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# **Ukraine Jobs Study**

## **Fostering Productivity and Job Creation**

(In Two Volumes) Volume II: Technical Chapters

**November 30, 2005**

**Human Development Sector Unit  
Ukraine, Belarus and Moldova Country Unit  
Europe and Central Asia Region**



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**ABBREVIATIONS AND ACRONYMS**

ALMP	Active Labor Market Programs
BEEPS	EBRD-World Bank Business Environment and Enterprise Performance Surveys
CEE	Central and Eastern Europe
CIS	Commonwealth of Independent States
CPI	Consumer Price Index
EBRD	European Bank for Reconstruction and Development
FDI	Foreign Direct Investments
FSU	Former Soviet Union
GDP	Gross Domestic Product
ILO	International Labor Organization
IMF	International Monetary Fund
LFPR	Labor Force Participation Rate
SME	Small and Medium Enterprises
SOE	State-Owned Enterprises
ULMS	Ukrainian Longitudinal Monitoring Survey

Vice President:	Shigeo Katsu
Country Director:	Paul Bermingham
Sector Director:	Charles C. Griffin
Sector Manager	Hermann von Gersdorff
Task Team Leader:	Jan Rutkowski

**Ukraine Jobs Study  
Fostering Productivity and Job Creation**

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## CHAPTER 2: MAJOR LABOR MARKET TRENDS AND PATTERNS, 1998-2004

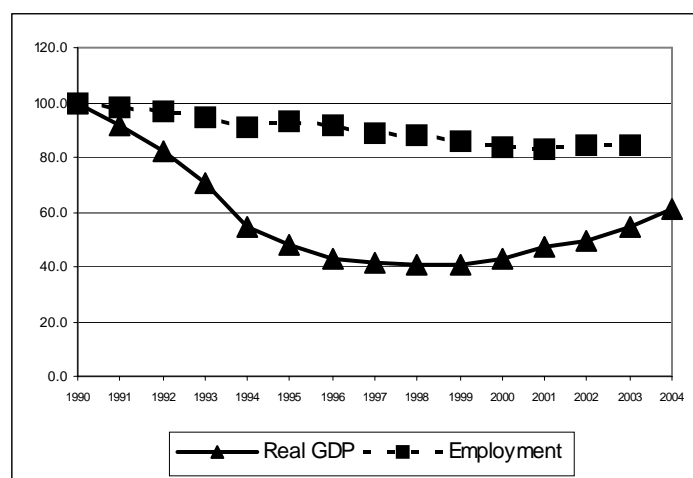
*This chapter presents a snap shot of the major labor market trends and patterns in Ukraine over the last seven years. Ukraine experienced rebounding GDP growth from 1998 onwards. However, GDP growth has, until recently, not been accompanied by commensurate employment growth – a phenomenon typically referred to as “jobless growth”. Rather, overall employment fell throughout the 1990s and has shown positive growth only after 2001. As the analysis in this chapter shows, Ukraine suffers from relatively high unemployment, in particular long-term unemployment, as well as low employment and low labor force participation by regional standards. Formal employment remains strongly biased towards large and public companies, only undergoing “defensive” rather than strategic restructuring and the size of the “new” sector of the economy, consisting of de novo private, usually small enterprises is relatively small. This suggests that the Ukrainian labor market has much of its transition still ahead. At the same time, the analysis shows that many unemployed are engaged in the informal sector. There is convincing evidence that the Ukrainian labor market for most of the analyzed period is far from dynamic and that the unemployment pool can be characterized as stagnant as a majority of the unemployed lingers on in long-term unemployment.*

### A. UKRAINE’S JOBLESS GROWTH

1. **The Ukrainian economy has been growing since 2000 at a very high rate of over 8 percent per year. However, this substantial output growth was, until recently, accompanied by only negligible employment growth,** as evident from Figure 2.1. Such “jobless growth” is not specific to Ukraine, but has been experienced by most of the transition economies of Central and Eastern Europe (CEE). Low elasticity of employment with respect to output is explained by so called “defensive restructuring” by enterprises. As other firms in the region, Ukrainian firms improve productivity by eliminating overstaffing and firing redundant labor. The productivity gains are then translated into wage increases, which are analyzed further below in this chapter. This suggests that enterprise restructuring has benefited the “insiders”, i.e. workers who keep their jobs, at the cost of “outsiders”, i.e. workers who are unemployed. Apparently, few firms have been engaged in “strategic restructuring” where firms use productivity gains to increase production and, consequently, employment. As a result, open unemployment is predominantly long-term, while the employment structure remains heavily tilted towards large public sector employers.



**Figure 2.1: Ukrainian growth after 1999 has been “jobless growth”, Real GDP and Employment (1990=100)**



Source: State Statistics Committee of Ukraine.

## **B. MODERATE UNEMPLOYMENT AND HIGH LONG-TERM UNEMPLOYMENT**

2. **The Ukrainian labor market is characterized by moderate unemployment rates.** There are significant discrepancies, however, between unemployment rates reported in labor force survey data published by Dzerkomstat and those estimated based on the Ukrainian Labor Market Survey (ULMS). According to LFS data, the unemployment rate in 2004 was 8 percent. However, according to the ULMS, unemployment rose steadily between 1997 and 2003, reaching 17 percent in the latter year (see Table 2.1 below). In any event, this steady rise, which coincides with the economy coming out of a deep recession and several years of robust GDP growth, must come about because of increased labor shedding by enterprises.<sup>1</sup> However, what is also visible in the data is that several years of robust growth cause a sharp drop in the unemployment rate to about 14 percent in 2004. So, with a long lag, there appears to be a discernible improvement in labor market prospects even for workers in the unemployment pool.

<sup>1</sup> Given the dramatic fall in GDP and the low job creation capacity of the Ukrainian economy in the nineties, it can be argued that the ULMS-based estimates appear more credible than those published by Dzherkomstat.

**Table 2.1: Unemployment rates, 1997-2004, in percent**

	1997	1998	1999	2000	2001	2002	2003	2004
<b>Total</b>	<b>9.48</b>	<b>11.72</b>	<b>13.40</b>	<b>14.28</b>	<b>15.15</b>	<b>16.82</b>	<b>17.30</b>	<b>14.15</b>
<b>Gender</b>								
Male	8.47	10.89	12.01	13.24	14.27	16.91	17.39	14.14
Female	10.41	12.48	14.69	15.24	15.97	16.74	17.22	14.15
<b>Age</b>								
15-24	18.79	23.41	23.81	22.70	25.22	27.11	29.08	23.48
25-49	9.22	11.31	13.02	14.69	14.98	16.38	16.13	12.27
50-59	5.22	6.91	9.14	8.37	10.77	13.44	13.01	11.96
60+	3.61	5.45	7.79	7.76	8.27	8.50	6.75	7.83
<b>Education</b>								
Elementary	11.25	13.32	16.13	17.87	18.67	19.68	21.82	18.42
Secondary	9.57	12.24	13.83	14.74	15.65	18.37	18.55	14.98
University	4.78	5.75	6.37	7.50	7.75	8.65	8.89	7.86
<b>Region</b>								
Kyiv	6.99	8.28	9.18	11.07	9.59	10.75	15.84	3.18
West	10.12	13.26	14.44	15.99	17.23	19.56	17.71	15.82
South	10.29	12.39	16.27	15.44	15.95	17.13	16.69	12.20
East	8.92	10.02	12.46	13.81	14.91	16.63	16.89	13.09
Center & North	8.09	11.39	12.63	14.69	17.43	19.02	18.36	17.56

Source: Own calculations based on ULMS.

3. **Unemployment in Ukraine is heavily concentrated among young workers and workers with low educational attainments.** The unemployment rates do not differ across gender and show patterns across age groups and educational attainment that can be observed in many transition and OECD countries. Young workers have unemployment rates that are nearly double of those for workers in the core age group, while workers of 60 years or older experience less unemployment than the other age groups. Also, the higher the educational attainment, the lower is the unemployment rate. Ukrainian university graduates have unemployment rates that are less than half of those of workers with elementary education or less. In essence, young workers and those who are less educated comprise those groups of the Ukrainian workforce most affected by unemployment. The gross flows between the labor market states employment, unemployment, and not-in-the-labor force presented in Chapters 3 and 4 of this study shed some light on the sources of these differing levels of unemployment rates.

4. **Ukraine's labor market suffers from high long-term unemployed.** Long-term unemployment, i.e. unemployment that lasts more than one year, is an important indicator to look at for at least three reasons. Long-term unemployment incidence indicates whether unemployment is an efficient tool to reallocate labor from declining firms and sectors to expanding ones – when this incidence is low - or whether unemployment is a “stagnant pool”<sup>2</sup> – when this incidence is high – leading to the waste of human resources. Long-term unemployment in general is considered wasteful since it does not contribute to downward wage pressure, and thus does not contribute to the creation of new jobs.<sup>3</sup> Finally, long-term unemployment has also immediate policy relevance as it allows an identification of those groups among the work force who have particular difficulties in leaving unemployment.

<sup>2</sup> Boeri (1994).

<sup>3</sup> Nickell (1997)

5. **The incidence of long-term unemployment was substantial in the early years of Ukraine's transition.** In the years 1997 to 2002, between 60 and 70 percent of the unemployed are long-term unemployed (Table 2.2).<sup>4</sup> Clearly, on this measure the Ukrainian labor market has performed very poorly in international perspective. While in many transition countries long-term unemployment is a serious problem, almost none reached such high percentages for a protracted period of time. The Ukrainian labor market not only exhibits high unemployment rates, but a large majority of those who flow into unemployment have tremendous difficulties to re-enter employment. Since non-employment benefits are not generous or inexistent, other causes are responsible for the extremely low outflow rates from unemployment.

6. **Although long-term unemployment remains high in 2003-2004, there is evidence for a recent reduction.** While the incidence of long-term unemployed remains high through the entire period, several years of growth resulted in some improvement, with the percentage of the long-term unemployed falling below 50 percent for the first time in 2004. Whether this fall is caused by outflows of the long-term unemployed into employment, and informal employment, or whether some of the long-term unemployed withdraw from the labor market, will be examined in the transition analysis in Chapter 3.

**Table 2.2: Incidence of long term unemployment 1997-2004, in percent of overall unemployment**

	1997	1998	1999	2000	2001	2002	2003	2004
<b>Total</b>	<b>61.84</b>	<b>60.73</b>	<b>66.16</b>	<b>67.54</b>	<b>70.21</b>	<b>64.01</b>	<b>51.80</b>	<b>47.83</b>
<b>Gender</b>								
Male	57.14	58.82	65.48	65.58	67.98	60.05	50.97	49.46
Female	58.82	62.26	66.67	69.11	72.08	67.90	52.62	46.31
<b>Age</b>								
15-24	49.11	51.16	56.30	53.38	54.11	41.46	33.48	33.73
25-49	66.03	63.59	68.46	69.07	74.73	70.81	59.96	52.46
50-59	60.47	62.26	69.44	80.30	67.82	63.06	57.14	60.82
60+	85.71	66.67	72.22	84.21	90.48	80.95	58.82	64.71
<b>Education</b>								
Elementary	58.20	67.16	70.78	67.48	75.90	67.63	49.75	35.71
Secondary	66.67	58.66	65.96	69.02	69.52	61.46	52.29	50.78
University	55.00	54.17	66.67	53.85	61.19	58.44	53.01	53.97
<b>Region</b>								
Kyiv	60.00	54.17	70.37	58.82	60.71	51.52	35.42	0.00
West	60.42	60.48	67.41	72.67	68.71	61.34	51.08	45.04
South	65.71	67.47	62.73	71.03	72.07	65.85	53.54	47.69
East	62.02	58.74	66.11	64.68	72.64	64.49	49.26	47.87
Center & North	62.92	59.17	69.77	66.23	69.66	67.01	58.79	51.63

Source: Own calculations based on ULMS.

7. **Older workers and the unskilled are particularly affected by long-term unemployment.** The patterns of long-term unemployment across gender are not clear cut and show, at any rate, only small differences over the years. Young workers, on the other hand, have a far lower incidence than workers who are 25 years of age and older. In particular workers in their sixties, if they become unemployed, have immense problems to leave the unemployment pool. The educational groups have for virtually all years equally high long-term unemployment shares, although in 2004 the least educated workers have left the long-term unemployment pool at a faster rate than the other groups. Whether this implies withdrawal from the labor market by this group will be analyzed below.

<sup>4</sup> The results of the incidence of long-term unemployment are in line with those published by Dzherkomstat.

8. **Many unemployed, in particular long-term unemployed, are engaged in the informal sector.** The estimates presented in Table 2.3 show that roughly between a quarter and a third of the unemployed engaged in informal economic activities between 1997 and 2002 and that the long-term unemployed were particularly involved in such activities.<sup>5</sup> These results put the extremely high long-term unemployment incidence in this period somewhat into perspective, as long-term unemployment appears, to some extent, to mask informal activity.

**Table 2.3: Shares of unemployed engaged in informal activities 1997-2002**

	1997	1998	1999	2000	2001	2002
Unemployed	30.29	32.50	32.29	30.51	26.37	28.58
Short-term Unemployed	27.78	33.79	28.24	20.80	22.54	23.00
Long-term Unemployed	31.84	31.68	34.35	35.22	28.80	31.76

Source: Own calculation based on ULMS.

9. **While long-term unemployment fell in 2003 and 2004, short-term unemployment rose substantially.** The duration structure of unemployment is presented in Table \*,\*, showing average shares by duration for two sub-periods, 1997-2002, and 2003-2004. This sub-division is followed throughout much of the analysis in this study since the latter two years show a discernibly different pattern from the earlier years. In Table 2.4, the share of long-term unemployment falls from about 65 percent to about 51 percent, while the share of the very short-term unemployed (less than 4 months) increases substantially. This suggests that the prolonged upturn of the Ukrainian economy has somewhat improved the duration structure of unemployment somewhat, with many unemployed only experiencing short spells of unemployment. This improvement is, however, not dramatic given that less than half of the unemployed succeed in leaving unemployment within a year. Gender differences in the duration structure of unemployment are rather minor.

10. **However, long-term unemployment remains high by regional standards even in the years 2003 – 2004.** The recently observed duration structure of unemployment in the Ukrainian labor market, if set in international perspective, is strongly skewed towards longer duration spells. In most OECD economies, roughly half of the unemployed appear in the very short-term category even in recessions, while in most transition countries this number is between 30 and 40 percent.

**Table 2.4: Average unemployment shares by duration, 1997-2004, in percent**

	1997 – 2002			2003 – 2004		
	Male	Female	Total	male	female	Total
<4 months	15%	12%	14%	23%	22%	23%
4-8 months	14%	12%	13%	13%	13%	13%
8-12 months	8%	8%	8%	10%	12%	11%
12+ months	63%	68%	66%	52%	51%	51%

Source: Own calculations based on ULMS.

<sup>5</sup> See Lehmann and Pignatti (2005) for a discussion of the construction of this estimate.

## C. LABOR IS UNDERUTILIZED

11. **Labor force participation in Ukraine is low by regional standards and has been falling over the last few years, driven mainly by declining participation of workers in the core age bracket of 25 to 49 years.** As Table 2.5 shows, labor force participation rates fell by roughly 8 percentage points between 1997 and 2004, when participation stood at 58 percent, which is low in international perspective<sup>6</sup>. More interesting than the estimated levels are the distributions across gender, age groups and educational attainment. The results from the age and educational distributions are especially noteworthy. Young workers show an increased propensity to enter the labor market over the period, as the rise in the participation rate from 44 to 54 percent shows. A similar picture emerges for workers between 50 and 59 years of age. The overall decline in the participation rate can be explained by the declining participation of the core group of workers (ages 25 to 49) and of those over 60 years of age, since these last two groups make up roughly two thirds of labor market participants. Workers with primary education or less leave the labor market in droves, as the 18 percentage points fall in the participation rate between 1997 and 2004 attests, while workers with secondary education and university graduates have only slightly falling participation rates over the entire period. On the other hand, there are no diverging patterns of participation across the two genders; both female and male workers have slightly declining rates.<sup>7</sup> The rise in the participation rate of young workers and its precipitous fall among less educated workers seem to point to changing opportunities in the Ukrainian labor market: Young workers seem to expect growing opportunities for employment while workers with little education might be convinced to be confronted with shrinking employment possibilities.

**Table 2.5: Labor force participation rates 1997-2004, in percent**

	1997	1998	1999	2000	2001	2002	2003	2004
<b>Total</b>	<b>65.88</b>	<b>62.49</b>	<b>61.10</b>	<b>59.24</b>	<b>57.77</b>	<b>56.84</b>	<b>57.37</b>	<b>57.97</b>
<b>Gender</b>								
Male	73.78	70.52	69.13	66.88	65.45	65.61	66.17	66.07
Female	60.03	56.57	55.19	53.57	52.04	50.30	50.80	52.04
<b>Age</b>								
15-24	43.66	38.67	39.21	38.78	37.19	36.98	50.80	53.76
25-49	87.55	86.01	85.49	84.44	83.11	82.27	82.24	84.21
50-59	57.59	56.69	58.07	58.97	60.66	60.47	63.19	63.56
60+	20.68	19.13	17.41	16.30	15.77	15.12	15.39	15.16
<b>Education</b>								
Elementary	53.58	48.81	45.15	40.88	37.45	34.88	35.93	35.50
Secondary	75.68	73.25	72.24	69.22	67.06	65.11	64.47	64.00
University	81.64	80.21	79.25	78.96	76.82	76.53	76.24	76.24

<sup>6</sup> Also, these estimates are somewhat lower than those provided by Dzherkomstat (2004), which estimated an overall participation rate in 2003 of approximately 62 percent. Since the precise sampling and estimation procedures used by Dzherkomstat are not known, a sensible comparison between the two estimates is impossible.

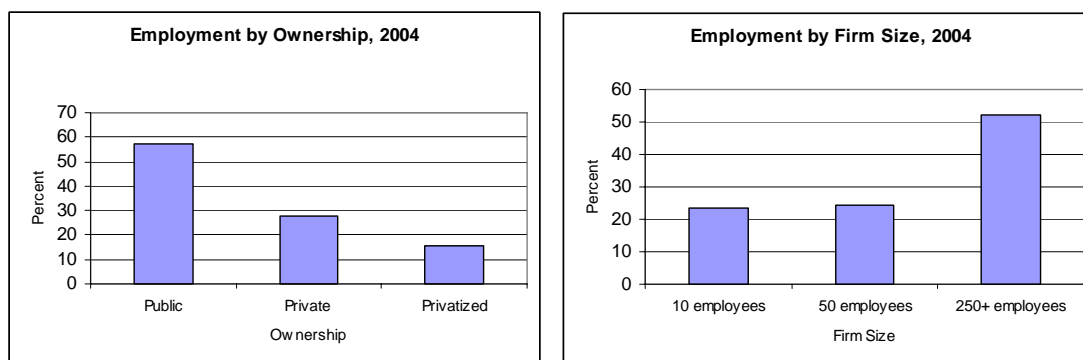
<sup>7</sup> It is noteworthy, however, that with roughly 52 percent for most of the years between 1997 and 2004 women have a higher share among labor market participants than men, reflecting a substantially larger female working age population in the Ukrainian labor market, possibly caused by large male inter country migration.

Region								
Kyiv	77.30	74.36	72.24	71.90	66.67	66.02	68.71	67.69
West	64.69	61.35	58.95	56.71	55.65	54.99	55.82	54.33
South	66.47	62.44	60.09	59.18	57.71	56.23	57.56	58.77
East	65.40	62.37	61.49	59.24	56.63	56.18	58.97	59.31
Center & North	66.55	61.82	59.19	56.64	54.86	53.43	54.01	57.08

Source: Own calculation based on ULMS.

12. **Many jobs are in the informal sector and of low productivity.** The informal sector represents a large, according to some estimates even dominant, part of the Ukrainian economy. For example, the informal sector as a share of GDP is estimated at 55 percent<sup>8</sup>. This is a much larger share than in more advanced transition economies, such as Poland (less than 30 percent), the Czech Republic or Slovakia (about 20 percent). Estimates of informal employment are more modest, but still substantial: one in five workers is employed in an unregistered job, according to ULMS 2004 data, while estimates go up to over 40 percent<sup>9</sup>. Young, poorly educated and unskilled blue-collar workers are disproportionately represented among the informal sector workers. For example, unskilled workers account for one-third of informal sector employment compared with less than one-fifth of formal sector employment. About 25 percent of the informal sector workers do not have secondary education, twice as much as in the formal sector. In addition, informal jobs are concentrated in sales (34 percent), agriculture (25 percent), construction (12 percent) and services (8 percent), that are in industries where productivity is relatively low. Finally, majority (close to 80 percent) of the informal sector workers are either self employed, or employed in micro firms.<sup>10</sup> Moreover, in the formal sector, many jobs remain in non-restructured, often unviable State-owned enterprises (SOE). Figure 2.2 presents the employment structure by firm ownership and size.

**Figure 2.2: Employment remains skewed towards large and publicly owned companies in 2004**



Source: Own calculations based on ULMS

13. **These features of employment in Ukraine are reflected in the overall low productivity.** The value added per worker in Ukraine is substantially lower than in other European transition economies. Using GDP per capita (at PPP) as a rough proxy for productivity, one can see that labor productivity in Ukraine is one-third that in the Czech Republic, less than a half that in Poland and three-quarters that in Romania. Similar picture emerges when one compares wages, which are much lower in Ukraine than in the neighboring CEE countries (see Table 2.6).

<sup>8</sup> Schneider (2005).

<sup>9</sup> Schneider (2003).

<sup>10</sup> Micro firms are firms employing up to 10 employees.

**Table 2.6: Selected indicators of productivity and competitiveness: Ukraine against CEE countries**

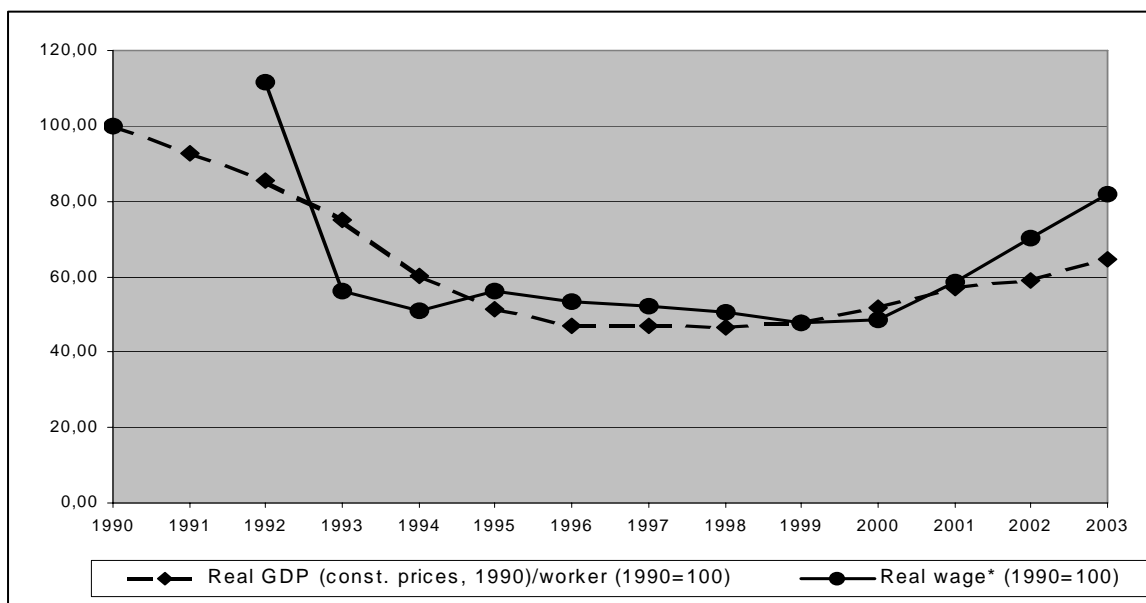
Economy	GDP per capita; 2003 (at PPP)	Average wage, whole economy (2002)	Average wage, manufacturing (2002)	EBRD index of the progress of transition (2001)
<i>Ukraine = 100</i>				
Bulgaria	143	185	142	3.038
Croatia	204	966	736	3.150
Czech R.	301	686	549	3.575
Estonia	244	524	428	3.538
Hungary	266	671	535	3.738
Latvia	182	369	284	3.150
Lithuania	206	391	323	3.325
Poland	212	728	566	3.563
Romania	132	228	169	2.913
Russia	168	..	..	2.625
Slovakia	246	422	369	3.400
Slovenia	353	1388	986	3.288
Ukraine	100	100	100	2.575

Source: World Development Indicators (2004), ILO Laborsta database, EBRD.

14. **However, productivity has been growing since 1999 and led to rising wages.** As Figure 2.3 shows, real wages have seen impressive growth – 19 percent per year since 2000 in Ukraine. This means that the increase in labor demand associated with output growth benefited the employed insider rather than the unemployed outsiders, as employment growth has been limited during the same period. In other words, strong wage growth has likely retarded the reduction in unemployment. High wage growth in recent years as well as a high minimum wage is likely to reflect insider power in wage determination. The statutory minimum wage hovers around 40 percent of the average wage in Ukraine.<sup>11</sup> This is high be standards of CEE economies, where in most countries the minimum wage is less than 35 percent of the average wage. However, as is shown below, the minimum wage often is not enforced. This suggests that trade unions are relatively strong at the national level, but less strong at the firm level, as it is unlikely that strong unions would permit that their members are paid less than the minimum wage.

<sup>11</sup> The minimum wage accounted for 42 percent of the average (mean) national wage in January 2005.

**Figure 2.3: Real GDP/worker, Real wage (1990=100)**



Source: State Statistics Committee of Ukraine.



