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The Incidence and Cost of Job Loss in the Ukrainian Labor Market

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Abstract

We examine the effects of economic transition on the pattern and costs of worker displacement in Ukraine, one of the laggards among the transition countries as far as reforms are concerned. Using the retrospective part of the Ukrainian Longitudinal Monitoring Survey (ULMS), which covers the period from 1986 to 2003, we construct displacement rates for the years 1992 to 2002. In Ukraine, these rates comprise a substantial fraction of separation rates and seem to be considerably larger than those found in Russia. At the end of the nineties and at the beginning of the new century, displacement rates in the Ukrainian labor market reach between 3.4 and 4.8 percent of employment, which are slightly lower than levels typically observed in several Western economies. The characteristics of displaced workers are similar to those displaced in the West in so far as displacement is concentrated on the less educated. They are different with regards to tenure since, unlike in the West, displacement rates are higher in the medium range. During the period of perestroika about half of displaced workers find re-employment within six months while the other continues non-employed. However, between 1992 and 2003 these re-employment rates are dramatically lower and do not exceed a third of the displaced. Wage costs of displacement for the sub-sample of displaced workers do not seem to be large. However, wages of the displaced begin to fall in the year prior to displacement and this loss is not recovered in the 2 years after the return to work in a new job.

JEL Classification: J64; J65; P50

Key words: Displaced workers; Labor markets in transition; Ukraine

1. Introduction

Despite the extensive literature that examines large-scale privatization and structural reforms in developing and transition economies, e.g. Djankow and Murell (2002), little has been written about job displacement in these countries. Kletzer (1998) and Kuhn (2002) summarize the large empirical Western literature on job displacement which establishes the extent, incidence, and costs of displacement. As Jacobsen, LaLonde and Sullivan (1993) point out, policymakers need to know the size of the losses borne by displaced workers when considering intervention, training, or compensation. These issues are particularly pertinent for transition economies in which institutional structures are often evolving rapidly alongside mass privatization, large scale restructuring, and the reallocation of labor. Most transition economies also experienced deep recessions at the onset of the shift from the planned to the market economy. Even if quits comprise the major share of separations from jobs in transition economies, the scale of the reallocation process may be so large that many involuntary job separations occur.

The labor markets of the successor states of the Former Soviet Union (FSU), excluding the Baltic states, are often thought to have shown different adjustment patterns after the initial transition shock than the labor markets of Central Europe. Dramatically falling real wages, wage arrears and unpaid forced leave for a large fraction of the workforce were the most important mechanisms, with which enterprises responded to a collapse in the demand for their products. Since these mechanisms implied a low cost of labor, a moderate rate of labor shedding in Russia and other countries of the Common Wealth of Independent States (CIS)¹ was observed over an extended period.² The evidence that we have for Ukraine tells us that these peculiar adjustment mechanisms took a more extreme form than in Russia for most of the nineties. As a consequence, Konings, Kupets, and Lehmann (2003) find a very moderate aggregate rate of labor shedding in the nineties in the Ukrainian labor market. However, these authors as well as Brown and Earle (2003) also establish

¹ The states of the FSU without the Baltic States

that relentless gross job and worker reallocation is behind the moderate net fall of employment, showing increased levels with the first year of growth of the Ukrainian economy in 2000. We, therefore, moot that displacement might be important in such a labor market in spite of the peculiar forms of labor adjustment observed in the economies of the CIS. For Russia, there is some discussion with respect to the importance of displacement. For example, Earle and Sabirianova Peter (2004) maintain that the incidence of displacement is extremely low. The empirical evidence that they use is, however, exclusively based on the responses of managers who might drastically understate the real level of displacement. While there are also problems with worker survey data, our data set allows us for the first time to get a proper estimate of the incidence of displacement in a labor market of the CIS.

The Western literature on displacement focuses on seniority, firm-specific human capital premia, and union wage premia as the main reasons that displaced workers experience substantial earnings losses. For Europe, Kuhn (2002) shows that the cost of job loss is lower than in the United States or in Britain. This result appears to be driven by institutional features in Europe that cushion unemployment income, job search, and pay in return jobs. However, we may not observe similar features in a transition economy, because institutional factors are less likely to ameliorate the costs of job loss. Unions play a relatively minor role in the wage determination process and welfare support systems in many of these countries are under-developed and not generous, as Boeri and Terrell (2002) attest. In CIS countries where unions have very limited power and welfare payments are often not available this statement is even more true than in transition countries in general.

With more rapid restructuring and labor reallocation than in the West, the transition economy might create a sufficiently dynamic environment in which individuals could move quickly between jobs and productivity levels in the new or restructured sectors might offer relatively good wage prospects. In this case, the costs of job loss would be small. In Ukraine, such a dynamic environment exists in the period of rapid economic growth, i.e. in the years 2000-2003.

² For Russia, see for example, Lehmann, Wadsworth, and Acquisti (1999), Earle and Sabirianova (2002), and Earle and Lehmann (2002).

Little empirical evidence exists to distinguish among these possible outcomes in transition economies. In a study on displacement in Slovenia, Orazem, Vodopivec and Wu (2004), examine official administrative data on workers displaced between 1987 and 1993. They find substantial long-term unemployment among displaced workers but real wage growth, on average, for those who find new work. However, large real wage cuts are taken by workers with 25 or more years of work experience.

In Estonia, Lehmann, Phillips, and Wadsworth (2005) show that displacement rates are excessive compared to Western countries in the early stage of transition but reach Western levels in the later, mature period of transition. They also find that, like in the West, less-skilled workers and those workers with short job tenure experience displacement disproportionately. The main cost of being displaced from a job is the income loss due to non-employment rather than a wage penalty for those who return to work.

In Ukraine, employment protection legislation is comparable to that in many West European countries so that, other things equal, the incidence of job loss should be broadly comparable. One needs to add the caveat, though, that compliance with legal provisions has been particularly problematic in the Ukrainian case. On the other hand, the potential costs of job loss could be high because unemployment payments, which are earnings-related, are very low in most local labor markets and strict eligibility criteria exclude many of the unemployed from their receipt. As a consequence, most displaced individuals try to return to work quickly, but high search costs may compromise efficient matching and increase the likelihood of wage penalties associated with displacement. Other potential costs of job loss stem from differences in wages between old and new jobs. For a majority of Ukrainian workers wages were still tied to Soviet wage grids. This process recognized seniority so that higher tenured workers could expect to receive higher wages. If such workers lose their jobs, the skills acquired under the old regime may not be in demand in a restructuring, transition economy, as Lehmann and Wadsworth (2000) argue. Hence, older workers are likely to suffer most from displacement. Konings, Kupets, and Lehmann (2003) document large job creation rates in the new private sector in Ukraine. If these new jobs are high productivity jobs,

displaced workers could obtain wages in their new job that would be comparable to, or higher than those in the previous job.

With no clear theoretical guidance as to the likely wage change following displacement and eventual re-employment in a transition economy, empirical evidence is required. The actual scenario has important policy implications, in particular for Ukraine where the economy will still need to undergo a major restructuring effort. If displaced workers can find new work relatively quickly and receive wages that exceed those in their former job, policymakers will have less concern over job displacement than in a situation characterized by long-term unemployment and a future of low paying jobs.

In what follows, we analyze changes in the pattern of displacement from the initial stages to the more mature stage of transition. We differentiate the characteristics of displaced workers from other workers who experience joblessness and from those workers who manage to avoid non-employment.³ We examine the duration of joblessness following displacement and estimate hazard rates from non-employment for both displaced workers and for those who quit their jobs. Hence, we investigate whether displaced workers experience longer or shorter non-employment spells and whether systematic differences arise between the two groups. This investigation is done separately for the four distinct periods of perestroika (85-91), the post-independence crisis (92-95), stabilization (96-99) and robust GDP growth (2000-03). For the years 1999 to 2002, we also present difference-in-difference estimates of the earnings change associated with displacement to establish the pecuniary costs of job displacement.

The next section outlines the Ukrainian Longitudinal Monitoring Survey (ULMS) data used in our study and shows general patterns of displacement and the incidence of job loss in Ukraine. Sections 3 and 4 look at the two main components of the costs of job loss, i.e. the duration of non-

³ Sample size limitations prevent us from distinguishing between those displaced workers who entered unemployment and those who became economically inactive. We therefore count any jobless spell as a period of non-employment. Often the same non-employment spell involves periods of both unemployment and economic inactivity and the degree of search activity which conditions classification into these states might be considered endogenous to the rate of job offer arrival.

employment and the potential income losses of displaced workers who find a new job. Section 5 offers some conclusions on the overall cost of displacement and on social policy.

2. The Data and Principal Patterns of Displacement in Ukraine

Our principal source of information is the ULMS, a survey undertaken for the first time in the spring of 2003.⁴ The ULMS panel data set, similar to the Russian Longitudinal Monitoring Survey (RLMS), was conceived as a statistically representative sample of the Ukrainian population aged between 15 and 72 years, comprising of 4000 households and approximately 8,500 individuals.

The ULMS survey instrument is very detailed. The household questionnaire contains items on the demographic structure of the household, its income and expenditure patterns as well as living conditions. The core of the survey instrument is however the individual questionnaire, which elicits very detailed information concerning the labor market experience of Ukrainian workers. Apart from standard LFS sections that inquire about primary and secondary employment, search activities, non-employment and participation in labor market programs in the reference week, there is an extensive retrospective section, which tracks workers' labor market involvement at specific past points in time (December 1986 and December 1991) and which allows a complete reconstruction of workers' labor market histories between January 1998 and the date of the interview. In addition there are sections on education and skills, the ownership structure and its evolution at workers' firms, spatial mobility, health status and political and environmental attitudes. Finally, there are several questions on wage arrears, payments in kind, unpaid leave etc. in order to address specific adjustment mechanisms that take place in Ukraine like in other labor markets of CIS countries. The ULMS provides arguably the most complete data source on labor market developments in any country of the CIS. A more detailed description of the genesis and the content of the data set can be found in Lehmann and Haisken-DeNew (2005).

⁴ The ULMS project is financially supported by a consortium led by IZA, Bonn. The other permanent members of the consortium are CERT, Heriot-Watt University Edinburgh, EERC-Ukraine and RWI-Essen.

The retrospective labor market history section invites respondents to give information about their labor market status in December 1986 and December 1991 and solicits information about any changes of the labor market status following these dates. The responses given allow us to estimate annual separation, displacement and quit rates for the years 1987 and 1992. For the period from January 1998 to the date of the survey in the spring 2003 we can reconstruct the entire labor market history of each respondent, tracking changes with a lower frequency than one month. These histories allow us to estimate annual separation, displacement and quit rates for all years between 1998 and 2002.

Table 1 demonstrates how we construct a measure of displaced workers that mirrors the one used in the Western literature in which displaced workers are those who are separated involuntarily from their jobs by mass layoff or plant closure. The ULMS allows us to distinguish between job loss because of plant closure, firm reorganization, bankruptcy, privatization, dismissal initiated by employer, and personnel reduction (items 1 through 6 in Table 1). Our measure of displacement is conservative in so far as we exclude separations due to end of contract and of probation time (items 7 and 8) from it. These latter two reasons and items 9 through 24 are lumped together as quits. Text answers for reason of separation (item 25) were meticulously checked and for the most part assigned the category “quit”, again using a conservative approach. So, the estimated replacement rates are lower bounds. Also, while some measurement error is present, it should be small. For the period 1998 to 2003, we have information on the year and month of any job change and the duration of any intervening non-employment spell. We calculate job tenure and work experience over this sample period, but the data do not allow us to calculate total work experience since entering the labor market for those who began work before 1998. Therefore, we use age as a proxy for total work experience. Respondents are asked to give gross monthly wages received at certain periods covered by the survey. For the period 1998 to 2003, workers leaving or losing a job are asked to give their final salary measured as gross monthly wages in Hryvnia. If workers are paid in another currency (e.g. dollars or rubles), they are asked to state the currency. Workers starting a new job are asked to give their starting salary. Those who stay in their job are asked to give their

wages in December of each year. We exclude individuals who work abroad. Due to concerns over the reliability of retrospective data in periods of hyperinflation and also when the carbovanets was the national currency, we exclude the years before 1998 from our wage analysis.

