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1988-1998: Panel Evidence***

*By: John E. Jackson and Bogdan Mach*

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## **Job Creation, Destruction and Transition in Poland, 1988-1998: Panel Evidence\***

John E. Jackson<sup>†</sup>

Bogdan Mach<sup>‡</sup>

### **Abstract**

Longitudinal data from interviews with Poles of working age conducted in 1988, 1993 and 1998 present a detailed view of the transition from a state dominated to a market economy. Job loss in state firms and job creation in new private firms are the dominant employment change, other than retirements from the labor force. In the Polish case, a significant proportion of this movement over the 1988 to 1998 period involves a period of unemployment or exit from the labor force before obtaining a private sector job. A second feature of the Polish transition is considerable job competition between workers leaving the state sector and those who were out of the labor force at the beginning of the transition. The likelihood of moving to the private sector was higher for the better educated and for residents of regions with a robust de novo economy, suggesting that the supply of jobs in the private sector combined with higher levels of human capital lead to faster and smoother transitions. Lastly, wage differences between the state sector and the de novo sector appear to have little association with mobility, suggesting that movement is not strongly related to the opportunity to find a higher paying job.

**Key Words:** Transition Economics, Labor Mobility, Poland

**JEL Classification Codes:**

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<sup>†</sup> Department of Political Science and William Davidson Institute, University of Michigan, Ann Arbor, MI, USA. Email: jjacksn@umich.edu.

<sup>‡</sup> Institute of Political Studies, Polish Academy of Sciences, Warsaw, Poland. Email: bmach@isppan.waw.pl.

Interest in job creation and job destruction (JCJD) as a way to describe the transformation of economies has spawned a number of important theoretical and empirical studies of these processes. On the theoretical aspects, see Aghion and Blanchard (1994), Castanheira and Roland (2000), Roland (1992 and 2000). The main feature of these models is that the imposition of competition and the hardening of budget constraints on the state owned firms lead to the closing of jobs in that sector – the job destruction process. The de novo private sector, composed of firms that have been privatized or newly created, is the source of job creation to employ those laid off from or voluntarily leaving the state sector. The rates of destruction and creation, which are empirical characteristics that vary from country to country, then determine the speed and ultimately the success of the transition.

The empirical work describing the JCJD process and testing some of the theoretical propositions follows two different tracks, which taken together offer important insights into the transitional process. One set of studies is based on longitudinal data on employment (and other factors such as payroll) among a set of firms. (See Brown, et. al., 1990 for Michigan; Jackson, Klich, and Poznańska, 1999, 2002 for Poland; and Faggio and Konings, 1999, for comparisons across Poland, Estonia, Slovenia, Bulgaria and Romania.) These studies provide important insights into the magnitude, speed, and source of the destruction and creation. For a given time period, job creation is the jobs added by growing firms plus the employment in new firms started during that period. Job destruction is the sum of jobs lost in declining firms, including those that exited during the period. In theory this methodology has the advantage of covering large sections of the economy, depending upon the data source, and being based on actual job counts by firm. They are limited, however, because of systematic under-reporting in most countries and the total absence of enterprise data in others.<sup>1</sup>

Other empirical studies are based on data from household employment surveys that ask respondents about current and past jobs and past spells of unemployment. (See Jurajda and Terrell, 2001.) The responses to these recall questions are used to construct the person's employment history for the time period in question. These reconstructions are then used to make estimates of the aggregate rates of job destruction and creation and the rate of transition from one employment category to another. There are obvious uncertainties introduced by using people's recall of their employment experiences.<sup>2</sup> There are other limitations in these data, beyond the recall uncertainties, with respect to assessing employment change over the course of the transitions in East-Central Europe. A major restriction is that even with the recall questions, some employment histories do not cover employment prior to the transition, thus making inferences about the total amount and type of job destruction and creation problematic. (The

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<sup>1</sup> Non reporting can be of two types. One is explicit in that the agency responsible for the statistical data exempts certain types of firms. In Poland, for example, all firms with five or fewer employees are not required to file employment data with the central statistical office. In the Czech Republic that threshold is even higher. The second type of non-reporting is informal in that firms that should report don't. The magnitude of this informal economy varies from country to country and over time but cannot be ignored, at least in the early years of the transition. Institutional reforms along with external pressure, such as that exerted on countries applying for EU membership, seem to be reducing this aspect of non-reporting in the more advanced countries.

<sup>2</sup> Jurajda and Terrell (2001, p. 10) contend that recalls should be accurate due to the centrality of employment experiences in one's life and the relatively few transitions that each respondent experienced. The Polish data, however, indicate that our respondents had more transitions than the Czech respondents, making reliance on recall a bit more problematic.

Czech data cover the period 1991 to 1996 while the Estonian data were collected in 1995 and ask about employment in 1989, thus providing a better span for the transition.) The use of recall data become even more problematic if one wants to examine propositions about what individual or local characteristics are associated with workers' movements from one type of job to another. This analysis requires more detailed data on respondents' pre-transition circumstances, such as wage rates, type of job, education, etc. than is likely available through the recall questions in current surveys. What is required is longitudinal data that includes information about respondents' employment and characteristics prior to the transition.

The data analyzed in this paper overcomes some of the limitations with cross-sectional labor market surveys. The Polish Academy of Sciences began a longitudinal study of workers and occupations in 1988. Selected respondents were re-interviewed in 1993 and again in 1998, with supplemental samples added in each wave to keep the sample current and to provide an over sample of entrepreneurs and college graduates. (The data are described in Appendix A.) Each wave contains extensive data on respondents -- such as employment, by industry and ownership type, wages, and occupation; individual characteristics, education, age, gender, etc.; and a broad set of work attitudes, what they value in a job, willingness to take financial risks, etc. These data can be used to make a number of important descriptive analyses about the JCJD process and job mobility during the Polish transition. The information on individual job changes can be used to test various propositions about what individual and regional characteristics are associated with success in making the transition.

The first section of the paper is largely descriptive, showing the transition rates from one type of employment to other employment for each wave of the panel. These descriptions are presented in the form of a Markov transition model, so the entries can be interpreted as the probability that a person employed in one type of enterprise at  $t_0$  (1988 or 1993) is employed in that same enterprise or a different type at  $t_1$  (1993 or 1998). These transition probabilities provide very important evidence about job destruction and creation in each wave of the Polish transition.<sup>3</sup> These tables, and the associated analysis, provide insights into the transitions that took place in Poland, a country widely seen as having a relatively successful transition following quite draconian and rapid transition policies. The individual data also will help confirm or question the conclusions reached with firm data on the transition. (Jackson, Klich and Poznańska; 1999, 2002). Poland is one of the few cases where we have both firm data and individual data from which to estimate job creation and destruction rates.<sup>4</sup>

The second part of the paper then tests statistically several propositions about variations in these transition rates and in wage rates. One important comparison is between wage rates in the  $t_1$  and the  $t_0$  jobs, a "pull" factor, and the closing of a job in the old sector, a "push" factor in leading workers to shift jobs. The analysis of job mobility also includes different measures of human

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<sup>3</sup> The two waves coincide nicely with changes in the Polish transition. 1993 is the end of the period when the government was controlled by the post-Solidarity liberal reformers and the beginning of the period of governing by the post-Communist coalition elected in the Fall, 1993. This coalition was voted out of office and replaced by a right-wing coalition in the Fall, 1997. The coincidence of governmental changes and survey waves provides an excellent way to examine the impacts of different governments and policies on job transitions.