## CHAPTER 3: WORKER TRANSITIONS IN THE UKRAINIAN LABOR MARKET, 1998-2004

*The previous chapter provided a snap shot of the Ukrainian labor market by presenting stock data of employment and unemployment over the period of 1997-2004. However, such data reveal little about the underlying changes in the labor market. To get a better understanding of the results from Chapter 2 the next two chapters will look at the factors and developments determining this picture. While Chapter 4 will look at job reallocation and firm characteristics, this chapter looks at worker transitions between the three labor market states employment (E), unemployment (U), and not-in-the-labor-force (N) and primarily analyzes how they are related to worker characteristics. The analysis confirms that overall unemployment was stagnant until 2002 with a very large incidence of long-term unemployment. While labor market prospects of the unemployed improved in 2003 and 2004, the Ukrainian labor market of 2004 remained on par with that of less dynamic transition economies. There is evidence that the rebounding GDP growth raised the probability of finding employment even for the lowest-skilled, although less for women. However, much of the improvement in Ukrainian labor market conditions observed in 2003 and 2004 appears to have resulted from a rise of employment in the informal sector, and in particular in the construction sector. As in many transition countries, women found it somewhat more difficult than men to leave unemployment. Young unemployed male workers had by far the highest chance to find employment within a year in both periods, in particular during the more dynamic years of 2003 and 2004. However, the majority of workers older than 50 left the labor force when leaving unemployment rather than finding new employment. More highly educated workers generally have superior prospects in the labor market. Lastly, long-term unemployment severely affects the chance of finding new employment: The longer a worker had been unemployed, the less likely formal sector re-employment becomes. Lastly, the results show a sustained shift of employment towards service jobs over all years.*

### A. OVERALL LABOR MARKET DYNAMICS, 1998-2004

15. Overall, unemployment is stagnant until 2002 with a very large incidence of long-term unemployment, while labor market prospects of the unemployed have improved in 2003-2004. The analysis in this Chapter is divided into two sub-periods, 1998 – 2002 and 2003 –2004, because the analysis of worker transitions suggests that the labor market was very stagnant during the earlier period, while the years 2003 and 2004 show substantially increased outflows from unemployment and from the state “not-in-the-labor force.” Table 3.1 shows annual probabilities of transition between the three labor market states employment (E), unemployment (U), and not-in-the-labor-force (N) for the whole sample and for males and females separately. The two covered periods show strikingly different transition patterns out of unemployment. Between 1998 and 2002, about one quarter of those who had entered unemployment left this state over a year, implying an average duration of unemployment of 4 years.<sup>12</sup> Also, less than one fifth the unemployed flowed into employment, while about 8 percent left the labor force altogether. The situation is radically different between 2003 and 2004, when two thirds left unemployment over the year, implying an average duration in this state of only one and a half years. The transition probability into employment was twice as large as in the years 1998 to 2002, signaling that labor market prospects of the unemployed significantly improved in 2003 and 2004. It is also evident, though, that more of the unemployed left the labor force in the later period. In addition, overall outflows

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<sup>12</sup> If transitions are governed by a pure Markov process, the completed duration of state occupancy is exponentially distributed and given by the reciprocal of the outflow rate from the state. For example, for the early period the average completed duration of unemployment is given by  $1/(0.181+0.077)\approx 3.88$ .

from the state of not-in-the-labor-force nearly tripled and flows into employment from this state doubled between the two sub-periods.

**Table 3.1: Labor market transition probabilities by gender, 1998-2004<sup>13</sup>**

	EE	EU	EN	UE	UU	UN	NE	NU	NN
<b>1998 - 2002</b>									
Total	0.906	0.033	0.061	0.181	0.742	0.077	0.054	0.025	0.921
Male	0.910	0.037	0.053	0.203	0.732	0.065	0.080	0.032	0.888
Female	0.903	0.030	0.068	0.165	0.749	0.087	0.042	0.022	0.936
<b>2003 – 2004</b>									
Total	0.886	0.041	0.072	0.386	0.342	0.273	0.119	0.075	0.806
Male	0.897	0.039	0.065	0.425	0.369	0.206	0.128	0.100	0.772
Female	0.877	0.043	0.080	0.349	0.316	0.336	0.115	0.063	0.822

Source: Own calculations, based on ULMS.

16. **But the Ukrainian labor market of 2004 remained on par with that of less dynamic transition economies.** How do these overall transitions compare with those of other transition economies and with those of the U.S. labor market? The probabilities from employment into unemployment were of the same magnitude as in other transition countries but slightly higher than in the U.S. economy<sup>14</sup>, while outflows from unemployment back into employment were extremely low in Ukraine in the years 1998 to 2002. Therefore, until 2002 unemployment was extremely stagnant, leading to a very large incidence of long-term unemployment. Between 2003 and 2004, transition probabilities out of unemployment reached levels similar to those of the less dynamic transition countries, like Bulgaria, Poland, and Slovakia<sup>15</sup>. Compared to the flexible U.S. labor market, but also compared to the Czech Republic and Russia in the early years of reform, these transition probabilities were still quite low, indicating that even the most dynamic period over the course of its transition so far, the Ukrainian labor market generated flows similar to those seen in the more stagnant transition economies of the nineties.

## B. LABOR MARKET TRANSITIONS BY WORKER CHARACTERISTICS

17. This section analyzes how transition probabilities between the states of employment, unemployment and not-in-the-labor force varied according to worker characteristics such as gender, age, education, the duration of unemployment between 1998 and 2004.

18. **As in many transition countries, women found it more difficult than men to leave unemployment.** The labor market experience of men and women in Ukraine over the last few years was not homogeneous. While separations occurred at similar rates, women found it more difficult to be hired from the state of unemployment in both periods. This is a result observed in virtually all transition countries. Women also remained more attached to the state not-in-the-labor force than did men, again in line with international evidence.

<sup>13</sup> The shown transitions in the top panel are based on the averages of the annual transitions for the years 1998 to 2002. These annual transition probabilities, shown in the annex of Lehmann and Pignatti (2005), are calculated as transitions from the origin state in December of year t to the destination state in December of year t+1. The bottom panel is based on transition from the reference week in 2003 (April - June) to the reference week in 2004 (June - August). So, the time interval on which the estimates of the bottom panel are based is somewhat more than one year. However, the dramatically differing flows are not a consequence of the differing time intervals.

<sup>14</sup> See Table 3 in Boeri and Terrell (2002).

<sup>15</sup> Since the time interval is longer than one year, the Ukrainian results can only be compared loosely with the transition probabilities reported in Boeri and Terrell (2002).

Labor market transitions showed distinct patterns across age. As Table 3.2 indicates, the group over 60 years had larger outflows from employment than the other groups between 1998 and 2004, with virtually all flows out of the labor force. Flows from employment for the other three age groups were not that clear cut. In both periods, young women and women in the age bracket of 50-59 also left the labor force in large numbers when they separated from a job. On the other hand, flows into unemployment were rather uniform across the first three age groups. Which age group left unemployment for employment more rapidly? Young unemployed male workers had by far the highest chance to find employment within a year in both periods, while in the period of more beneficial labor market prospects overall, the core age group of female workers had a transition probability from unemployment to employment that was 8 percentage points higher than that of young female workers. It is also clear from the UE- and UN-entries of the table that the majority of workers older than 50 left the labor force when leaving unemployment rather than finding new employment. Therefore, most of these workers appear to have seen no possibilities to obtain work once they had become unemployed and therefore withdrew from the labor market. This appears to be particularly true in the more dynamic years of 2003 and 2004. Not surprisingly, male and female workers from the two youngest age groups pushed into the labor force at much higher levels than did older workers. It is noteworthy that in the more dynamic sub-period, both flows into employment and unemployment were large for the former groups, although job accessions were slightly higher.

**Table 3.2: Labor market transition probabilities by gender and age, 1998 – 2004**

1998 - 2002										
Males		EE	EU	EN	UE	UU	UN	NE	NU	NN
	15-24	0.885	0.065	0.049	0.275	0.610	0.114	0.155	0.055	0.790
	25-49	0.932	0.038	0.030	0.186	0.773	0.041	0.154	0.078	0.767
	50-59	0.871	0.025	0.104	0.147	0.749	0.104	0.023	0.012	0.965
	60+	0.832	0.010	0.158	0.196	0.740	0.063	0.006	0.002	0.992
Females										
	15-24	0.851	0.030	0.119	0.206	0.701	0.093	0.089	0.050	0.861
	25-49	0.926	0.032	0.042	0.169	0.767	0.064	0.087	0.042	0.870
	50-59	0.847	0.023	0.130	0.091	0.721	0.189	0.008	0.004	0.988
	60+	0.830	0.006	0.164	-	0.878	0.122	0.002	-	0.998
2003 - 2004										
Males		EE	EU	EN	UE	UU	UN	NE	NU	NN
	15-24	0.935	0.032	0.032	0.529	0.300	0.171	0.207	0.217	0.576
	25-49	0.917	0.046	0.038	0.425	0.369	0.206	0.325	0.183	0.492
	50-59	0.874	0.039	0.087	0.333	0.451	0.216	0.109	0.086	0.805
	60+	0.717	-	0.283	-	0.500	0.500	0.032	0.020	0.948
Females										
	15-24	0.776	0.082	0.142	0.337	0.302	0.360	0.162	0.139	0.699
	25-49	0.910	0.044	0.046	0.421	0.305	0.274	0.275	0.121	0.604
	50-59	0.857	0.026	0.117	0.184	0.429	0.388	0.064	0.040	0.896
	60+	0.756	0.026	0.218	-	-	1.000	0.033	0.004	0.963

Source: Own calculations based on ULMS.

19. **In the new Ukrainian market economy, more highly educated workers generally have superior labor market prospects.** The workforce is divided into three groups: workers with completed elementary education and less as well as incomplete secondary education (labeled elementary), completed secondary education (labeled secondary), and with at least the equivalent of a bachelor's degree (labeled university). Transition probabilities by educational attainment are shown in Table \*.\* for male and female workers separately. Employment separations were larger for workers with elementary education in

both sub-periods, whether male or female. Roughly two thirds of these workers left the labor force. In contrast, workers with higher education experienced far lower exit rates from employment. However, those unemployed with higher education had a greater chance to flow into employment than their less educated counterparts.

**Table 3.3: Labor market transition probabilities by gender and education, 1998 – 2004**

1998 – 2002									
Males	EE	EU	EN	UE	UU	UN	NE	NU	NN
Elementary	0.878	0.039	0.083	0.187	0.732	0.081	0.050	0.018	0.932
Secondary	0.919	0.038	0.043	0.200	0.739	0.061	0.096	0.047	0.857
University	0.932	0.027	0.041	0.292	0.657	0.051	0.079	0.019	0.902
Females									
Elementary	0.860	0.035	0.105	0.128	0.807	0.065	0.012	0.008	0.980
Secondary	0.900	0.031	0.069	0.165	0.745	0.091	0.045	0.026	0.929
University	0.944	0.022	0.034	0.204	0.721	0.075	0.062	0.019	0.919

2003 – 2004									
Males	EE	EU	EN	UE	UU	UN	NE	NU	NN
Elementary	0.822	0.063	0.115	0.500	0.295	0.205	0.068	0.081	0.851
Secondary	0.909	0.032	0.058	0.378	0.399	0.223	0.189	0.108	0.703
University	0.946	0.027	0.027	0.609	0.348	0.043	0.102	0.114	0.784
Females									
Elementary	0.813	0.053	0.133	0.319	0.188	0.493	0.061	0.048	0.891
Secondary	0.867	0.053	0.079	0.356	0.332	0.313	0.146	0.074	0.780
University	0.933	0.012	0.054	0.343	0.429	0.229	0.139	0.040	0.821

Source: Own calculations based on ULMS.

20. **Growth substantially raises the probability of finding employment even for the lowest-skilled, although less for women.** As Table 3.3 shows, half of the least educated male unemployed flowed into employment in the more dynamic sub-period. This might imply that as activity in the labor market picks up, job opportunities also arise for relatively unskilled male workers. Female unemployed workers with elementary education appear to have had fewer such opportunities, since less than a third of these workers found employment over the year in 2003 and 2004. A “discouraged worker effect” does not appear to have been strongly correlated with educational attainment in general. It appears to have been predominantly female workers with mere elementary education who withdrew from the labor force in larger numbers in 2003 and 2004.

21. **The least educated workers were significantly less likely to enter the labor force even in the recent period of rapid growth,** as the low magnitudes of the NE transition probabilities attest across gender and time. In the earlier sub-period, less than 7 percent of male workers and 2 percent of female workers with elementary education entered the labor force in the years 1998 to 2002, while this percentage was between 10 and 15 percent and 7 and 8 percent for the male and female counterparts with more education respectively. A similar relationship, although at higher levels, can be observed in the more dynamic sub-period of 2003 and 2004. Together with the relatively large flows from employment out of the labor force discussed above, these results confirm the falling participation rates of these workers over the entire period, as documented in Chapter 2.

22. **Outflow rates from unemployment throughout 1998-2004 were lower for long-term unemployment.** Many studies have shown that the long-term unemployed, i.e. those with an unemployment spell exceeding 12 months, have lower outflow rates from unemployment than those among the unemployed with a spell of up to 12 months, i.e. the short-term unemployed. Table 3.4

confirms this inverse relationship between duration and the level of the outflow rate also for the Ukrainian labor market. In the years 1998 to 2002, short-term unemployed male workers had a transition probability to employment roughly 15 percentage points higher than the corresponding rate for long-term unemployed male workers. For female workers this difference was still a substantial 7 percentage points. What is difficult to explain, however, are the higher outflows out of the labor force in the first sub-period for both male and female short-term unemployed workers. The years 2003 and 2004 show the more common picture of higher outflows of the short-term unemployed into employment, but lower outflows out of the labor force, hinting at an expected larger discouraged worker effect among the long-term unemployed. There are two policy implications of these results. First, it is vital that policy interventions are aimed at preventing an inflow into long-term unemployment. Second, the quite high outflow even out of long-term unemployment into employment for both males and females in the dynamic sub-period of 2003 and 2004 is rather encouraging as it shows that sustained strong growth over several years seems to eventually produce such incisive spill-over effects in the labor market that allow a substantial reduction of the stock of the long-term unemployed. The next section will analyze whether this reduction of unemployment and long-term unemployment in Ukraine in 2003-2004 was driven by a rise in formal or informal employment.

**Table 3.4: Transitions from unemployment (by duration), 1998-2004**

<b>1998 – 2002</b>			
Male	UE	UU	UN
Short term unemployed	0.297	0.633	0.07
Long term unemployed	0.141	0.797	0.062
Female	UE	UU	UN
Short term unemployed	0.228	0.657	0.115
Long term unemployed	0.135	0.793	0.071
<b>2003 – 2004</b>			
Male	UE	UU	UN
Short term unemployed	0.504	0.328	0.168
Long term unemployed	0.364	0.413	0.224
Female	UE	UU	UN
Short term unemployed	0.409	0.307	0.283
Long term unemployed	0.316	0.316	0.368

Source: Own calculation based on ULMS.

## **C. WORKER TRANSITIONS AND THE INFORMAL SECTOR**

23. The sections above reviewed transitions between three labor market states. This section analyzes worker transitions across four states: in addition to unemployment and not-in-the-labor force, employment is disaggregated into formal and informal employment. For the purpose of this analysis, informal employment is defined as follows: workers who are not registered with their employers are considered informally employed; self-employed or entrepreneurs whose activities are not registered are also considered informally employed. Since the information about registration is only available in the reference weeks of 2003 and 2004, transitions across four states can only be estimated for the years 2003 and 2004. It should be stressed that this analysis uses a rather restricted definition of informal employment, and that it does not capture informal activities of those who appear as unemployed in the reference weeks.

**Table 3.5: Labor market transition probabilities between 4 labor market states, 2003-2004**

	Formally Employed	Informally Employed	<i><b>Total Employed</b></i>	Unemployed	NLF
Formally Employed	<b>0.86</b>	0.031	<b>0.89</b>	0.036	0.073
Informally Employed	0.152	<b>0.634</b>	<b>0.786</b>	0.098	0.116
Unemployed	0.255	0.138	<b>0.393</b>	<b>0.332</b>	0.275
NLF	0.07	0.046	<b>0.115</b>	0.071	<b>0.814</b>
Turnover rate*	-0.0003	0.746		-0.113	-0.046
Sample distribution**	0.429	0.072		0.081	0.418

\*\*Sample distribution in the reference week of 2003.

Source: Own calculations based on ULMS data. Note: \*The turnover rate is the net change from 2003 to 2004 divided by the origin stock in 2003.

24. Much of the improvement in Ukrainian labor market conditions observed in 2003 and 2004 appears to have resulted from a rise of employment in the informal sector. Table 3.5 presents labor market transition probabilities across four labor market states between 2003 and 2004. Column entries represent the inflows into a particular state while rows represent outflows from a particular state. At the beginning of the period, about 7 percent of the working age population and 14.5 percent of the employed worked in the informal sector, as the numbers in the last row of the table and a simple calculation shows. Roughly 3 percent of the formally employed took a job in the informal sector over the year, while slightly more than one sixth of the informally employment entered the formal sector. What stands out is the large churning between informal employment and the non-employment states, evident in large flows into these states but also from these states into the informal sector. Finally, while the stocks of those in the two non-employment states fell considerably as demonstrated by the negative turnover rates, and the formally employed workers remained more or less the same, the stock of informally employed workers rose by about 75 percent. Therefore, most of the improvement in labor market conditions that can be observe between 2003 and 2004 seem to have been driven by a rise of employment relationships in the informal sector.

25. The recent boost in informal employment has largely been concentrated in the construction and the trade, hotels and restaurants and repair industries. Table 3.6 presents stock data of the informally employed across sectors and the dynamics of this stock. The last column of the table, which shows the percentage of informally employed or informally active within a sector, demonstrates a sharp rise of informal work in six out of eight sectors of the Ukrainian economy between 2003 and 2004. The sector with the most impressive rise in informal employment is construction, with the sector “Distribution/Repair/Hotels & Restaurants” following as a close second.

**Table 3.6: Sectors and Employment (Formal and Informal), 2003-2004**

<b>2003</b>	<b>% of formal</b>	<b>% of informal</b>	<b>% informal within sector</b>
Agriculture	11.46	28.96	20.77
Industry	24.25	10.77	4.41
Construction	3.84	10.44	21.99
Distribution/Repair/Hotels & Restaurants	10.24	36.03	26.75
Transport/Storage/ Communication	8.49	2.02	2.41
Finance/Real estate/Renting & BA	1.89	1.01	5.26

Public Administration	4.72	-	-
Other Services	35.12	10.77	3.09
<b>2004</b>	<b>% of formal</b>	<b>% of informal</b>	<b>% informal within sector</b>
Agriculture	10.8	29.29	31.66
Industry	25.09	12.12	7.62
Construction	3.87	14.55	39.13
Distribution/Repair/Hotels & Restaurants	10.04	28.48	32.64
Transport/Storage/ Communication	9.01	3.03	5.43
Finance/Real estate/Renting & BA	2	0.61	4.92
Public Administration	4.9	0.2	0.7
Other Services	34.28	11.72	5.52

## D. WORKER TRANSITIONS BETWEEN SECTORS

26. This section provides an assessment whether and how labor was reallocated across sectors within employment. Table 3.7 presents worker transition probabilities by sectors between 1998 and 2004, disaggregated into two periods. Column entries represent the inflows into a particular sector while rows represent outflows from a particular sector. Within the block of the employment state, off-diagonal elements indicate how much inter-sectoral reallocation of labor takes place. Finally, the column labeled “total empl” shows the fraction of workers in the sector of origin who end up in the state of employment.

**Table 3.7: Labor market transition probabilities by sector, 1998-2004**

<b>1998-2002</b>	Agriculture	Industry	Services	Public Admin	<i><b>Tot Empl</b></i>	Unemployed	NLF
Agriculture	<b>0.862</b>	0.006	0.017	0.001	<b>0.886</b>	0.035	0.078
Industry	0.004	<b>0.874</b>	0.021	0.001	<b>0.9</b>	0.038	0.062
Services	0.004	0.008	<b>0.901</b>	0.002	<b>0.915</b>	0.031	0.054
Public Administration	0.005	0.007	0.031	<b>0.879</b>	<b>0.922</b>	0.028	0.05
Unemployed	0.016	0.044	0.116	0.003	<b>0.179</b>	<b>0.744</b>	0.077
NLF	0.006	0.01	0.035	0.003	<b>0.054</b>	0.025	<b>0.921</b>
Turnover rate*	-0.33	-0.217	-0.027	-0.131		0.695	0.375
Sample distribution**	0.108	0.155	0.311	0.025		0.06	0.341
<b>2003-2004</b>	Agriculture	Industry	Services	Public Admin	<i><b>Tot Emp</b></i>	Unemployed	NLF
Agriculture	<b>0.688</b>	0.044	0.072	0.007	<b>0.81</b>	0.074	0.116
Industry	0.033	<b>0.729</b>	0.127	0.007	<b>0.897</b>	0.039	0.064
Services	0.018	0.059	<b>0.802</b>	0.018	<b>0.897</b>	0.036	0.067
Public Administration	0.03	0.068	0.165	<b>0.624</b>	<b>0.887</b>	0.023	0.09
Unemployed	0.039	0.098	0.272	0.013	<b>0.422</b>	<b>0.319</b>	0.259
NLF	0.028	0.02	0.061	0.003	<b>0.112</b>	0.071	<b>0.817</b>
Turnover rate***	0.076	0.091	0.065	0.075		-0.153	-0.045
Sample distribution****	0.069	0.117	0.298	0.021		0.081	0.413

\* The turnover rate is the net change from 1998 to 2002 divided by the origin stock in 1998.

\*\* Sample distribution at the beginning of 1998.

\*\*\* The turnover rate is the net change from 2003 to 2004 divided by the origin stock in 2003.

\*\*\*\* Sample distribution in the reference week of 2003.

Source: Own calculations based on ULMS.

27. **The Ukrainian labor market experienced a sustained shift of employment from industry towards the service sector.** Table 3.7 indicates that, overall, the labor market experienced small flows and very little reallocation between employment sectors in the years 1998 to 2002. It is noteworthy that only services received inflows in this earlier sub-period. However, it is also clear that the majority of inflows came from the state of unemployment. In contrast, the transitions in the second sub-period show more reallocation across all sectors. For example, about 7, 13 and 17 percent of workers who had originally been employed in agriculture, industry and public administration respectively relocated to the service sector. Agriculture and industry also experienced inflows from other employment sectors, while public administration remained a sector receiving few workers from other sectors. This suggests that, relative to the other sectors public administration was downsizing. Moreover, even though most of the 42 percent of the originally unemployed workers who entered employment relationships did so in the services sector, a quarter of these workers found a job in industry.

28. **Between 2003 and 2004 relatively traditional service sectors and industry seemed to have grown in absolute numbers relative to the other sectors of the economy.** The finer subdivision of the state of employment presented in Annex Table A15 shows some interesting labor relocation patterns within employment in 2003 and 2004. The sector “other services” was the largest recipient of workers from other sectors of employment, followed by industry, distribution and retail, and transport, storage and communication. Surprisingly, finance and real estate received hardly any workers from other sectors, but supplied many workers to other sectors over the year. So, at least until 2004 relatively traditional service sectors and industry seem to have grown in absolute numbers relative to the other sectors of the economy. The large positive turnover rate of construction tells a slightly different story: From a relatively small base in 2003 the construction sector seems to have experienced an explosive boom. Note, however, that most of the job growth evidenced by the large positive turnover rates in Annex Table A15 occurred in sectors with large shares and large growth rates of informal employment.

## **E. ANOTHER LOOK AT THE FACTORS EXPLAINING WORKER FLOWS**

29. This section presents regression analysis for the years 1998 to 2003 to identify the factors that underlie the employment and unemployment flows presented above<sup>16</sup>. The analysis is disaggregated by gender.

30. **Which factors explain the exit from employment to unemployment for male workers?** There are few demographic characteristics of male workers that determine exits from employment into unemployment. For men, being divorced and widowed increases the propensity to leave employment for unemployment by 2 percentage points, and university graduates have a 1 percent lower probability to go from employment to unemployment. While age does not affect the transition, workers with tenure of up to 5 years have a 2 percentage points’ higher probability of leaving employment for unemployment. Workers from cooperatives are particularly prone to be separated from their jobs; apart from this result, though, ownership does not affect the transition from employment to unemployment. Workers affiliated with the sectors “electricity, gas, and water supply”, “transport, storage, and communication”, as well as “public administration” have substantially lower probabilities to be separated from their jobs. In addition, regional location is insofar important as workers residing in Kyiv are more likely to leave their jobs than workers from other regions of Ukraine, pointing to more labor turnover in the capital city.

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<sup>16</sup> This section presents the main findings from regression analysis conducted by Lehmann and Pignatti (2005). They perform multinomial logistic regressions for the years 1998 to 2003 to identify the factors that underlie employment and unemployment flows in Ukraine during that period. Since the regression for men and women combined resulted in a significant coefficient on the female dummy variable, the employment regressions were also done for men and women separately.



31. **Which factors explain the exit out of the labor force for male workers?** The exit of male workers out of the labor force is determined by various individual factors. Being divorced and widowed increases the probability of exit, while having children reduces this probability substantially. Workers with secondary and university education exhibit lower transition probabilities by about 2 percentage points. Young workers are less likely, workers over 60 years of age more likely to exit the labor force. Tenure, on the other hand, does not affect the transition from employment out of the labor force. Individuals working in privatized firms and in the sector “electricity, gas, and water supply” have a lower, individuals working in the sectors “construction” and “wholesale and retail trade” have a higher propensity to leave the labor force. The latter result might be connected to the fact that workers in these sectors find more opportunities in the shadow economy. Finally, workers from Kyiv have a higher propensity to leave the labor force than their counterparts outside the capital city, which again might be related to the fact that workers in Kyiv have more job opportunities in the informal economy.