Figures 1a and 1b and the last rows of Tables 2a and 2b outline the pattern of annual job displacement rates in Ukraine in the year immediately after independence and the years 1998 to 2002 when the economy was coming out of a deep and prolonged depression. In the years 2000 to 2002 we observe robust growth for the first time since the collapse of the Soviet Union. Since the official retirement age is 60 for men and 55 for women, but many work beyond these age limits, we construct measures of separations, displacements and quits based on two age intervals in the given year, 15 to 70 and 15 to 59. However, Figures 1a to 1c and the last rows of Tables 2a and 2b show that our measures are not sensitive to the choice of age interval.

Displacement is relatively low in 1992 but reaches between four and five per cent in the years 1998 to 2002. These latter figures are broadly comparable with those from the Western literature; for example, U.S., Dutch, German and British displacement rates average between 3 to 6 percent of the workforce in a year (Kuhn, 2002). In the mature stage of transition, Estonia had a displacement of 6% (Lehmann, Philips, and Wadsworth, 2005). Hence, Ukraine has displacement rates only slightly lower than one of the hailed fast reformers among the transition economies. As Figure 1b indicates, redundancies rather than plant closures account for the majority of displacement. Plant closures reach a peak, at slightly more than one fifth of all displacements, in 1998. Bankruptcies, on the other hand, are the least important reason for displacement.

The incidence of quits is much larger than that of displacements, accounting for around two thirds of separations. Quits grew between 1992 and 2002, reaching 14% of employment in the latter year. Figure 1c shows that voluntary job separations and retirements are responsible for the majority of quits throughout the period.

Tables 2a and 2b report that men were less likely to experience displacement in the years 1998 and 1999 but more likely to do so in the last two years of the sample period. Since 1999, Ukrainian workers experience less displacement than Russian workers, which might be related to

the larger employment share of Russian workers in industries most affected by downsizing. Apart from the youngest age group, which has a higher incidence of displacement than all other groups, displacement rates are relatively uniform across age groups, while displacement does fall disproportionately on less-educated individuals. In the last year of the period, less-skilled workers experience more displacement, but this result does not hold for earlier years. The incidence of displacement by job tenure shows a U-shaped relationship in 2002, implying that individuals relatively new in their job and those with very long tenure are mostly affected by involuntary separations. This pattern cannot be observed for earlier years in the data.

Job loss is much lower in education, health, and social work throughout the period, while displacement in the wholesale and retail trade, hotel and finance sectors remains high. The other two industries where displacement is comparatively high in the examined years are manufacturing and mining and construction. As far as ownership is concerned, it is striking that new private firms have substantially larger displacement rates than both state-owned and privatized firms, hinting possibly at learning effects but also at the unfriendly environment, in which small business has to act in Ukraine. It is noteworthy that in the early years of the reported period worker displacement in the new private sector is caused equally by firm exit as well as redundancies while the latter reason dominates in 2002.

All survey data on displacement are plagued to some degree by selection bias. If workers have rational expectations about the economic viability of their firm, those workers with good prospects in the labor market may quit the firm before the firm is closed down or before mass layoffs occur. Hence, workers with worse characteristics remain. In restructuring firms that do not close down but initiate mass layoffs, the better-quality workers may stay with the firm because of potential post-restructuring productivity gains that generate high wage growth.⁵ Whether selection problems related to mass layoffs and plant closure are particularly strong in transition economies is a contentious issue. Potential failure or poor performance of firms may be to easier to perceive in a

⁵ Pfann (2001) finds workers with higher expected productivity growth are the “better quality” workers retained by the firm. In a transition context, such workers might want to stay in restructuring firms.

transition economy and, as a result, good workers would be more likely to leave the firm before closure or large-scale labor shedding. Conversely, good workers may have more reason to retain their old job in restructuring firms because of the prospect of higher future rewards after restructuring. Workers may also keep their jobs because of greater uncertainty in a rapidly changing transition labor market or because of poor outside options, which both characterize the situation in the Ukrainian labor market throughout the examined period. Since we are unable to discern which of these scenarios prevails, we allow for the possibility of unobserved heterogeneity in the estimates of jobless duration and the cost of job loss.

If a truly exogenous shock affects all sectors equally, displaced workers would not be different from other workers. However, Tables 2a and 2b suggest that displacement is non-random across observable characteristics. Multinomial logit estimates of relative displacement probabilities shown in Table 3 for the periods 1992 to 1997 and 1998 to 2002 confirm this point. The marginal effects are not directly comparable across the two periods, since the construction of the data allows only for the latter period the estimation of annual probabilities, while we can only estimate the probability of being displaced or of quitting at any point in time in the interval 1992 to 1997.

For the earlier period, female workers have a probability of being displaced that is 2.3 percentage points higher. Once we control for industry, there is no longer a difference in the probability of being displaced between Ukrainian and Russian workers although the propensity to quit is lower among Ukrainians in the years 1992 to 1997. Also, job losers are typically middle aged compared with job quitters - note the opposite signs of the coefficients for displaced workers and quitters -, although their educational backgrounds are similar. In the earlier period, university graduates have a lower quit rate of about 7 percentage points, while they have a lower annual displacement rate of 1 percentage point in the interval 1998 to 2002. In general, low tenure workers are more likely to quit. Throughout the entire period, displacement was particularly high for medium term tenure.

The multinomial regressions do not confirm the effect of ownership type on displacement given by the simple cross tabulations, since workers in state-owned and privatized firms have either the same or, in the years 1998 to 2002, a slightly higher incidence of displacement than workers in newly established firms. This seeming contradiction can be clarified by analyzing the displacement patterns by sector, firms size and region.

Workers in construction and wholesale and retail trade and hotel services are particularly hard hit by displacement throughout the years 1992 to 2002, while manufacturing workers and miners experience disproportionately high displacement rates only in the years 1992 to 1997. In contrast, educators, health and social workers are less affected by displacement having a lower probability of 3 points per annum in the second time interval. One implication of these findings is that the latter industry did not undergo any major restructuring effort throughout the period. Workers in small firms (up to 199 employees) are more likely to be displaced during the entire period under examination, although this effect is only significant in the second time interval. In the same period, quits are more frequent for workers in relatively large firms. This higher propensity to quit does, however, not occur in firms with more than 1000 employees. Finally, both involuntary separations and voluntary quits are much higher in Kyiv than in other regions of the country. These results make clear that the high raw displacement rates of workers in the new private sector are linked to a composition rather than an ownership effect. Calculations, which are not reported here, show that about two thirds of all employment in new private firms is concentrated in the sectors industry, construction and wholesale/ retail trade/hotels and restaurants and that about ninety percent of all employment in new private firms is in firms with less than 100 employees.

Throughout the period, industry affiliation, firm size, and geographic location were the main determinants of closures and permanent layoffs. In the next two sections, we outline the possible costs of job loss in Ukraine and investigate to what extent these costs have changed over time. Job loss involves both a risk of non-employment and a possibility of lower wages for those workers who find new employment.

3. The Cost of Job Displacement in Ukraine: Duration of Joblessness

We report the cumulative return rates to employment, conditional on non-employment duration, of displaced workers and compare these to return rates of quits for the period of perestrojka (1987 to 1991), of post-independence crisis (1992 to 1995), of stabilization (1996 to 1999), and of robust GDP growth (2000 to 2003) in Table 4.⁶ These rates are based on the complement of the Kaplan-Meier estimator of survivor functions (Smith, 2002) in non-employment. Around 50% of displaced workers return to full-time work within the first three months after displacement during perestrojka. This proportion falls dramatically in the later periods, reaching a low of roughly one seventh during the very difficult years of hyperinflation and crisis immediately following independence. How difficult the situation was for workers who had separated from a job can be seen by the equally low return rates of those who quit their jobs. The growth period of 2000 to 2003 reflects a situation in the Ukrainian labor market that is better comparable with the situation in a Western labor market. During these years one-third of the workers returns within six months of displacement. It is striking that the vast majority of all those who return to work within six months do so during the first month. Kuhn (2002) finds that two-thirds of displaced workers are re-employed within six months. In Britain, half of the displaced workers return within two months. In Estonia, similarly high return rates are found. Hence, in international perspective Ukrainian displaced workers – but also those who quit – have extremely low return rates. While a minority of workers finds reemployment after a very brief spell of non-employment, a majority of workers lingers on in non-employment for a very long time. Consequently, the Ukrainian labor market, cannot be characterized as dynamic as implied in the study by Boeri and Terrell (2002). For the years 2000 to 2003, displaced workers have substantially lower return rates over the first six months of any spell to those who quit. Hence, one possible source of adverse selection in analyzing a pool of displaced workers may be of some concern for our sample of Ukrainian workers. The mean

⁶ We now remove early retirements from the job quit sample because their return to work probabilities are very low.

duration of completed spells, which never exceeds 2 months but stays at 1 month for the two latter periods, also demonstrates that most who return to work do so nearly immediately after having separated from their previous job.

To analyze hazard rates from non-employment, we use discrete time hazard estimation methods because the spell data are measured in monthly intervals. The Kaplan-Meier estimates of these rates over the sample period are given in Table 5 and in Figure 2. In the early years of the sample, hazard rates into employment are high during the first two months of a jobless spell. Thereafter, the hazard rates fall dramatically and stay uniformly low. In the later years of the sample, the hazard rates fall precipitously after the first month. Apart from the growth period, when hazard rates are much higher for quitters than for displaced workers, the hazard rates of displaced workers are generally not statistically different from those of quits at most spell lengths.

These data suggest that around a third of all displaced workers find a new job relatively rapidly, while the other two thirds have difficulty moving back into work. Unemployment benefits and related welfare payments are extremely low and often not paid in Ukraine. Hence, any incentive problems associated with the benefit system are unlikely to explain this flat hazard rate after two months. Figure 2 shows no obvious spikes in the hazard rates around the time of benefit exhaustion, which is 6 months. Rather, the third of the displaced workers having the appropriate characteristics are re-employed rapidly. Secondly, those unable to move into employment quickly incur large income losses. However, any implied income losses would be exaggerated if individuals work in the informal sector, which is estimated to be large in Ukraine.

For the four periods, we pool the non-employment spell data and estimate discrete-time, proportional hazard functions for displaced workers and quits in Tables 6a and 6b. We model the hazard rates parametrically using the complementary log-log model suggested in the literature, e.g. Jenkins (2003), when the underlying spell data are intrinsically continuous but the researcher observes only that the spell length falls within a discrete interval. In this case, the discrete-time hazard rate for individual i at time t with a vector of characteristics X , can be written as: $h_i(j, X) = 1 - \exp[\exp(\beta'X + \gamma_t)]$, where γ_t summarizes the pattern of duration dependence in the discrete-time

hazard function. We model this duration dependence flexibly by introducing a piecewise constant, which effectively adds 3 dummy variables for the first 3 months of any jobless spell.

The X vector contains a set of individual characteristics that might be expected to influence the opportunity cost of not working in addition to a set of characteristics of the job from which the worker was displaced. If unobserved heterogeneity, v , is distributed independently of any observed X variable, it can be modeled by adding an individual-specific error term so that the effect can be integrated out by assuming a functional form that can be summarized in a few parameters. For the moment, we ignore unobserved heterogeneity, though. To focus on the comparative aspects of displacement, we exclude those who leave a job for retirement from the sample of quits.

In contrast to the findings in Table 3 concerning the incidence of job loss, the estimates in Table 6b that cover the latter periods – the results for the first two periods are not very revealing – suggest that not only firm and job attributes of previous employment but also individual characteristics are important determinants of the return to work hazard rate. Female workers have a substantially lower, workers with university education substantially higher hazard rates throughout the decade, regardless of whether they are displaced or quit. It is noteworthy that ethnicity has no explanatory power also regards the hazard from non-employment.

Importantly, job tenure does influence the hazard rate in the earlier period, as displaced workers having more job tenure in the old job return to work later. The same holds for plant size. Workers with previous employment in the largest firms have substantially lower hazard rates whether they quit or were displaced. Those with previous employment in manufacturing, retail and education and health return to work earlier than those who worked in agriculture. It is striking that in the period of sustained growth displaced workers from the Kyiv region have much higher outflow rates from non-employment than those in other regions. The duration dependence parameters confirm the pattern of the Kaplan-Meier estimates; the probability of finding work within the first two months of any jobless spell is high but the hazard rate is low thereafter.