<sup>4</sup> The Polish data are not appropriate to address the question of the optimality of the speed of transition. The sample size is too small and the information about the timing of the employment changes is too limited to compare the temporal rates of destruction and creation. If the individual and firm level data are consistent, the firm level data provide the necessary information to discuss the speed of transition.

capital, such as education, work experience, age, and occupation. Additional factors examined are the amount of job creation, destruction, and unemployment in the local labor market. This part of the analysis permits testing of hypotheses about how local economic contexts and circumstances contribute to the transition process.

### **Employment Transitions**

Our discussion of the Polish economic transition begins with a table showing the probability that a person employed in a given category in 1988 is employed in that or a different category in 1993 or 1998. For our discussion of job creation and destruction during the transition to a market economy, the important categories are state owned enterprises, private firms, and not employed. State firms are disaggregated by manufacturing and mining and all other, including trade, services, and administrative. There is no category for “unemployed” in 1988, hence its omission for that year. In 1993 this category is defined as those without work but who are seeking work. The not working category includes those who have never worked plus those who might be temporarily without a job for health or other reasons plus retirees.

It is important from the standpoint of examining transitions that 1993 is when unemployment peaked during the early part of the transition, reaching a national level of about 16.5%.<sup>5</sup> Consequently, the transition probabilities for 1988 - 1993 describe the period with the most severe short term imbalance between job creation and job destruction. By contrast, 1998 had the lowest unemployment rates since the beginning of the transition. The 1993 to 1998 years offer a picture of job creation and destruction during a period of substantial recovery. The entire 1988 to 1998 period should provide a good picture of a transition, with a period of net job creation following a period of net job destruction.

### **Net and Gross Employment Changes by Category**

Table 1 shows the shifts among types of employment categories, including not working and unemployment between 1988 and 1993. The proportion of individuals who stayed in the same category is shown in bold face type to indicate the degree of job stability. The table also includes columns for the total number of cases and for the proportions in each category in each year. The row titled Net Diff is the net gain or loss in a category. The rows under the category gross job creation and destruction are the gross flows into and out of each category.

(Table 1 About Here.)

The marginals and the net differences indicate important shifts among sectors, with private employment, unemployment, and the not working increasing substantially. The growth in the private sector is quite dramatic, particularly as a proportion of its size in 1988. Gross job creation in that sector equaled 180% of its size in 1988. The proportion in the private sector increased from 6.7% to 21.4% as a proportion of the active workforce (meaning the not working are excluded). Virtually all of the additional private sector jobs are in de novo rather than privatized firms.<sup>6</sup> The increase in the not working group is due to natural legal retirements plus the

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<sup>5</sup> The unemployment rate in our sample is lower than the national rate because of the over sampling of respondents in 1988 who were self-employed and college educated. Both these groups are less likely to experience periods of unemployment and if they are unemployed are likely to be so for a shorter period of time. Appropriate re-weighting of the sample could correct this bias, but our interest at this point is not in estimating national rates, but rather the transition among our sample.

<sup>6</sup> Privatizations are defined as respondents employed in the state sector in 1988, or 1993, and the private sector in 1993, or 1998, and who say they are working for the same firm as in 1988, or

possibility that some 1988 workers who lost their job chose retirement rather than formal unemployment. Unemployment in 1993 is 12.2% of the active workforce in the sample, the category with the third largest gross increase. By far the largest job loss between 1988 and 1993 in both net and gross terms is in the state owned sector, and the state manufacturing sector in particular. Half the total number of jobs in this sector in 1988 were closed by 1993 (692 jobs out of 1372).

Table 2 shows the same information for the 1993 to 1998 period. Most of the trends observed in the 1988 to 1993 continued, with two notable exceptions. The number unemployed dropped from 12.2% to 9.0% of the active workforce. This decrease is the result of the transition reaching its later stages. Job destruction in the state sector continued but at a slower rate than in 1988-1993, while the rate of job creation in the de novo sector, as a proportion of the active workforce, increased. By 1998 the private sector employed a sixth of all respondents and thirty percent of the active workforce. Between 1993 and 1998 this sector accounted for half of all gross job creation. More significantly, it is not the privatization of former state firms but the creation of de novo firms that accounts for the growth of the private sector. By 1998, new private firms accounted for nearly eighty percent of all private sector jobs. This pattern of slowing job destruction in the state sector and increasing job creation in the private sector follows the conventional pattern of transition, with job creation lagging job destruction. The overwhelming role of de novo firms in creating jobs is consistent with the results using firm level data for Poland (Jackson, Klich, and Poznańska; 1991, 2002) and with Jurajda and Terrell's findings for the Czech Republic and Estonia using employment surveys (Jurajda and Terrell, 2001). The other significant change is the decline in the number of private farmers, from 13.2% to 8.3% of the respondents and from about 17% to 14% of the active workforce.

(Table 2 About Here.)

The 1988 to 1998 changes, shown in Table 3, summarize the changes observed for the ten year transition period. The entries in this table, however, make the declines in the state sector and the growth of the private sector even clearer. In 1998 the state sector is forty percent of its 1988 size while the private sector over four times as large as it was in 1988. The not working category has doubled, which is largely due to normal retirements, as we will see with the analysis of the job transitions. (These ratios are as percentages of the active workforce to standardize for the changes in sample sizes and the not working category.)

(Table 3 About Here.)

In toto, these data indicate a high level of employment turnover in the Polish economy during the transition. Between 1988 and 1993, we estimate the de novo sector job creation was about 13% and job destruction in the state sector was about 40% of the active 1993 workforce. For 1988 to 1998 these proportions are 23% and 70% of the 1998 workforce, respectively. By comparison, estimates of job creation and destruction for the Czech Republic are about 41% and 30% and for Estonia are about 44% and 40% respectively (Jurajda and Terrell, 2001).<sup>7</sup> If we assume that employment turnover is a relative measure of restructuring, Poland did more

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1993. This will slightly understate the size of the privatized sector as this definition omits those who worked for a state firm and moved to a different privatized firm. Given the slow rate of privatization and the fact that privatized firms created very few gross new jobs, the amount of understatement will be quite small.

<sup>7</sup> Jurajda and Terrell's percentages are proportions of those employed, rather than a fraction of the total workforce. Consequently, their estimates of job turnover if adjusted to match our denominator would be smaller, particularly in Estonia where unemployment was higher.

restructuring than did the Czech Republic or Estonia, with the largest differences being the larger amount of job destruction in Polish state firms.