32. **Which factors explain the exit from employment to unemployment for female workers?** There are only few factors that determine the transition from employment to unemployment of female workers. University graduates have a lower transition probability than workers with less educational attainment, and females with tenure of up to a year and between 6 and 10 years have higher transition probabilities than those with tenure of more than 10 years. As far as sector affiliation is concerned, female workers in the sectors “electricity, gas, and water supply”, “education, health, and social work”, and “other community, social, and personal services” have substantially lower transition probabilities into unemployment, hinting possibly at a lack of restructuring in these sectors. Like in the case of male workers, those females working in Kyiv have a 2 percentage points’ larger propensity to flow into unemployment than their colleagues working outside the capital.

33. **Which factors explain the exit out of the labor force for female workers?** Flows of female workers out of the labor force are affected by marital status as single and divorced or widowed women are less likely to leave the labor force than married women. At the same time, there is a 3 percentage point lower probability to leave the labor force for female university graduates. Young female workers are less likely, female workers of 60 years of age or older more likely to exit. Also, females working more than 10 years in the same firm have a 2 percentage point lower probability to flow from employment out of the labor force. Females working in service sectors have substantially lower propensities to leave the labor force, while those working in small firms (1-49) are more prone to leave the labor market. Finally, like in the case of male workers, females working in Kyiv are more likely to leave the labor force than those working outside Kyiv, again hinting possibly at higher job opportunities in the shadow economy in the capital city.

## **F. WORKER TRANSITIONS OUT OF UNEMPLOYMENT IN 1998-2002**

34. This section presents estimates of the outflows from unemployment to employment in 1998 to 2002<sup>17</sup>. While the estimated mean transition probability is roughly 18 percent, the transition probability for female workers of entering employment is 4 percentage points lower than that of men. This suggests that, even with demographic and income controls, the lower outflow rate of female workers into employment is confirmed. University graduates, but also young workers and workers between 50 and 59 years of age enter employment more frequently. Workers residing in the West and the East of Ukraine

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<sup>17</sup> Since there are relatively few transitions out of unemployment, Lehmann and Pignatti (2005) report results for estimates of total flows out of unemployment. However, the authors divide the period into 2 sub-periods, 1998 to 2002 and 2003 to 2004 since these two sub-periods are characterized by very different unemployment dynamics. To account for the relatively large flows into informal activities that were documented above, the employment state is disaggregated in the latter period into formal and informal employment. So, for the sub-period 2003 to 2004, a multinomial model with 4 possible destination states is estimated.

have propensities to leave unemployment for employment that are 5 and 4 percentage points lower respectively.

35. **The receipt of unemployment benefits has a large positive effect on transitions into employment.** The effects of unemployment benefits and family income on transition between unemployment and employment are interesting.<sup>18</sup> A simple model of labor supply would argue that the receipt of unemployment benefits and of payments from other family members. The estimates, in contrast, show that especially the receipt of benefits has a large positive effect on transitions into employment. This somewhat counterintuitive result might be explained with the peculiar nature of unemployment benefits in Ukraine. Few of the unemployed register in labor offices, and only those who are registered qualify for benefits payments.<sup>19</sup> However, the generosity of unemployment benefits in Ukraine is modest. Another explanation may be that those with benefit payments might be better connected to the labor market and consequently find it easier to flow back into employment. At any rate, it is noteworthy that the receipt of benefits does not slow down outflows from unemployment (see also Chapter 5).

36. Female unemployed workers have a 2 percentage points' higher probability to flow out of the labor force than their male counterparts, while divorced and widowed persons are less likely to leave the labor force by roughly the same amount. Moreover, young workers have far lower exit probabilities from the labor force than workers of other age groups. While receipt of benefit or income support from family members do not impact on outflows out of the labor force, residence is an important factor: unemployed workers living in Kyiv and the Eastern part of Ukraine exit the labor force more frequently, which might be connected to more opportunities for informal activities in these regions.

## **G. WORKER TRANSITIONS OUT OF UNEMPLOYMENT IN 2003-2004**

37. The analysis of worker flows for the sub-period between 2003 and 2004 is based on a model where unemployed workers can either remain unemployed, flow into formal employment or informal employment, or exit the labor force. Exits into formal employment are higher for university graduates, the young and workers between 50 and 59 years of age. On the other hand, unemployed workers who are 60 years and older as well as those residing outside Kyiv have dramatically smaller propensities to go into a formal job. Finally, the level of unemployment benefits<sup>20</sup> has a positive significant effect on flows from unemployment to formal employment. However, this effect is so small that it is economically not meaningful.

38. Male workers are more likely to flow into informal employment as women have a 10 percentage points' lower probability of going to this state. The young among the unemployed as well as the divorced and widowed are more likely to end up in informal activities, while secondary school and university graduates have 5 and 6 percentage points lower probabilities to work in this sector. Again, there is a strong capital city effect, since in Kyiv the probability of leaving unemployment for the informal sector is more than double that in other regions of Ukraine. Unemployment benefits have the same negligible positive effect as they have on flows into formal employment.

39. Women and older workers leave the labor force at much higher frequencies than do men and workers up to 59 years of age. Also, university graduates are more attached to the labor force than workers with less educational attainment. The higher unemployment benefits the less likely will be a

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<sup>18</sup> In the years 1998 to 2002, there is only information on whether a person received unemployment benefits and/or income support from family members. We do not know the amounts of these payments.

<sup>19</sup> Only 3.1 percent in the sample of 3106 unemployed receive benefits, i.e. 96 persons.

<sup>20</sup> In the reference weeks, the amount of unemployment benefits is given. In 2003, the mean is 108 Hryvnia.

withdrawal from the labor force. And finally, workers in the provinces remain in much larger numbers in the labor force than do workers from Kyiv. This might capture some movements into the informal sector that are not taken into account when employing the registration of activities as the discriminant criterion for formal and informal employment.

## CHAPTER 4: JOB REALLOCATION, 1998-2004

*While the previous chapter looked at transitions of workers between different labor market states and how they vary with worker characteristics, this chapter reviews labor market dynamics by analyzing job creation and job destruction rates<sup>21</sup>. While Ukraine experienced “jobless growth” between 1998 and 2002, job creation jumps between 2003 and 2004. This upsurge in job growth, however, was mainly driven by an expansion of informal sector employment. Moreover, job creation was concentrated in small firms in 2003-2004, in particular in the construction sector, confirming that informality may have played an important role in absorbing labor. While the new private sector in Ukraine shows large job turnover evident in high job creation and destruction, state and municipal firms appear to be slowly downsizing over time. Young workers, experiencing particularly high unemployment, benefit most from job creation, while workers above 44 years of age have poor labor market prospects. There is also evidence that job reallocation in Ukraine has led to more efficient use of labor and productivity improvements between 1999 and 2002. While there is overall evidence that skills increase chances of finding employment, high job creation rates for blue-collar workers in 2003 and 2004 suggests that they benefited particularly from the recent resumption of employment growth.*

### A. JOB CREATION AND DESTRUCTION IN UKRAINE, 1998-2004

40. **Ukraine’s “jobless growth” between 1998 and 2002 is evident in higher job destruction than creation, while job creation overtook job destruction in the more dynamic years of 2003 and 2004.** Ukrainian GDP grew by roughly 21 percent between 1998 and 2002. However, as seen in Chapter 2, this strong growth did not translate into job growth as is evident in Figure 4.1. In 1998, the year before the resumption in GDP growth, the job destruction rate at 5.2 percent was far higher than the job creation rate (0.6 percent) while for the rest of this period job destruction was larger than job creation by between 1.5 and 2 percentage points. This indicates that until 2002 the Ukrainian economy experienced “jobless growth”. This can be explained by the fact that capital and human resources were strongly underutilized in 1998, so that growth could occur by just increasing the utilization rates of capital and labor. After 2002<sup>22</sup> the Ukrainian economy has seen strong job growth. While job destruction declined slightly between 2003 and 2004, job creation shot up to 12 percent, leading to a large positive change in net employment. Therefore, 2003 marked a turning point in the Ukrainian labor market, when large GDP growth was for the first time translated into strong job growth. Given the opposite movements of the job destruction and job creation rates it is also obvious that the increase in labor turnover evident from the discussion of labor market transitions in Chapter 3 for the period after 2002 was not a statistical artifact but an expression of strongly improved labor market conditions. However, as will be shown below, a large part of this job creation occurred in the informal sector. For the years 1998 to 2002, hiring and separation rates were multiples of the job destruction and creation rates, showing the same trend like the job flow rates. Therefore, job creation and job destruction rates can be thought of as those fractions of hirings and separations that are caused by a reshuffling of jobs in the economy. Interestingly, job destruction and separations followed diverging paths after 2002, with the latter strongly increasing. This

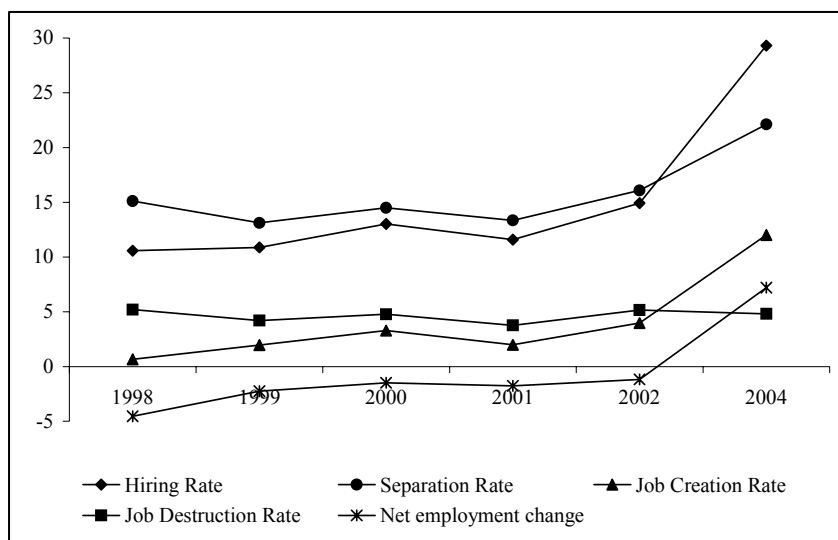
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<sup>21</sup> The analysis primarily uses Ukrainian Labor Market Survey (ULMS) data to estimate gross job and worker flows. Using household survey data has the advantage of allowing estimation of gross job flows for the entire Ukrainian economy as well as worker flows and their determinants and relation to job flows. This is complemented by firm level survey data from the Ukrainian Flexibility Labor Study (ULFS), covering the manufacturing sector for the years 1998 to 2003. This data set, which is a representative sample of the Ukrainian manufacturing sector, is used here for the first time to estimate job flows and allows an examination of the nexus of firm productivity and job flows. See Annex X for a discussion of the derivation of worker and job gross flows using household data and of job gross flows using firm/establishment-level data.

<sup>22</sup> As indicated in Figure \*\*, the year label of 2004 refers to the interval from reference week in 2003 (April-June) to reference week in 2004 (June-August).

suggests that an increased fraction of workers left their jobs voluntarily, possibly because of an expectation of improved prospects elsewhere in the labor market.

**Figure 4.1: Annual rates of worker and job flows (percent of employment)**

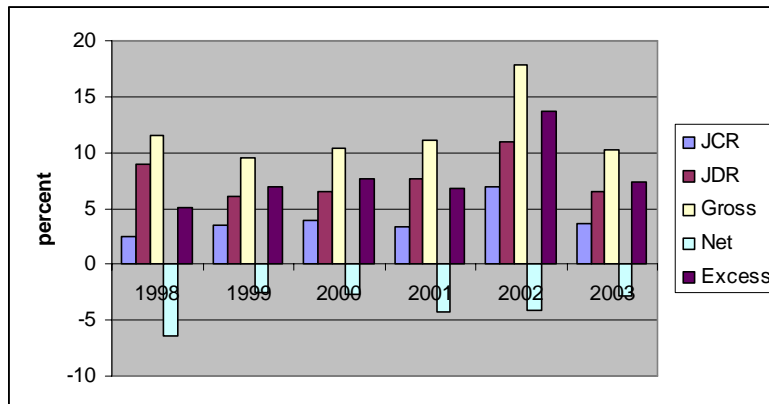


Note: Annual rates for 1998-2002 reflect changes from December of the previous year to December of the year under observation, while annual rates for 2004 reflect changes from the reference week in 2003 (April-June) to the reference week in 2004 (June-August).

Source: Own calculations based on ULMS.

41. **The Ukrainian labor market experienced a surge in job creation in 2003-2004, especially in the construction sector**, confirming the findings from the worker transition probability analysis in Chapter 3. This section first looks at these worker and job flow rates across nine industries (See Data Appendix for detailed tables). For most industries, job destruction dominated job creation until 2002, leading to large falls in employment. Only trade and restaurants experienced high job creation rates throughout the period. What is also striking is the large rise in the job creation rate between 2003 and 2004 in most industries. Construction experienced a particularly dramatic increase, where informal employment reached nearly 40 percent in 2004, as presented in Chapter 3. In education and health care, on the other hand, very limited job reallocation occurred throughout the entire period, hinting at a complete absence of restructuring in that sector. ULFS firm level data from the manufacturing and mining sector presented in Figure 4.2 shows that job destruction was larger than job creation and that the manufacturing and mining sector was downsizing throughout 1998-2003. On the other hand, the relatively high excess job reallocation rates indicates that in spite of downsizing genuine restructuring took place in this sector.

**Figure 4.2: Annual rates of job flows in manufacturing and mining 1998-2003**



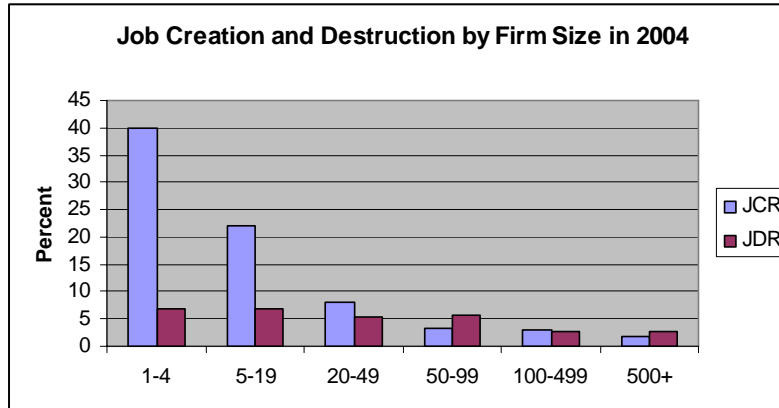
Source: Ukrainian Labor Flexibility Survey, author's calculations.

## B. JOB CREATION AND DESTRUCTION BY FIRM AND WORKER CHARACTERISTICS

42. Job creation was concentrated in small firms in 2003-2004, suggesting that the informal sector may have played an important role in absorbing labor. Enterprise size and job destruction seem to have been only weakly correlated. In contrast, there was a very clear inverse relationship between size and job creation. Very small firms, i.e. firms with 1 to 4 employees, had job creation rates between 10 and 40 percent. Evidence presented in Chapter 2 showed that overall employment remains heavily concentrated in large firms. However, it is obvious from the data presented here that firms with more than 500 employees have little job creation, if any<sup>23</sup>. Figure 4.3 presents job creation and destruction rates for various firm size samples in 2004. The data can be divided into three parts; the first part consists very small or small firms (1 to 19 employees) with strong job creation, the second part consists medium-sized firms (20 to 99 employees) with moderate job creation, and finally the third part consists of large firms (100 and more employees) with virtually no job creation, resulting in large falls in net employment. By construction, hiring and separation rates reflect these different patterns of job flows across the sub-panels, i.e. where job creation was high, hiring rates far exceeded separation rates. As presented in the underlying table in Annex A20, it is also noteworthy that in all firms with up to 499 employees separation rates increased substantially between 2003 and 2004, while job destruction either fell or rose by far less. In other words, the fraction of separations induced by job destruction fell dramatically, as workers in larger numbers saw good reasons to quit jobs voluntarily. Some researchers associate working in very small firms, in this case firms with 1 to 4 employees, with informal employment. Based on such an expansive definition of informal employment, the informal sector in Ukraine has had the highest job creation rates throughout the period. Evidence from manufacturing and mining firm-level data shows that, between 1998 and 2003, manufacturing and mining firms with up to 49 employees have experienced a very volatile growth performance relative to larger firms. On the other hand, job reallocation was more intense with small firms than with firms that have more than 49 employees. This can be interpreted in two alternative ways: small manufacturing firms engaged in more restructuring than their large counterparts, or there is much more heterogeneous behavior among small firms with respect to job creation and destruction.

<sup>23</sup> We should recall that the job creation rate is a lower bound, so one should not take zero job creation literally; instead, the results do mean that job creation in very large firms is miniscule relative to job creation in very small firms.

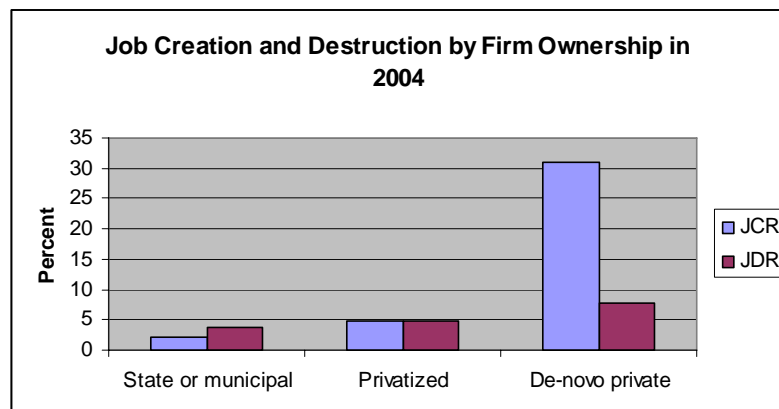
**Figure 4.3: Job creation is concentrated in small companies**



Source: Own calculations based on ULMS.

43. **The new private sector in Ukraine shows large job turnover evident in high job creation and destruction, while state and municipal firms appear to be downsizing.** Worker and job flows in firms with different ownership have very distinct patterns in 2004, as evident from Figure 4.4. A comparison of state and municipal firms with privatized enterprises in Annex Table A20, on which Figure 4.4 is based, shows that separation rates were roughly equal, but that hiring rates were for all but one year far lower in the state and municipal firms. Also, in privatized firms both job destruction and job creation were at moderate levels, while state or municipal firms have had negligible job creation, and thus only engaged in downsizing for most of the period. New private firms exhibited much larger worker and job turnover rates than the other types of firms. In a striking feature, not only hiring rates but also separations rates were highest in new private firms, but also job destruction rates. Therefore, many firms seem to go through a learning process with volatile employment levels, as firms adjust to changing product demand conditions in an uncertain environment. Alternatively, the relatively high job destruction rates could be partially related to deaths of newly established firms, caused by a failure of business plans. The most visible result of this analysis relates to the very high job creation rates. Given that new private firms accounted for about 8 percent of employment in 1997 (see Annex Table A1, Table \*.\*), these large numbers imply that a large part of job creation is taking place within these firms throughout the period.

**Figure 4.4: Job creation is heavily concentrated in the de novo private sector**



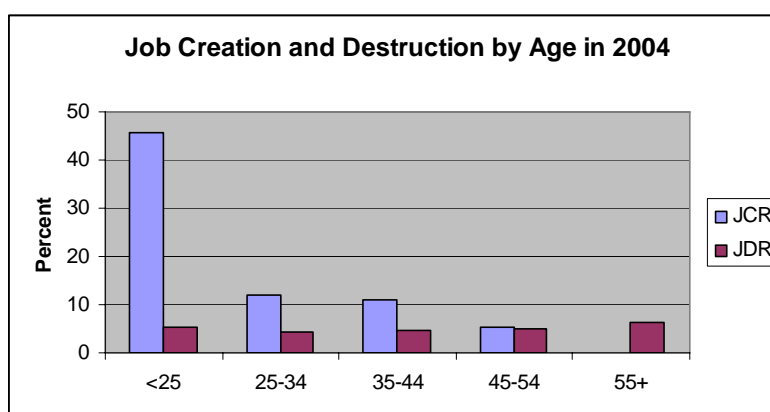
Source: Own calculations based on ULMS.

44. **Ownership form has also been a very strong predictor of the labor market performance of manufacturing and mining firms.** Evidence from firm-level data shows that state/municipal and privatized firms (“joint stock companies”) have shown roughly the same poor performance between 1998 and 2003. Job destruction dominated job creation leading to large downsizing if the period is taken as a whole. Also, the excess job reallocation rates are relatively small showing that most of the job destruction was not accompanied by job creation on an equivalent scale. For new private firms (“partnership LTD or private”) the picture is very different. Here job creation dominated job destruction throughout, leading to a substantial increase in net employment in firms of this ownership type. The absolute levels of job creation rates were much larger, while job destruction rates are also quite high. These two facts suggest intense job reallocation, as expressed by high excess job reallocation rates.

45. **While Kyiv outdid the rest of the country in terms of job creation for much of the period, the provinces appear to have been catching up recently.** The Western and Eastern regions of Ukraine as well as in the Center and North experienced a continuous moderate employment decline with the exception of 2004, while the South showed a more volatile picture. Kyiv City, on the other hand, is the region where high job creation was sustained throughout the period. For the years 1998 to 2002, excess job reallocation rates in Kyiv compared to the other regions indicate that more restructuring occurred there throughout this period. In the manufacturing and mining sector, the regional patterns were less apparent than those of ownership form between 1998 and 2003. Western regions have the worst employment performance, with job destruction rates the highest in all but one year. With respect to net employment growth, the other regions largely showed a uniform picture, with some strong volatility in the net growth rate over the years.

46. **Young workers benefit most from job creation, while workers above 44 years of age have poor labor market prospects.** The labor market experience is very different if analyzed by age bracket. Workers under 25 years of age have had the highest separations rates throughout the period, but they also have hiring rates far superior to the other age groups. Job creation was clearly concentrated among this group of young workers, with job creation rates being substantially larger than rates of middle-aged workers (up to 44 years). Worryingly, job creation rates for workers who are older than 44 years were negligible.<sup>24</sup> Especially in the group of oldest workers jobs were destroyed at a high rate leading to a collapse of employment for these workers throughout the period, while the employment decline for the second oldest group seems to have been halted by 2004.

**Figure 4.5: Young workers benefit most from job creation**



Source: Own calculations based on ULMS.

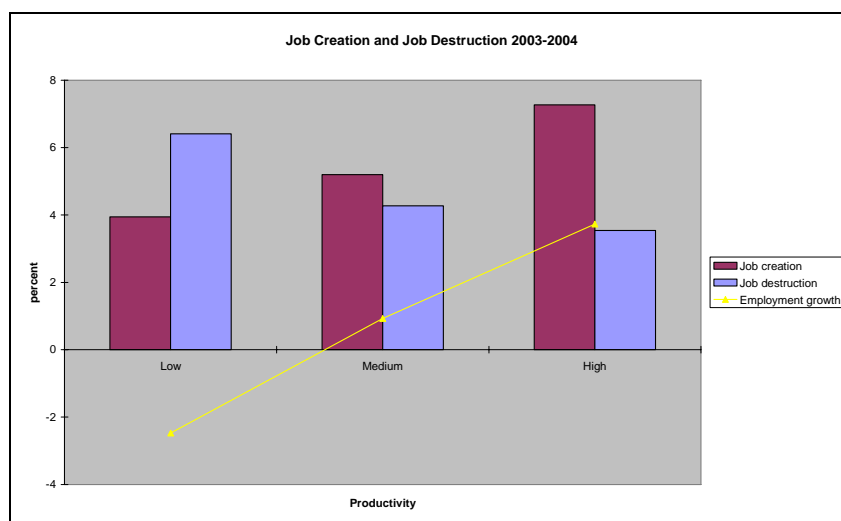
<sup>24</sup> Again, recall that the estimated job creation rates are lower bounds.



47. **The self-employed experienced the largest job creation rates and the lowest job destruction rates.** Jobs for dependent employees were created at very modest rates until 2002, while these rates were large for employers, entrepreneurs and the self-employed. This latter group in turn had lower job destruction rates than dependent employees and members of cooperatives and collective enterprises, where zero job creation rates are accompanied by the highest job destruction rates. Some researchers take self-employment as an expression of informal activities. The self-employed have in general the largest job creation rates and the lowest job destruction rates, which translates itself into substantial employment gains over the period. So, if equating self-employment with informal employment, a large part of employment expansion was due to informal activities.<sup>25</sup>

48. **Ukraine appears to have experienced a steady growth of high productivity employment between 1999 and 2002.** The productivity analysis here uses information about wages at the end of each year to assign workers and jobs a position in the wage distribution. This position is understood as a proxy, albeit imperfect one, of the productivity of a worker or a job. With the exception of the year 1998, least productive jobs were created at lower, but destroyed at higher rates. In addition, the least productive workers were hired at lower rates than the most productive workers, although the differences were not large. The most productive jobs were destroyed at substantially lower rates than the least productive jobs. Taken these results together, Ukraine saw a steady growth of high productivity employment between 1999 and 2002.

**Figure 4.6: Job reallocation leads to a better use of labor and brings about productivity gains**



Source: Ukrainian Labor Market Survey, 2003 and 2004.