4. The Earnings Cost of Job Displacement in Ukraine

To begin, we examine re-entry wages for displaced workers. Table 7 gives estimates of the determinants of the new wage and of the change in the log of real wages for displaced workers who find a new full-time job conditional on sets of individual characteristics and the characteristics of the old job.⁷ We obtain wages from the job history data in the ULMS which ascertains wages in the December of each year from 1997 to 2002. Since we have shown that less than one third of displaced workers return to work during the sample interval, Ordinary Least Squares (OLS) estimates of these wage determinants based only on the sub-sample of returnees may be subject to selectivity bias. The effects of the independent variables on the wages of those not yet re-employed may differ from the effects on those who return to work. To address this issue, we contrast OLS estimates with those based on the maximum likelihood estimation of the selection bias correction model of Heckman (1979). The selection equations and sample means of the covariates for the two sub-samples of displaced returnees and non-returnees are given in Table A1 of the Appendix. The selection equations are identified by controls number of children, which are also used by Podgursky and Swaim (1987), marital status, and reliance on land to produce food in the year prior to displacement. These variables are used also in Table 6 and are assumed to affect both the opportunity cost and the probability of return to work, but not the wage offered.

Column 1 of Table 7 indicates that wage premia were paid to men, university graduates, those with jobs in the capital, workers in large establishments and workers in retail and finance. In addition, a significant wage penalty accrues to those who were out of work for more than one month. In the Western literature, industry-specific human capital is considered to be important for maintaining previous wage levels in new jobs (Neal, 1995). Hence, changing industry should result in a wage penalty but this hypothesis is not supported by the data. In the transition process specific capital acquired under the old system may not be valuable. Nor does ownership in the old job appear to affect wages on return to work. There is however a significant premium for those workers

⁷ Results for wage changes of those who quit and found a new job are available on request.

who changed regions after displacement, reflecting higher wages on offer in the capital city. Note that there is no reward to seniority (age) in the new jobs filled by displaced workers.

In contrast to Lehmann et al. (2005) using Estonia data, but in line with Orazem *et al.* (2004) for Slovenia, the selection terms are positive.⁸ This indicates that workers who could potentially command higher wages are more likely to be found back at work and may point to the nature of job creation at this stage of the transition process in the Ukraine. In columns 3 and 4 we add the last wage observed in the job before displacement to the vector of controls as an additional control for individual heterogeneity and also to investigate whether regression to the mean in wages occurs among displaced workers.⁹ The coefficients on the last wage are highly significant and all coefficients are less than one, indicating that workers who were relatively highly paid before displacement experience higher proportionate wage losses if they return to work. The addition of the selection controls also raises the significance of the job tenure variables which suggest that high tenured workers suffer greater relative wage loss on a return to work.

When the last wage is included, the size and significance of many of the individual and job coefficients are reduced because the effect of many of these variables is absorbed by previous earnings. However, significant effects of time spent out of work, education, region and firm size remain in both periods. In columns 5 and 6, we examine the change in wages by imposing a coefficient of 1 on lagged wages and removing any unobserved individual fixed effects that may determine wage levels. There are significant effects of education, firms size, tenure and time out effects on wage changes.

The results of Table 7 do not capture the earnings loss due to displacement. To evaluate this loss, we must compare the wage in the new job with its counterfactual, i.e. the wage that would have prevailed if the worker had not been displaced and had remained in the original job. Therefore,

⁸ The selection terms are given by the coefficients on Lambda. These coefficients represent the correlation coefficient between the error term of the wage equation and the error term of the selection equation. Verbeek (2000) provides a lucid discussion of the basic Heckman selection model.

⁹ See for example Podgursky and Swaim (1987). If $\ln W_{it} = b_1 \ln W_{t-1i} + b_2 Z_{t-1i}$, then the proportional change in wages due to displacement, $\ln(W_{it}/W_{t-1i}) = (b_1 - 1)\ln W_{t-1i} + b_2 Z_{t-1i}$. Hence the coefficient on the last wage measures the extent to which future wage changes depend on past earnings.

we next construct difference-in-differences estimators by regressing the 2 year change in the log of monthly wages of workers who remain and of displaced workers who return to work within the 2 year interval on a set of dummy variables for different subsets of displaced workers. The class of these estimators can be written as follows:

$$\{E(w_2 | X; d = 1) - E(w_1 | X; d = 1)\} - \{E(w_2 | X; d = 0) - E(w_1 | X; d = 0)\} \quad \text{or (1)}$$

$$E(w_2 | X; d = 1) - E(w_2 | X; d = 0) + E(w_1 | X; d = 0) - E(w_1 | X; d = 1) \quad (2)$$

where w_1 and w_2 are wages in the first and second period, and X is a vector of conditioning variables. The variable d takes a value of one in the treatment situation, i.e., displacement and zero in the no-treatment case, i.e., the worker remains in the job. If $E(w_1 | X; d=0) = E(w_1 | X; d=1)$ in equation (2), i.e. if the conditional expectation of the wage before displacement were the same for displaced workers and those who remain, the effect of displacement on earnings would be given by the first two terms in equation (2). Therefore, the earnings loss would be identified by this difference-in-differences estimator.¹⁰

The sample of displaced workers with wages observed before and after displacement is rather small. Of the 1362 workers in our sample who were displaced sometime between December 1997 and December 2002, 262 are observed with wages in the December before and the December after displacement, (reflecting the low rates of return to employment of displaced workers observed in Table 5), and 168 are observed with wages in all 6 consecutive years.

Table 8 outlines the results of the difference in difference exercise. The results in Table 7 suggest that some unobservable factors determine re-entry wages for displaced workers. This indicates a classic self-selection problem and $E(w_2 | X; d=1)$ could be biased. However, differencing the wage removes any unobservable fixed effects that influence wage levels, although any selection effects on wage changes remain. If the latter are important, our results apply only to the subset of displaced workers who return to work. Given these caveats, the results of Table 8 suggest that there

is no short-run wage penalty to displacement. The difference-in-difference estimator (the interaction of the displacement dummy and the second period time dummy) is always insignificantly different from zero.¹¹ When the displacement dummy is replaced by the spell length in panel B, the difference in difference estimates of the effects of spell length are negative but not statistically significant.

To measure the longer-term wage costs of displacement we follow the standard methodology in the literature (for example Jacobsen et al. (1993) or Stevens (1997)) comparing wages of displaced workers with those of a control group of workers who are not displaced from their jobs over the same period, and estimate equations of the form

$$\text{Ln}W_{it} = X_{it}\beta + Z_{it}\gamma + \sum_{k=-1} D_{it}^k \delta_k + a_i + u_{it}$$

Where X_{it} is a set of fixed and time varying individual controls, Z_{it} is a set of job characteristics that may influence both wage levels and displacement probabilities. The model also contains a set of year-specific dummy variables to capture aggregate movements in real wage levels¹².

The set of D_{it} dummy variables indicate the job displacement in the preceding, current or next year. The δ coefficients on the dummies in the (two) years before displacement are the estimated differences in wages between displaced workers and those who remain measured j years before displacement. If the identification condition for the difference in differences estimate is satisfied, the β_{3j} coefficients should not be significantly different from each other over the various years before displacement because differences would indicate diverging wage growth between displaced workers and those who remain. The dummy variable of the period in which displacement occurs picks out the immediate effect of displacement on the return-to work wage relative to job stayers. The (two) dummy variables for the years after displacement will pick up any persistence in displacement effects. To control for any unobserved individual-specific heterogeneity on wage levels we employ standard fixed and random effects estimation strategies.

¹⁰ See Manski (1995) for a lucid discussion of identification.

¹¹ Real wages are falling over the sample period, hence the significant negative term on the second period time dummy.

¹² The average real wage fell by some % between 1997 and 2002

Table 9 indicates that the wage costs of displacement, for this sub-sample of displaced workers are not large. The mean wage loss for this sample of displaced workers (columns 1 and 4 panel A), when benchmarked against stayers is between 5 and 9 log points, but only the latter result is statistically significant. When unobserved heterogeneity is allowed for, the point estimates are even closer to zero and become statistically insignificant (columns 2, 3 and 5,6). Using before and after displacement dummy variables, (panel B), there is some suggestion that wages may begin to fall in the year prior to displacement and that this loss is not recovered in the 2 years after the return to work in a new job, though the after displacement effects are often only significant at the 10% level.

5. Conclusion

Using the data of the Ukrainian Longitudinal Monitoring Survey (ULMS) we establish for the first time the extent and the cost of job loss in a labor market of a CIS economy. In the Ukrainian labor market, displacement rates in the last decade were between 3.4 and 4.8 percent, indicating that Ukrainian firms have been permanently laying off workers at rates comparable to those in mature market economies. These estimates contradict the frequently held notion that involuntary separations are unimportant in CIS labor markets because of low labor costs.

Multinomial regressions show that displacement is not entirely random. Early on in transition, female workers have a higher probability of being displaced than men, but this difference vanishes in the later stages of transition. Job losers are typically middle aged compared with job quitters, although their educational backgrounds are similar. University graduates have a lower annual displacement rate of 1 percentage point in the interval 1998 to 2002. Throughout the decade, displacement was particularly high for medium term tenure. Demographic and job characteristics in previous employment are, however, not the main factors that drive displacement. These driving factors are industry affiliation, firm size and region. Workers in construction and wholesale and retail trade and hotel services are particularly hard hit by displacement throughout the years 1992 to 2002, while manufacturing workers and miners experience disproportionately high displacement

rates only in the years 1992 to 1997. In addition, persons working in small firms and residing in Kyiv are disproportionately affected by layoffs. It is a striking result that once industry, size and regional controls are included a causal effect of ownership type on displacement cannot be established.

In international perspective Ukrainian displaced workers have extremely low return rates. While a minority of workers finds reemployment after a very brief spell of non-employment, a majority of workers lingers on in non-employment for a very long time. Consequently, the Ukrainian unemployment pool cannot be characterized as dynamic as mooted by some authors. While costs in terms of non-employment spells are large in Ukraine, wage losses due to displacement are rather limited. We present some evidence of a small fall in wages one year prior to displacement, and that this loss is not recovered in the 2 years after the return to work in a new job. Our analysis makes it clear that the main cost for displaced workers in Ukraine consists in the extremely long non-employment spell that the average worker experiences after layoff. It is this group of workers lingering on in long-term unemployment that Ukrainian policy makers should focus their attention on.

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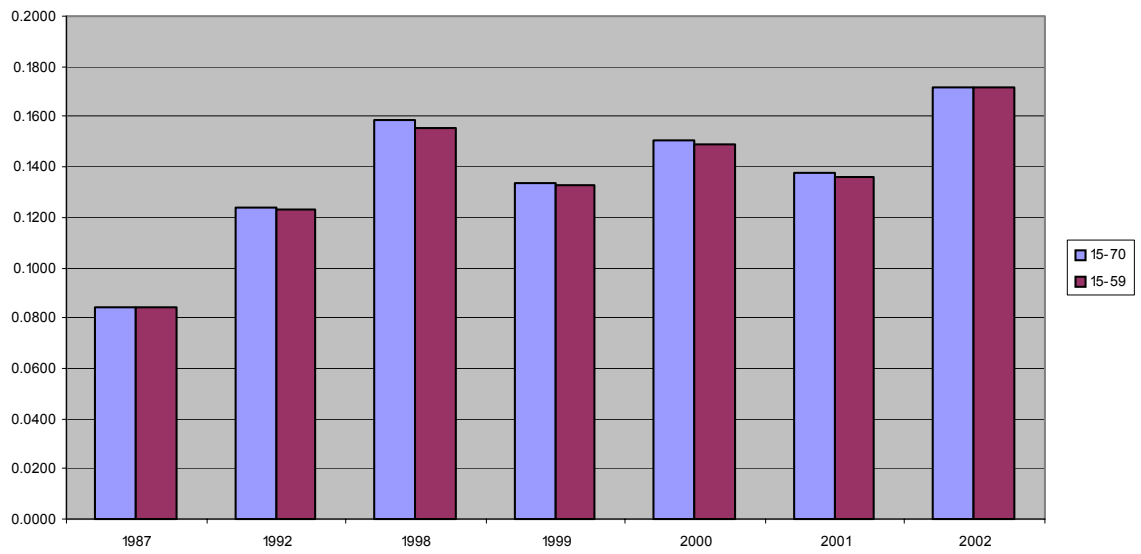
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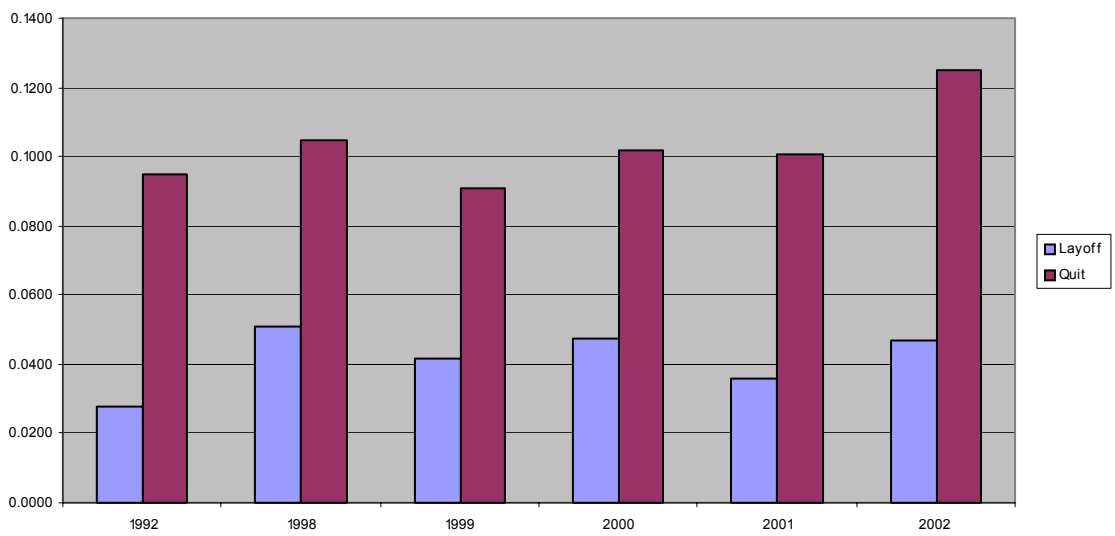
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Figure 1a. Ukrainian Worker Separation Rates by Year