### Employment Transitions

The internal entries in Tables 1 - 3, showing the mobility among job categories during the transition, are more substantively important than the marginal distributions just described. It is important to note that we use the term “job” to mean being employed by a given type of enterprise, not the position or responsibilities within the enterprise. In our use, job mobility refers to changing the type of firm where one works, not to changing one’s responsibilities if she or he stays with the same firm type.<sup>8</sup> The rows show the probability of a person transiting from one type of job to another or out of or into the active workforce. With one exception we will ignore the transitions into the non-work category as most of those changes are related to age and thus to people reaching the legal retirement age rather than to responses to economic factors. As expected with the Polish transition, there is very little movement out of the private sector. For workers in the private sector the probabilities of remaining in that sector are between 0.60 and 0.65 for the two five year intervals about .55 for the ten year interval. The probability of a private worker in 1988 becoming unemployed is 0.08 in 1993 and a 0.03 in 1998. Otherwise the shifts out of private employment are negligible.

For workers in state enterprises in 1988 the story is quite different. The probabilities that these workers remain in their original sector vary from .4 to .6 between 1988 and 1993 and fall to .2 to .4 between 1988 and 1998, with the odds of remaining in the state manufacturing sector being particularly low. Between 1988 and 1993 ten to fifteen percent of the state workers move to the private sector while a sixth leave the workforce altogether and about ten percent became unemployed. These proportions shifted dramatically for the full 1988 to 1998 period. About a sixth of the state sector workers in 1988 moved to the de novo private sector by 1998, another eight percent are in privatized firms, about six percent are unemployed and thirty percent left the workforce.

One mobility pattern is particularly important, and revealing about the path from a state controlled to a private economy. Between 1988 and 1993, state workers had about a ten percent chance of becoming unemployed and a sixteen percent chance of leaving the workforce. Between 1993 and 1998, about a quarter of the unemployed and eight percent of the non-workers found jobs in the private sector. These transition probabilities suggest that it may have been common for state workers to become unemployed or to drop out of the workforce before finding a private sector job. Of the 179 state workers who moved from their state jobs to jobs in the de novo private sector between 1988 and 1998 fifty-one, or nearly thirty percent, were unemployed or out of the workforce in 1993. Responses to one of the questions asked in 1993 indicate an even higher incidence of unemployment spells among those moving to the private sector. Respondents were asked how many months of unemployment they had experienced between 1988 and 1993. Of the 163 respondents moving from the state to the private sector in that period, forty-three, or over a quarter, report a spell of unemployment.<sup>9</sup> Of the 179 making the transition

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<sup>8</sup> This definition will understate job creation and destruction as someone can be employed by a firm of a given type, say a private firm, at time  $t_0$  and employed by a different firm of the same type at  $t_1$  and our methodology would not identify this as an employment change. This would miss both the possible destruction and creation of a job in the private sector. Obviously someone changing the position, or job, within the same enterprise will not be identified as a job mover by this methodology.

<sup>9</sup> The average reported amount of unemployment was ten months.

between 1988 and 1998 nearly forty percent (67) report some period of unemployment or being out of the workforce.

This evidence suggests that transitions should be modeled as a second order Markov process, rather than a first order process, in order to capture fully the features of job mobility. This observation of spells of unemployment in the Polish experience differs from what Jurajda and Terrell observed in the Czech Republic, where they found a large amount of mobility directly from the state to the private sector, (Jurajda and Terrell, 2001). These differences can be related to the different speeds of transition in each country, with Poland having a much higher rate of job destruction in the state sector early in the transition.

A second part of the job mobility story is that nearly fifteen percent of the non-workers in 1988 report moving into a private sector job by 1998, suggesting that an important proportion of the new private sector workforce is composed of people who entered the workforce during the transition. (About a sixth of the private sector workforce in 1998 are people who in 1988 said they were not in the workforce.) This suggests there is considerable competition between new entrants and former state sector workers for the jobs being created in the private sector.

### **Individual Characteristics and Employment Mobility**

The next analysis examines the individual factors associated with these transition probabilities. The simple question is, “How does the probability of a person moving from one sector to another, given an initial sector, vary with factors such as their wages, their age, education, local economic conditions, etc.?” These associations offer insight into which types of respondents are able to make the transition, how sensitive the transition is to economic differences in the different sectors, and where there is friction in the labor market.

Let  $P_{ij}$  be the probability of transiting from sector  $j$  to sector  $i$  during one of the time periods. The subscripts  $i$  and  $j$  vary across our employment categories used in Tables 1 – 3, with some aggregation. We combine the two state sector categories and those in privatized firms to create a single category corresponding to the old sector.<sup>10</sup> Our analysis estimates separate probit models for three different outcomes for each time interval, 1998-93, 1993-98, and 1988-98.<sup>11</sup> One model is the probability of shifting into the de novo private sector given that the respondent was not privately employed initially. The second is the probability of becoming unemployed, given that the person is in the labor force initially. For the 1993-98 period we condition this model on the person not being unemployed in 1993. The last model is the probability of leaving the workforce given that the respondent was in the workforce at the beginning of the period. These individual

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<sup>10</sup> It makes conceptual sense to include those in privatized firms in 1993 and 1998 with the state sector as these individuals did not change employment by our definition. They simply had the ownership of their enterprise change. Furthermore, all the evidence in this and other papers concludes that it is the creation of the de novo sector that is most important to the transition, so we want to model the probability of individuals shifting into that sector. This is also consistent with the coding used by Jurajda and Terrell who defined an “old” sector and a de novo sector.

<sup>11</sup> A complete model would take the form of a multinomial logit model predicting the probability of respondents being in one of the five employment categories, given their employment in 1988 or 1993. Unfortunately, this estimation is not statistically feasible. As seen in Tables 1 – 3 there are a lot of cells with very few entries. Almost no one leaves the private sector, except to leave the workforce, and no one shifts into the state sector. Efforts to estimate full multinomial logit models for each employment category produced unstable and in places nonsense results.

models capture the key employment transitions during this period – moving into the de novo private sector, being unemployed, and leaving the workforce.

One set of variables of interest is respondents' employment sector at the beginning of the period as this will indicate the likely transition rates. A second set of variables measures their wage, their job tenure and organizational level if they work in an enterprise. Two variables assess local economic conditions and estimate the association between individual job mobility and the unemployment rate and the rate of de novo job creation in the respondent's voivodship (province). Lastly, we include variables measuring persons' age, gender and education, represented by their years of schooling.

### **Mobility to the Private Sector**

Table 4 shows the estimated probit models for the probability of a person moving into the private sector during each time interval, given that they were not privately employed at the beginning. In each interval people who were not employed, either because they were out of the workforce or unemployed (for 1993), had a significant probability of taking a job in the private sector. For an otherwise average respondent, these probabilities range from 0.05 for a not working person in 1988 to 0.2 for the unemployed in 1993-98. These results reinforce the earlier observation that an important component of the private sector workforce by 1998 came from those outside the workforce or who went through a period of unemployment. State workers in the manufacturing sector were more likely than workers in other sectors to move to the private sector, with the exception of farmers between 1993 and 1998.