49. **Job growth in manufacturing is concentrated in high productivity firms.** This section presents results based on ULFS firm level data from the manufacturing and mining sector and measures for productivity, total factor productivity and labor productivity (see Annex Table A24 for details)<sup>26</sup>. On

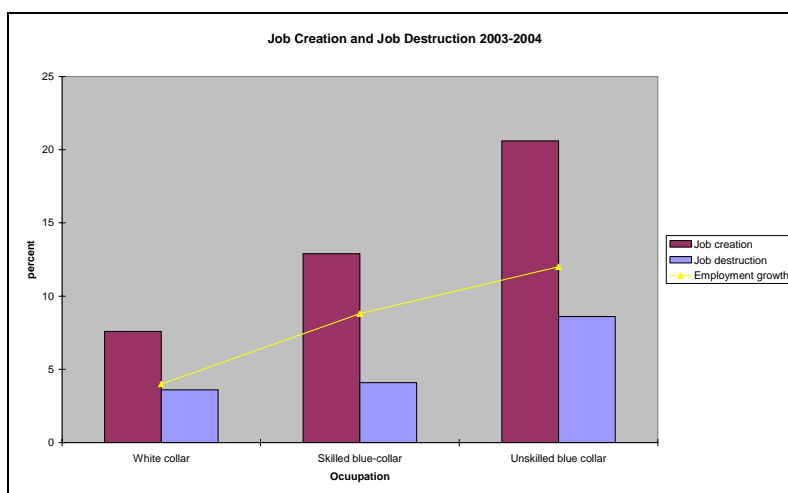
<sup>25</sup> The correlation between self-employment and informal activities might be, however, weaker in the new century than in the late nineties. This is because registration has become easier but also the detection of informal activities by the state.

<sup>26</sup> In order to analyze how productivity levels of firms might be related to gross job flows, this analysis employs two measures of productivity, labor productivity and “total factor productivity.” To ensure that labor productivity is exogenous to gross job flows, it is estimated by dividing real sales in the previous year by the total number of workers at the beginning of the previous year. This measure of productivity can be misleading as it does not take account of a potentially different mix of input uses by a firm. Output per worker will, however, crucially depend for example on how much capital a firm uses per worker. Specifying a simple Cobb-Douglas production function allows estimating real sales (output) as a function of labor and capital. While “total factor

the measure of labor productivity, low productivity firms have, with the exception of 2002, had low job creation rates. Throughout the period these firms had by far the highest job destruction rates, leading to a large overall employment contraction by those firms that are in the bottom third of the labor productivity distribution. The top third of firms, on the other hand, had the smallest employment contraction. When accounting for the mix of inputs, firms are shuffled around in the productivity distribution, which leads to a more insightful picture. Large job destruction strongly dominated very small job creation in firms in the bottom third of the distribution, leading to double-digit negative employment growth rates. In the medium part of the distribution slightly more jobs were destroyed than created in each year and there is a slight contraction of employment. In contrast, job growth occurred in the top third of the productivity distribution, where more jobs were created than destroyed in all three years. By this evidence high productivity firms in Ukrainian manufacturing were the firms that actually are responsible for job growth while low productivity firms appeared to have relentlessly shed labor.

50. **However, blue-collar workers, especially the unskilled appear to have benefited particularly from the recent resumption of employment growth.** Recent experience in many OECD countries suggests that skilled jobs are created at a faster rate than unskilled jobs<sup>27</sup>. The analysis here shows quite different results for Ukraine. In all years, the highest job creation rates are found for unskilled blue-collar workers, while the job creation record was particularly poor for blue-collar skilled workers in the early part of the analyzed period. White-collar workers' were created and destroyed at rather moderate rates, hinting at a relatively small reallocation of these types of jobs.

**Figure 4.7: High demand for simple manual skills**



Source: Ukrainian Labor Market Survey, 2003 and 2004.

51. **The informal sector showed high job creation between 2003 and 2004.** As in Chapter 3, informal employment is restrictively defined as follows: workers who are not registered with their employers are considered informally employed; self-employed or entrepreneurs whose activities are not

productivity” is the cleaner measure, we also use labor productivity since the level of fixed assets (i.e. capital) is only available in the years 1999, 2000, and 2002. The residual of each firm from this regression is taken to be “total factor productivity.” The equation estimate is as follows:  $\ln \text{sales} = \text{constant} + \ln \text{labor} + \ln \text{capital} + \text{error term}$ . The residual of this regression is then “total factor productivity”, i.e. the contribution to sales not accounted for by the level of technology (constant) and the use of the inputs labor and capital. A lucid discussion of the various methods to estimate productivity can be found in Good, Nadiri, and Sickles (1999).

<sup>27</sup> Davis, Haltiwanger, and Schuh (1996) find for example that in U.S. manufacturing unskilled jobs are created at lower rates than other jobs.

registered are also considered informally employed<sup>28</sup>. Table 4.1 presents worker and job flows divided into those associated with formal and informal activities. Since the information underlying the definition of informal employment is only available in the reference weeks of 2003 and 2004, only flows between these two data points are constructed. In a striking result, the hiring rate was roughly five times higher in the informal sector, while its separation rate was more than twice the rate in the formal sector. Table 4.1 also shows that the strong employment growth in this period that was discussed at the beginning of this Chapter appears to have been mainly driven by growth in the informal sector, where the job creation rate was a substantial 68 percent. This high rate is not just a statistical artifact, since informal employment at the beginning of the period amounted to roughly 10 percent of employment, as shown in Chapter 3. With separation and job destruction rates about twice as high in the informal sector, this analysis also finds more volatility in the job prospects of this sector. The main message from this analysis is the following: By 2004, formal employment seems to have stabilized, with job creation slightly outpacing job destruction. The phenomenal rise in net employment in the Ukrainian labor market during this period appears to have been nearly entirely due to very strong job creation in the informal sector.

**Table 4.1: The informal sector shows exploding job creation between 2003 and 2004, rates in percent**

Year	Formal				Informal			
	HR	SR	JCR	JDR	HR	SR	JCR	JDR
2004	21.003	19.896	5.433	4.325	100	41.515	67.576	9.091

Source: Own calculations based on ULMS. Note: Informal = 1 if a person is an employee and is not officially registered at his job, or if he/she is an employer/ self-employed but this activity is not registered.

**52. Which factors determined new hirings in 2003?** This section examines the patterns of new hirings by estimating the probability of being in a new job in 2003, a new job being defined as a job with tenure of less than 1 year. It is based on three probit models of the determination of the probability of being in a new job presented in Annex Table A21<sup>29</sup>. The strong age effects encountered in the previous section are shown to be highly significant. Primarily young workers were hired in Ukraine in 2003, as demonstrated by the strong negative marginal effects for all age groups above 24 years of age. It is also interesting that gender does not appear to have played a role in the hiring process. Workers with special secondary or unfinished higher education had a lower hiring probability by about 5 percentage points if no distinction is made between formal and informal employment. Once this is accounted for, this negative effect vanishes. What does not vanish is, however, the effect of firm size. Firms that are small and have reached a certain threshold, i.e. firms between 5 and 19 employees, had a propensity to hire workers that is between 5 and 6 percentage points higher than that of other firms. It is also a robust finding that the hiring probabilities are between 6 and 13 percentage points higher in the sectors “financial intermediation in business activities”, “trade and restaurants”, and “other activities”, which refer mainly to other services. The probability of being in a new job was substantially higher for workers in the new private sector and for the self-employed than for workers in the state and the privatized sectors. However, the effect for the self-employed disappears if a dummy for informal activities is included, pointing to the fact that the higher propensity of being in a new job for the self-employed was strongly related to taking up informal activities.

**53. Which factors determined separations in the years 1998 to 2002 when the Ukrainian labor was characterized by a net loss in employment?** Annex Table A22 presents probit estimates of worker

<sup>28</sup> This definition does not capture informal activities of those who appear as unemployed in the reference weeks.

<sup>29</sup> See Annex Table A21 for details. In the first table standard demographic and firm characteristics are included as covariates. In the second panel, ownership dummies are added, while the third also includes a dummy when the new job is in the informal sector. An inspection of the three panels allows identifying those factors that are significant determinants no matter what the specification.

separations in that period<sup>30</sup>. The tenure effects are robust across the two specifications. Surprisingly, workers with tenure between 1 and 5 years have a 3 percentage point higher probability of separating from a job than workers with less than 1 year of tenure. The age effects of discussed above are confirmed again, as the youngest age group had the highest separation rate. Male workers and workers residing in Kyiv had a separation propensity 2 and 6 percentage points higher respectively. A job relationship was by about 3 percentage points more tenuous in firms with between 5 and 49 employees, while there were fewer separations from jobs in privatized firms and in self-employment.

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<sup>30</sup> The first panel of the table in Annex X only uses tenure, industry, regional and year dummies to account for separations, while the second panel includes many demographic characteristics as well as firm size and ownership type as covariates.

## CHAPTER 5: THE FATE OF DISPLACED WORKERS BETWEEN 1992 AND 2002

*This chapter reviews evidence on the characteristics of job losers and labor market re-entrants, as well as of the cost of displacement. It finds that involuntary job separations are an important phenomenon in the Ukrainian labor market, and that worker separations in Ukraine between 1992 and 2002 were not random: In particular female workers, middle aged workers, medium-tenured workers, those employed in manufacturing and mining, as well as those in small firms and in Kyiv were ore likely to be affected by involuntary separation. The main cost of displacement appears to be the long spell of non-employment that the majority of displaced workers experiences, rather than income losses in any new job due to the loss of seniority. Ukrainian displaced workers, and even voluntary quitters, experience great difficulties to find new employment. While a minority of workers found re-employment after a very brief spell of non-employment, a large majority of displaced workers lingered on in non-employment for a long time. Female workers, graduates with less than university education, workers with long tenure and working in large firms in their previous employment as well as workers not residing in Kyiv appear to experience particular obstacles in finding reemployment. Interestingly, the receipt of unemployment benefits does not appear to provide an obstacle to re-entering employment from unemployment.*

54. With the process of enterprise restructuring likely accelerating in the coming years, it is important to understand the fate of those workers who are involuntarily separated from their jobs.<sup>31</sup> How Ukrainian policy makers should deal with such “displaced” workers will crucially depend on whether displacement is random or whether it affects certain groups among Ukrainian workers disproportionately. Moreover, it will also depend on what the costs of displacement are. There are two types of costs of job loss: the duration of joblessness after displacement and potential wage reductions that arise when displaced workers lose their seniority upon job loss. In OECD labor markets displacement has often been concentrated among the less-skilled, and a subset of the displaced workers has great difficulties in finding new employment. In addition, displaced workers in flexible labor markets like those of the U.S. and Britain, after having found reemployment, experience large wage losses for many years to come, relative to the wages they would have earned in their previous job<sup>32</sup>. In transition economies, the costs of job loss will be influenced by the ability of the economy to create new jobs. In rapidly expanding economies, most of the displaced workers might relatively soon find new employment, and if most of the new jobs are high-productivity jobs, wages in these jobs might be higher than in jobs in those predominantly declining sectors, from which workers are displaced<sup>33</sup>. Since the job creation capability of the Ukrainian economy has been rather limited until recently, one would expect that the costs of job loss have been quite high in Ukraine. Using the ULMS data, this section provides evidence on the extent and the incidence of displacement as well as on the costs of job loss for the years 1992 to 2002.

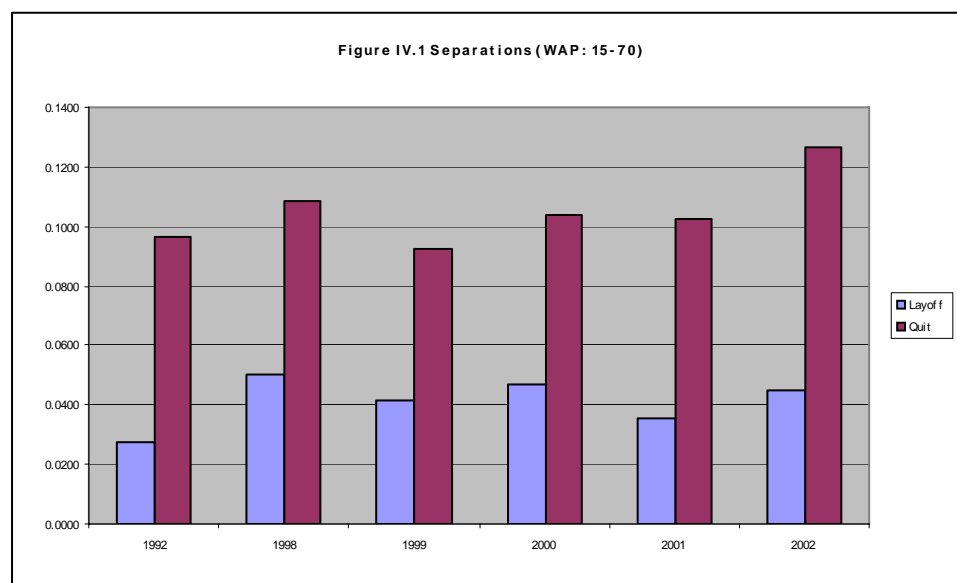
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<sup>31</sup> This section draws heavily on the study by Lehmann, Pignatti and Wadsworth (2005).

<sup>32</sup> Kuhn (2002)

<sup>33</sup> Lehmann, Philips, and Wadsworth (2005)

**Figure 5.1: Separations (WAP: 15-70)**



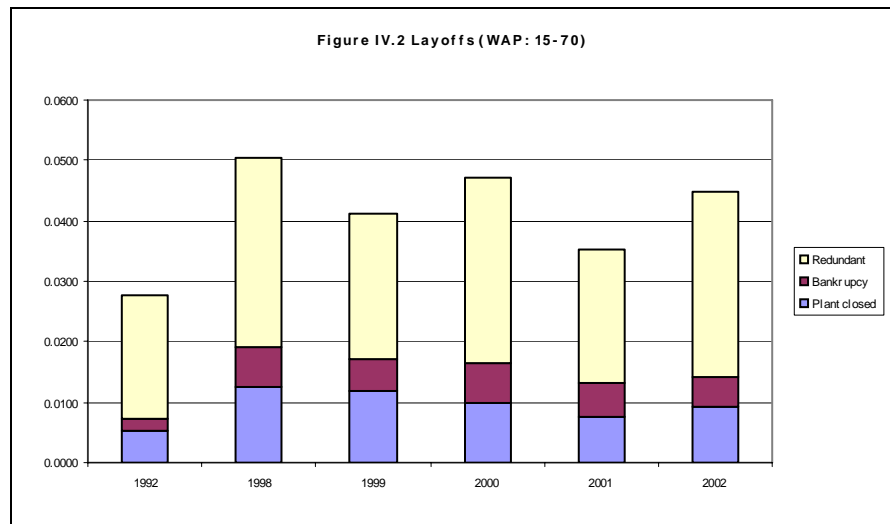
## A. DETERMINANTS OF WORKER DISPLACEMENT

55. **Involuntary job separations are an important phenomenon in the Ukrainian labor market.** Figure \*.\* demonstrates that, in the years 1998 to 2002<sup>34</sup>, roughly one third of all separations were involuntary layoffs. For this period, the annual displacement rates varied between 3.5 and 5 percent of employment and were thus comparable to the rates observed in mature market economies. Assuming a population of 22m employed workers<sup>35</sup>, this suggests that between 770,000 and 1.1m workers lost their jobs each year without any fault of their own. Most of these involuntary separations were redundancies, while firm closure amounted to around 1 percentage point of the displacement rate (see Figure 5.2).

<sup>34</sup> The structure of the ULMS data allows calculating separation, quit, and displacement rates for the year 1992 and for all years starting in 1998.

<sup>35</sup> Dzherkomstat (2004)

**Figure 5.2: Many separations are involuntary redundancies**



Source: Ukrainian Labor Market Survey, 2003 and 2004.

56. **Worker separations in Ukraine between 1992 and 2002 were not random.** Who are these workers who lose their jobs? Recent regression analysis suggests that displacement is non-random across these characteristics<sup>36</sup>. Dividing the period 1992 to 2002 into two sub-periods, 1992-1997, the period of hyperinflation and stabilization, and 1998-2002, when the Ukrainian economy was set on a robust growth path, produces several interesting findings.

57. **Worker characteristics affect the risk of displacement:** For the earlier period, female workers had a 2.3 percentage points' higher probability of being displaced than male workers. With controls for industry, there was no difference in the probability of being displaced between Ukrainian and Russian workers although the propensity to quit was lower among Ukrainians in the years 1992 to 1997. Moreover, job losers were typically middle aged compared with job quitters, although their educational backgrounds are similar. In the earlier period, university graduates had a lower quit rate of about 7 percentage points, while they had a lower annual displacement rate of 1 percentage point in the interval 1998 to 2002. In general, low tenure workers were more likely to quit, and displacement was particularly high for medium term tenure throughout the entire period. Workers in construction and wholesale and retail trade and hotel services were particularly hard hit by displacement throughout the years 1992 to 2002, while manufacturing workers and miners experienced disproportionately high displacement rates only in the years 1992 to 1997. In contrast, educators, health and social workers were less affected by displacement, having a lower probability of 3 points per annum in the second time interval. One implication of these findings might be that the latter industry did not undergo any major restructuring effort throughout the period. Workers in small firms (up to 199 employees) were more likely to be displaced during the entire period, although this effect is only significant in the second time interval. In the same period, quits were more frequent for workers in relatively large firms. This higher propensity to quit did, however, not occur in firms with more than 1,000 employees. Finally, both involuntary separations and voluntary quits were much higher in Kyiv than in other regions of the country.

<sup>36</sup> Lehmann, Pignatti, and Wadsworth (2005) present cross tabulations of displacement rates along various observable characteristics. Of particular interest in this context are their multinomial regressions that enable the authors to isolate the determinants of displacement and voluntary quits, holding all other factors constant.

58. These results help to solve the apparent puzzle between high raw displacement rates of workers employed in the new private sector and a slightly higher propensity to be displaced for workers who are employed in privatized and state-owned firms, which is found in the regression results. In essence, the high raw displacement rates of workers in the new private sector are linked to a composition rather than an ownership effect, since 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 since about ninety percent of all employment in new private firms is in firms with less than 100 employees. It is worthwhile to stress at any rate that in the years 1992 to 2002 the main determinants of closures and permanent layoffs were industry affiliation, firm size, and geographic location.

## B. THE COST OF WORKER DISPLACEMENT IN UKRAINE, 1992-2002

59. Ukrainian displaced workers, and even voluntary quitters, experience great difficulties to find new employment. As mentioned above, there are two kinds of cost of job loss, the risk of non-employment<sup>37</sup> and the possibility of lower wages for those workers who find new employment. By international standards Ukrainian displaced workers, and even voluntary quitters, have extreme difficulties to find new employment. One way to demonstrate this is to present cumulative return rates to employment, conditional on the duration of non-employment. They are presented in Table 5.1.<sup>38</sup> During the very difficult years of hyperinflation and crisis immediately following independence only one in seven displaced workers found full-time work within the first three months. How difficult these years were can also be seen by the similarly low number for those who voluntarily quit. In 1996-1999 roughly one quarter of the displaced finds reemployment after three months, while this fraction rises to slightly less than a third in the years of robust growth (2000-2003). Kuhn (2002) finds that two-thirds of displaced U.S. 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 (Lehmann, Philips, and Wadsworth, 2005). Hence, by international standards, return rates for Ukrainian displaced workers and voluntary quitters are very low.

**Table 5.1: Cumulative Return Rates for Job Movers**

	1992-95		1996-99		2000-2003	
% returning	Displ	Quit	Displ	Quit	Displ	Quit
<1 month	1.8	2.8	20.7	17.3	28.2	43.5
<3 months	12.9	14.6	24.7	31.1	31.1	45.1
<6 months	14.2	15.4	26.2	34.3	32.7	48.6
Median completed duration (months)	1	2	1	1	1	1
N	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.

60. **In the period 2000-2003 the vast majority of those returning did so within the first month of non-employment.** Estimates of hazard rates – the exit rate from unemployment – presented in Figure 5.3 confirm this picture: Hazard rates are high during the first month of non-employment and then drop off to virtually zero. The mean duration of completed spells, which never exceeds 2 months but stays at 1 month for the two latter periods, also demonstrates that most who returned to work did so nearly immediately after having separated from their previous job. Therefore, while a minority of workers found re-

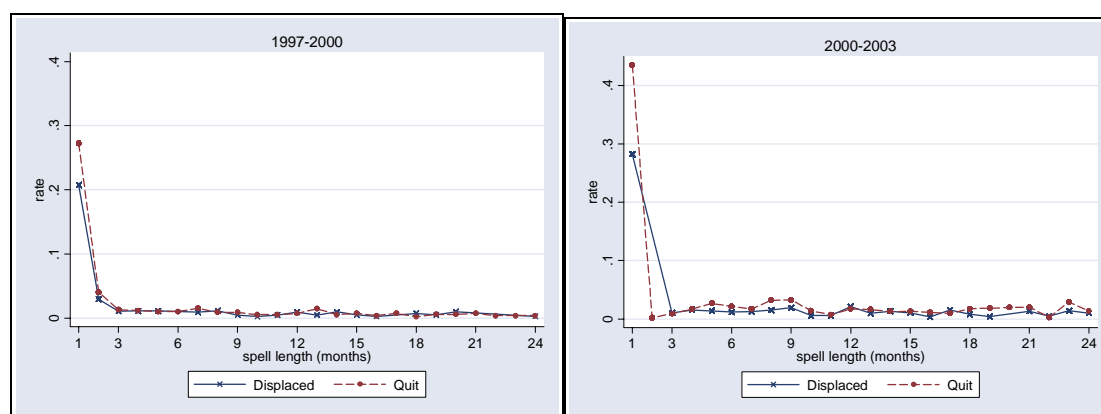
<sup>37</sup> In the context of displacement, this analysis looks at spells of non-employment rather than of unemployment to ensure statistically representative outcomes.

<sup>38</sup> These rates are based on the complement of the Kaplan-Meier estimator of survivor functions in non-employment. See the explanations in Lehmann, Pignatti, and Wadsworth (2005).



employment after a very brief spell of non-employment, a large majority of displaced workers lingered on in non-employment for a very long time.

**Figure 5.3: Hazard Rates from Non-employment**



Source: ULMS.

61. **Unemployment benefits did not provide an obstacle to re-entering employment from unemployment.** Figure 5.3 also suggests that unemployment benefits did play any major role in the determination of this low outflow rate. For example, unemployment benefits have a duration of 6 months, and no spike is observed at that spell length. In fact, spikes are absent from the entire spell, so that non-employment benefits, no matter how long their duration, seem to have no impact on the outflow rate from non-employment.

62. **Female workers, graduates with less than university education, workers with long tenure and working in large firms in their previous employment as well as workers not residing in Kyiv appear to experience particular obstacles in finding reemployment.** Which displaced workers had particular problems finding reemployment? Lehmann, Pignatti, and Wadsworth (2005) estimate outflow rates from non-employment<sup>39</sup> using demographic characteristics, firm and job attributes of previous employment and regional location as explanatory variables. Their findings suggest that not only firm and job attributes of previous employment but also individual characteristics were important determinants of the return to work outflow rate between 1992 and 2002. Female workers had substantially lower, workers with university education substantially higher outflow rates throughout the decade, regardless of whether they had been displaced or had quit. It is noteworthy that ethnicity had no explanatory relevance with respect the outflow from non-employment. Importantly, job tenure influenced the outflow rate in the earlier period, as displaced workers with more job tenure in the old job returned to work later. The same holds for plant size. Workers with previous employment in the largest firms had substantially lower outflow rates whether they had quit or had been displaced. Those with previous employment in manufacturing, retail and education and health returned to work earlier than those who had previously worked in agriculture. It is striking that in the period of sustained growth (2000-2003) displaced workers from the Kyiv region had dramatically higher outflow rates from non-employment than those in other regions. The coefficients on the included duration dummies confirm the duration patterns of the estimated return rates: The probability of finding work within the first two months of any jobless spell was high but the outflow rate was low thereafter. In summary, female workers, graduates with less than university education, workers with long tenure and working in large firms in their previous employment as well as workers not residing in Kyiv seemed to experience great obstacles in trying to find reemployment. This

<sup>39</sup> The authors estimate so-called hazard rates from non-employment, that is the outflow rate from non-employment between time  $t$  and  $t+\Delta t$ , given that the person has survived in non-employment until time  $t$ .

catalogue of characteristics, of course, implies that “problem groups” among the Ukrainian displaced workers do not constitute a minority, but a large majority of all the displaced, making any policy intervention that tries to alleviate the plight of displaced workers for Ukrainian policy makers a daunting task indeed.

63. **Workers’ wage loss due to displacement appears to not have been a major cost in Ukraine between 1992 and 2002.** Lehmann, Pignatti and Wadsworth (2005) use two estimation methods to establish these costs. First, they apply a simple difference-in-differences estimator, i.e. they subtract the change in wages for displaced workers from the change in wages of those workers who stay in their jobs. They find a mean wage loss for the sample of displaced workers back in work of between 5 and 9 percentage points, so that on this measure wage losses are not large. When controlling for the fact that displaced workers and those workers who stay in their jobs might differ in unobserved characteristics, the mean wage loss becomes even smaller. It is often observed that wages of displaced workers decline relatively to those of stayers long before they are displaced (see for example Jacobsen et al., 1993, for the U.S. labor market). The second technique, therefore, consists in estimating wage equations with the inclusion of dummy variables for years before and after displacement. Using these before and after displacement dummy variables, 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.

64. **From this careful analysis of potential earnings losses of displaced workers it seems quite clear that the main cost of job loss is the long spell of non-employment that the majority of displaced workers experiences.** Given the non-generous benefits for those out of work, the earnings losses are large for most displaced workers because of these long jobless spells rather than because of wage penalties for that minority who finds reemployment rapidly.