Separation Rates



Separations (15-59)



Separations (15-70)

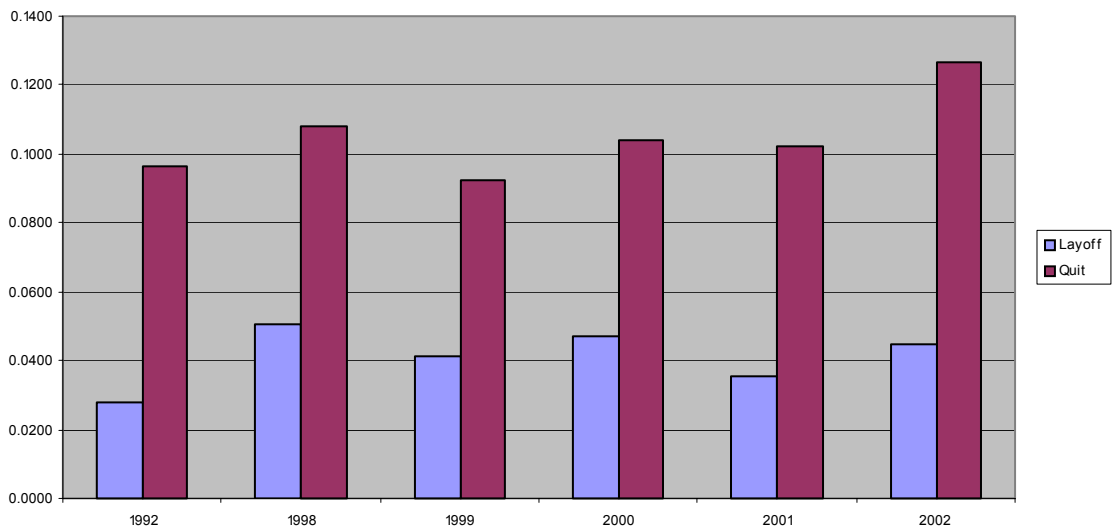


Figure 1b. Ukrainian Worker Separation Rates by Year

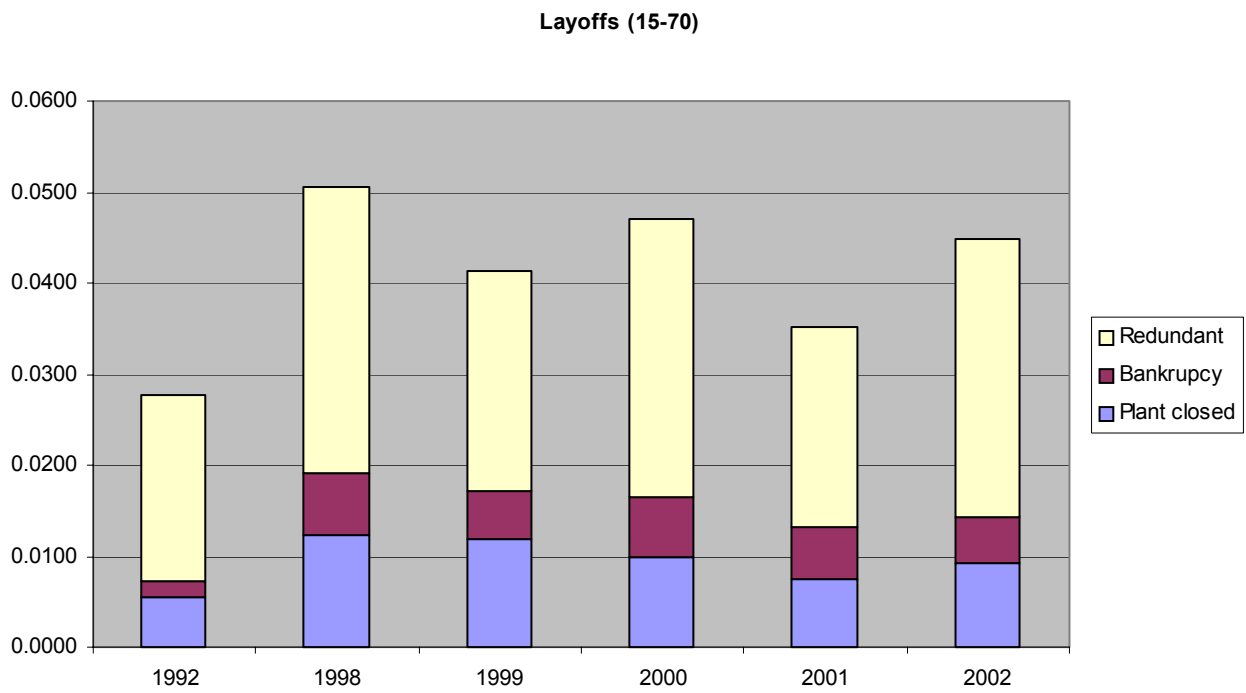
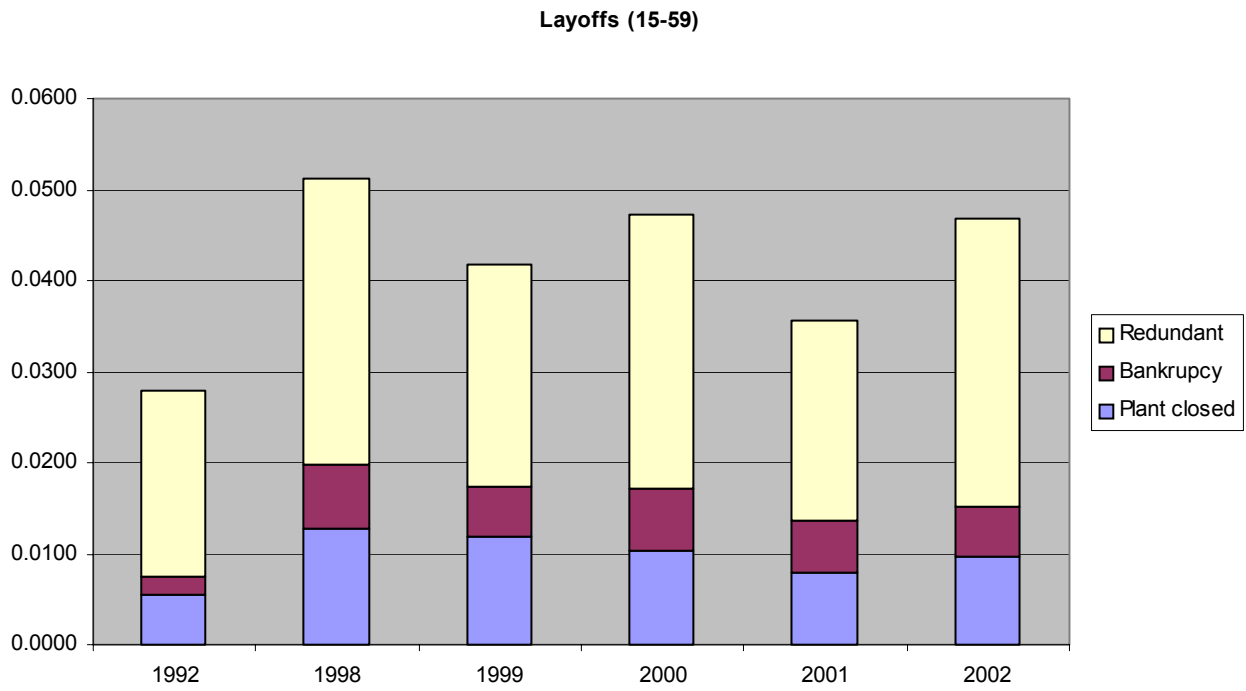