(Table 4 About Here.)

Current employment conditions are only weakly related to job mobility to the private sector. Initial wages are negatively associated with mobility between 1998 and 1993 as expected, though the relationship is small and not statistically significant. Between 1993 and 1998 this association is very weakly positive, but statistically not different from zero. Job tenure in the state sector is negatively related to mobility in the 1988 to 1993 and 1993 and 1998 time periods. People with supervisory positions were more likely to move to the private sector between 1988 and 1993 but very slightly less likely to do so between 1988 and 1993, yielding an overall positive probability for the whole 1988 to 1998 period. The results suggest that economic push forces, such as low wages, do not appear to be a strong factor in mobility to the private sector. It is more likely that the primary factor is a big push, in the form of a job closure, which is not measured in these data. It may well be the case, however, that the relationship between mobility and tenure in the state sector reflects a lower likelihood of losing, or being threatened with loss of, ones job.

Local economic conditions, particularly the rate of de novo job creation in the region, are strongly associated with movement to the private sector. A one standard deviation difference in the proportion of the regional workforce employed in de novo jobs in 1997 is associated with a .04 difference in the probability of a person in that region moving to the private sector between 1988 and 1998. The local unemployment rate is positively associated with mobility to the private sector for all three intervals though the estimated coefficients are all smaller than their standard errors. Our best guess is that local unemployment, as distinguished from individual unemployment, is not a factor in movement to the private sector. What is important is the availability of new jobs.

There is an obvious simultaneity problem in this analysis, particularly as it relates to the relationship between regional de novo job creation and movement to the private sector. Regions where individuals are more likely to move to the private sector will be regions that have larger de novo economies, rather than de novo job creation being a spur to mobility. To partially control

for this possibility we re-ran the 1993 to 1998 estimation using the size of the de novo sector in 1993 and the 1993 unemployment rate as the explanatory variables.<sup>12</sup> The results are very consistent with the previous interpretation. The probability of a person moving to the private sector between 1993 and 1998 was significantly higher in regions with high rates of de novo job creation between 1989 and 1993.

Lastly, in terms of personal characteristics there are few surprises, except possibly that education is not associated with mobility between 1988 and 1993, though it is for the 1993 to 1998 and thus for the 1988 to 1998 periods. By 1998 a four year difference in years of schooling is associated with about a 0.04 higher probability of moving to the private sector. Men are more likely than women to move to the private sector and mobility decreases with age. Neither result is a surprise. One possible surprise is that for the 1988 to 1998 people aged forty-five to fifty in 1988 are less likely to move than people younger or older. As this disparity with older respondents is not evident for either sub-interval it may be a spurious result. It is an intriguing result nonetheless, as this is the age group with no experience outside the socialist economy. Older individuals would have some memory about Poland's previous market economy.

### **Movements to Unemployment**

Table 5 presents the estimated coefficients in the probit model for the probability of being unemployed in 1993 or 1998 given that the person was in the workforce in 1988 or 1993. Other than the negative relationship between being a farmer and becoming unemployed between 1988 and 1993 there is very little consistent relationship between a person's employment sector and becoming unemployed. This is surprising, given the expectation that declines in the state sector would lead to unemployment. There is a small negative relationship between job tenure and becoming unemployed, which is not surprising. There is also no relationship between being a supervisor and becoming unemployed.

There is a positive relationship between local unemployment rates and the likelihood of being unemployed between 1988 and 1993 but otherwise there is no association between local economic conditions and individual unemployment. We expect a negative relationship between de novo job creation and unemployment, particularly as this variable is positively associated with movements to the private sector, but there is no supporting evidence.

The only consistent relationships with the probability of becoming unemployed are with education and the age categories. Higher levels of education are strongly associated with decreases in the likelihood of becoming unemployed for all three intervals. The probability of becoming unemployed decreases with age and is particularly low among the upper age categories. (We show in the next section that these age groups are more likely to just leave the workforce rather than to become unemployed.) Males are slightly less likely to become unemployed than females, though the differences are not large or statistically significant.

### **Movements out of the Workforce**

The last workforce change is the movement out of the workforce. The estimated probit model is shown in Table 6. As suggested previously, most of this movement is related to retirement. This association is very evident in the distribution of coefficients among the different age categories. Between 1988 and 1993 the likelihood of leaving the workforce increases significantly at age 45 and becomes quite large for those over 55. The shift in the relationship

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<sup>12</sup> This would be analogous to using the lagged values of de novo job creation and unemployment as instruments for the 1998 values for these variables, though there is the potential problem that exists with all instrumental variable estimation using lagged values in that the instrument may not be independent of the outcome variable.

with age between 1993 and 1998 where forty to forty five year olds significantly increase their likelihood of leaving the workforce and where the probability of the older cohorts leaving increases substantially is what one would expect as everyone is five years older in 1998 than they were in 1993. An average respondent who is over 50 in 1988 has a probability of 0.75 of retiring by 1998 and the probability is about .55 for someone between fifty and fifty-five. As we mention above, these older respondents are more likely to leave the workforce than to become unemployed or to move to the private sector.

The only anomaly in the relationship between exiting the labor force and age is between 1988 and 1993 when respondents under thirty are more likely to exit than are respondents between thirty and forty. This outcome is another example of the two-step process of movement into the private sector. Nearly half of the under thirty respondents who left the workforce between 1988 and 1993 are employed in the private sector in 1998. The probability of an under thirty respondent who left the workforce between 1988 and 1993 moving to the private sector is higher than the probability for a comparable person over thirty though we cannot say this difference is statistically significant because of the small sample size. Males and better educated respondents are much less likely to leave the workforce.

There are several associations between employment conditions and the probability of leaving the workforce. Private sector workers, except the self-employed, are more likely to leave the workforce than workers in the state sector. Employees in the state manufacturing sector are slightly more likely than workers in the other state sectors to leave the workforce though these relationships are not strong. Farmers and the self-employed in 1988 are less likely to leave the workforce than respondents working for formal organizations but there is no difference between 1993 and 1998. Between 1993 and 1998 people residing in regions with a high level of de novo job creation are less likely to leave the workforce. This relationship holds for the whole period as well even though there is no difference for the 1988 to 1993 period. Local unemployment rates are not associated with exits from the workforce.

### **Wage Changes**

The last analysis is of the changes in wages. The analysis addresses two questions. One is simply the expected wage difference associated with employment in and moves between sectors. For example, do people moving from the state sector to the private sector experience an increase or a decrease in wages. The second question is whether individual attributes, such as schooling, job tenure and experience are valued differently in a market economy, which will produce wage changes related to these attributes.

There are several different propositions about the expected wage difference between the state and private sectors. The de novo private firms are more efficient and productive than the state firms, which in the long run means that wages in the private sector should be higher as labor will receive its marginal product in each set of firms. This, of course, assumes that the state firms face a hard budget constraint and their wages are not subsidized. The reality is that state firms do not face perfectly hard budget constraints and governments, particularly those elected with support from workers in the state sector, find ways to maintain wage and employment subsidies. The softer the budget constraints, the higher the state sector wages.

