0302	1.42	-0.0398	2.04
Married	0.0038	0.06	0.0285	0.50
Family Size	-0.0065	0.81	0.0167	2.22
Women	-0.0306	0.49	-0.0086	0.14
Retired	0.0482	1.02	-0.0952	2.25
Log Severance	0.0069	0.18	-0.0054	0.21
Constant	-0.2497	0.83	0.1137	0.44
-Log Likelihood	423		409	
Chi-Squared (19)	58		69	
Sample Size	1245		1245	

Notes: The t-ratios are the absolute values of the asymptotic t-ratios. The equations also included the location dummy variables for Balikesir, Denizli, Iskenderun, Konya, Niğde, Söke and Yarımca to take the local labor market differences into account. For brevity, they are not reported.

In the estimate of the probability of a same or better current situation presented in Table 4, the dependent variable takes a value of one if the worker states that his current situation is the same or better than during the state employment and zero otherwise. Probability of a same or better current situation was unrelated to the years of tenure at state employment and to the amount of the severance compensation received. However, this probability significantly increased with the level of education: all levels except middle school contributed both positively and significantly to the probability of a same or better current situation than before.

In the estimates of probability of preference to stay, given also in Table 4, the dependent variable takes a value of one if the worker prefers to remain at state employment and zero otherwise. The years of tenure and the amount of the severance pay were not statistically significant. The probability of the preference to remain at state employment was significantly higher among those with larger families. Being 50 or more

years of age reduces significantly the probability of preference to stay at state employment.

6. Conclusions

The effect privatization has on labor is a universal concern. This study evaluates of the impact of privatization on dismissed workers in Turkey, and focuses specifically on workers in the cement and petrochemicals sectors. The author interviewed dismissed workers from the seven cement plants, which were already privatized, and from the two petrochemical complexes which were under consideration for privatization. About 70 percent of the workers interviewed retired upon dismissal or shortly thereafter. One-third of the retirees, however, continued to participate in the labor force, which added up to a 50 percent economically active sample. This participation rate was lower than the urban male labor force participation rate of the relevant age group in Turkey. About half of the dismissed workers still in the labor force were self-employed in their post-dismissal jobs. This was much higher than the proportion of the self-employed among urban males in Turkey. Presumably, the severance pay received was helpful in establishing a business in the current environment of high cost credit. The self-employed in the study also experienced shorter spells of unemployment than wage earners. This suggests that training and credit schemes to help dismissed workers become self-employed can be beneficial. However, analysis of their cost effectiveness is limited (Kikeri, 1998: 25).

Earnings equations at state employment and after dismissal are estimated and compared to evaluate the changes in workers' welfare. These equations show that Petkim workers had significantly higher earnings at state employment than cement workers. They also show that dismissed workers experienced significant earnings losses upon re-employment, amounting on average to 66 percent of their state earnings. Even if a 10 percent real return on the severance compensation is added to the post-dismissal income, earnings losses remain sizable. Earnings losses were smaller for the self-employed than for the wage employed; for the better educated, for the younger workers and for the cement workers as compared to Petkim workers. The earning losses were not

significantly influenced by the tenure at state employment. It is plausible that the earnings losses reflect non-competitive rents associated with state employment.

Post-dismissal jobs were not only characterized by lower earnings, but also by a lower quality of non-monetary attributes. Some of these attributes are not easily quantifiable and consequently, it is difficult to calculate the true welfare losses based on the more easily observable earnings losses. But the magnitude of the true welfare losses can be inferred from the subjective evaluations provided by the workers themselves. An overwhelming majority considered their current situation worse than it had been during the period of state employment. An also overwhelming majority would have preferred to go back to state employment if given the choice. The dismissed workers thus felt that what they had lost had not been fully compensated by the severance pay they received.

The results of this paper give an idea not only about earnings losses, but also about the extent of the welfare losses from dismissals due to privatization. Moreover, they show that the determinants of these losses are somewhat different. Ideally, the insights about the determinants of both earnings and welfare losses could prove useful to policy makers in designing compensation packages for dismissed workers. Since the process of privatization involves social and political sensitivities it is important for policy makers to develop strategies dealing with it.

Finally, the results of this paper confirm several observations about the Turkish labor market. Not only there is segmentation of the labor market between public and private sectors, but also there is segmentation between formal and informal sectors.[5] The fact that most post-dismissal jobs lacked formal arrangements and social benefits implies that for most workers the dismissals were a movement from the formal into the informal sector of the economy. Ultimately, the significant earnings and welfare losses point not only to public sector rents but also to the poor quality of jobs in the private sector in terms of both monetary and non-monetary attributes. Clearly, improving the quality of those jobs is a challenge to Turkey's government.

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[5]   See Mazumdar (1989) for a discussion of labor market segmentation in developing countries.

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APPENDIX

Means and Standard Deviations of Variables

Variable	All Dismissed Workers	Cement Workers	Petkim Workers	All Working	All Non-Working
Education[a]:					
Primary School	0.582	0.709	0.477	0.573	0.587
Middle School	0.061	0.053	0.068	0.062	0.061
High School	0.081	0.092	0.072	0.092	0.073
Voc. High School	0.231	0.137	0.309	0.221	0.241
University	0.045	0.009	0.075	0.052	0.039
State Tenure	18.30	15.29	20.77	15.52	20.75
	(5.60)	(5.90)	(3.88)	(5.72)	(4.14)
Pre-State Tenure	2.704	1.647	3.578	2.441	2.947
	(3.32)	(2.71)	(3.54)	(3.21)	(3.42)
Age ≥ 50[a]	0.247	0.142	0.333	0.117	0.359
Married[a]	0.976	0.972	0.980	0.971	0.980
Family Size	4.402	4.528	4.298	4.584	4.239
	(1.34)	(1.35)	(1.31)	(1.24)	(1.40)
Women[a]	0.022	0.020	0.024	0.014	0.029
Wage Earner[a]	-	-	-	0.501	-
Self Employed[a]	-	-	-	0.499	-
Retired[a]	0.690	0.336	0.982	0.409	0.937
Log Severance	11.36	11.02	11.64	11.16	11.55
	(0.55)	(0.53)	(0.37)	(0.59)	(0.43)
Unearned Income	190.6	75.58	285.6	105.9	265.4
	(538)	(225)	(683)	(382)	(636)
Log State Earnings	8.006	7.809	8.169	7.918	8.083
	(0.43)	(0.37)	(0.41)	(0.43)	(0.42)
Log Post-Dismissal Earnings	-	-	-	6.910	-
				(0.60)	
Age	45.54	42.65	47.92	42.69	48.03
	(5.84)	(6.40)	(4.01)	(5.88)	(4.50)
Years of Schooling	7.539	6.684	8.245	7.636	7.472
	(3.22)	(2.61)	(3.49)	(3.21)	(3.21)
Months of Unemployment	-	-	-	7.857	-
				(9.13)	
Cement Workers[a]	0.452	1.00	0	0.672	0.257
Sample Size	1245	563	682	579	661

Note: a: The standard deviations of the dummy variables are not reported for brevity but may be computed
from their reported means (m) as sd = (m(1-m))$^{\leftrightarrow}$.