Figure 1c. Ukrainian Worker Separation Rates by Year

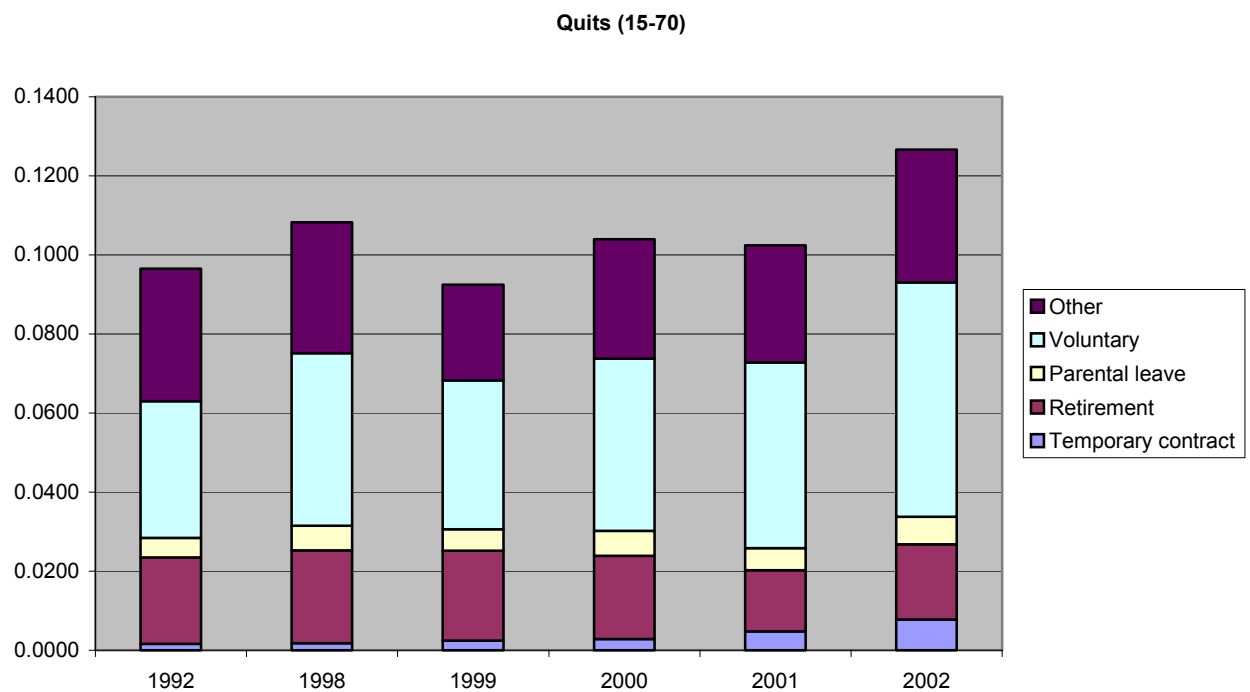
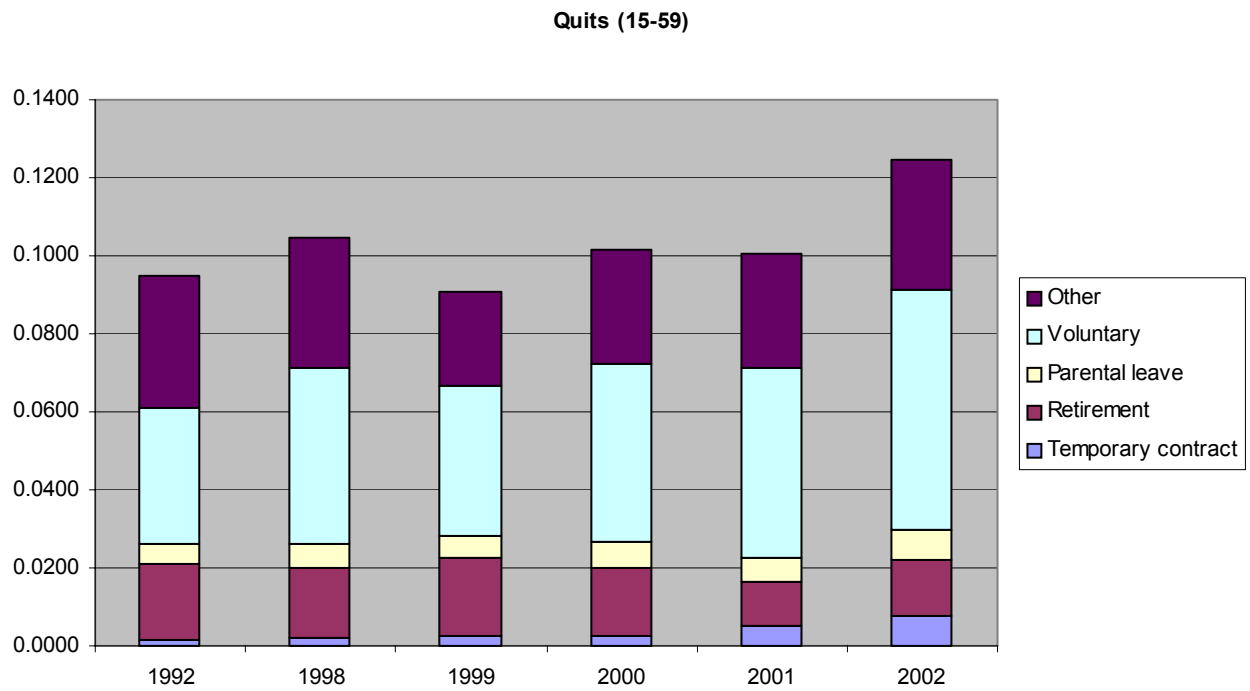


Figure 2. Hazard Rates for Displaced Workers and Voluntary Quits in the Ukraine: 1987-2003

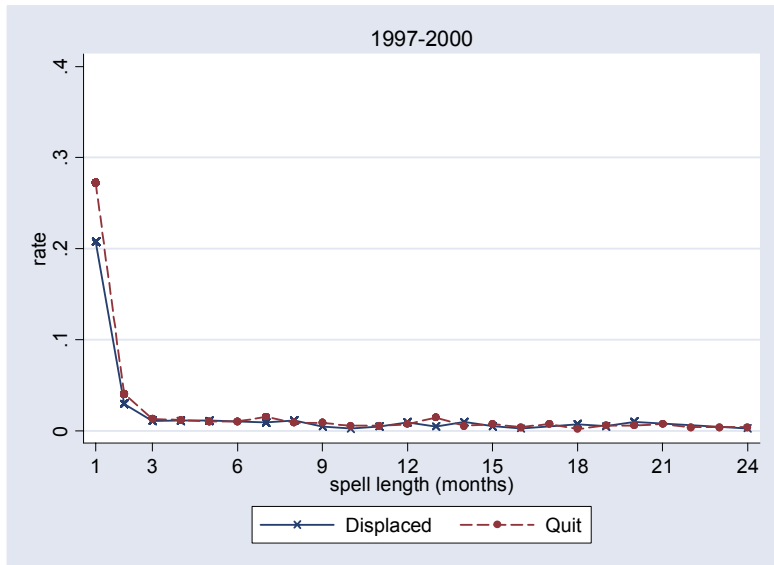
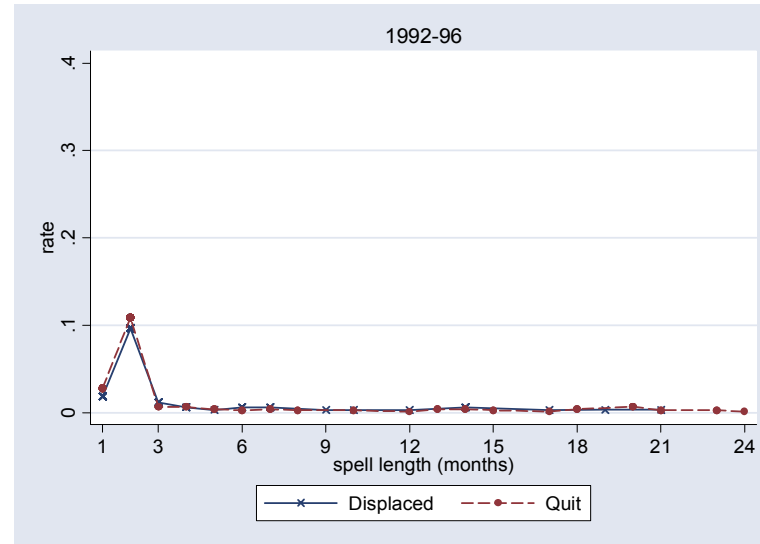
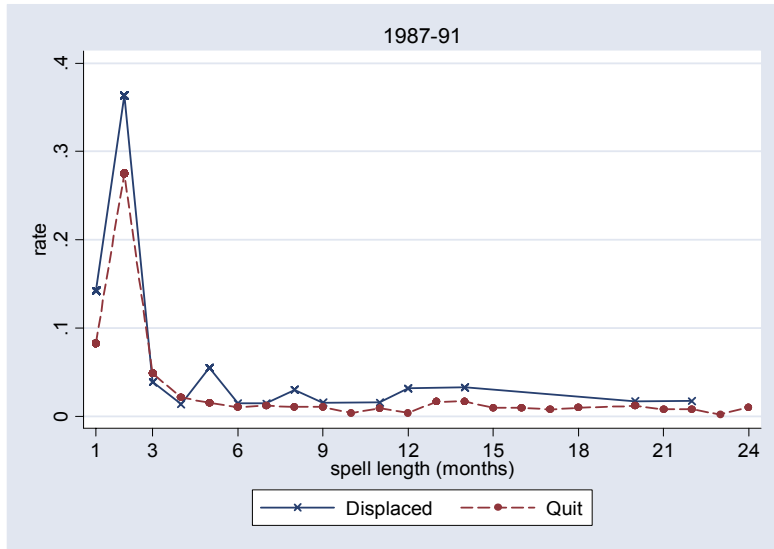


Table 1. Reasons for leaving the job and our classification¹³

REASON	CLASSIFICATION
1 Closing down of enterprise/organization	Displacement
2 Reorganization of enterprise/organization	Displacement
3 Bankruptcy of enterprise/organization	Displacement
4 Privatization of enterprise/organization	Displacement
5 Dismissal initiated by employer	Displacement
6 Personnel reduction	Displacement
7 Expiring of employment contract	Quit
8 Expiring of probation time	Quit
9 Military service	Quit
10 Imprisonment	Quit
11 Own illness or injury	Quit
12 Studies	Quit
13 Retirement	Quit
14 Early retirement	Quit
15 Marriage	Quit
16 Parental leave	Quit
17 Need to take care of other members of family	Quit
18 Change of residence	Quit
19 Wanted/was proposed higher salary	Quit
20 Wanted/was proposed better working conditions	Quit
21 Wanted/was proposed more interesting work	Quit
22 Wanted to start own business	Quit
23 Main job became second job	Quit
24 End of farming/sole proprietorship	Quit
25 Other	Variable (quit in most cases) ¹⁴

¹³ In some cases, given the possibility of multiple answers, we have found problematic statements, according to which we could have classified the separation both as a displacement and/or as a quit. In these case we have chosen to adopt the following classification criteria:

- When one of the causes of displacement is together with expiring of employment contract we drop the observation (we are focusing on displacement of workers with permanent positions);
- when of the answers is closing down of enterprise/organization, the person is displaced
- when among the answers we do not have the closing down, the priority goes to answers suggesting a voluntary quit (wanted/was proposed higher salary, better working conditions, more interesting work, wanted to start own business, studies, marriage, parental leave, need to take care of family member)
- in all the remaining cases – but one - the priority goes again to causes of displacement (reorganization, bankruptcy, privatization, personnel reduction);
- finally, when we have dismissal initiated by employer together with any of the causes classified as quit, we have a quit.

¹⁴ We checked the answers classified as “other” one by one to make sure to have a consistent classification.

Table 2a. Job Displacement Rates (in percent), 1992 to 2002 - Working age 15-59

	1992	1998	1999	2000	2001	2002
Demographic						
Males	3.3	4.5	3.8	4.5	3.6	5.5
Females	2.2	5.2	4.3	4.6	3.4	3.6
Ukrainian	2.6	4.9	3.8	4.3	3.4	4.4
Russian	2.8	4.3	5.4	5.1	4.0	4.9
Other	3.3	8.6	3.4	7.7	1.5	5.6
Age						
15-24	4.4	5.3	5.3	4.6	3.1	5.3
25-39	3.1	5.5	4.0	4.1	3.6	3.6
40-54	1.9	4.7	4.0	5.2	3.5	4.9
55-64	1.9	3.0	3.6	2.7	2.9	5.7
65+	-	-	-	-	-	-
Education						
Grades 1-11	2.4	5.2	4.7	7.6	2.8	3.7
General secondary	3.5	5.5	4.7	5.5	4.3	6.0
Vocational elementary	2.7	4.6	3.5	4.0	4.9	5.8
Vocational secondary	3.0	4.3	5.2	3.2	2.9	5.5
Professional secondary and incomplete higher	2.3	4.8	4.3	4.5	3.8	3.4
University	2.5	4.3	1.6	3.2	2.3	3.5
Job tenure						
<1 Year	2.8	-	4.3	3.5	3.4	5.7
1 Year	3.6	5.4	5.3	4.9	4.2	4.7
2-5 Years	3.7	7.1	3.9	4.7	2.3	3.8
6-10 Years	2.5	6.6	4.4	4.6	5.3	3.4
11 Years and more	2.0	3.3	3.8	4.7	3.2	5.1
Occupation						
Legislators, Senior Managers, Officials	1.4	3.2	3.6	2.1	5.2	2.1
Professionals	1.9	2.9	2.4	3.0	1.4	2.5
Technicians and Associate Professionals	1.9	5.9	2.2	3.4	2.6	2.7
Clerks	2.2	7.7	5.8	3.5	4.4	6.4
Service Workers and Market Workers	3.7	5.9	6.7	5.4	1.4	4.9
Skilled Agricultural and Fishery Workers	-	6.6	5.0	11.5	1.5	8.2
Craft and Related Trades	4.5	5.4	5.2	5.1	4.0	5.9
Plant and Machine Operators and Assemblers	1.5	4.0	2.8	4.4	5.1	7.1
Elementary (Unskilled) Occupations	2.4	5.2	2.6	5.7	3.7	5.5