Private sector employment is divided into four separate categories as the wage changes in each are likely to be different and to follow different patterns over time. The main distinction is between those who report being self-employed and those working for others in the private sector. For 1993 and 1998 the self-employed are further divided by whether they employ one to three persons (including themselves) or more than three workers. Both groups can be defined as entrepreneurs, with the second group clearly being the more successful and thus likely to be earning a higher wage. The fourth group is workers in privatized firms.

Employment in the state manufacturing sector is taken as the base case in all of the analyses. Other categorical variables measure whether the respondent is employed in the non-manufacturing state sector, is privately but not self-employed, is self-employed with this latter category subdivided by small or large firms for 1993 and 1998, or works in a privatized firm. We also test two interaction variables to indicate whether a person moving from one of the state sectors to the private sector or to being self-employed gets a larger than expected wage increase, or decrease. The expression for these employment effects is,<sup>13</sup>

$$B_0 + B_1Self_0 + B_2Self_1 + B_3Pvt_0 + B_4Pvt_1 + B_5Sto_0 + B_6Sto_7 + B_7Pvtzd_0 + B_8Pvtzd_1 \\ + B_{10}NotWork_0 + B_{11}NotWork + B_{12}SOE * Self + B_{13}SOE * Pvt.$$

The expressions  $SOE * Self$  and  $SOE * Pvt$  are the two interaction terms indicating the person moved from the state to one of the private sectors. Those not working for a wage either at the beginning or the end of one period are included in the analysis so as not to lose those cases for the whole period. This both preserves our sample size and reduces the opportunity for selection bias because those not earning a wage at some point are not a random sample of respondents. The only cases excluded were respondents, such as farmers, who did not receive wages in any of the three periods.

The coefficients on the main variables taken as a pair indicate the expected wage change for that combination of employments. The coefficient  $B_0$  indicates the expected wage change for someone employed in the state manufacturing sector for the whole period. For someone who was employed in the private sector the whole period the expected wage change is  $(B_0 + B_3 + B_4)$ . Taking the interaction term into account, the expected wage change for someone moving from the state manufacturing to the private sector is,  $(B_0 + B_4 + B_{13})$ . The primary interest is the differences between state sector and private sector wage changes and how one's wages are expected to change by moving from one sector to the other.

A important force affecting private sector wages will be the rate of job creation in new firms and the level of unemployment. The higher the rate of de novo job creation the higher the demand for labor in the private sector and the higher the expected increase in wages. Conversely for the local unemployment rate. The larger this pool of potential workers, the less upward pressure on wages.

Firms competing in the private market are likely to value different skills and attributes than firms selling in planned markets. The most conventional proposition is that human capital, as evidenced by years of schooling, will be more highly valued in the market than under the fixed wages in the planned system. Other factors, such as work experience under the old system, tenure in a specific job, and age are likely to become less valued. (See Diewald and Mach, 1999.)

These panel data provide an excellent way to test these propositions as we have wage data for each point in time and can compare changes in wages with various individual and local factors. Our analytical strategy is to relate the difference in the log of per hour wages at time  $t$  and the log of wages at time  $t-1$ ,  $[\log(W_t) - \log(W_{t-1})]$ , to a set of explanatory variables for people continuously in the workforce.<sup>14</sup> The explanatory variables include individual characteristics

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<sup>13</sup> To keep this expression simple we do not denote the separate self-employed small and self-employed large sectors though they are treated separately in the analysis.

<sup>14</sup> The log of the "wage" for someone without income is arbitrarily set to  $\log(0.05)$ , which is well below the lowest earned wage. The dummy variable for whether the person was working at the beginning or the end of the period adjusts for this arbitrariness without affecting the other coefficients.

such as gender, education and age; assessments of employment history, such as total work experience and supervisory position; the two regional economic performance variables; and the employment sector dummy variables shown above. Estimation is done for the wage level in 1988 and for all three intervals.<sup>15</sup> The estimated coefficients and standard errors are shown in Table 7. The interaction terms were small and statistically insignificant and are omitted from Table 7 and the discussion.<sup>16</sup>

(Table 7 About Here.)

The first column in Table 7 estimates the log of the level of wages in 1988. Males earn twenty-three percent more than females, each additional year of schooling is associated with a six percent higher wage, and wages do not increase age, controlling for job tenure and work experience. Wages increase about six tenths of a percent for each year of additional experience and about four tenths of a percent for each additional year in the current job. Supervisors earn about ten percent more than non-supervisors. Self-employed individuals earn the most and workers in non-manufacturing state enterprises the least, with private workers and state employees in manufacturing earning about the same. The important question is how these relationships change during the transition between 1988 and 1998.

The returns to education increased over both five year intervals, but particularly between 1993 and 1998. An additional year of schooling is associated with a four percent higher wage increase between 1988 and 1998. The wage gap between males and females increased some, but the change is not statistically significant. Between 1993 and 1998 and for the period as a whole, wage increases were smaller the older the respondent. A ten year age difference is associated with about a four percent smaller wage increase for the 1988 to 1998 period. Job tenure was not associated with any wage change, while increased total work experience is associated with smaller wage increases between 1988 and 1993 and for the period as a whole. Keeping or moving to a supervisory position is associated with significant wage increases. Respondents in regions with a high rate of de novo job creation had significantly higher wage increases, suggesting a higher demand for labor in areas where there was a successful new sector.<sup>17</sup> There was no association between wage increases and unemployment rates.

The expected wage changes associated with changes in employment categories are summarized in Table 8. The entries show the expected percentage wage increase for workers in or moving between given categories. By far the biggest gainers are those entrepreneurs who own large firms by 1998. They consistently gain more than any other employment pattern, regardless of where they started. This is hardly a surprise, but reinforces the general belief that Poland created an entrepreneurial oriented economy during the transition. The self-employed in small

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<sup>15</sup> Because of the highly inter-related nature of these variables and the implicit error terms we used a seemingly unrelated regression estimation across all four equations.

<sup>16</sup> The F-statistic for whether the coefficients on the interaction terms differed from zero would be exceeded by chance 63.4% of the time. Only in the 1988-1993 equation is a coefficient larger than 0.04 and it has a t-statistic of only 1.11, which leads us to not reject the null hypothesis that the true value is zero.

<sup>17</sup> For the 1988 – 1993 and 1988 – 1998 periods the in the number of de novo jobs is simply the number of those jobs as a proportion of the workforce in 1993 and 1998 respectively, as there were virtually no de novo jobs in 1988.

enterprises fared more poorly, particularly between 1988 and 1993, though they started with a higher wage than others.<sup>18</sup>

(Insert Table 8 About Here.)