## CHAPTER 6: WAGE DETERMINATION

*This chapter examines empirical evidence on determinants of wages and earnings in Ukraine, using wage data from reference weeks in 2003 and 2004. It finds that a sizeable share of workers received wages below the statutory minimum wage in both years, suggesting that many workers need to work in secondary jobs, often in the informal sector, in order to earn sufficient income. Generally, the analysis points to extremely low wage payments in the primary job for many workers. Informal sector workers earn somewhat higher wages than similar formal sector workers, which however is likely to compensate for lower benefits. With respect to other factors determining wages, earnings in predominantly agricultural regions were more compressed and on average lower than in heavily industrialized and diversified regions in both 2003 and 2004. Trade union membership impact on wage levels is unclear but possibly significant for those workers at lowest end of the earnings scale. While workers in private and privatized firms commanded on average the highest wages, workers in state and municipal enterprises saw a dramatic improvement in their wage payments between 2003 and 2004. Workers employed in large firms earned more than employees in small establishments in 2003 and 2004.*

### A. THE STRUCTURE OF WAGES IN UKRAINE

65. **A sizeable share of workers receives wages below the statutory minimum wage.** In Figure 6.1 depicts plot kernel density estimates of log wages for full-time employees in their primary job. The vertical lines drawn into the graph represent the statutory minimum wage in Ukraine that amounted to UHA 185 in the reference period of 2003 and to UHA 205 in the reference period of 2004. It is obvious from the set of the two graphs that the minimum wage is not binding in the sense that it is not adhered to. Many workers stated in the survey that they receive less than the minimum wage. In 2003 one third of full-time workers received the minimum wage or less, while in 2004 this fraction was still 17 percent.<sup>40</sup> Considering that the subsistence level during the reference periods was officially set at 365 and 387 UHA respectively, it is obvious that either the wages stated by the respondents are far below the actual levels received or many workers receive very low wages but have other sources of income.<sup>41</sup> Casual evidence from the relatively wealthy region of Charkiv seems to suggest that there are indeed many firms which pay far less than the minimum wage.<sup>42</sup> The underlying table is presented in the Annex. In 2003 the mode in the wage distribution is below the minimum wage in 2003 and only slightly above in 2004. In addition, the first lines in the two panels of Annex Table A25 reveal that the mean is larger than the medium as we would expect in a wage distribution and that the median is above the minimum wage by 25 UHA in 2003 and by a more substantial 95 UHA in 2004. The wage distribution in the reference period of 2004, a time of high demand for labor, shows a large improvement with the mean and median shifting up by approximately UHA 100 and 80 respectively. It is also interesting that while the raw spread of the distribution rises, the coefficient of variation falls slightly from 2003 to 2004. In other words, once the spread is related to the mean, the wage distribution becomes more “equal” as we go from 2003 to 2004.

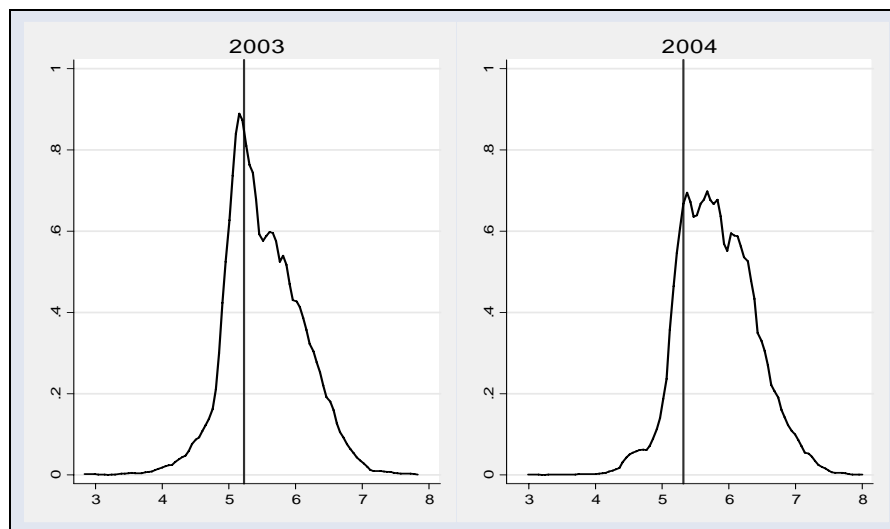
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<sup>40</sup> To get the probability mass below the minimum wage, we calculate the sum of kernel densities up to the minimum wage and divide this sum by the sum of all kernel densities.

<sup>41</sup> Wages are not low here because of wage arrears, since we use the response to the following question: “How much is the monthly salary you were supposed to be paid (including ‘pay in envelope’) at this job last month, after taxes and excluding bonuses”?

<sup>42</sup> See the article in “Ob’ektiv-novosti” (<http://news.media-obektiv.com>) from June 15 2005, which reports that there are 84 enterprises in Charkiv where the average monthly wage is less than UHA 100.

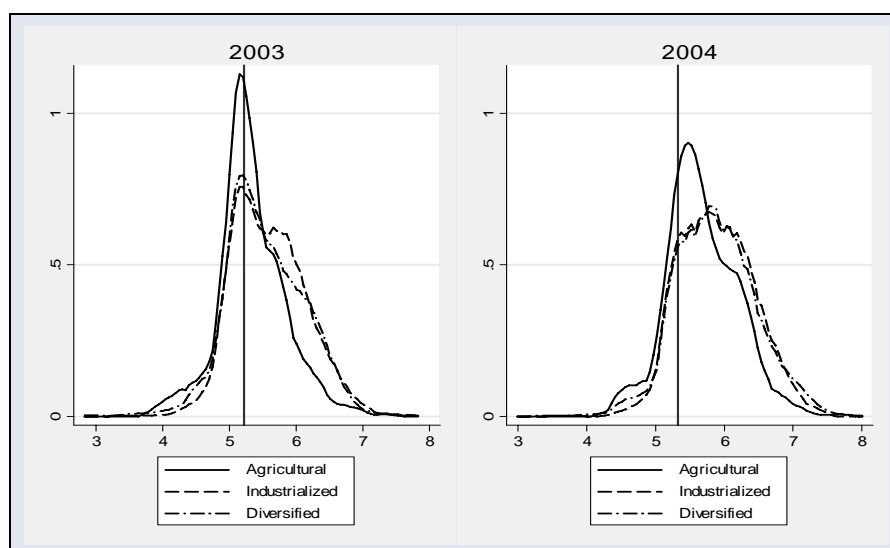
**Figure 6.1: The minimum wage in Ukraine in 2003 and 2004 is not binding, and many workers receive a wage below the minimum**



Source: ULMS.

66. Wages in predominantly agricultural regions were more compressed and on average lower than in heavily industrialized and diversified regions in both 2003 and 2004. Figure 6.2 shows the log wage distributions of full-time workers disaggregated by the regional classification<sup>43</sup>. While these wage distributions differ little at the lower end, there are far fewer workers in agricultural regions who receive high wages. The positions of the wage distributions also imply that more workers in agricultural regions receive less than the minimum wage than their counterparts in the other two types of regions.

**Figure 6.2: Wage distribution by regional group (classification according to share of employment in agriculture and manufacturing)**

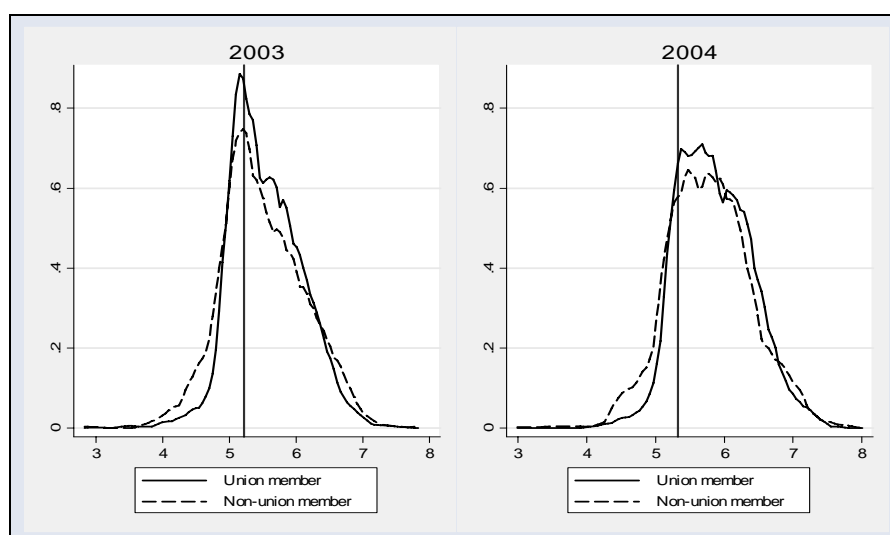


Source: ULMS.

<sup>43</sup> See Lehman et al. (1992) and Huber and Scarpetta (1996) for a derivation and definition of the regional taxonomy used here.

67. **Trade union membership impact on wage levels is ambiguous overall.** Figures 6.3 and 6.4 slice the data by union membership for the economy as a whole and for the manufacturing and mining sector. The panel for the entire economy shows that the wage distributions of workers who are union members were more compressed in both reference periods. This can also be seen from the lower values of the two measures of spread for union workers given in Annex Table A25. Note also that the coefficient of variation has the highest value for non-union workers in 2003 and the second highest in 2004, suggesting that unions were the main countervailing factor to a more unequal wage distribution during this period. Figure 6.3 also demonstrates that unions try to protect their members from low pay, with fewer union members at the low end of the distributions than non-union members. However, the graph also shows that unions have only weak bargaining power if all sectors of the Ukrainian economy are considered. It is inconceivable that unions with a strong bargaining position would permit a large fraction of their members to be paid less than the minimum wage, as was the case in both reference periods.

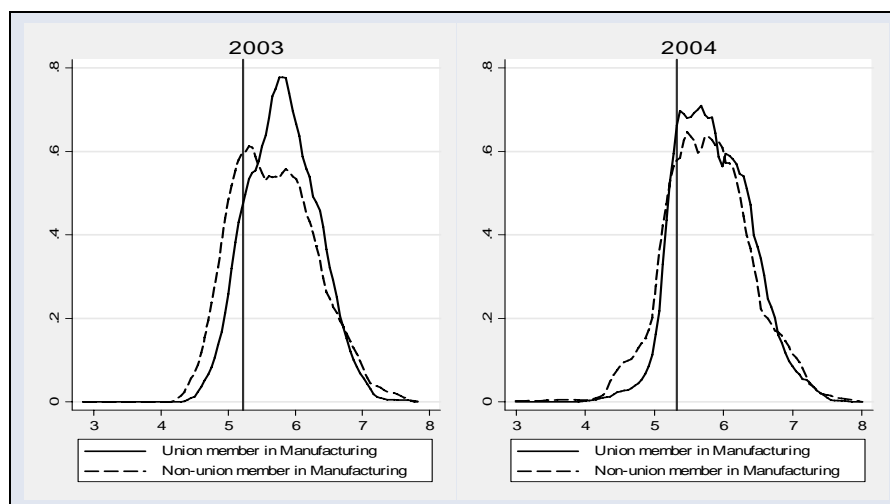
**Figure 6.3: Wage distribution by union membership in all sectors**



Source: ULMS.

68. **Trade Unions in manufacturing and mining appear to have a stronger bargaining position.** Figure 6.4, showing the wage distributions in manufacturing and mining, suggests that at least in this sector unions seem to have some bargaining clout. The union wage distribution is positioned to the right of the non-union distribution, and the number of low pay workers appears to have been much higher in the non-union distribution in both years. As far as wage comparisons of unionized and non-unionized workers in all industries are concerned, Annex Table A25 also establishes that the average wage was slightly higher in the non-union sector in 2003, while in 2004 union workers commanded higher wages.

**Figure 6.4: Wage distribution by union membership in Manufacturing and Mining**



Source: ULMS.

69. While workers in private and privatized firms commanded on average the highest wages, workers in state and municipal enterprises saw a dramatic improvement in their wage payments between 2003 and 2004. In 2003 more than a third of state and municipal workers were paid less than the minimum wage, compared with a quarter of workers in privatized and new private firms. In 2004 the wage distribution of state and municipal workers in the lower and upper third has shifted to the right of the distributions of the workers employed in privatized and new private firms. In 2004, substantially more low pay workers were employed in privatized and new private firms than in state and municipal firms, with only 8 percent paid less than the minimum wage in the latter category, while 12 and 16 percent were paid less than the minimum wage in privatized and new private firms respectively. While wage prospects improved in general between the two reference periods, they clearly improved most for workers in state and municipal enterprises. It is also noteworthy that workers in new private firms commanded on average the highest wages (UHA 345) in 2003, while a year later workers in privatized firms were paid the highest wages on average. These unconditional means constitute only weak evidence for the hypothesis that workers in privatized firms are able to extract rent.

**Table 6.1: Summary statistics of earnings at the primary job in the reference week in 2004**

<b>2004</b>	Obs	Mean	Std. Dev.	Coefficient of variation	Median
Total	2674	398.39	253.29	0.636	320
State	1523	380.66	233.10	0.612	300
New private	483	419.85	274.18	0.653	350
Privatized	414	430.09	273.32	0.635	350
Firm size 1-4	167	285.55	145.60	0.510	250
Firm size 5-19	405	353.60	231.48	0.655	300
Firm size 20-49	390	341.71	203.70	0.596	300
Firm size 50-99	316	380.70	242.64	0.637	300
Firm size 100-499	556	401.78	248.78	0.619	329
Firm size 500+	601	501.98	273.19	0.544	450
No union	813	389.10	267.65	0.688	300

Union	1787	403.99	240.86	0.596	331
Formal	2437	399.27	250.97	0.629	320
Informal	232	388.75	275.79	0.709	300

Source: ULMS 2003-2004 (balanced panel), full-time civil employees, questions E72 in ULMS-2003 and E68 in ULMS-2004: “How much is the monthly salary you were supposed to be paid (including ‘pay in envelope’) at this job last month, after taxes and excluding bonuses? If you receive all or part of your pay in foreign currency, please convert that to Hryvnias and report the total amount.”

70. **Workers employed in large firms earned more than employees in small establishments in 2003 and 2004.** Annex Table A25 slices the wage data also by firm size and by formal versus informal activity. In both years the entries for size show a clear monotonic relationship between firm size and average wage; workers in firms with more than 500 employees on average earned nearly twice as much as workers in firms with 1 to 4 employees. As stated previously, the reference periods reflect different levels of labor market tightness (the period in 2004 reflecting more tightness). These large differences in mean wages in both reference periods are most likely driven by institutional factors rather than by monopsonistic elements in the hiring practices of firms. Most likely, workers have much larger bargaining power in large firms than in small firms.

71. Overall, the analysis points to extremely low wage payments in the primary job for many workers. Such a development is obviously bad from an equity point of view, but it is also very inefficient. Workers who receive such low wages are clearly not very productive in their primary jobs. Keeping a large group of workers in such jobs over protracted periods of time leads to major distortions in the allocation of labor. Workers must spend a substantial part of their time outside the primary job, in order to provide enough income for their livelihood and that of their families.

## B. FACTOR DRIVING AVERAGE EARNINGS

72. Regression analysis of earnings allows an examination of the factors driving the average level of wages as well as a discussion and update to previous work on returns to education in Ukraine<sup>44</sup>. This topic is taken up first.

73. **There is evidence that returns to education have risen by far less in Ukraine than in Russia between 1985 and 2002.** Gorodnichenko and Sabirianova (2005) compare the evolution of returns to education from pre-transition to after transition in Russia and Ukraine. They find that in Russia these returns have more than tripled between 1985 and 2002 from 2.8 percent to 9.2 percent while they have only risen by 1 percent in Ukraine over the same period, reaching 4.5 percent at the end of 2002. Their analysis finds that this differing trend in returns to education is mainly due to a proper price response in the Russian labor market and not due to a composition effect, or due to differences in unobservable characteristics. In other words the rise in returns to education in Russia takes place not because the Russian workforce has different characteristics with respect to the Ukrainian workforce but because the Russian labor market responds properly to the relative scarcity of workers with different levels of education. By the end of 2002 the authors do not observe (yet) such a response in the Ukrainian labor market. The results of parallel regression analysis in this study<sup>45</sup> are very close to their estimates as far as the year 2003 is concerned, with an estimated 4 percent rate of return (see Annex Table A26). For the reference period of 2004, when the vigorous growth of the economy seems to translate into strong employment expansion, returns to education appear to have increased to nearly 6 percent (see Annex

<sup>44</sup> See Gorodnichenko and Sabirianova (2005).

<sup>45</sup> This analysis uses estimates of Mincerian earnings functions, which include more covariates than the ones used by Gorodnichenko and Sabirianova (2005). In addition to their covariates it also includes as regressors dummies for skill levels, a trade union dummy and a dummy for informal activities, dummies for type of labor market, as well as sector dummies.

Table A27). This suggests that the labor market in Ukraine may be starting to give the right price signals, which result in increases in the demand for education and thus promotes further more human capital accumulation. It seems reasonable to think that this rise in returns to education is not entirely due to increased seasonal opportunities since many of these opportunities are for activities requiring little education.

74. **Apart from years of schooling, an individual's potential experience and gender are significant demographic characteristics that determine wage levels.** Potential experience raises wages by roughly 1 percent, however, at a relatively large decreasing rate, which annuls the positive effect of potential experience already after about four years. Workers with brief spells in the labor market are the ones who command relatively high wages, *ceteris paribus*, while workers who have been in the labor market for more than 4 years do not seem to benefit from the acquired experience. In both years, women with similar observable personal and job characteristics received roughly 25 percent less than men. This estimated gender wage gap is of the same magnitude as observed in other transition countries<sup>46</sup>.

75. **Workers in new private firms appear to earn on average substantially higher wages, as do workers in large firms.** Once controlled for demographic characteristics, firm size, job characteristics and skill levels, workers employed in new private firms received between 17 and 24 percent higher wages. This strong positive effect is robust across the various specifications. Also very robust is the size effect on wages: The estimates confirm a strong positive and monotonic relationship between firm size and the average level of wages. In addition, white-collar workers had a wage premium that is between 8 and 10 percent compared to skilled blue-collar workers and between 22 and 24 percent compared to unskilled workers. While this skill effect is highly significant for both years, having worked in heavily industrialized region rather than in a predominantly agricultural region produces a wage premium only in 2003. For diversified regions this premium is present in both years, amounting to between 6 and 8 percent.

76. **The impact of trade union membership, if analyzed across the earnings distribution, is insignificant.** The trade union dummy is neither significant in 2003 nor in 2004. One reason for the insignificance could be that the size dummies take account of the trade union premium, as more trade union members are found in larger firms. Running the regressions without firm size shows that there is no trade union premium for 2003. However, in 2004 this premium is estimated to be around 10 percent.<sup>47</sup> An inspection of the kernel density estimates of earnings by union and non-union members suggests that relatively fewer union workers were in the extremely low wages end of the distribution. This suggests that there may be a union premium in the lower part of the wage distribution, but not across the distribution. Quantile regression analysis in the sections below investigates whether there is a union premium at different points in the wage distribution.

77. **Returns to education are positive and appear to provide most incentives for high earners:** The results of quantile regressions presented in Annex Tables A28 and A29 show that returns to education are rather uniform at around 4 percent across the wage distribution in 2003, especially from the 25<sup>th</sup> percentile upward, a result also found by Gorodnichenko and Sabirianova (2005). A higher rate of return in 2004 of 7.3 percent at the 90<sup>th</sup> percentile indicates that the labor market provides most incentives to invest in more human capital for high wage earners in Ukraine.

78. **How do worker characteristics affect earnings at different sections of the earnings distribution?** The quantile regression analysis in presented Tables A28 and A29 shows that, while

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<sup>46</sup> Newell and Reilly (1999)

<sup>47</sup> The regressions that include demographic characteristics, sector dummies and a trade union dummy, as well as a dummy for informal activity are not shown here, but available upon request.



potential experience has a small and relatively uniform effect across the distributions of both years, the female wage gap varies dramatically. This gap rises monotonically from 13 percent at the 10<sup>th</sup> percentile to 32 percent at the 90<sup>th</sup> percentile in 2003, and from 18 percent to 39 percent in 2004. Ukrainian women with similar observable characteristics as their male colleagues get less pay throughout the wage distribution, but this wage “discrimination” is especially strong for high wage earners. Residing in Kyiv brings no advantage to those workers who are in the bottom part of the wage distribution. Those outside the lowest quarter reap a capital premium between 12 and 27 percent in 2003, where again the highest wage earners are the ones who profit most. In 2004, the wage gains from residing in Kyiv seem to be limited to workers located at the 25<sup>th</sup> percentile and at the median. Given the employment expansion in 2004, this result might express improving earnings for higher wage workers also outside the capital.

79. **How do job attributes affect earnings?** Some factors related to job attributes vary in their impact on wages across the earnings distribution. Having a job in a new private firm implies a wage premium in 2003 that rises from 17 percent at the 25<sup>th</sup> percentile to 36 percent at the 90<sup>th</sup> percentile. Workers at the bottom of the distribution, however, have no benefits from working in a new private firm. This results also holds in 2004, essentially saying that even in new private firms there is a limited number of jobs with very low productivity, which pay the same very low wages as in state-owned and privatized firms. The effect of skill levels is different for the two years. In 2003, white-collar workers have a wage gain over skilled blue-collar workers if they find themselves in the upper 3 quarters of the earnings distribution. The wage differential between white-collar and unskilled blue-collar workers is significant throughout the distribution, rising from 12 percent at the bottom decile to 30 percent at the top decile. In 2004, on the other hand, blue-collar workers encounter a relative wage penalty only at the 75<sup>th</sup> percentile, while the wage differential between white and blue-collar workers is about 10 percentage points higher in the upper quarter relative to the rest of the distribution. The monotonicity relationship between firm size and wages is maintained throughout the distributions in both years, even if the actual levels of the coefficients on each firm size dummy vary quite considerably. Finally, it is noteworthy that the advantage of working in a diversified region, which is shown to be significant in the OLS regressions in both years, comes about because jobs located in this type of region, *ceteris paribus*, pay a premium exclusively in the upper 25 percent of the earnings distribution.

80. **In 2003, there is no premium for workers who are union members;** in actual fact those being located at the 75<sup>th</sup> percentile have pay that is roughly 10 percent lower than non-union members. In the following year, unions appear to protect workers from low pay to some extent. Workers at the 25<sup>th</sup> and the median receive a wage premium as a result of their union membership. But it is also clear from Table \*. \* that at the low end of the distribution workers are not protected by union membership, a result that might be expected.

81. **“Push” factors are likely to be less important than “pull” factors in explaining workers’ movements into the informal sector.** In 2003 there appear to be some strong forces “pulling” workers at the highest decile into the informal sector, with a premium of roughly 24 percent in this year. Instead, in 2004, when opportunities in the informal sector seem to have expanded considerably, these “pulling” forces seem to be acting more uniformly across earnings. At the 25<sup>th</sup> percentile there is a premium of 11 percent, rising to 13 percent and 15 percent at the median and 90<sup>th</sup> percentile respectively. It is also noteworthy, that in neither year there is a significant negative coefficient anywhere in the distribution, suggesting that “push” factors are most likely less important than “pull” factors in explaining workers’ movements into the informal sector.

## CHAPTER 7: INVESTMENT CLIMATE AND LABOR MARKET INSTITUTIONS

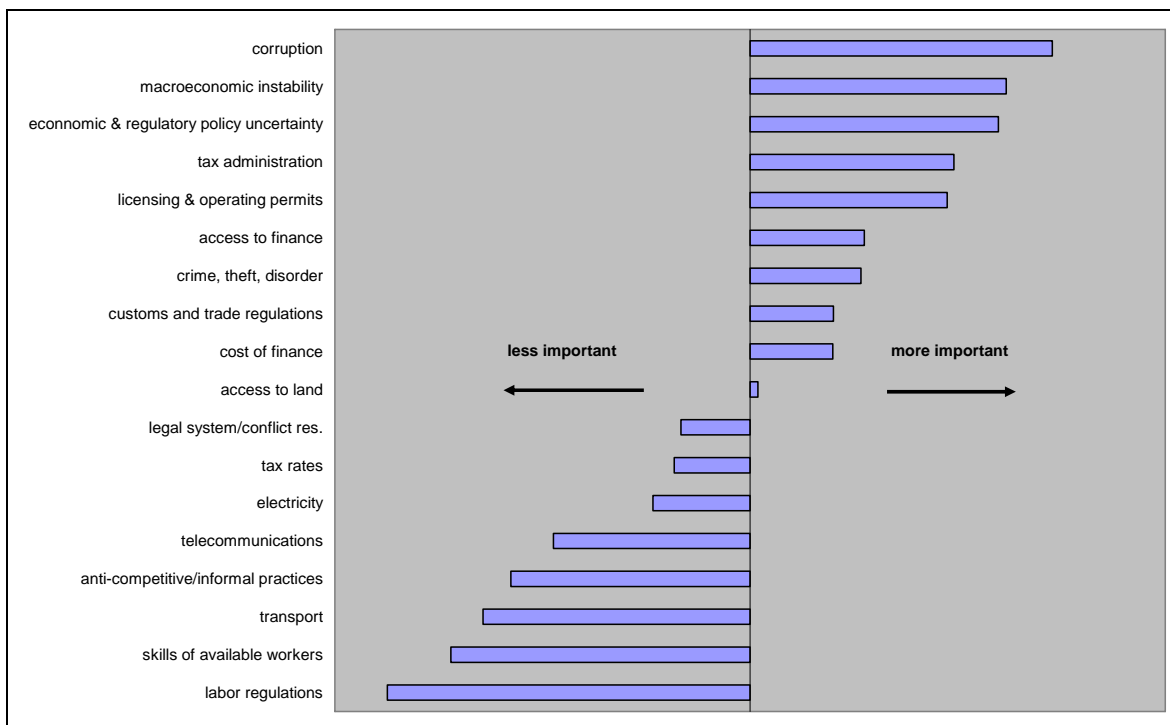
*Two broad sets of factors influence labor market performance: the investment climate, and labor market institutions and policies. Investment climate matters because it determines the rates of firm entry and growth, and thus the pace of job creation. If the investment climate is poor, few new firms enter the market and existing firms do not expand, which depressed the demand for labor. Labor market institutions and policies – such as employment protection legislation, minimum wage and labor taxation – have a direct bearing on labor demand and labor supply. For example, strict employment protection legislation (EPL) raises the cost of labor adjustment; it discourages employers from hiring workers in the period of economic upturn because they want to avoid future firing cost in the period of downturn (Betcherman and others, 2001). In Ukraine poor governance, uncertainty, administrative barriers and poor access to finance provide obstacles to firm entry and growth. While labor regulations are not seen by entrepreneurs as a significant constraint, on paper employment protection legislation is extremely stringent. This discrepancy may be explained by lax or selective enforcement of labor regulation, but labor market flexibility through non enforcement is not an optimal outcome. The same is true for the minimum wage. While the minimum wage is relatively high, lax enforcement means that it has little actual “bite”. Taxes on labor are relatively high in Ukraine, although lower than the CEE average. The generosity of the unemployment benefits system is modest, and unemployment benefits appear not to have a discernible impact on the outflow rate from unemployment.*

### A. PERCEPTIONS OF THE BUSINESS ENVIRONMENT

82. **Poor governance, uncertainty, administrative barriers and poor access to finance constrain firm entry and growth in Ukraine.** Figure 7.1 presents entrepreneurs’ perceptions as a basis to identify major obstacles to business operation. The figure highlights those obstacles that in Ukraine figure more prominently than in other CEE transition economies. The figure makes it clear that Ukraine faces a formidable challenge to reduce corruption, lessen regulatory and economic policy uncertainty and to remove administrative barriers which constrain business activity. Improving access to finance is also critical to spur investment and eventually job creation (World Bank, 2004).