Industry						
Agriculture, hunting and forestry	1.2	3.2	0.2	8.3	4.1	4.5
Manufacturing and mining	3.4	5.1	4.6	5.6	4.7	6.7
Electricity, gas and water supply	3.2	2.6	-	-	1.7	4.4
Construction	3.6	11.0	6.9	6.2	3.2	6.2
Wholesale and retail trade, repair of motor vehicles and motorcycles; hotels and restaurants	5.2	10.1	7.8	6.4	4.4	5.8
Transport, storage and communication	0.7	5.4	3.6	2.0	2.4	5.3
Financial intermediation, real estate, renting and business activities	5.1	9.2	4.2	1.4	6.9	6.2
Public Administration and defense	3.2	2.5	2.1	4.6	4.6	2.4
Education, health and social work	1.3	1.3	1.8	1.1	1.3	1.0
Other community, social and personal service activities	4.3	5.5	6.7	1.6	4.6	2.7
Other activities	-	6.5	3.5	3.5	-	3.6
Type of enterprise/organization						
State	2.6	4.4	3.8	4.7	3.7	4.9
Cooperative	7.3	14.0	7.1	2.0	2.1	-
Newly established enterprise	-	8.7	5.9	6.9	4.0	5.3
Privatized enterprise	4.9	5.4	4.4	3.4	3.3	4.4
By region						
West	1.1	2.7	1.4	2.5	1.7	1.5
Kyiv City	2.6	5.5	3.6	2.8	5.9	3.7
Center & North	0.8	3.9	2.2	2.9	2.5	4.3
East	1.4	3.2	2.8	3.2	2.5	3.6
South	1.7	3.7	5.2	4.0	2.5	3.8
Γtotal 15-59	2.7	4.9	4.1	4.5	3.5	4.5

Table 2b. Job Displacement Rates (in percent), 1992 to 2002 - Working age 15-70

	1992	1998	1999	2000	2001	2002
Demographic						
Males	3.2	4.5	3.7	4.3	3.6	5.2
Females	2.2	5.2	4.3	4.7	3.3	3.5
Ukrainian	2.6	4.8	3.7	4.2	3.5	4.2
Russian	2.8	4.3	5.5	5.2	3.7	4.7
Other	3.3	8.2	3.8	7.3	1.4	5.4
Age						
15-24	4.4	5.3	5.3	4.6	3.1	5.3
25-39	3.1	5.5	4.0	4.1	3.6	3.6
40-54	1.9	4.7	4.0	5.2	3.5	4.9
55-64	1.7	3.1	3.3	3.6	2.6	4.4
65+	-	4.4	3.8	1.5	3.8	1.0
Education						
Grades 1-11	2.3	5.1	4.6	7.1	2.9	3.5
General secondary	3.5	5.4	4.5	5.4	4.1	5.8
Vocational elementary	2.7	4.4	3.3	3.8	4.7	5.5
Vocational secondary	3.0	4.4	5.1	3.2	3.0	5.4
Professional secondary and incomplete higher	2.3	4.7	4.4	4.9	3.8	3.2
University	2.5	4.4	1.7	3.0	2.2	3.4
Job tenure						
<1 Year	2.8	-	4.2	3.4	3.3	5.6
1Year	3.6	5.3	5.1	4.8	4.1	4.5
2-5Years	3.7	7.0	3.9	4.7	2.2	3.7
6-10 Years	2.5	6.4	4.3	4.8	5.4	3.3
11 Years and more	2.0	3.4	3.7	4.6	3.1	4.8
Occupation						
Legislators, Senior Managers, Officials	1.7	3.0	3.7	2.0	5.6	2.0
Professionals	1.9	2.9	2.3	3.1	1.5	2.3
Technicians and Associate Professionals	1.9	5.6	2.1	4.0	2.5	2.5
Clerks	2.2	7.5	5.7	4.2	4.3	6.1
Service Workers and Market Workers	3.7	5.7	6.8	5.2	1.4	4.7
Skilled Agricultural and Fishery Workers	-	6.4	5.7	11.0	1.5	7.9
Craft and Related Trades	4.5	5.6	5.2	5.0	3.9	6.0
Plant and Machine Operators and Assemblers	1.5	4.1	2.7	4.5	4.8	6.7
Elementary (Unskilled) Occupations	2.3	5.1	2.8	5.8	3.4	5.1

Industry

Agriculture, hunting and forestry	1.2	3.0	3.0	7.8	4.0	4.2
Manufacturing and mining	3.4	5.2	4.6	0.2	4.6	6.5
Electricity, gas and water supply	3.1	2.5	-	0.8	1.6	4.1
Construction	3.6	11.0	6.7	6.0	3.6	6.5
Wholesale and retail trade, repair of motor vehicles and motorcycles; hotels and restaurants	5.2	10.1	7.7	6.5	4.3	5.7
Transport, storage and communication	0.7	5.1	3.7	1.9	2.3	4.9
Financial intermediation, real estate, renting and business activities	5.1	8.9	4.0	2.6	6.4	5.8
Public Administration and defense	3.2	2.4	2.6	4.9	4.9	2.3
Education, health and social work	1.3	1.3	1.6	1.4	1.2	0.9
Other community, social and personal service activities	4.3	5.3	6.4	1.5	4.4	2.5
Other activities	-	6.3	3.3	3.3	-	3.3

Type of enterprise/organization

State	2.6	4.4	3.7	4.7	3.6	4.6
Cooperative	7.3	13.5	6.7	1.9	2.0	-
Newly established enterprise	-	8.6	6.0	6.8	4.1	5.2
Privatized enterprise	4.9	5.5	4.2	3.6	3.4	4.2

By region

West	1.1	2.6	1.4	2.4	1.8	1.4
Kyiv City	2.6	5.3	3.4	3.0	5.5	3.4
Center & North	0.8	3.8	2.2	2.8	2.4	4.2
East	1.3	3.1	2.8	3.2	2.5	3.3
South	1.6	3.6	4.9	3.7	2.4	3.6

total 15-70	2.7	4.8	4.0	4.5	3.4	4.3
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Table 3. Displacement and Quits: Multinomial Logit Estimation 1992 to 2002

	1992-1997		1998-2002	
	Displaced	Quit	Displaced	Quit
Female	0.023 (0.010)*	0.052 (0.016)*	0.004 (0.002)	-0.003 (0.004)
<i>Male</i>				
Age	0.010 (0.004)*	-0.068 (0.005)*	0.001 (0.001)	-0.014 (0.001)*
Age ²	-0.0001 (0.00004)*	0.001 (0.0001)*	-0.00001 (0.00001)	0.0002 (0.00001)*
Ethnicity				
Ukrainian	-0.0003 (0.024)	-0.109 (0.037)*	-0.006 (0.006)	-0.008 (0.011)
Russian	0.020 (0.028)	-0.073 (0.036)*	-0.003 (0.005)	0.007 (0.011)
Other nationalities				
Education				
General Secondary Education	0.033 (0.017)*	-0.031 (0.022)	0.002 (0.003)	-0.007 (0.006)
Vocational Elementary Education	0.016 (0.024)	-0.037 (0.031)	-0.003 (0.004)	-0.008 (0.007)
Vocational Secondary Education	0.031 (0.019)	-0.007 (0.026)	-0.007 (0.003)	-0.003 (0.006)
Professional Secondary Education and Incomplete Higher - no bachelor	0.009 (0.016)	-0.040 (0.021)	0.001 (0.003)	-0.005 (0.006)

University	0.010 (0.018)	-0.073 (0.023)*	-0.007 (0.003)*	-0.007 (0.006)
Grade 1 to 11				
Tenure				
<1 year	-0.018 (0.020)	0.246 (0.036)*	0.003 (0.004)	0.046 (0.010)*
1 year	0.065 (0.025)*	0.091 (0.032)*	0.011 (0.005)*	0.076 (0.012)*
2 to 5 years	0.035 (0.015)*	0.122 (0.022)*	0.010 (0.004)*	0.038 (0.007)*
6 to 10 years	0.030 (0.015)	0.019 (0.023)	0.016 (0.004)*	0.028 (0.007)*
>10 years				
Ownership				
State	0.034 (0.023)	0.166 (0.033)*	0.020 (0.003)*	0.025 (0.006)*
Cooperative	0.110 (0.062)	0.202 (0.075)*	0.013 (0.014)	0.014 (0.020)
Privatized enterprise	-0.014 (0.031)	-0.077 (0.049)	0.011 (0.005)*	-0.0002 (0.008)
Newly established enterprises				
Industry				
Manufacturing and mining	0.123 (0.022)*	-0.014 (0.024)	0.007 (0.004)	-0.013 (0.006)*

Electricity, gas and water supply	-0.014 (0.043)	-0.005 (0.057)	-0.020 (0.004)*	-0.037 (0.008)*
Construction	0.100 (0.036)*	0.092 (0.039)*	0.017 (0.007)*	0.002 (0.009)
Wholesale and retail trade; repair of motor vehicles and motorcycles; hotels and restaurants	0.164 (0.036)*	0.042 (0.036)	0.016 (0.006)*	0.005 (0.008)
Transport, storage and communication	-0.004 (0.025)	0.006 (0.032)	-0.012 (0.003)*	-0.025 (0.006)*
Financial intermediation, real estate, renting and business activities	0.058 (0.057)	-0.086 (0.057)	0.001 (0.008)	-0.012 (0.012)
Public Administration and defense	0.096 (0.038)*	0.023 (0.039)	-0.013 (0.004)*	-0.034 (0.006)*
Education, health and social work	-0.036 (0.019)	-0.043 (0.027)	-0.031 (0.002)*	-0.052 (0.005)*
Other community, social and personal service activities	0.106 (0.036)*	-0.039 (0.036)	-0.010 (0.004)*	-0.011 (0.008)
Other activities	0.136 (0.113)	-0.063 (0.106)	-0.006 (0.011)	-0.012 (0.017)
<i>Agriculture, hunting and forestry</i>				
Firm size				
1-49	0.027 (0.015)	0.002 (0.023)	0.013 (0.003)*	0.008 (0.006)
50-99	0.043 (0.023)	-0.069 (0.026)*	0.014 (0.005)*	0.002 (0.007)
100-249	0.048 (0.020)*	-0.041 (0.024)	0.005 (0.004)	0.009 (0.007)
250-499	0.003 (0.019)	0.021 (0.027)	0.009 (0.005)	-0.014 (0.007)*

500-999	0.026 (0.020)	0.035 (0.028)	0.007 (0.005)	-0.018 (0.007)*
1000+				
Region				
West	-0.054 (0.012)*	-0.238 (0.018)*	-0.038 (0.002)*	-0.088 (0.003)*
East	-0.055 (0.012)*	-0.230 (0.018)*	-0.039 (0.002)*	-0.097 (0.004)*
Center and Nord	-0.063 (0.012)*	-0.241 (0.018)*	-0.035 (0.002)*	-0.090 (0.003)*
South	-0.055 (0.013)*	-0.221 (0.018)*	-0.029 (0.002)*	-0.085 (0.003)*
<i>Kyiv City</i>				
Number of observations	5151		21171	
Pseudo R ²	0.1324		0.1159	

Source: ULMS

Notes:

(i) The shown coefficients are marginal effects.

(ii) Standard errors are presented in brackets. Standard errors in the period 1998-2002 are obtained taking into account the fact that observations are independent among individuals but not necessarily for the same individual over different periods, i.e. we treat multiple observations for one individual as clusters.

(iii) The symbol * represents statistical significance at the 5% level;

Table 4. Cumulative Return Rates for Job Movers

% returning	1987-91		1992-95		1996-99		2000-2003	
	Displ	Quit	Displ	Quit	Displ	Quit	Displ	Quit
<1 month	14.1	8.2	1.8	2.8	20.7	17.3	28.2	43.5
<3 months	48.2	38.1	12.9	14.6	24.7	31.1	31.1	45.1
<6 months	51.8	40.4	14.2	15.4	26.2	34.3	32.7	48.6
Median completed duration (months)	1	2	1	2	1	1	1	1
N	141	958	380	889	603	884	687	1632

Source: ULMS.

Notes (i) The fractions are based on one minus the Kaplan-Meier survivor function. (ii) Retirements are excluded from quits.