A second notable wage difference is that workers staying in or moving to the de novo private sector had smaller wage increases than workers in any other category. Their real wages decreased by nearly twenty-five percent between 1993 and 1988 workers in the state manufacturing sector had larger increases than anyone except for the self-employed. A previous paper examined state sector payroll increases and concluded that during the 1993-1997 period state sector wages increased faster and were less related to productivity than private sector wages (Jackson, Klich and Poznańska, 1999 and 2001). This coincided with the period when the government was controlled by a coalition of post-Communist parties whose campaign included a promise to end the high tax on state sector wage increases enacted by the previous reform government. The consequence of this wage tax is seen by comparing the wage increases between 1988 and 1993 with the gains over the next five years. Between 1988 and 1993 employees in the private sector or those moving to the private sector had larger wage increases than workers staying in the state manufacturing sector. Just the opposite occurred between 1993 and 1998. For the full ten year period state manufacturing workers and successful entrepreneurs had larger wage increases than private sector workers or those moving to the private sector.

One important observation follows from these results when combined with the results in Table 4 showing the probability of moving to the private sector. In neither case is there evidence that wage differences or the promise of wage differences induces much movement from the state to the private sector. Table 4 shows that low wages in the previous job were unrelated to the likelihood of moving. Tables 7 and 8 indicate that with the possible exception of 1988 to 1993 when wages in the state sector were controlled, workers moving to the private sector did not obtain higher wages than workers staying in the state sector, particularly in manufacturing. A much more likely explanation for the high level of employment movement from the state to the private sector is the destruction of jobs in the state sector, a conclusion supported by the number of workers who report being unemployed or out of the workforce in 1993 and who then are employed in the private sector in 1998.

### Conclusions

These panel data present a detailed view of the transition from a state dominated to a market economy. Individual transitions from the state sector to the private sector are the dominant job change, other than retirements from the labor force. In the Polish case, a significant proportion of this movement over the 1988 to 1998 period involves a period of unemployment or exit from the labor force before obtaining a private sector job. Interestingly, there is the suggestion that this was particularly evident among those under thirty at the time the transition began. These results contrast with evidence from the Czech Republic for the 1991-1996 period, which is very likely due to the difference in the rate at which the state enterprises were closed or restructured during the periods studied.

A second feature of the Polish transition is considerable job competition between workers leaving the state sector and those who were out of the labor force at the beginning of the transition. This competition further contributes to the real unemployment rate as it will leave some former state workers without jobs. The interesting question to pursue is whether the

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<sup>18</sup> Some of this difference between the self-employed in 1988 and other employment categories may be a consequence of not being able to distinguish between the self-employed with large and those with small firms.

difficulties faced by the former state workers relate to a lack of skills or proper attitudes relative to the new entrants for coping with the demands of the new private sector.

The likelihood of moving to the private sector was higher for the better educated and for residents of regions with a robust de novo economy, suggesting that the supply of jobs in the private sector combined with higher levels of human capital lead to faster and smoother transitions. There is also evidence of a push factor as employees in the state manufacturing sector, the sector with the largest aggregate employment declines, were more likely to move to the private sector than were workers in other state enterprises or farmers. Interestingly wages differences between the state sector and the de novo sector appear to have little association with mobility, suggesting that movement is not strongly related to the opportunity to find a higher paying job.

## Appendix A

### Polish Social Structure and Social Mobility Panel Study

The Polish Academy of Sciences began a longitudinal study of workers and occupations in 1988. Selected respondents were re-interviewed in 1993 and again in 1998, with supplemental samples added in each wave to keep the sample current and to provide an over sample of entrepreneurs and college graduates. Table A1 shows the sample sizes for each wave of the panel study and the supplements.

<b>Table A1: Polish Social Structure and Social Mobility Panel</b>			
	1988	1993	1998
N – Original Sample	5854	2102	1775
N – Oversample from Original (Entrepreneur + College)		166	127

The information in this paper is obtained from combining questions from these surveys. The most important feature is the fact that 2268 of the 1993 interviews and 1775 of the 1998 interviews were with respondents who had been interviewed in 1988, providing the longitudinal information that spans the beginning of the transformation in 1989.

The 1988, the 1993, and the 1998 study were carried out under the auspices of the Institute of Philosophy and Sociology of the Polish Academy of Sciences. The list of researchers involved in at least one wave includes: Ireneusz Białeccki, Henryk Domański, Anna, Firkowska, Krystyna Janicka, Bogdan W. Mach, Joanna Sikorska, Kazimierz M. Słomczyński, Zbyszek Sawiński, Wojciech Zaborowski, and Krzysztof Zagórski.

In the 1988 study, the basic sample consisted of 6,000 men and women aged 21-65 drawn from the central register of Polish citizens (PESEL). If a respondent from this sample was unavailable for an interview, then a substitute from the auxiliary sample (N=3,167) was used. The auxiliary sample was a set of small random samples available for all combinations of the type of residence and geographical location. A special algorithm was designed how to find a replacement for any person in the basic sample who either could not be reached or declined to cooperate with an interviewer. A replacement was defined as a person matching the (unavailable) respondent from the basic sample on the combination of type of residence, geographical location, gender, age, and education. For the basic sample the response rate was 71% (4373/6000). In addition, 1,505 cases were obtained from the auxiliary sample resulting in a total of 5,878 cases. Since some cases were discarded due to missing data, the final number of cases in the file of the 1988 study is 5,854.

In 1993, 2,500 cases were randomly selected from the 5,854 cases of the 1988 study. The response rate for the 1993 study was 84%, yielding 2,102 cases. In addition, in 1993 interviews were made with all those who in 1988 were either self-employed (outside agriculture) or had a university degree, but were not among 2,500 persons randomly selected for an interview. This overrepresentation supplement yielded 166 cases.

In 1998 an effort was made to re-interview all 1993 respondents. 1775 out of the target of 2268 (2102 + 166) cases were re-interviewed yielding the response rate of 78%.

In the analysis reported in this paper we removed from our working file 3 1993 respondents because the 1993 data strongly suggested they might not be the targeted 1988 persons and 16 1998 respondents because the 1998 data strongly suggested they might not be the targeted 1993 persons.

<b>Table 1: Employment Transitions, 1988-1993</b>									
	1993								
	Not	Pvt.	Private	State	State	Privtzd	Unemp	1988	N
1988	Work	Farm		Mfg	Other			Share	
Not Work	<b>0.600</b>	0.046	0.100	0.031	0.105	0.000	0.118	0.203	458
Pvt-Farm	0.243	<b>0.688</b>	0.040	0.007	0.007	0.000	0.017	0.134	301
Private	0.107	0.066	<b>0.645</b>	0.041	0.058	0.000	0.083	0.054	121
State									
Mfg	0.177	0.060	0.143	<b>0.415</b>	0.059	0.047	0.099	0.295	665
Other	0.157	0.031	0.096	0.013	<b>0.571</b>	0.035	0.096	0.314	707
Privatized	-	-	-	-	-	-	-	-	0
Unemp	-	-	-	-	-	-	-	-	0
'93 Share	0.262	0.132	0.133	0.136	0.222	0.025	0.090	1.000	
N	590	298	299	306	500	56	203		2252
Net Diff	132	-3	178	-359	-207	56	203		
Gross Job Creation and Job Destruction, # of Jobs									
Creation	315	91	221	30	96	56	203		1012
Destruction	-183	-94	-43	-389	-303	-	-		-1012