83. **Labor regulations are not seen by entrepreneurs as a significant constraint.** In fact, as Figure 7.1 shows, labor regulations are viewed as the least important obstacle to firm operation and growth, considerably less important than in other CEE countries. For example, only 22 percent of Ukrainian firms see labor regulations as a significant obstacle whereas in the neighboring Poland the proportion is as high as 50 percent.

**Figure 7.1: Corruption, uncertainty, administrative barriers and poor access to finance are seen by employers as major obstacles to firm operation and growth**



Note: the chart shows deviations from the EU-8 and factor average scores.

Source: EBRD-World Bank Business Environment and Enterprise Performance Survey, 2002.

## B. EMPLOYMENT PROTECTION LEGISLATION

84. **But on paper employment protection legislation is extremely stringent in Ukraine.** According to the Doing Business indicators, employment protection legislation in Ukraine is significantly stricter than in other CEE countries and much stricter than in most OECD countries. As Table 7.1 summarizes the Doing Business indicators from 2004 and reveals that Ukrainian employment relations are overregulated and firing costs are extremely high by regional standards.

**Table 7.1: Employment protection legislation: Ukraine against selected CEE and OECD countries, 2004**

Economy	Difficulty of Hiring Index	Rigidity of Hours Index	Difficulty of Firing Index	Rigidity of Employment Index	Firing Costs (weeks)
Bulgaria	33	40	10	28	30
Croatia	61	60	50	57	55
Czech R.	44	20	20	28	22
Estonia	11	80	40	44	33
Hungary	11	80	30	40	34
Latvia	78	20	50	49	42
Lithuania	33	60	30	41	34
Poland	11	60	30	34	25
Romania	78	60	50	63	98
Russia	0	60	20	27	17
Slovakia	0	20	10	10	17
Slovenia	28	80	50	53	47
<b>Ukraine</b>	<b>33</b>	<b>80</b>	<b>80</b>	<b>64</b>	<b>94</b>
<i>Memorandum</i>					
OECD: High income	26	50	26	34	40
<i>of which low unemployment OECD</i>					
Denmark	0	40	10	17	39
Ireland	28	40	20	29	52
UK	11	40	10	20	25
US	0	0	10	3	8

Source: World Bank Doing Business database, 2004.

85. A draft new labor code relaxes some of the constraints on labor adjustment but still severely over-regulates employment relations. The draft labor code (as of Spring 2005) bears the legacy of communist labor relations. It provides detailed regulations of almost every possible aspect of industrial relations and provides for high procedural costs of labor adjustment.<sup>48</sup> For example, the employers needs to notify the relevant trade union of planned lay-off at least three months prior to its occurrence, discuss with the union possible preventive measures, and can carry the lay-of out only in accordance with the trade union's opinion. At the same time the use of fixed-term contracts, which can facilitate labor adjustment, is strictly limited. As such, the draft labor code does not provide regulatory foundations for an adaptable labor market (leaving aside the issue of enforcement). One additional shortcoming of overregulated labor relations is that they impede the development of social dialogue and collective bargaining. If all aspects of labor relations are already regulated by the labor code and the statutory minima are set at a high level then there is little scope for direct bargaining between employers and trade unions.

86. The discrepancy between employers' perceptions and objective indicators of the strictness of EPL is explained by lax or selective enforcement of labor regulation. As has been argued before, labor market flexibility through non enforcement is not an optimal outcome (World Bank, 2005b). It undermines the rule of law, exposes firms to costly uncertainty (circumventing regulations involves costs, especially if

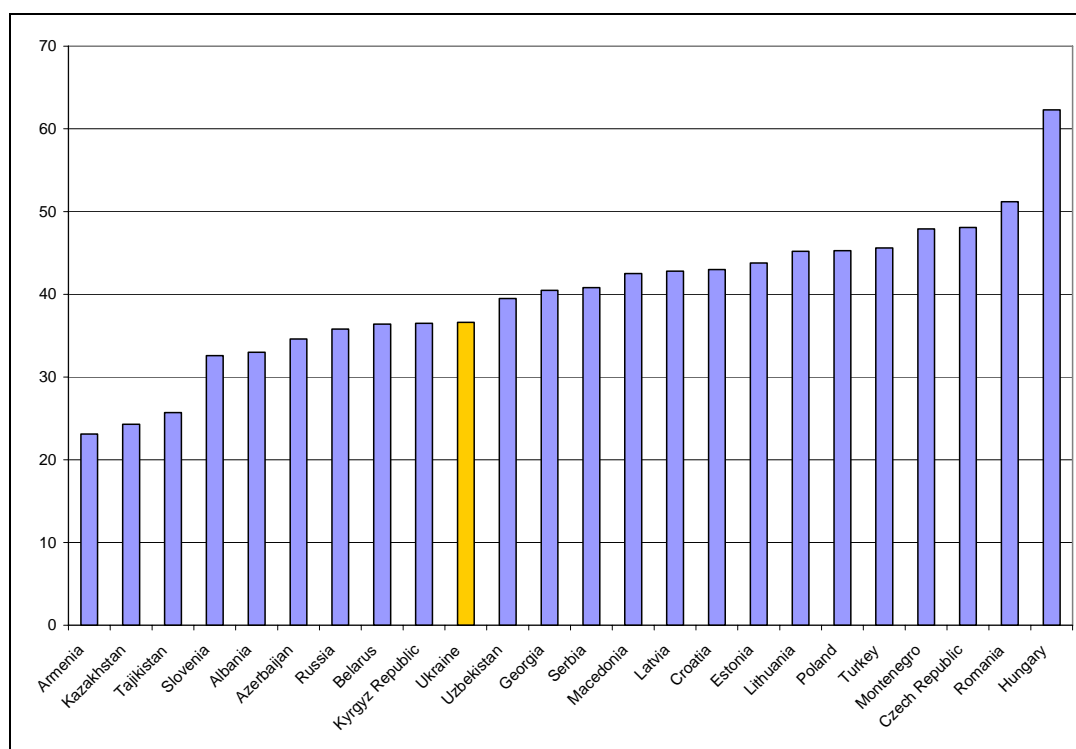
<sup>48</sup> The monetary cost of dismissal are modest and should not be a subject of concern, as firms should partly internalize social cost of unemployment (Blanchard, 2004).

enforcement is discretionary and selective) and leaves workers without adequate protection. Unduly strict EPL, even if only weakly enforced, is not conducive to fast and large scale reallocation of labor, which is necessary for the successful transition and productivity growth (World Bank, 2005b). A socially superior solution is to deregulate employment relations so as to focus on the effective (as opposed to on paper) protection of key worker rights and standards, while supporting enterprise restructuring and enhancing labor market adaptability.

## C. TAXATION OF LABOR

87. Taxes on labor are relatively high in Ukraine, although lower than the CEE average. The tax wedge on labor is high in ECA, higher than in most OECD countries, which may negatively affect both labor demand (by raising labor cost) and labor supply (by reducing take-home pay). In Ukraine the tax wedge on labor, at less than 40 percent, is relatively high, although notably lower than in CEE countries, except Slovakia ( see Figure 7.2). Payroll taxes in Ukraine are likely to both dampen labor demand by raising labor cost (especially given the relatively high minimum wage, which limits the scope for passing the tax onto labor) and to reduce labor supply by reducing the take-home pay. Moreover, they are most probably an important factor behind the growth in the informal sector.

**Figure 7.2: Tax wedge on labor: Ukraine against other ECA countries (2003)**  
The difference between labor cost to the employer and take-home pay as percentage of labor cost

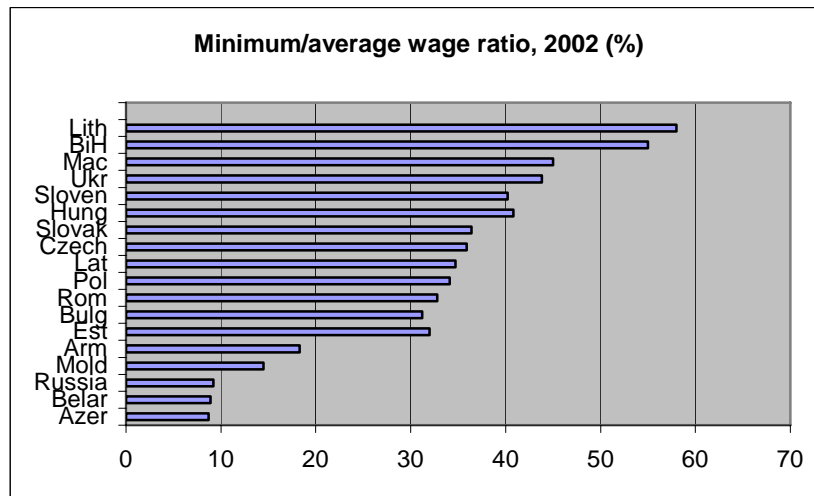


Source: World Bank (2005b)

## D. MINIMUM WAGE

88. **Ukraine has one of the highest minimum wage levels in the region.** Figure 7.3 presents comparative minimum wage shares of average wages in neighboring transition countries. It shows that Ukraine's minimum wage, hovering above 40 percent of the average wage in 2002, is one of the highest on the region<sup>49</sup>.

**Figure 7.3: Ukraine's level of minimum wage is high by regional standards**



Source: TransMonee and Bank staff calculations published in World Bank (2005b). Note: BiH = FBiH only.

89. **However, lax enforcement means that the minimum wage has little actual “bite”.** Experience of other transition economies (e.g. Lithuania, Poland) where the minimum wage was equally high (relative to the average wage) as in Ukraine indicates that it may contribute to unemployment among less skilled and less experienced workers, especially in economically depressed regions (Rutkowski 2003, World Bank, 2001). However, this does not seem to be the case in Ukraine as there is evidence of widespread noncompliance with minimum wage regulations (see above). A substantial fraction of workers earns less than the minimum wage. But this is exactly the argument for lowering the minimum wage. Since it cuts deep into the wage distribution, it would become a binding constraint if effectively enforced and would lead to a job loss among less productive workers.

## E. ACTIVE AND PASSIVE LABOR MARKET POLICIES

90. **On the face of it, Ukraine spends relatively little on passive and active labor market programs and about half on unemployment benefits.** Total expenditures on labor market policies, presented in Table 7.2, have been relatively modest but certainly not negligible in international perspective over the last years. Apart from Mexico, a middle-income developing country that spends virtually nothing on labor market policies, most Western OECD countries with comparable unemployment levels typically spend a higher share of GDP on such programs. For example, Spain and Italy, where unemployed rates has been hovering around 10 percent over the last years, on average spent

<sup>49</sup> The minimum wage accounted for 42 percent of the average (mean) national wage in January 2005.

around 2.3 and 1.2 percent of GDP respectively (OECD, 2004). The Czech Republic spends a moderate amount on labor market policies, never exceeding half a percent of GDP in the years 1999 to 2002. However, Czech unemployment rates are around 8 percent in these years, and are thus substantially lower than the Ukrainian unemployment rates that estimated based on ULMS data. In Hungary unemployment has fallen from 6.9 percent in 1999 to 5.6 percent in 2002, while expenditures amounted to roughly 1 percent of GDP. Poland and Slovakia, both countries with high unemployment (20 and 19 percent respectively in 2002), spent around 1 percent of GDP per year between 1999 and 2002. Seen in this perspective Ukraine appears to spend substantial amounts, in particular in 2002 and 2003.

**Table 7.2: Expenditures of the State Employment Fund as a Percentage of GDP, 1995-2003**

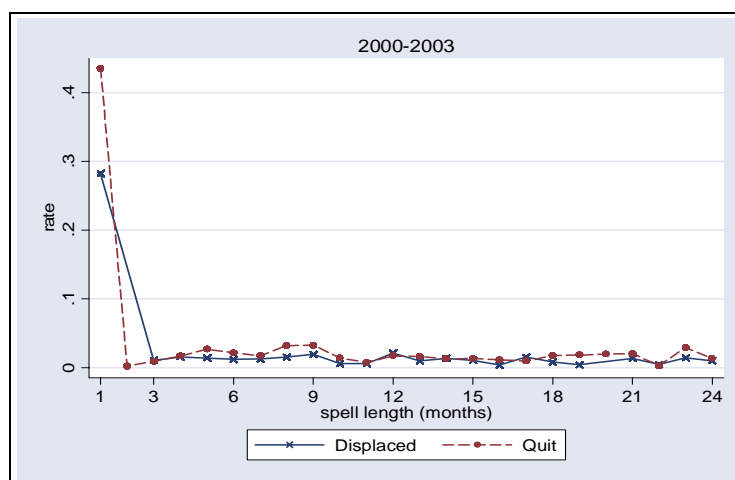
	1995	1996	1997	1998	1999	2000	2001	2002	2003
Total expenditures	0.19	0.14	0.21	0.32	0.41	0.36	0.47	0.67	0.69
<i>including expenditures on:</i>									
Unemployment benefits	0.02	0.05	0.14	0.20	0.26	0.24	0.27	0.35	0.36
ALMP	0.06	0.03	0.02	0.03	0.04	0.04	0.04	0.07	0.08
Operational costs of the Public Employment Service	0.06	0.04	0.05	0.05	0.05	0.05	0.06	0.08	0.07

Source: "Rynek pracy w Ukraini u 2003 rotsi", Table XI.4. Note: State Unemployment Insurance Fund from 2001.

91. **The generosity of the unemployment benefits system is relatively modest.** An unambiguous assessment of the unemployment benefit system in Ukraine is difficult because the system is generous in some aspects (coverage, duration) and less generous in other (replacement rate). The *benefit coverage rate* (percentage of the registered unemployed who receive a benefit) at 81 percent in 2003 is very high (it accounts for 20-30 percent in other transition economies). On the other hand, less than 50 percent of the ILO/LFS unemployed are registered with Employment Offices, suggesting that only those unemployed register who are eligible for unemployment benefit. In other words, the unemployment register does not seem to cover workers who are unemployed, but not eligible for benefits. Accordingly, the *effective coverage rate* is much lower (40 percent of the unemployed). Moreover, the *benefit replacement rate* is relatively low. On average, unemployment benefit accounts for 26 percent of the average wage in the economy, and for 58 percent of the statutory minimum wage. Typical *benefit duration* is one year, which is similar to other European and transition economies, but workers in pre-retirement age (58 years of age for men and 53 for women) can receive the benefit for as long as two years. Moreover, new entrants to the labor market (uninsured workers) can receive unemployment benefit for 180 days.

92. **Unemployment benefits seem to have no impact on the outflow rate from unemployment.** Estimates of the so called "hazard rates" suggest that unemployment benefits do not create significant adverse labor supply effects (see Figure 7.4 and also Chapter 5). One does not see increased outflows from unemployment to jobs after the exhaustion of benefit entitlement. After all, the vast majority of those who find job after displacement (or quit) do within the first month of non employment. Unemployment benefit receipt does not prevent displaced workers from actively looking for new employment. In other words, workers do not begin looking for a job only after they cease to receive unemployment benefit. This implies that the receipt of unemployment benefit does not appear to increase the duration of job search and therefore do not contribute to unemployment.

**Figure 7.4: Unemployment benefits have no impact on the outflow rate from unemployment**  
Hazard rates from non-employment



Source: Ukrainian Labor Market Surveys, 2002-2003.

93. **Public works and training are the main active labor market programs (ALMP) to help the unemployed.** About 13 percent of the registered unemployed participated in public works and 6 percent were enrolled in training courses in 2003, as Table 7.3 shows. In addition, slightly less than one percent were employed in subsidized jobs and close to 2 percent received lump sum grants to start up a business. Little is known of cost-effectiveness of these programs in Ukraine. Evidence from other transition economies and OECD countries shows that public works should be thought of as an income support scheme rather than a bridge to a regular employment (in fact, the net employment impact of public works is often negative). Training can have a positive net impact if well targeted and tailored to the needs of both employers and the unemployed. Moreover, the efficiency of training closely depends on the availability of job openings. If labor demand is depressed, and vacancies are few, training is usually not effective, i.e. does not improve employment chances (Betcherman and others, 2004). Most importantly, it is important to realize that ALMPs can help disadvantaged worker groups (e.g. youth, low skilled workers) to find employment, but they do not create new jobs and do not raise overall employment. Therefore, the potential of ALMPs to improve labor market conditions is limited (Rutkowski, 2004).

**Table 7.3: Participation in ALMP in Ukraine During 1992-2003**

Year	Number staying on the register (NR)	Employed with help of PES		Participated in training programs		Participated in public works		Employed on subsidized jobs		Received lump-sum UB to start-up business	
		number	% to NR	number	% to NR	number	% to NR	number	% to NR	number	% to NR
1998	2,036,708	390,593	19.2	105,238	5.17	95,908	4.7	n/a		n/a	
1999	2,475,900	467,548	18.9	126,518	5.11	151,815	6.1	n/a		n/a	
2000	2,744,097	597,049	21.8	137,164	5	250,711	9.1	n/a		n/a	
2001	2,760,239	772,726	28	147,199	5.33	301,977	10.9	13,099	0.5	20,061	0.7
2002	2,799,215	831,810	29.7	163,447	5.84	345,211	12.3	27,739	1	39,210	1.4
2003	2,835,197	877,268	30.9	175,495	6.19	378,584	13.4	36,947	1.3	48,539	1.7



# ANNEX 1: DEFINITION OF JOB CREATION, JOB DESTRUCTION AND REALLOCATION

## Estimating gross job flow rates using household survey data

Job flows can only be estimated with household survey data if the reason for a separation from a job is given. Annex Table A19 shows the 8 possible reasons for a job separation (out of 25) that appear in the ULMS questionnaire that we associate with job destruction. Dividing the number of jobs separated for one of these reasons by the level of employment at the beginning of the period establishes the job destruction rate. The job creation rate is then derived by using the identity that the job creation rate (*jcr*) minus the job destruction rate (*jdr*) is equal to the rate of the net change in employment (*net*) – see Davis and Haltiwanger (1999).

So,  $jcr = jdr + net$ . The rate *net* is calculated by subtracting the hiring rate (*hr*) from the separation rate (*sr*).

The job destruction rate and the derived job creation rates estimated with the help of household survey data are to be understood as lower bounds of the true rates. The job destruction rate is a lower bound because if a worker for example quits a job or retires from a job the employer might eliminate this job. In our measure this separation would, however, not appear as a destroyed job. Since the job creation is derived from the job destruction rate, the estimate of that rate is also a lower bound of the true job creation rate. A detailed discussion of these measurement issues that arise with the use of household survey data can be found in Lehmann and Kupets (2005).

## Estimating gross job flow rates using firm/establishment-level survey data

The fundamental building block for gross job flows is the net employment growth rate at the firm/establishment level. Following Davis and Haltiwanger (1992,1999) this growth rate is defined as:

$$g_{it} = (n_{it} - n_{i,t-1}) / x_{it}$$

where  $n_{it}$  stands for employment of firm  $i$  at time  $t$  and  $x_{it} = (n_{it} + n_{i,t-1}) / 2$  is the average employment size of the establishment/firm. This net employment growth rate, being symmetric and lying in the interval  $[-2,2]$ , can take account of entry, expansion, contraction and exit of firms.

Given this growth rate, we have the following definitions:

### Job creation rate

Let  $X_t$  be total average employment of the economy or of the sector under investigation, i.e. let  $X_t = \sum_{i \in I} x_{it}$ , where  $I$  stands for the set of all firms in the economy or in the sector. The job creation rate is then defined as:

$$jcr \equiv \sum_{i \in I+} g_{it}(x_{it}/X_t) = \sum_{i \in I+} (n_{it} - n_{i,t-1}) / X_t,$$

where  $I+$  is the subset of expanding/entering firms.

The job creation rate is thus defined as the weighted sum of all positive net growth rates in the economy or in the sector. Alternatively one can think of this rate as the increase in employment in expanding firms expressed as a proportion of total employment.

### Job destruction rate

The job destruction rate is defined analogously

$$jdr \equiv \sum_{i \in I^-} |git| / (xit/X_t) = \sum_{i \in I^-} |nit - ni,t-1| / X_t,$$

where we now sum over the subset of contracting/exiting firms,  $I^-$ .

The job destruction rate, normally expressed in absolute value, can also be interpreted as the absolute value of the decrease in employment in contracting firms as a proportion of total employment.

Using the job creation and job destruction rates, other gross job flow rates can be derived:

### Gross job reallocation rate

$$gross = jcr + jdr$$

### Rate of net change of employment

$$net = jcr - jdr$$

### Excess job reallocation rate

$$excess = gross - |net|$$

If net employment changes are very large and mainly driven by contraction and exit, as will be the case, particularly during the early phase of transition, then *gross* might not capture the reallocation of jobs very well. The excess job reallocation rate is then a better measure to account for true job reallocation. One can also think of *excess* as an index of firm heterogeneity with respect to job creation and destruction in an economy or a given sector.

## REFERENCES

- Betcherman, G., A. Luinstra and M. Ogawa (2001), "Labor market regulation: International experience in promoting employment and social protection", SP Discussion Paper, No. 0128
- Betcherman, Gordon, Karina Olivas and Amit Dar (2004), "Impacts of active labor market programs : new evidence from evaluations with particular attention to developing and transition countries", Social Protection discussion paper series, no. 0402.
- Blanchard, Oliver (2004), "Reforming Labor Market Institutions: Unemployment Insurance and Employment Protection", Massachusetts Institute of Technology, Department of Economics Working Paper Series, Working Paper 04-38.
- Boeri, Tito and Katherine Terrell (2002), Institutional Determinants of Labor Reallocation in Transition, *Journal of Economic Perspectives*, Vol. 16, No. 1. (Winter)
- Gorodnichenko and Sabirianova, Klara (2005),
- O'Keefe, Philip (2004), Labor Market Institutions and Policies in ECA, World Bank, processed.
- Rutkowski, Jan (1996), "High Skills Pay-off: the Changing Wage Structure during Economic Transition in Poland", *Economics of Transition*, 4(1), 89-112.
- Rutkowski, Jan (2003), "Rapid Labor Reallocation with a Stagnant Unemployment Pool: The Puzzle of the Labor Market in Lithuania", Policy Research Working Paper No. 2946, World Bank, Washington, DC.
- Rutkowski, Jan (2004), "Labor Market Interventions during the Transition in ECA", *Spectrum*, Summer.
- Schneider, Friedrich (2005), Shadow Economies of 145 Countries all over the World: Estimation Results over the Period 1999 to 2003, processed.
- World Bank (2001), Poland Labor Market Study – The Challenge of Job Creation, Washington, D.C.
- World Bank (2004), Ukraine: Building Foundations for Sustainable Growth. Country Economic Memorandum, Washington, DC.
- World Bank (2005) Ukraine: Poverty, Growth and Labor Markets in a Growing Economy 1999-2003. Volume 1 produced under the PULSE activities.
- World Bank (2005b), Enhancing Job Opportunities in Transition Economies of Europe and Central Asia, forthcoming.