Table 5. Kaplan-Meier Hazard Rates for Job Movers

Duration (months)	1987-91		1992-95		1996-1999		2000-2003	
	Hazard	s.e	Hazard	s.e	Hazard	s.e	Hazard	s.e
Displaced								
0-1	0.15	0.03	0.02	0.01	0.23	0.02	0.34	0.02
1-2	0.44	0.07	0.10	0.02	0.03	0.01	0.03	0.01
2-3	0.04	0.02	0.01	0.01	0.01	0.01	0.06	0.01
3-4	0.01	0.01	0.01	0.01	0.01	0.01	0.03	0.01
4-5	0.05	0.02	0.01	0.01	0.01	0.01	0.03	0.01
5-6	0.01	0.01	0.01	0.01	0.01	0.01	0.04	0.01
11-12	0.02	0.01	0.01	0.01	0.01	0.01	0.03	0.01
Quit								
0-1	0.09	0.02	0.03	0.01	0.32	0.02	0.57	0.02
1-2	0.32	0.02	0.12	0.01	0.04	0.01	0.05	0.01
2-3	0.05	0.01	0.01	0.01	0.01	0.01	0.04	0.01
3-4	0.02	0.01	0.01	0.01	0.01	0.01	0.06	0.01
4-5	0.02	0.01	0.01	0.01	0.01	0.01	0.06	0.01
5-6	0.01	0.01	0.01	0.01	0.01	0.01	0.07	0.01
11-12	0.01	0.01	0.01	0.01	0.01	0.01	0.05	0.01

Source: ULMS

Table 6a. Discrete Piecewise Proportional Hazard Estimates of Jobless Spell Excluding Movements into Retirement

	1987-91			1992-95		
	Total	Displaced	Quit	Total	Displaced	Quit
Displaced	0.062 (0.131)			0.023 (0.156)		
Individual						
Age	0.060 (0.041)	-0.243 (0.133)	0.107 (0.044)*	0.107 (0.059)	0.130 (0.138)	0.060 (0.069)
Age2	-0.001 (0.001)	0.003 (0.002)	-0.001 (0.001)*	-0.002 (0.001)	-0.002 (0.002)	-0.001 (0.001)
Female	-0.400 (0.162)*	-0.708 (0.574)	-0.466 (0.170)**	-0.160 (0.217)	0.571 (0.491)	-0.314 (0.250)
Kids	0.126 (0.159)	0.202 (0.526)	-0.023 (0.174)	-0.143 (0.227)	0.686 (0.504)	-0.260 (0.265)
Female*Kids	0.052 (0.198)	-0.673 (0.650)	0.263 (0.214)	-0.281 (0.285)	-0.965 (0.616)	-0.282 (0.338)
Married	-0.170 (0.114)	0.631 (0.363)	-0.246 (0.123)*	-0.096 (0.169)	-0.404 (0.327)	0.093 (0.207)
Ukrainian	-0.012 (0.114)	0.538 (0.344)	-0.108 (0.124)	0.065 (0.161)	-0.322 (0.352)	0.256 (0.187)
<i>Education</i>						
vocational education	0.177 (0.167)	0.613 (0.423)	0.118 (0.186)	0.008 (0.285)	-0.328 (0.596)	0.128 (0.335)
vocational secondary	-0.084 (0.139)	-0.183 (0.437)	-0.117 (0.151)	-0.014 (0.191)	-0.485 (0.404)	0.117 (0.224)
professional secondary	0.112 (0.124)	-0.171 (0.384)	0.070 (0.134)	0.239 (0.196)	0.256 (0.357)	0.212 (0.248)
Graduate	0.103 (0.141)	0.408 (0.448)	0.131 (0.153)	-0.012 (0.218)	-0.601 (0.471)	0.218 (0.252)
Works Land Plot	-0.075 (0.093)	0.253 (0.296)	-0.107 (0.101)	0.085 (0.145)	-0.020 (0.291)	0.139 (0.173)
Job (old)						
Job Tenure	0.001 (0.023)	0.183 (0.062)**	-0.015 (0.026)	-0.262 (0.044)**	-0.296 (0.095)**	-0.255 (0.052)**
Tenure ²	-0.000 (0.001)	-0.005 (0.002)**	-0.000 (0.001)	0.004 (0.002)**	0.005 (0.004)	0.004 (0.002)
Firm Size 1000+	-0.068 (0.108)	-1.012 (0.406)*	-0.008 (0.118)	-0.021 (0.173)	0.485 (0.351)	-0.125 (0.206)
<i>Industry</i>						
Manufacturing	-0.300 (0.142)**	1.845 (0.486)**	-0.433 (0.154)**	-0.083 (0.222)	0.276 (0.425)	-0.221 (0.279)
Retail	-0.103 (0.193)	-0.032 (0.531)	-0.196 (0.212)	0.151 (0.205)	0.491 (0.408)	0.098 (0.246)
Transport	-0.539 (0.246)**	0.833 (0.620)	-0.682 (0.279)*	-0.762 (0.424)	-1.173 (1.048)	-0.699 (0.474)
Finance	0.318 (0.471)	1.244 (1.253)	0.117 (0.525)	0.659 (0.456)	1.131 (1.075)	0.238 (0.555)
Education&Health	-1.048 (0.181)**	0.321 (0.596)	-1.229 (0.196)**	-0.295 (0.294)	-0.140 (0.581)	-0.443 (0.348)

Region						
Central/North	0.047 (0.124)	-0.396 (0.374)	0.154 (0.137)	-0.163 (0.215)	0.242 (0.437)	-0.159 (0.256)
Kyiv	-0.019 (0.178)	-1.054 (0.823)	0.026 (0.186)	0.090 (0.249)	-0.013 (0.557)	0.184 (0.296)
South	0.077 (0.134)	0.167 (0.374)	0.034 (0.149)	0.194 (0.197)	-0.324 (0.436)	0.430 (0.229)
West	-0.159 (0.147)	0.353 (0.406)	-0.159 (0.162)	-0.171 (0.210)	-0.747 (0.425)	0.057 (0.247)
Duration						
<=1 month	3.356 (0.130)**	3.642 (0.359)**	3.185 (0.143)**	2.615 (0.248)**	1.842 (0.610)**	2.743 (0.274)**
2 months	4.538 (0.100)**	4.801 (0.312)**	4.431 (0.107)**	4.199 (0.144)**	4.069 (0.280)**	4.164 (0.170)**
3 months	2.428 (0.230)**	2.807 (0.629)**	2.334 (0.248)**	1.635 (0.419)**	2.377 (0.536)**	0.851 (0.716)
Constant	-6.162 (0.678)**	-2.247 (2.388)	-6.695 (0.733)**	-6.495 (0.968)**	-6.174 (2.247)**	-5.985 (1.125)**
Log L	-2061	-232	-1798	-1173	-313	-839
N	58768	7599	51169	91159	29379	61780

Source: ULMS Notes: N is product of Sample size and number of months observed in the spell. Standard errors in brackets * significant at 5% level

Table 6b. Discrete Piecewise Proportional Hazard Estimates of Jobless Spell Excluding Movements into Retirement

	1996-1999			2000-2003		
	Total	Displaced	Quit	Total	Displaced	Quit
Displaced	0.007 (0.107)			-0.379 (0.093)**		
Individual						
Age	0.056 (0.046)	0.032 (0.083)	0.058 (0.060)	0.037 (0.033)	-0.117 (0.069)	0.080 (0.039)**
Age ²	-0.001 (0.001)	-0.001 (0.001)	-0.001 (0.001)	-0.001 (0.000)	0.001 (0.001)	-0.001 (0.0005)**
Female	-0.846 (0.162)**	-0.638 (0.292)**	-1.057 (0.210)**	-0.618 (0.122)**	-0.910 (0.257)**	-0.491 (0.140)**
Kids	-0.091 (0.169)	0.237 (0.334)	-0.265 (0.203)	0.058 (0.124)	0.105 (0.245)	0.033 (0.145)
Female*Kids	0.347 (0.208)	0.243 (0.369)	0.459 (0.268)	0.007 (0.162)	0.473 (0.329)	-0.202 (0.189)
Married	0.075 (0.122)	-0.281 (0.207)	0.206 (0.155)	-0.042 (0.093)	0.205 (0.200)	-0.105 (0.107)
Ukrainian	-0.024 (0.119)	-0.092 (0.198)	-0.047 (0.157)	0.003 (0.097)	-0.078 (0.198)	0.090 (0.114)
Education						
Vocational elementary	-0.121 (0.214)	0.279 (0.383)	-0.207 (0.264)	-0.113 (0.160)	-0.504 (0.311)	0.022 (0.189)
Vocational secondary	-0.072 (0.151)	-0.241 (0.288)	0.092 (0.186)	0.048 (0.115)	-0.219 (0.240)	0.155 (0.134)
professional secondary	0.136 (0.139)	-0.093 (0.223)	0.313 (0.183)	0.091 (0.112)	-0.060 (0.221)	0.214 (0.133)
Graduate	0.332 (0.150)*	0.257 (0.261)	0.448 (0.194)*	0.493 (0.116)**	0.488 (0.234)*	0.510 (0.136)**
Works Land Plot	-0.151 (0.108)	-0.323 (0.202)	-0.094 (0.135)	-0.075 (0.085)	0.184 (0.182)	-0.164 (0.100)
Job						
Job Tenure	-0.094 (0.028)**	-0.120 (0.045)**	-0.069 (0.035)**	0.009 (0.019)	-0.010 (0.033)	0.033 (0.024)
Tenure ²	0.001 (0.001)	0.001 (0.002)	0.000 (0.001)	-0.001 (0.001)	0.001 (0.001)	-0.001 (0.001)
Firm Size 1000+	-0.384 (0.156)**	-0.766 (0.302)**	-0.211 (0.191)	-0.301 (0.134)**	0.037 (0.245)	-0.428 (0.165)**
Industry						
Manufacturing	0.358 (0.143)**	0.469 (0.262)	0.345 (0.179)	0.303 (0.115)**	0.283 (0.214)	0.333 (0.139)**
Retail	0.328 (0.157)**	0.316 (0.260)	0.282 (0.207)	0.326 (0.125)**	0.519 (0.247)**	0.260 (0.149)
Transport	0.293 (0.236)	0.304 (0.355)	0.217 (0.344)	0.228 (0.193)	0.221 (0.409)	0.220 (0.221)
Finance	0.008 (0.378)	0.067 (0.595)	-0.223 (0.528)	0.248 (0.253)	0.089 (0.511)	0.274 (0.298)
Education&Health	0.517 (0.180)**	0.389 (0.374)	0.553 (0.213)**	0.595 (0.131)**	0.777 (0.311)**	0.584 (0.147)**
Ownership						

New Private	-0.008 (0.158)	-0.030 (0.253)	0.044 (0.207)	0.063 (0.118)	-0.016 (0.246)	0.120 (0.137)
Privatised	0.218 (0.220)	0.586 (0.461)	0.152 (0.273)	-0.277 (0.166)	-0.398 (0.357)	-0.226 (0.190)
Foreign owned	0.096 (0.367)	-0.270 (0.606)	0.479 (0.467)	0.012 (0.300)	-0.168 (0.733)	-0.006 (0.332)
Region						
Central/North	-0.169 (0.146)	-0.440 (0.264)	0.044 (0.184)	-0.157 (0.112)	-0.193 (0.227)	-0.150 (0.130)
Kyiv	0.062 (0.180)	-0.533 (0.365)	0.343 (0.229)	0.228 (0.143)	0.695 (0.305)**	0.082 (0.169)
South	0.083 (0.147)	0.034 (0.241)	0.152 (0.196)	0.008 (0.121)	0.389 (0.239)	-0.129 (0.145)
West	-0.434 (0.167)**	-0.476 (0.289)	-0.342 (0.209)	-0.294 (0.123)**	-0.471 (0.264)	-0.292 (0.141)**
Duration						
<=1 month	3.826 (0.107)**	3.702 (0.177)**	3.854 (0.135)**	2.996 (0.090)**	2.850 (0.165)**	3.030 (0.108)**
2 months	1.996 (0.206)**	1.781 (0.360)**	2.091 (0.253)**	1.567 (0.140)**	0.828 (0.340)**	1.761 (0.158)**
3 months	1.265 (0.289)**	1.395 (0.430)**	1.133 (0.392)**	0.219 (0.260)	-0.332 (0.591)	0.400 (0.291)
Constant	-4.663 (0.723)**	-3.912 (1.345)**	-4.901 (0.924)**	-4.483 (0.537)**	-2.034 (1.152)	-5.319 (0.624)**
Log L	-1527	-576	-936	-2219	-660	-1534
N	53670	24516	29154	20322	8288	12034