<b>Table 2: Employment Transitions, 1993-1998</b>									
	1998								
	Not	Pvt.	Private	State	State	Privtzd	Unemp	1993	N
1993	Work	Farm		Mfg	Other			Share	
Not Work	<b>0.837</b>	0.014	0.082	0.016	0.026	0.000	0.026	0.244	429
Pvt-Farm	0.394	<b>0.452</b>	0.097	0.000	0.015	0.000	0.042	0.147	259
Private	0.236	0.027	<b>0.618</b>	0.027	0.059	0.000	0.032	0.125	220
State									
Mfg	0.194	0.019	0.101	<b>0.457</b>	0.027	0.147	0.054	0.147	258
Other	0.174	0.021	0.070	0.005	<b>0.647</b>	0.060	0.023	0.219	385
Privatized	0.178	0.000	0.044	0.044	0.067	<b>0.578</b>	0.089	0.026	45
Unemp	0.375	0.019	0.256	0.031	0.075	0.000	0.244	0.091	160
'98 Share	0.397	0.083	0.166	0.080	0.170	0.050	0.054	1.000	
N	698	145	292	140	299	87	95		1756
Net Diff	269	-114	72	-118	-86	42	-65		
Gross Job Creation and Job Destruction, # of Jobs									
Creation	339	28	156	22	50	61	56		712
Destruction	-70	-142	-84	-140	-136	-19	-121		-712

<b>Table 3: Employment Transitions, 1988-1998</b>									
	1998								
	Not	Pvt.	Private	State	State	Privtzd	Unemp	1988	N
1988	Work	Farm		Mfg	Other			Share	
Not Work	<b>0.644</b>	0.021	0.139	0.018	0.097	0.012	0.069	0.188	331
Pvt-Farm	0.522	<b>0.369</b>	0.078	0.008	0.008	0.000	0.016	0.145	255
Private	0.276	0.034	<b>0.540</b>	0.034	0.069	0.000	0.046	0.050	87
State									
Mfg	0.306	0.039	0.193	<b>0.231</b>	0.060	0.099	0.071	0.304	533
Other	0.300	0.036	0.138	0.011	<b>0.413</b>	0.055	0.047	0.313	550
Privatized	-	-	-	-	-	-	-	-	0
Unemp	-	-	-	-	-	-	-	-	0
'98 Share	0.397	0.083	0.166	0.080	0.170	0.050	0.054	1.000	
N	698	145	292	140	299	87	95		1756
Net Diff	367	-110	205	-393	-251	87	95		
Gross Job Creation and Job Destruction, # of Jobs									
Creation	485	51	245	17	72	87	95		1052
Destruction	-118	-161	-40	-410	-323	-	-		-1052

<b>Table 4: Probability of Moving to the Private Sector</b>						
	1988-1993		1993-1998		1988-1998	
	Coeff	<i>St. Err</i>	Coeff	<i>St. Err</i>	Coeff	<i>St. Err</i>
Tenure <sub>0</sub>	-0.027	0.006	-0.017	0.008	-0.016	0.006
Supervise <sub>0</sub>	0.217	0.113	-0.059	0.166	0.182	0.116
Wage <sub>0</sub>	-0.025	0.021	0.016	0.019	-0.009	0.020
Farm <sub>0</sub>	-0.518	0.182	0.690	0.177	-0.164	0.176
Soemfg <sub>0</sub>	0.206	0.097	0.273	0.156	0.240	0.102
Unemp <sub>0</sub>			0.853	0.178		
Not Work <sub>0</sub>	0.294	0.136	0.689	0.190	0.377	0.143
% New Jobs	5.889	1.504	2.423	0.764	2.369	0.656
% Unemp	0.188	0.768	0.868	1.390	0.918	1.176
Educ	0.019	0.015	0.048	0.019	0.042	0.016
Male	0.377	0.086	0.276	0.103	0.271	0.089
Age 30-35	-0.021	0.118	-0.161	0.143	-0.181	0.120
Age 35-40	-0.012	0.126	-0.197	0.150	-0.201	0.128
Age 40-45	-0.156	0.145	-0.320	0.164	-0.250	0.143
Age 45-50	-0.280	0.174	-0.902	0.226	-0.983	0.214
Age 50-55/>50	-0.379	0.184	-1.292	0.187	-0.961	0.161
Age > 55	-0.597	0.166				
Constant	-1.711	0.285	-2.323	0.372	-1.751	0.213

<b>Table 5: Probability of Becoming Unemployed</b>						
	1988-1993		1993-1998		1988-1998	
	Coeff	<i>St. Err</i>	Coeff	<i>St. Err</i>	Coeff	<i>St. Err</i>
Tenure <sub>0</sub>	-0.012	<i>0.007</i>	-0.027	<i>0.010</i>	-0.006	<i>0.011</i>
Supervise <sub>0</sub>	-0.019	<i>0.132</i>	-0.056	<i>0.220</i>	0.327	<i>0.189</i>
Private <sub>0</sub>	0.132	<i>0.285</i>	-0.483	<i>0.280</i>	0.502	<i>0.384</i>
Self Emp <sub>0</sub>	-0.329	<i>0.237</i>	0.155	<i>0.269</i>	-0.637	<i>0.471</i>
Farm <sub>0</sub>	-1.182	<i>0.218</i>	0.144	<i>0.217</i>	-0.709	<i>0.257</i>
Soemfg <sub>0</sub>	-0.042	<i>0.101</i>	0.309	<i>0.200</i>	0.154	<i>0.144</i>
% New Jobs	2.489	<i>1.780</i>	-1.504	<i>1.426</i>	-0.226	<i>1.101</i>
% Unemp	1.761	<i>0.839</i>	1.238	<i>2.106</i>	2.175	<i>1.712</i>
Educ	-0.083	<i>0.019</i>	-0.092	<i>0.034</i>	-0.151	<i>0.033</i>
Male	-0.067	<i>0.094</i>	-0.156	<i>0.151</i>	-0.234	<i>0.131</i>
Age 30-35	-0.179	<i>0.138</i>	0.038	<i>0.204</i>	-0.349	<i>0.179</i>
Age 35-40	-0.362	<i>0.153</i>	-0.113	<i>0.227</i>	-0.334	<i>0.190</i>
Age 40-45	-0.186	<i>0.158</i>	0.075	<i>0.233</i>	-0.446	<i>0.215</i>
Age 45-50	-0.193	<i>0.185</i>	-0.164	<i>0.305</i>	-0.846	<i>0.292</i>
Age 50-55/>50	-0.199	<i>0.193</i>	-0.768	<i>0.419</i>	-1.486	<i>0.328</i>
Age > 55	-0.442	<i>0.201</i>				
Constant	-0.421	<i>0.323</i>	-0.337	<i>0.576</i>	0.317	<i>0.484</i>