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**Figure A1: Real GDP, Employment, 1990-2004 (1990 = 100)**

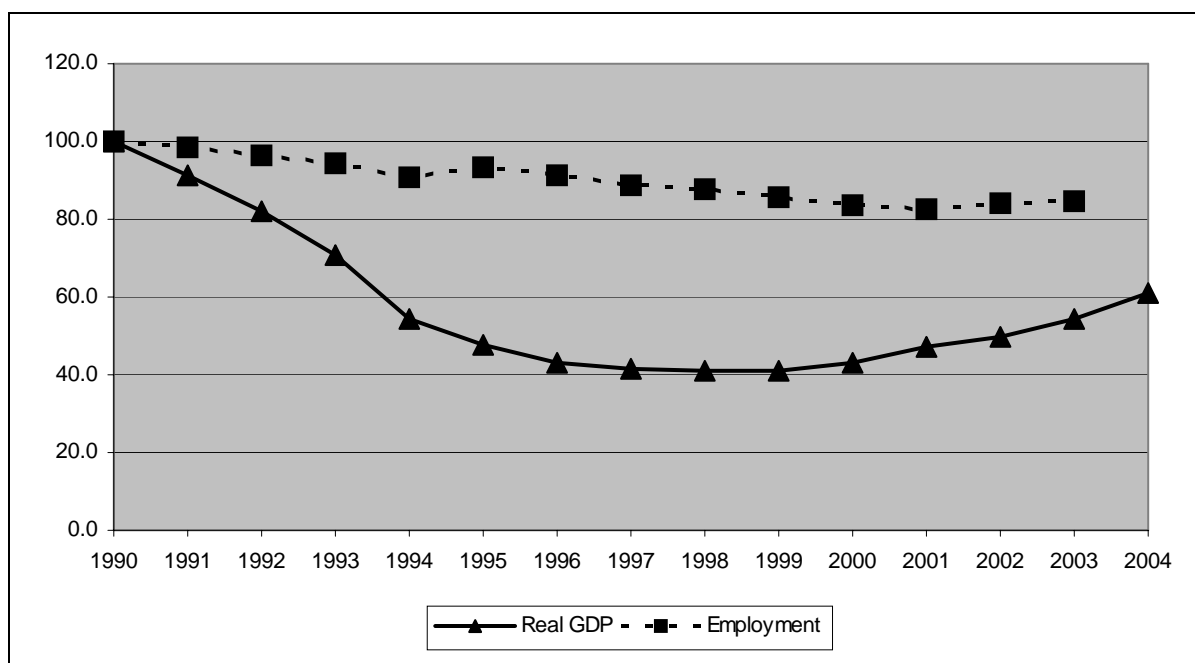
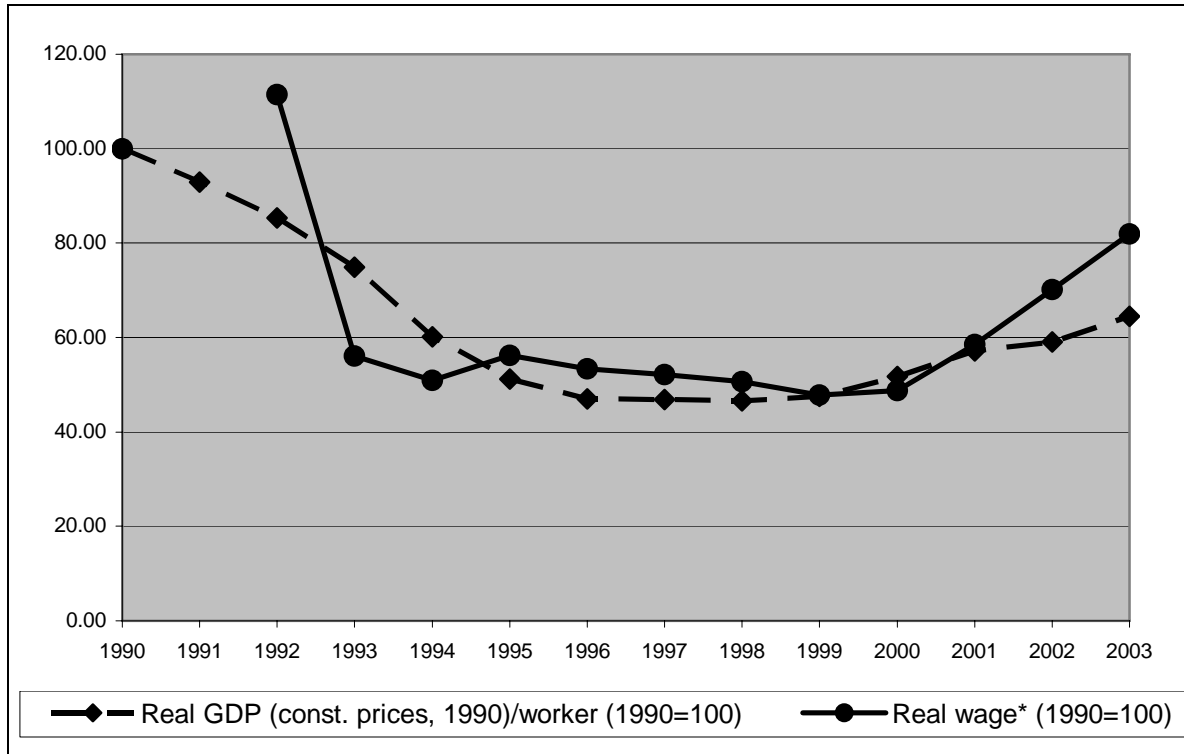
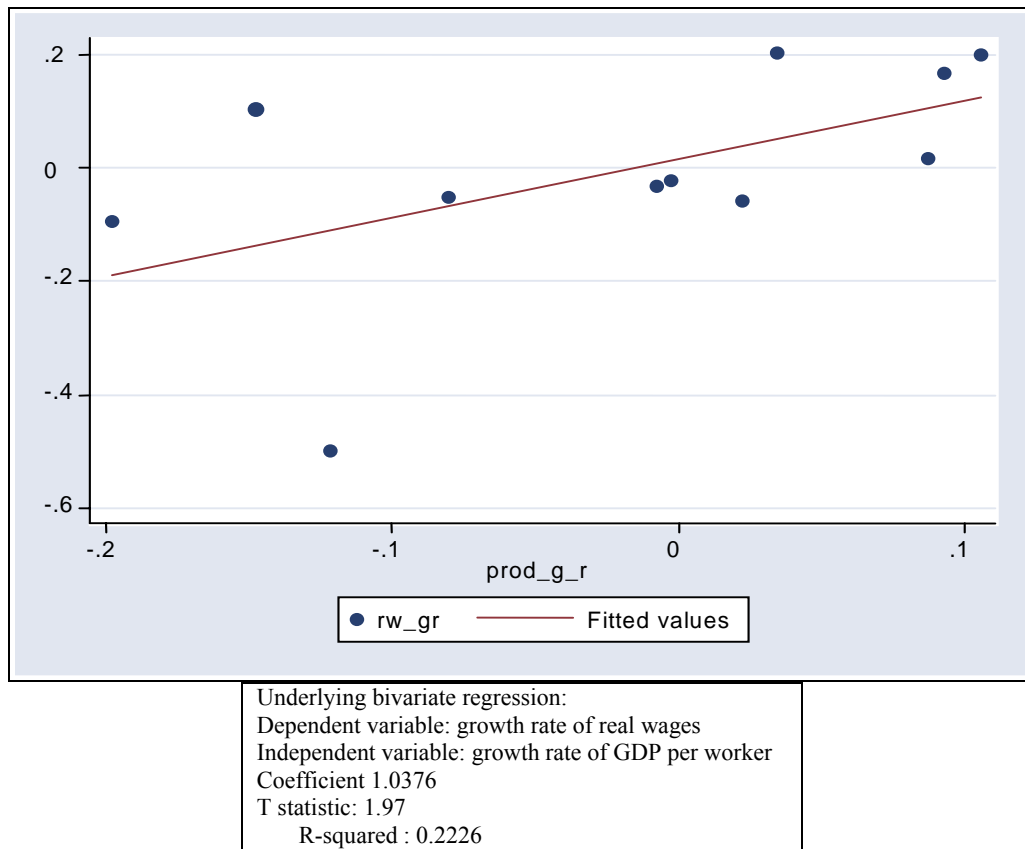


Figure A2: Real GDP/Worker, Real Wage, 1990-2003 (1990=100)

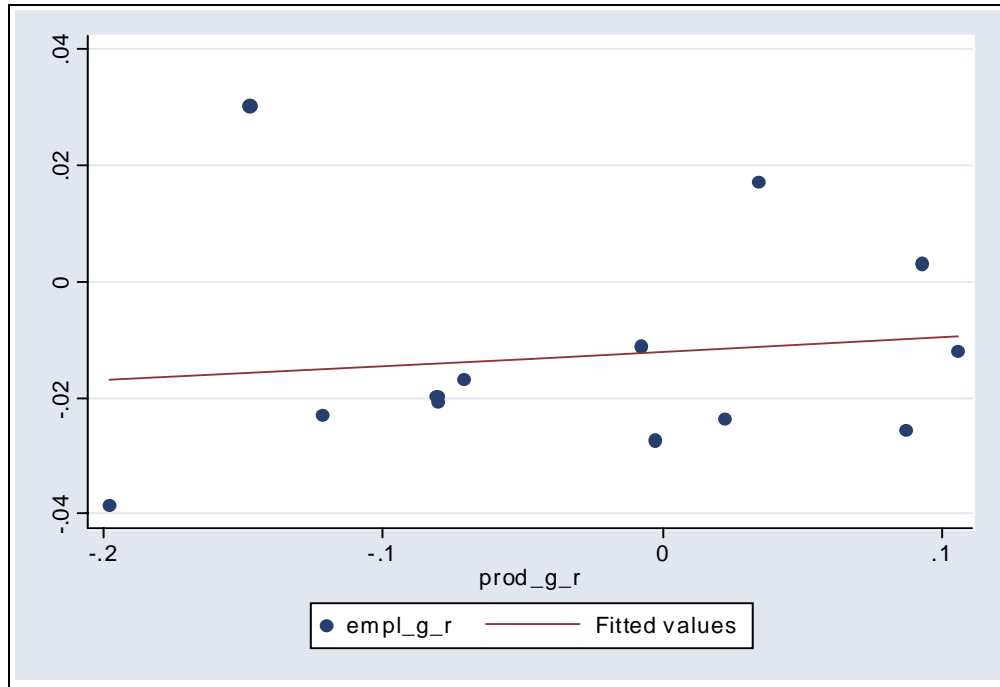


**Figure A3: Real Wages Growth Rates vs. Real Productivity Growth Rates**



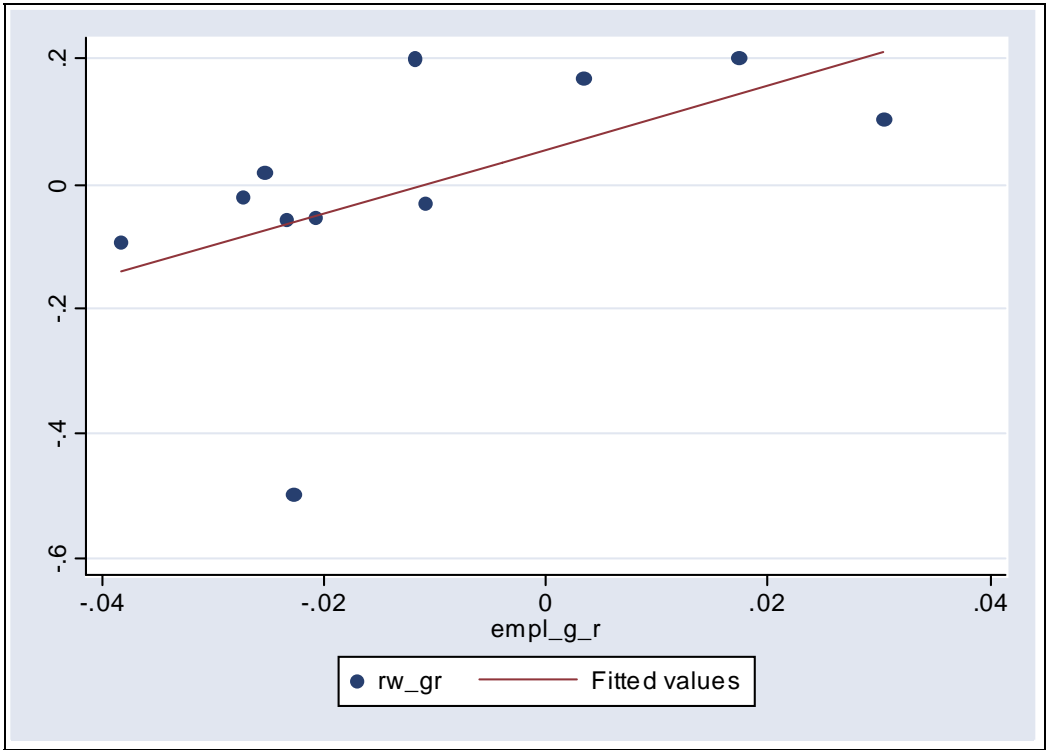


**Figure A4: Employment Growth Rates vs. Real Productivity Growth Rates**



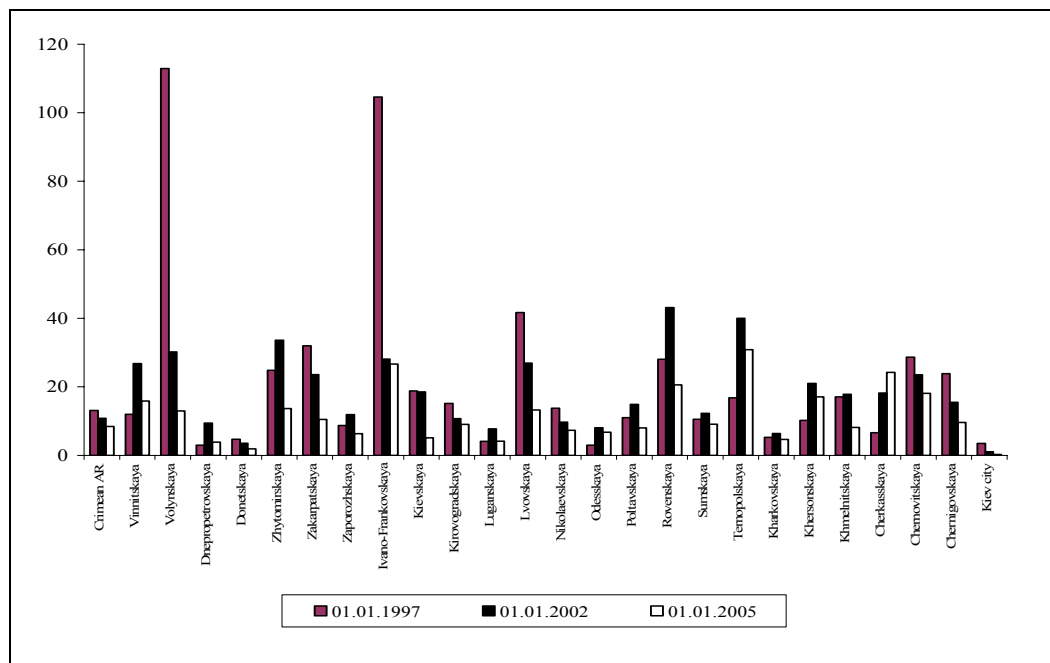
Underlying bivariate regression:  
Dependent variable: growth rate of employment  
Independent variable: growth rate of GDP per worker  
Coefficient 0.0239  
T statistic: 0.40  
R-squared : 0.0146

Figure A5: Real Wage Growth Rates vs. Employment Growth Rates

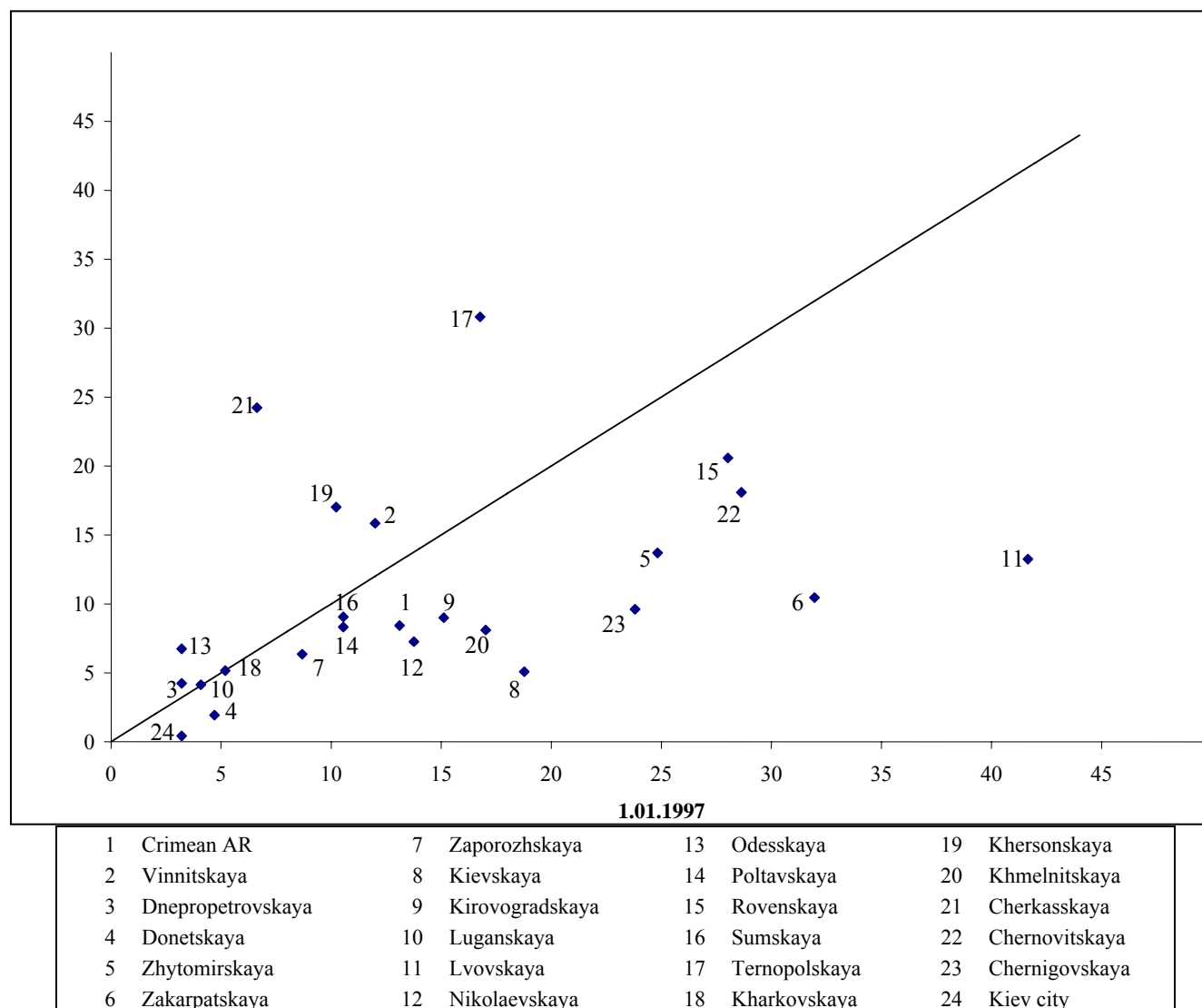


Underlying bivariate regression:  
Dependent variable: growth rate of real wages  
Independent variable: growth rate of employment  
Coefficient 5.0685  
T statistic: 1.92  
R-squared : 0.2901

**Figure A6: Registered U-V Ratios by Regions in January 1992, 1997 and 2005**



**Figure A7: Dynamics of Regional U-V Ratios, 1997 – 2005**



*Note:* Volynskaya and Ivano-Frankovskaya oblasts are outliers (see Figure I.3) and are not included for presentation purposes.

**Figure A8: Annual Rates of Worker and Job Flows (percent of employment)**



Note: Annual rates for 1998-2002 reflect changes from December of the previous year to December of the year under observation, while annual rates for 2004 reflect changes from the reference week in 2003 (April-June) to the reference week in 2004 (June-August).

**Table A1: Employment Changes by Sector, Ownership and Size, 1991-2004**

	Sector <sup>1</sup>			Ownership			Size	
	Agriculture (%share)	Industry (%share)	Services (%share)	Privatized (%share)	New Private (%share)	Non agricultural self- employed (%share)	Employed in Firms with empl<100 (%share)	Employed in Firms with empl<50 (%share)
1991 <sup>a</sup>	15.98	32.01	47.21	1.59	1.26	0.33	33.77	23.54
1997 <sup>a</sup>	16.30	26.21	52.89	11.73	8.33	2.02	41.36	30.13
2004 <sup>b</sup>	13.59	23.07	59.18	19.59 <sup>2</sup>	20.09	4.36	53.98	43.52
Δ share 91-97	0.32	-5.80	5.68	10.14	7.07	1.69	7.59	6.59
Δ share 97-04	-2.71	-3.14	6.29	7.86	11.76	2.34	12.62	13.39

<sup>a</sup>End of the year

<sup>b</sup>Reference week

Source: Lehmann and Pignatti (2005)

Notes:

<sup>1</sup>Share of employed in Public Administration (PA) not shown – The PA share stays roughly at 4% during the whole period (1991-2004)

<sup>2</sup>Includes collective enterprises

**Table A2: Participation Rates, 1997-2004**

	Year							
	1997	1998	1999	2000	2001	2002	2003	2004
Total	65.88	62.49	61.10	59.24	57.77	56.84	57.37	57.97
Gender								
Male	73.78	70.52	69.13	66.88	65.45	65.61	66.17	66.07
Female	60.03	56.57	55.19	53.57	52.04	50.30	50.80	52.04
Age								
15-24	43.66	38.67	39.21	38.78	37.19	36.98	50.80	53.76
25-49	87.55	86.01	85.49	84.44	83.11	82.27	82.24	84.21
50-59	57.59	56.69	58.07	58.97	60.66	60.47	63.19	63.56
60+	20.68	19.13	17.41	16.30	15.77	15.12	15.39	15.16
Education								
Elementary	53.58	48.81	45.15	40.88	37.45	34.88	35.93	35.50
Secondary	75.68	73.25	72.24	69.22	67.06	65.11	64.47	64.00
University	81.64	80.21	79.25	78.96	76.82	76.53	76.24	76.24
Region								
Kyiv	77.30	74.36	72.24	71.90	66.67	66.02	68.71	67.69
West	64.69	61.35	58.95	56.71	55.65	54.99	55.82	54.33
South	66.47	62.44	60.09	59.18	57.71	56.23	57.56	58.77
East	65.40	62.37	61.49	59.24	56.63	56.18	58.97	59.31
Center & North	66.55	61.82	59.19	56.64	54.86	53.43	54.01	57.08

**Table A3: Unemployment Rates, 1997-2004**

	Year							
	1997	1998	1999	2000	2001	2002	2003	2004
Total	9.48	11.72	13.40	14.28	15.15	16.82	17.30	14.15
Gender								
Male	8.47	10.89	12.01	13.24	14.27	16.91	17.39	14.14
Female	10.41	12.48	14.69	15.24	15.97	16.74	17.22	14.15
Age								
15-24	18.79	23.41	23.81	22.70	25.22	27.11	29.08	23.48
25-49	9.22	11.31	13.02	14.69	14.98	16.38	16.13	12.27
50-59	5.22	6.91	9.14	8.37	10.77	13.44	13.01	11.96
60+	3.61	5.45	7.79	7.76	8.27	8.50	6.75	7.83
Education								
Elementary	11.25	13.32	16.13	17.87	18.67	19.68	21.82	18.42
Secondary	9.57	12.24	13.83	14.74	15.65	18.37	18.55	14.98
University	4.78	5.75	6.37	7.50	7.75	8.65	8.89	7.86
Region								
Kyiv	6.99	8.28	9.18	11.07	9.59	10.75	15.84	3.18
West	10.12	13.26	14.44	15.99	17.23	19.56	17.71	15.82
South	10.29	12.39	16.27	15.44	15.95	17.13	16.69	12.20
East	8.92	10.02	12.46	13.81	14.91	16.63	16.89	13.09
Center & North	8.09	11.39	12.63	14.69	17.43	19.02	18.36	17.56



**Table A4: Incidence of Long Term Unemployment, 1997-2004**

	Year							
	1997	1998	1999	2000	2001	2002	2003	2004
Total	61.84	60.73	66.16	67.54	70.21	64.01	51.80	47.83
Gender								
Male	57.14	58.82	65.48	65.58	67.98	60.05	50.97	49.46
Female	58.82	62.26	66.67	69.11	72.08	67.90	52.62	46.31
Age								
15-24	49.11	51.16	56.30	53.38	54.11	41.46	33.48	33.73
25-49	66.03	63.59	68.46	69.07	74.73	70.81	59.96	52.46
50-59	60.47	62.26	69.44	80.30	67.82	63.06	57.14	60.82
60+	85.71	66.67	72.22	84.21	90.48	80.95	58.82	64.71
Education								
Elementary	58.20	67.16	70.78	67.48	75.90	67.63	49.75	35.71
Secondary	66.67	58.66	65.96	69.02	69.52	61.46	52.29	50.78
University	55.00	54.17	66.67	53.85	61.19	58.44	53.01	53.97
Region								
Kyiv	60.00	54.17	70.37	58.82	60.71	51.52	35.42	0.00
West	60.42	60.48	67.41	72.67	68.71	61.34	51.08	45.04
South	65.71	67.47	62.73	71.03	72.07	65.85	53.54	47.69
East	62.02	58.74	66.11	64.68	72.64	64.49	49.26	47.87
Center & North	62.92	59.17	69.77	66.23	69.66	67.01	58.79	51.63

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**Table A5: Fraction of Unemployed Engaged in Informal Activities, 1997-2002**

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	<b>1997</b>	<b>1998</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>
Unemployed	30.29	32.50	32.29	30.51	26.37	28.58
Short-term Unemployed	27.78	33.79	28.24	20.80	22.54	23.00
Long-term Unemployed	31.84	31.68	34.35	35.22	28.80	31.76

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**Table A6: Average Unemployment Shares by Duration, 1997-2004**

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**1997 – 2002**

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	<b>Male</b>	<b>Female</b>	<b>Total</b>
<4 months	0.150	0.124	0.136
4-8 months	0.139	0.124	0.131
8-12 months	0.083	0.075	0.079
12+ months	0.628	0.677	0.655

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**2003 – 2004**

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	<b>Male</b>	<b>Female</b>	<b>Total</b>
<4 months	0.232	0.222	0.227
4-8 months	0.133	0.129	0.130
8-12 months	0.101	0.115	0.109
12+ months	0.516	0.505	0.511

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**Table A7: Labor Market Transition Probabilities by Gender, 1998-2004**

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<b>1998 - 2002</b>									
	<b>EE</b>	<b>EU</b>	<b>EN</b>	<b>UE</b>	<b>UU</b>	<b>UN</b>	<b>NE</b>	<b>NU</b>	<b>NN</b>
Total	0.906	0.033	0.061	0.181	0.742	0.077	0.054	0.025	0.921
Male	0.910	0.037	0.053	0.203	0.732	0.065	0.080	0.032	0.888
Female	0.903	0.030	0.068	0.165	0.749	0.087	0.042	0.022	0.936
<b>2003 – 2004</b>									
	<b>EE</b>	<b>EU</b>	<b>EN</b>	<b>UE</b>	<b>UU</b>	<b>UN</b>	<b>NE</b>	<b>NU</b>	<b>NN</b>
Total	0.886	0.041	0.072	0.386	0.342	0.273	0.119	0.075	0.806
Male	0.897	0.039	0.065	0.425	0.369	0.206	0.128	0.100	0.772
Female	0.877	0.043	0.080	0.349	0.316	0.336	0.115	0.063	0.822
Total	0.886	0.041	0.072	0.386	0.342	0.273	0.119	0.075	0.806