Source: ULMS Note: Standard errors are in brackets. ** significant at 5% level

Table 7. After-Displacement Wage Determinants

	Ln wage		Ln wage		Δ Ln wage	
	OLS	Heckman	OLS	Heckman	OLS	Heckman
Individual						
Age	0.028 (0.029)	0.051 (0.031)	0.013 (0.024)	0.016 (0.024)	-0.003 (0.025)	0.032 (0.028)
Age ²	-0.001 (0.001)	-0.001 (0.001)	-0.000 (0.000)	-0.001 (0.001)	-0.001 (0.001)	-0.001 (0.001)
Female	-0.285 (0.081)**	-0.342 (0.089)**	-0.090 (0.080)	-0.121 (0.080)	0.112 (0.081)	0.023 (0.091)
Vocational higher	0.325 (0.083)**	0.403 (0.088)**	0.201 (0.076)**	0.230 (0.077)**	0.073 (0.092)	0.151 (0.103)
Graduate	0.437 (0.103)**	0.508 (0.108)**	0.316 (0.089)**	0.350 (0.091)**	0.191 (0.099)	0.284 (0.118)**
<i>Region</i>						
Centre & North	-0.689 (0.152)**	-0.767 (0.158)**	-0.366 (0.131)**	-0.544 (0.153)**	-0.032 (0.132)	-0.164 (0.161)
East	-0.515 (0.139)**	-0.545 (0.140)**	-0.283 (0.119)*	-0.401 (0.131)**	-0.044 (0.121)	-0.132 (0.148)
South	-0.560 (0.160)**	-0.575 (0.164)**	-0.190 (0.138)	-0.313 (0.148)	0.191 (0.140)	0.138 (0.168)
West	-0.436 (0.180)**	-0.658 (0.194)**	-0.069 (0.148)	-0.258 (0.168)	0.310 (0.154)*	0.027 (0.178)
Firm						
Privatised	-0.044 (0.138)	-0.186 (0.170)	-0.071 (0.109)	-0.073 (0.112)	-0.098 (0.116)	0.253 (0.168)
New Private	0.091 (0.119)	0.275 (0.139)**	0.080 (0.107)	0.087 (0.105)	0.068 (0.118)	0.343 (0.150)**
Foreign Owned	0.272 (0.417)	0.274 (0.440)	0.228 (0.318)	0.116 (0.341)	0.182 (0.283)	0.176 (0.315)
Tenure (years)	-0.029 (0.016)	-0.053 (0.020)**	-0.025 (0.014)	-0.028 (0.014)**	-0.022 (0.015)	-0.063 (0.017)**
Tenure ²	0.001 (0.001)	0.001 (0.0005)**	0.001 (0.000)	0.001 (0.0005)	0.001 (0.000)	0.002 (0.001)**
Industry						
Agriculture	-0.332 (0.145)**	-0.325 (0.155)**	-0.107 (0.121)	-0.153 (0.121)	0.124 (0.124)	0.223 (0.145)
Construction	0.074 (0.128)	0.083 (0.135)	0.052 (0.122)	0.018 (0.118)	0.030 (0.143)	0.044 (0.145)
Retail	0.282 (0.124)**	0.358 (0.129)**	0.166 (0.111)	0.163 (0.107)	0.046 (0.123)	0.190 (0.130)
Transport	-0.058 (0.125)	-0.038 (0.138)	0.035 (0.117)	-0.016 (0.118)	0.132 (0.146)	0.191 (0.166)
Finance	-0.161 (0.179)	-0.128 (0.198)	-0.136 (0.170)	-0.197 (0.182)	-0.110 (0.221)	-0.018 (0.243)
Public Service	0.287 (0.137)**	0.294 (0.168)	0.257 (0.120)**	0.226 (0.133)	0.225 (0.167)	0.280 (0.218)
Education/Health	-0.120 (0.154)	-0.086 (0.160)	0.058 (0.154)	0.061 (0.141)	0.242 (0.187)	0.314 (0.192)
Other Services	-0.051 (0.177)	-0.024 (0.182)	-0.030 (0.154)	-0.086 (0.158)	-0.009 (0.167)	0.077 (0.184)

Firm_size 100-999	0.278 (0.091)**	0.292 (0.097)**	0.248 (0.082)**	0.271 (0.083)**	0.216 (0.092)**	0.261 (0.106)**
Firm Size 1000+	0.324 (0.121)**	0.313 (0.123)**	0.217 (0.112)	0.223 (0.109)**	0.107 (0.130)	0.115 (0.142)
Change Industry	0.025 (0.083)	0.172 (0.091)	-0.025 (0.071)	0.167 (0.111)	-0.077 (0.079)	0.113 (0.094)
Change Occ.	-0.019 (0.084)	0.044 (0.095)	0.052 (0.072)	0.165 (0.089)	0.124 (0.081)	0.221 (0.095)**
Change Region	0.367 (0.175)**	0.448 (0.180)**	0.315 (0.145)**	0.432 (0.145)**	0.262 (0.173)	0.385 (0.187)**
Time Out						
<1 month	0.203 (0.077)**	0.183 (0.072)**	0.161 (0.073)**	0.165 (0.066)**	0.118 (0.086)	0.108 (0.175)
1-3 months	0.128 (0.187)	0.111 (0.165)	0.157 (0.159)	0.174 (0.139)	0.188 (0.165)	0.187 (0.155)
Log(old_wage)			0.492 (0.071)**	0.531 (0.072)**		
Lambda		0.533 (0.198)**		0.351 (0.134)**		0.778 (0.111)**
Constant	4.581 (0.537)**	3.485 (0.714)**	2.231 (0.549)**	1.848 (0.568)**	-0.191 (0.481)	-1.821 (0.600)**
R-squared	0.39		0.52		0.16	

Robust standard errors in parentheses ** significant at 5 %. Default categories are male, state owned , kyiv city, production sector firm<100 employees. Full-time jobs only. Sample size 263

Table 8. Difference in Difference Estimates of Wage Costs of Displacement 1999-2002

	1999		2000		2001		2002		Total	
Panel A										
Displaced	-0.076	-0.097	-0.174	-0.173	-0.111	-0.140	0.013	-0.114	-0.096	-0.134
	(0.078)	(0.073)	(0.091)	(0.084)*	(0.097)	(0.084)	(0.091)	(0.085)	(0.047)**	(0.042)**
After	-0.158	-0.160	-0.218	-0.216	-0.129	-0.122	0.110	0.119	-0.001	0.001
	(0.012)**	(0.012)**	(0.010)**	(0.010)**	(0.007)**	(0.008)**	(0.008)**	(0.009)**	(0.003)	(0.002)
Displaced*After	-0.005	-0.009	0.160	0.151	-0.111	-0.118	-0.031	-0.032	0.015	0.003
	(0.078)	(0.079)	(0.089)	(0.090)	(0.066)	(0.067)	(0.086)	(0.086)	(0.040)	(0.050)
Individual Controls	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Observations	1385	1385	1383	1383	1368	1368	1361	1361	5463	5463
No. Displaced	68	68	66	66	51	51	44	44	227	227
R-squared	0.02	0.17	0.03	0.19	0.02	0.21	0.01	0.19	0.03	0.20
Panel B										
Spell Length	n/a	n/a	-0.030	-0.009	0.231	0.148	-0.471	-0.553	-0.040	-0.025
			(0.028)	(0.022)	(0.169)	(0.156)	(0.360)	(0.323)	(0.032)	(0.031)
After			-0.210	-0.209	-0.129	-0.123	0.110	0.119	-0.096	0.006
			(0.010)**	(0.011)**	(0.007)**	(0.008)**	(0.008)**	(0.009)**	(0.006)**	(0.003)**
After*Spell			-0.022	-0.019	-0.546	-0.392	0.125	0.202	-0.181	-0.145
			(0.052)	(0.049)	(0.193)**	(0.206)	(0.493)	(0.434)	(0.093)	(0.094)
Observations	1385	1385	1383	1383	1368	1368	1361	1361	5463	5463
R-squared	0.02	0.17	0.03	0.19	0.02	0.20	0.01	0.19	0.02	0.20

Robust standard errors in parentheses. ** significant at 5%. Spell length estimates for 1999 not available because of sample size limitations. Pooled regressions also include year dummies.

Table 9. Short-Run Wage Costs of Displacement

	OLS	Fixed Effects	Random Effects	OLS	Fixed Effects	Random Effects
Panel A						
Displaced	-0.045 (0.029)	-0.011 (0.025)	-0.016 (0.024)	-0.092 (0.027)**	-0.019 (0.025)	-0.030 (0.024)
Individual Controls	No	No	No	Yes	Yes	Yes
Firm Controls	No	No	No	No	No	No
Panel B						
Years Before/After Displacement						
2 years before	-0.020 (0.059)	-0.044 (0.036)	-0.041 (0.035)	-0.069 (0.054)	-0.035 (0.036)	-0.044 (0.035)
1 year before	-0.043 (0.051)	-0.066 (0.032)**	-0.063 (0.031)**	-0.088 (0.046)	-0.057 (0.032)	-0.065 (0.031)**
Year of Displacement	-0.037 (0.049)	-0.057 (0.032)	-0.054 (0.031)	-0.085 (0.046)	-0.051 (0.032)	-0.059 (0.030)
1 year after	-0.044 (0.057)	-0.061 (0.035)	-0.058 (0.034)	-0.091 (0.054)	-0.059 (0.035)	-0.067 (0.034)**
2 years after	-0.075 (0.062)	-0.048 (0.039)	-0.048 (0.038)	-0.115 (0.059)	-0.051 (0.039)	-0.061 (0.037)
Individual Controls	No	No	No	Yes	Yes	Yes
Firm Controls	No	No	No	No	No	No

Notes: Sample size 10374. Standard errors in brackets ** significant at 5%. Sample restricted to those with 6 continuous wage observations.

Table A1 Probit Estimates of Presence in After Displacement Sample

			Sample Mean no returns	Sample Mean returns
Individual				
Age	0.078 (0.031)**	0.070 (0.048)	39.2	37.3
Age ²	-0.001 (0.0004)**	-0.001 (0.0006)	1640	1488
Female	-0.200 (0.090)**	-0.288 (0.131)**	0.57	0.50
Vocational higher	0.154 (0.098)	0.168 (0.144)	0.22	0.25
Graduate	0.217 (0.116)	0.299 (0.182)	0.14	0.18
<i>Region</i>				
Centre & North	-0.300 (0.171)	-1.081 (0.299)**	0.24	0.21
East	-0.188 (0.159)	-0.735 (0.291)**	0.34	0.37
South	-0.092 (0.176)	-0.645 (0.316)	0.16	0.21
West	-0.639 (0.189)**	-0.946 (0.333)**	0.20	0.09
Firm				
Privatised	0.463 (0.199)**	-0.163 (0.259)	0.03	0.07
New Private	0.369 (0.138)**	-0.086 (0.191)	0.08	0.22
Foreign Owned	0.130 (0.333)	-0.130 (0.548)	0.01	0.02
Tenure (years)	-0.058 (0.016)**	-0.016 (0.024)	11.4	8.6
Tenure ²	0.002 (0.0004)**	0.001 (0.001)	212	152
Industry				
Agriculture	0.044 (0.149)	-0.293 (0.207)	0.12	0.10
Construction	0.099 (0.165)	-0.097 (0.237)	0.07	0.08
Retail	0.271 (0.135)**	0.222 (0.200)	0.14	0.23
Transport	0.106 (0.165)	0.007 (0.244)	0.07	0.07
Finance	0.106 (0.246)	-0.038 (0.395)	0.02	0.03
Public Service	0.011 (0.219)	-0.419 (0.300)	0.05	0.03
Education/Health	0.080 (0.178)	0.044 (0.265)	0.08	0.06
Other Services	0.110 (0.171)	-0.122 (0.274)	0.06	0.07

Firm_size 100-999	0.007 (0.103)	0.140 (0.155)	0.34	0.29
Firm Size 1000+	0.028 (0.132)	0.122 (0.197)	0.22	0.17
Ethnic Minority	-0.003 (0.085)	0.127 (0.138)	0.25	0.29
Children <6 years	-0.275 (0.150)	-0.212 (0.230)	0.16	0.13
Female*children<6	0.058 (0.198)	0.085 (0.316)	0.08	0.06
Single	0.086 (0.105)	0.099 (0.164)	0.19	0.23
Divorced/widowed	0.096 (0.171)	-0.025 (0.251)	0.04	0.04
Farms a plot of land	0.110 (0.086)	0.181 (0.125)	0.55	0.47
Log(old_wage)		0.208 (0.103)**	4.49	4.77
Constant	-1.808 (0.609)**	-0.911 (1.068)		

Notes Standard errors in brackets. * represents statistical significance at the 5% level. Sample of non-returners is 1126