<b>Table 6: Probability of Leaving the Workforce</b>						
	1988-1993		1993-1998		1988-1998	
	Coeff	<i>St. Err</i>	Coeff	<i>St. Err</i>	Coeff	<i>St. Err</i>
Private <sub>0</sub>	0.594	<i>0.275</i>	0.495	<i>0.157</i>	0.491	<i>0.332</i>
Self Emp <sub>0</sub>	-0.687	<i>0.258</i>	-0.060	<i>0.188</i>	-0.253	<i>0.205</i>
Farm <sub>0</sub>	-0.469	<i>0.136</i>	0.037	<i>0.142</i>	-0.175	<i>0.138</i>
Soemfg <sub>0</sub>	0.150	<i>0.097</i>	0.210	<i>0.134</i>	0.146	<i>0.102</i>
Unemp <sub>0</sub>			0.595	<i>0.146</i>		
% New Jobs	-1.572	<i>1.645</i>	-1.416	<i>0.769</i>	-2.030	<i>0.726</i>
% Unemp	0.358	<i>0.796</i>	-0.200	<i>1.340</i>	-0.088	<i>1.247</i>
Educ	-0.055	<i>0.015</i>	-0.097	<i>0.017</i>	-0.107	<i>0.016</i>
Male	-0.327	<i>0.085</i>	-0.388	<i>0.091</i>	-0.473	<i>0.090</i>
Age 30-35	-0.515	<i>0.169</i>	0.102	<i>0.157</i>	0.129	<i>0.161</i>
Age 35-40	-0.372	<i>0.156</i>	0.281	<i>0.154</i>	0.282	<i>0.155</i>
Age 40-45	-0.195	<i>0.159</i>	0.761	<i>0.151</i>	0.835	<i>0.151</i>
Age 45-50	0.403	<i>0.152</i>	1.587	<i>0.168</i>	1.636	<i>0.163</i>
Age 50-55/>50	1.086	<i>0.140</i>	2.121	<i>0.161</i>	2.375	<i>0.151</i>
Age > 55	1.549	<i>0.136</i>				
Constant	-0.497	<i>0.281</i>	-0.127	<i>0.330</i>	0.280	<i>0.302</i>

<b>Table 7: Wage Equations</b>								
	1988		1988-1993		1993-1998		1988-1998	
	Coeff	<i>St. Err</i>	Coeff	<i>St. Err</i>	Coeff	<i>St. Err</i>	Coeff	<i>St. Err</i>
Male	0.211	<i>0.023</i>	0.023	<i>0.035</i>	0.006	<i>0.041</i>	0.026	<i>0.037</i>
Education	0.054	<i>0.004</i>	0.004	<i>0.002</i>	0.035	<i>0.006</i>	0.039	<i>0.006</i>
Age/10	0.009	<i>0.025</i>	0.002	<i>0.011</i>	-0.035	<i>0.022</i>	-0.041	<i>0.022</i>
Job Tenure/10	0.037	<i>0.014</i>	0.002	<i>0.008</i>	0.007	<i>0.010</i>	0.010	<i>0.013</i>
Yrs. Exper./10	0.062	<i>0.024</i>	-0.071	<i>0.018</i>	-0.008	<i>0.010</i>	-0.073	<i>0.019</i>
Supervisor <sub>0</sub>	0.107	<i>0.031</i>	-0.102	<i>0.043</i>	-0.210	<i>0.043</i>	-0.101	<i>0.042</i>
Supervisor <sub>1</sub>			0.210	<i>0.042</i>	0.400	<i>0.104</i>	0.399	<i>0.104</i>
Self – Small <sub>0</sub>	0.258	<i>0.062</i>	-0.307	<i>0.091</i>	-0.042	<i>0.073</i>	-0.304	<i>0.090</i>
Self – Small <sub>1</sub>			0.037	<i>0.072</i>	0.098	<i>0.072</i>	0.100	<i>0.071</i>
Self – Large <sub>0</sub>					-0.512	<i>0.139</i>		
Self - Large <sub>1</sub>			0.517	<i>0.137</i>	0.829	<i>0.124</i>	0.829	<i>0.123</i>
Private <sub>0</sub>	0.076	<i>0.086</i>	-0.055	<i>0.117</i>	0.086	<i>0.055</i>	-0.055	<i>0.117</i>
Private <sub>1</sub>			-0.086	<i>0.055</i>	-0.212	<i>0.060</i>	-0.217	<i>0.059</i>
Privatized <sub>0</sub>					-0.152	<i>0.082</i>		
Privatized <sub>1</sub>			0.143	<i>0.080</i>	0.060	<i>0.068</i>	0.058	<i>0.067</i>
State - Other <sub>0</sub>	-0.107	<i>0.026</i>	0.173	<i>0.039</i>	0.048	<i>0.045</i>	0.174	<i>0.039</i>
State – Other <sub>1</sub>			-0.047	<i>0.045</i>	-0.182	<i>0.057</i>	-0.181	<i>0.056</i>
Not Work <sub>0</sub>	-3.510	<i>0.076</i>	4.221	<i>0.047</i>	4.290	<i>0.046</i>	4.218	<i>0.047</i>
Not Work <sub>1</sub>			-4.221	<i>0.047</i>	-4.290	<i>0.046</i>	-4.218	<i>0.047</i>
Δ % New Jobs			0.696	<i>0.256</i>	1.197	<i>0.278</i>	1.024	<i>0.208</i>
Δ % Unemp			-0.022	<i>0.130</i>	-0.018	<i>0.316</i>	0.053	<i>0.198</i>
Constant	0.505	<i>0.073</i>	-0.012	<i>0.035</i>	0.008	<i>0.036</i>	-0.006	<i>0.041</i>
R <sup>2</sup>	0.96		0.95		0.95		0.96	
N = 932								

<b>Table 8: Employment Change and Percent Wage Change</b>				
From	To	1988 - 93	1993 - 98	1988 - 98
Employment Stable				
State - Mfg	State - Mfg	0.0	0.0	0.0
State - Other	State - Other	13.4	-12.5	-0.7
Privatized	Privatized		-8.8	
Private	Private	-13.2	-11.8	-23.8
Self - Small	Self - Small	-23.7	5.8	-18.5
Self - Large	Self - Large		37.3	
Employment Change				
State - Mfg	Self - Large	67.7	129.1	129.1
State - Other	Self - Large	99.4	140.4	172.6
Private	Self - Large	58.7	149.7	116.8
Self - Small	Self - Large	23.4	119.7	69.1
State - Mfg	Self - Small	3.8	10.3	10.5
State - Other	Self - Small	23.4	15.7	31.5
Private	Self - Small	-1.8	20.2	4.6
Self - Large	Self - Small		-33.9	
State - Mfg	Private	-8.2	-19.1	-29.5
State - Other	Private	9.1	-15.1	-4.2
Self - Small	Private	-32.5	-22.4	-40.6
Self - Large	Private	-8.2	-51.5	-19.5
State - Mfg	Privatized	15.4	6.2	6.0
State - Other	Privatized	37.2	11.4	26.1

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