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**Table A8: Labor Market Transition Probabilities by Gender and Age, 1998-2004**

1998 - 2002										
Males		EE	EU	EN	UE	UU	UN	NE	NU	NN
	15-24	0.885	0.065	0.049	0.275	0.610	0.114	0.155	0.055	0.790
	25-49	0.932	0.038	0.030	0.186	0.773	0.041	0.154	0.078	0.767
	50-59	0.871	0.025	0.104	0.147	0.749	0.104	0.023	0.012	0.965
	60+	0.832	0.010	0.158	0.196	0.740	0.063	0.006	0.002	0.992
Females										
	15-24	0.851	0.030	0.119	0.206	0.701	0.093	0.089	0.050	0.861
	25-49	0.926	0.032	0.042	0.169	0.767	0.064	0.087	0.042	0.870
	50-59	0.847	0.023	0.130	0.091	0.721	0.189	0.008	0.004	0.988
	60+	0.830	0.006	0.164	-	0.878	0.122	0.002	-	0.998
2003 - 2004										
Males		EE	EU	EN	UE	UU	UN	NE	NU	NN
	15-24	0.935	0.032	0.032	0.529	0.300	0.171	0.207	0.217	0.576
	25-49	0.917	0.046	0.038	0.425	0.369	0.206	0.325	0.183	0.492
	50-59	0.874	0.039	0.087	0.333	0.451	0.216	0.109	0.086	0.805
	60+	0.717	-	0.283	-	0.500	0.500	0.032	0.020	0.948
Females										
	15-24	0.776	0.082	0.142	0.337	0.302	0.360	0.162	0.139	0.699
	25-49	0.910	0.044	0.046	0.421	0.305	0.274	0.275	0.121	0.604
	50-59	0.857	0.026	0.117	0.184	0.429	0.388	0.064	0.040	0.896
	60+	0.756	0.026	0.218	-	-	1.000	0.033	0.004	0.963

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**Table A9: Labor Market Transition Probabilities by Gender and Education, 1998-2004**

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<b>1998 – 2002</b>									
<b>Males</b>	<b>EE</b>	<b>EU</b>	<b>EN</b>	<b>UE</b>	<b>UU</b>	<b>UN</b>	<b>NE</b>	<b>NU</b>	<b>NN</b>
Elementary	0.878	0.039	0.083	0.187	0.732	0.081	0.050	0.018	0.932
Secondary	0.919	0.038	0.043	0.200	0.739	0.061	0.096	0.047	0.857
University	0.932	0.027	0.041	0.292	0.657	0.051	0.079	0.019	0.902
<b>Females</b>									
Elementary	0.860	0.035	0.105	0.128	0.807	0.065	0.012	0.008	0.980
Secondary	0.900	0.031	0.069	0.165	0.745	0.091	0.045	0.026	0.929
University	0.944	0.022	0.034	0.204	0.721	0.075	0.062	0.019	0.919
<b>2003 – 2004</b>									
<b>Males</b>	<b>EE</b>	<b>EU</b>	<b>EN</b>	<b>UE</b>	<b>UU</b>	<b>UN</b>	<b>NE</b>	<b>NU</b>	<b>NN</b>
Elementary	0.822	0.063	0.115	0.500	0.295	0.205	0.068	0.081	0.851
Secondary	0.909	0.032	0.058	0.378	0.399	0.223	0.189	0.108	0.703
University	0.946	0.027	0.027	0.609	0.348	0.043	0.102	0.114	0.784
<b>Females</b>									
Elementary	0.813	0.053	0.133	0.319	0.188	0.493	0.061	0.048	0.891
Secondary	0.867	0.053	0.079	0.356	0.332	0.313	0.146	0.074	0.780
University	0.933	0.012	0.054	0.343	0.429	0.229	0.139	0.040	0.821

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**Table A10: Transitions from Unemployment by Duration, 1998-2004**

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**1998 – 2002**

<b>Male</b>	<b>UE</b>	<b>UU</b>	<b>UN</b>
Short term unemployed	0.297	0.633	0.070
Long term unemployed	0.141	0.797	0.062
<b>Female</b>	<b>UE</b>	<b>UU</b>	<b>UN</b>
Short term unemployed	0.228	0.657	0.115
Long term unemployed	0.135	0.793	0.071

---

**2003 – 2004**

<b>Male</b>	<b>UE</b>	<b>UU</b>	<b>UN</b>
Short term unemployed	0.504	0.328	0.168
Long term unemployed	0.364	0.413	0.224
<b>Female</b>	<b>UE</b>	<b>UU</b>	<b>UN</b>
Short term unemployed	0.409	0.307	0.283
Long term unemployed	0.316	0.316	0.368

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**2003 – 2004**

<b>Male</b>	<b>UE</b>	<b>UU</b>	<b>UN</b>
Short term unemployed	0.504	0.328	0.168
Long term unemployed	0.364	0.413	0.224
<b>Female</b>	<b>UE</b>	<b>UU</b>	<b>UN</b>
Short term unemployed	0.409	0.307	0.283
Long term unemployed	0.316	0.316	0.368

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**Table A11: Labor Market Transition Probabilities Between Four Labor Market States**

(Formally Employed, Informally Employed, Unemployed, Not in the Labor Force)					
2003 – 2004					
	<b>Formally Employed</b>	<b>Informally Employed</b>	<i>Tot Empl</i>	<b>Unemployed</b>	<b>NLF</b>
Formally Employed	<b>0.860</b>	0.031	<b>0.890</b>	0.036	0.073
Informally Employed	0.152	<b>0.634</b>	<b>0.786</b>	0.098	0.116
Unemployed	0.255	0.138	<b>0.393</b>	<b>0.332</b>	0.275
NLF	0.070	0.046	<b>0.115</b>	0.071	<b>0.814</b>
Turnover rate <sup>1</sup>	-0.0003	0.746		-0.113	-0.046
Sample distribution <sup>2</sup>	0.429	0.072		0.081	0.418

<sup>1</sup> The turnover rate is the net change from 2003 to 2004 divided by the origin stock in 2003.

<sup>2</sup> Sample distribution in the reference week of 2003.



**Table A12: Sectors and Employment (Formal and Informal), 2003-2004**

<b>2003</b>			
	<b>% of formal</b>	<b>% of informal</b>	<b>% informal within sector</b>
Agriculture	11.46	28.96	20.77
Industry	24.25	10.77	4.41
Construction	3.84	10.44	21.99
Distribution/Repair/Hotels & Restaurants	10.24	36.03	26.75
Transport/Storage/ Communication	8.49	2.02	2.41
Finance/Real estate/Renting & BA	1.89	1.01	5.26
Public Administration	4.72	-	-
Other Services	35.12	10.77	3.09
<b>2004</b>			
	<b>% of formal</b>	<b>% of informal</b>	<b>% informal within sector</b>
Agriculture	10.80	29.29	31.66
Industry	25.09	12.12	7.62
Construction	3.87	14.55	39.13
Distribution/Repair/Hotels & Restaurants	10.04	28.48	32.64
Transport/Storage/ Communication	9.01	3.03	5.43
Finance/Real estate/Renting & BA	2.00	0.61	4.92
Public Administration	4.90	0.20	0.70
Other Services	34.28	11.72	5.52

**Table A13: Probit Regression Probability of Working in the Informal Sector, 2003-2004**

	2003		2004	
	dF/dx	x-bar	dF/dx	x-bar
Female	0.004 (0.002)*	0.511	0.012 (0.006)*	0.517
Single	0.012 (0.008)*	0.127	0.022 (0.014)	0.141
Divorced et al.	0.003 (0.004)	0.144	0.001 (0.008)	0.154
Children (0-6)	0.012 (0.008)*	0.094	0.007 (0.013)	0.097
Older child (>6)	0.004 (0.003)	0.718	-0.008 (0.010)	0.697
Manufacturing and mining	-0.016 (0.004)*	0.240	-0.031 (0.006)*	0.230
Electricity, gas and water supply	-0.011 (0.003)*	0.034	-0.034 (0.005)*	0.035
Construction	-0.004 (0.003)	0.051	0.022 (0.015)	0.055
Wholesale and retail trade; repair of motor vehicles and motorcycles; hotels and restaurants	-0.011 (0.003)*	0.140	-0.019 (0.005)*	0.127
Transport, storage and communication	-0.012 (0.003)*	0.081	-0.031 (0.005)*	0.080
Financial intermediation, real estate, renting and business activities	-0.019 (0.004)*	0.220	-0.034 (0.007)*	0.199
Education, health and social work	-0.010 (0.003)*	0.020	-0.032 (0.005)*	0.042
Public administration and defense			-0.028 (0.008)	0.018
Other community, social and personal service activities	-0.010 (0.003)*	0.073	-0.024 (0.005)*	0.066
Other activities	-0.008 (0.003)	0.010	0.028 (0.045)	0.005
Secondary	-0.003 (0.003)	0.606	-0.031 (0.008)*	0.628
University	-0.009 (0.003)*	0.207	-0.042 (0.006)*	0.212
Part time	0.017 (0.009)*	0.057	0.051 (0.019)*	0.059
1-49	0.009 (0.004)*	0.397	0.028 (0.009)*	0.433
50-99	-0.003 (0.004)	0.114	-0.022 (0.007)*	0.105

100-249	-0.009 (0.003)*	0.114	-0.029 (0.006)*	0.110
250-499	-0.011 (0.003)*	0.075	-0.020 (0.008)	0.073
500-999	-0.007 (0.004)	0.059	-0.032 (0.006)*	0.052
Center and Nord	0.003 (0.004)	0.215	0.008 (0.015)	0.271
South	0.003 (0.004)	0.149	0.022 (0.019)	0.133
East	0.003 (0.004)	0.323	0.010 (0.014)	0.359
West	-0.001 (0.003)	0.204	0.000 (0.014)	0.197
State	-0.129 (0.021)*	0.623	-0.183 (0.018)*	0.502
Cooperative	-0.007 (0.003)	0.007	-0.029 (0.005)*	0.008
Privatized enterprise	-0.012 (0.003)*	0.102	-0.046 (0.007)*	0.192
age15_24	-0.005 (0.004)	0.647	0.001 (0.008)	0.595
age50_59	-0.001 (0.004)	0.119	-0.004 (0.010)	0.166
age60_more	-0.001 (0.006)	0.056	0.012 (0.018)	0.052
<1 year	0.011 (0.007)	0.165	-0.002 (0.008)	0.080
1 year	0.007 (0.007)	0.090	-0.005 (0.007)	0.106
2 to 5 years	0.003 (0.005)	0.253	-0.021 (0.005)*	0.177
6 to 10 years	-0.002 (0.004)	0.156	-0.027 (0.006)*	0.108
Log pseudolikelihood = -684.28779 Number of obs = 3776 Wald chi2(40) = 1114.46 Prob > chi2 = 0.0000 Pseudo R2 = 0.4488		Log pseudolikelihood = -788.07619 Number of obs = 3467 Wald chi2(40) = 1316.30 Prob > chi2 = 0.0000 Pseudo R2 = 0.4551		

Notes:

- i) The symbol \* represents statistical significance at 5% level, referred to the probability of the underlying coefficient of being 0;
- ii) dy/dx is for discrete change of dummy variable from 0 to 1.
- iii) Default categories are: Male, Cohabiting, No child, Elementary and less, age 25-49, tenure 11 years and more, Industry: Agriculture Hunting and Forestry, Size: 1000+ employees, Region: Kyiv, Ownership: Newly established enterprises.

**Table A14: Labor Market Transition Probabilities by Sector, 1998 - 2004**

<b>1998 – 2002</b>							
	<b>Agriculture</b>	<b>Industry</b>	<b>Services</b>	<b>Public Admin</b>	<b>Tot Empl</b>	<b>Unemployed</b>	<b>NLF</b>
Agriculture	<b>0.862</b>	0.006	0.017	0.001	<b>0.886</b>	0.035	0.078
Industry	0.004	<b>0.874</b>	0.021	0.001	<b>0.900</b>	0.038	0.062
Services	0.004	0.008	<b>0.901</b>	0.002	<b>0.915</b>	0.031	0.054
Public Administration	0.005	0.007	0.031	<b>0.879</b>	<b>0.922</b>	0.028	0.050
Unemployed	0.016	0.044	0.116	0.003	<b>0.179</b>	<b>0.744</b>	0.077
NLF	0.006	0.010	0.035	0.003	<b>0.054</b>	0.025	<b>0.921</b>
Turnover rate <sup>1</sup>	-0.330	-0.217	-0.027	-0.131		0.695	0.375
Sample distribution <sup>2</sup>	0.108	0.155	0.311	0.025		0.060	0.341
<b>2003 – 2004</b>							
	<b>Agriculture</b>	<b>Industry</b>	<b>Services</b>	<b>Public Admin</b>	<b>Tot Emp</b>	<b>Unemployed</b>	<b>NLF</b>
Agriculture	<b>0.688</b>	0.044	0.072	0.007	<b>0.810</b>	0.074	0.116
Industry	0.033	<b>0.729</b>	0.127	0.007	<b>0.897</b>	0.039	0.064
Services	0.018	0.059	<b>0.802</b>	0.018	<b>0.897</b>	0.036	0.067
Public Administration	0.030	0.068	0.165	<b>0.624</b>	<b>0.887</b>	0.023	0.090
Unemployed	0.039	0.098	0.272	0.013	<b>0.422</b>	<b>0.319</b>	0.259
NLF	0.028	0.020	0.061	0.003	<b>0.112</b>	0.071	<b>0.817</b>
Turnover rate <sup>1</sup>	0.076	0.091	0.065	0.075		-0.153	-0.045
Sample distribution <sup>2</sup>	0.069	0.117	0.298	0.021		0.081	0.413

<sup>1</sup> The turnover rate is the net change from 1998 to 2002 divided by the origin stock in 1998.

<sup>2</sup> Sample distribution at the beginning of 1998.

<sup>1</sup> The turnover rate is the net change from 2003 to 2004 divided by the origin stock in 2003.

<sup>2</sup> Sample distribution in the reference week of 2003.

**Table A15: Labor Market Transition Probabilities by Sector, Detailed, 1998 – 2004**

1998-2002											
	Agricult	Industry	Constr	Dis & Rep	Tr/St/Com	Fin RE/Bus	Pub Adm	Oth Serv	Tot Empl	Unempl	NLF
Agriculture	<b>0.862</b>	0.006	0.002	0.003	0.004	-	0.001	0.007	<b>0.886</b>	0.035	0.078
Industry	0.004	<b>0.874</b>	0.003	0.007	0.003	0.001	0.001	0.008	<b>0.900</b>	0.038	0.062
Construction	0.007	0.013	<b>0.817</b>	0.007	0.006	0.001	0.001	0.008	<b>0.860</b>	0.060	0.081
Distribution & repair	0.007	0.016	0.004	<b>0.820</b>	0.004	0.002	0.003	0.013	<b>0.867</b>	0.053	0.079
Transport/Storage/Commun	0.004	0.009	0.001	0.010	<b>0.882</b>	-	0.002	0.012	<b>0.919</b>	0.029	0.052
Finance/Real estate/Bus	0.003	0.007	-	0.006	0.010	<b>0.847</b>	0.006	0.022	<b>0.901</b>	0.053	0.046
Public Administration	0.005	0.007	0.005	0.007	0.001	0.003	<b>0.879</b>	0.015	<b>0.922</b>	0.028	0.050
Other Services	0.003	0.005	0.002	0.005	0.001	0.001	0.002	<b>0.922</b>	<b>0.940</b>	0.018	0.042
Unemployed	0.016	0.044	0.011	0.037	0.012	0.004	0.003	0.051	<b>0.179</b>	<b>0.744</b>	0.077
NLF	0.006	0.010	0.003	0.012	0.002	0.001	0.003	0.016	<b>0.054</b>	0.025	<b>0.921</b>
Turnover rate <sup>1</sup>	-0.330	-0.217	-0.254	0.132	-0.170	-0.227	-0.131	0.016		0.695	0.375
Sample distribution <sup>2</sup>	0.099	0.145	0.026	0.053	0.043	0.010	0.025	0.166		0.073	0.360

<sup>1</sup> The turnover rate is the net change from 1998 to 2002 divided by the origin stock in 1998.

<sup>2</sup> Sample distribution at the beginning of 1998.

**Table A15: Labor Market Transition Probabilities by Sector, Detailed (continued), 1998 – 2004**

2003-2004											
	Agricult	Industry	Constr	Dis & Rep	Tr/St/Com	Fin RE/Bus	Pub Adm	Oth Serv	Tot Empl	Unempl	NLF
Agriculture	<b>0.688</b>	0.044	0.016	0.007	0.023	0.002	0.007	0.023	<b>0.810</b>	0.074	0.116
Industry	0.033	<b>0.729</b>	0.015	0.029	0.025	0.006	0.007	0.052	<b>0.897</b>	0.039	0.064
Construction	0.014	0.143	<b>0.536</b>	0.029	0.064	0.014	0.014	0.064	<b>0.879</b>	0.043	0.079
Distribution & repair	0.025	0.065	0.027	<b>0.636</b>	0.025	-	-	0.065	<b>0.843</b>	0.065	0.092
Transport/Storage/Commun	0.016	0.072	0.040	0.048	<b>0.680</b>	0.004	0.008	0.060	<b>0.928</b>	0.028	0.044
Finance/Real estate/Bus	0.018	0.125	0.054	0.036	0.054	<b>0.536</b>	0.071	0.071	<b>0.964</b>	0.018	0.018
Public Administration	0.030	0.068	0.008	0.015	0.015	0.023	<b>0.624</b>	0.105	<b>0.887</b>	0.023	0.090
Other Services	0.016	0.039	0.013	0.023	0.020	0.009	0.025	<b>0.764</b>	<b>0.909</b>	0.027	0.064
Unemployed	0.039	0.098	0.050	0.088	0.019	0.002	0.013	0.114	<b>0.422</b>	<b>0.319</b>	0.259
NLF	0.028	0.020	0.007	0.020	0.007	0.003	0.003	0.024	<b>0.112</b>	0.071	<b>0.817</b>
Turnover rate <sup>1</sup>	0.076	0.091	0.300	0.090	0.096	0.071	0.075	0.016		-0.153	-0.045
Sample distribution <sup>2</sup>	0.069	0.117	0.027	0.065	0.041	0.009	0.021	0.156		0.081	0.413

<sup>1</sup> The turnover rate is the net change from 2003 to 2004 divided by the origin stock in 2003.

<sup>2</sup> Sample distribution in the reference week of 2003.

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**Table A16: Percentage Involuntarily in Part-time, 2003 – 2004**

	<b>% of employed involuntarily in part-time</b>	<b>% of informally employed involuntarily in part-time</b>
2003	3.42	5.61
2004	4.29	7.43

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**Table A17: Percentage of Employed with Wage Arrears, 2003 – 2004**

	<b>% of employed with wage arrears in the last year</b>	<b>% of employed with wage arrears currently</b>	<b>% of employed with wage arrears 3 months ago</b>	<b>% of employed with wage arrears 6 months ago</b>	<b>% of employed with wage arrears 9 months ago</b>	<b>% of employed with wage arrears 12 months ago</b>
2003	13.37	8.82	4.96	3.48	2.03	2.36
2004	8.92	5.98	2.52	2.09	1.57	1.74

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**Table A18: Percentage of Informally Employed with Wage Arrears, 2003 – 2004**

	<b>% of informally employed with wage arrears in the last year</b>	<b>% of informally employed with wage arrears currently</b>	<b>% of informally employed with wage arrears 3 months ago</b>	<b>% of informally employed with wage arrears 6 months ago</b>	<b>% of informally employed with wage arrears 9 months ago</b>	<b>% of informally employed with wage arrears 12 months ago</b>
2003	6.11	2.34	1.04	0.78	0.78	0.78
2004	2.97	1.77	0.20	-	-	-

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**Table A19: Reasons for Job Separation Associated with Job Destruction**

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**1. REASON**

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- 1 Closing down of enterprise/organization
  - 2 Reorganization of enterprise/organization
  - 3 Bankruptcy of enterprise/organization
  - 4 Privatization of enterprise/organization
  - 5 Dismissal initiated by employer
  - 6 Personnel reduction
  - 7 Expiring of employment contract
  - 24 End of farming / sole proprietorship
- 

Source: ULMS questionnaire.

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**Table A20: Annual Rates of Worker and Job Flows by Employer and Employee Characteristics (percent of employment)**

**By industry/ economic activity**

Year	Agriculture, forestry and fishing				Manufacturing and mining				Construction			
	HR	SR	JCR	JDR	HR	SR	JCR	JDR	HR	SR	JCR	JDR
1998	6.703	12.312	0	5.609	9.450	14.485	0	5.035	14.644	25.941	0.837	12.134
1999	7.391	14.058	0	6.667	8.483	12.316	0.816	4.649	13.679	18.868	1.887	7.075
2000	9.317	17.236	0	7.919	11.790	13.825	2.884	4.919	17.413	19.403	5.473	7.463
2001	7.744	14.646	0	6.902	10.043	13.939	0.693	4.589	16.751	15.228	5.076	3.553
2002	9.222	16.275	0	7.052	13.165	16.772	2.705	6.312	16.500	21.000	5.000	9.500
2004	35.253	31.797	11.751	8.295	25.653	18.527	11.401	4.276	65.493	29.577	42.254	6.338

Year	Trade and restaurants				Transport and communications				Financial intermediation, real estate and business activities			
	HR	SR	JCR	JDR	HR	SR	JCR	JDR	HR	SR	JCR	JDR
1998	23.973	24.658	9.817	10.502	5.278	14.444	0	9.167	11.765	18.824	1.176	8.235
1999	21.149	20.920	8.506	8.276	10.398	12.538	1.529	3.670	13.924	11.392	6.329	3.797
2000	28.211	19.037	16.055	6.881	8.125	10.938	0	2.813	18.519	17.284	4.938	3.704
2001	23.109	17.227	10.504	4.622	10.289	9.003	2.894	1.608	10.976	18.293	0	7.317
2002	27.778	21.032	13.294	6.548	13.651	18.095	1.905	6.349	22.368	30.263	0	7.895
2004	46.798	34.975	18.719	6.897	23.200	17.200	10.800	4.800	28.070	15.789	15.789	3.509

Year	Public administration				Education and health care				Other activities			
	HR	SR	JCR	JDR	HR	SR	JCR	JDR	HR	SR	JCR	JDR
1998	8.824	12.255	0	3.431	7.545	8.503	1.078	2.036	16.667	21.795	3.205	8.333
1999	14.721	10.152	6.599	2.030	7.748	7.506	1.937	1.695	16.554	16.892	5.743	6.081
2000	5.825	16.505	0	10.680	9.058	9.420	1.570	1.932	18.983	15.932	5.763	2.712
2001	8.152	14.674	0	6.522	9.091	9.697	0.606	1.212	13.531	12.871	5.611	4.950
2002	13.372	11.628	4.651	2.907	11.220	9.146	3.902	1.829	19.672	16.393	7.213	3.934
2004	24.444	19.259	9.630	4.444	13.490	13.930	1.320	1.760	35.391	23.045	17.695	5.350

### By enterprise size

Year	1-4				5-19				20-49			
	HR	SR	JCR	JDR	HR	SR	JCR	JDR	HR	SR	JCR	JDR
1998	25.623	9.964	20.641	4.982	18.130	21.947	3.817	7.634	11.498	14.808	2.265	5.575
1999	17.231	11.077	10.154	4.000	18.651	15.675	8.730	5.754	11.733	14.982	0.722	3.971
2000	24.638	10.725	18.261	4.348	19.461	17.341	8.671	6.551	15.672	16.045	4.104	4.478
2001	19.084	10.687	10.941	2.545	18.679	13.774	8.491	3.585	14.232	15.543	2.622	3.933
2002	21.596	11.502	14.554	4.460	20.504	19.065	7.014	5.576	12.903	14.991	2.657	4.744
2004	60.202	27.204	39.798	6.801	42.266	27.015	22.004	6.754	27.110	24.297	8.184	5.371

Year	50-99				100-499				500+			
	HR	SR	JCR	JDR	HR	SR	JCR	JDR	HR	SR	JCR	JDR
1998	8.929	14.484	0.397	5.952	7.585	13.972	0	6.387	5.527	12.694	0	7.168
1999	10.714	11.345	2.731	3.361	8.422	12.260	0	3.838	5.116	11.349	0	6.233
2000	13.742	13.319	4.440	4.017	7.982	12.971	0	4.989	8.135	13.591	0	5.456
2001	11.368	9.895	4.421	2.947	7.351	13.069	0	5.718	6.716	12.487	0	5.771
2002	12.863	14.938	1.867	3.942	12.871	14.233	3.218	4.579	9.810	16.499	0	6.689
2004	18.617	21.011	3.191	5.585	18.979	18.820	2.871	2.711	14.499	15.396	1.644	2.541

### By ownership type

Year	State or municipal				Privatized				De-novo private			
	HR	SR	JCR	JDR	HR	SR	JCR	JDR	HR	SR	JCR	JDR
1998	6.510	14.358	0	7.848	9.452	13.611	1.890	6.049	39.740	25.714	25.195	11.169
1999	6.908	12.521	0	5.613	12.007	12.864	3.774	4.631	31.293	18.821	18.821	6.349
2000	7.778	14.480	0	6.703	14.563	11.165	6.958	3.560	35.685	21.573	20.968	6.855
2001	7.250	12.999	0	5.749	12.147	11.723	5.085	4.661	28.916	19.793	13.769	4.647
2002	11.292	15.335	0.976	5.019	10.576	13.655	1.473	4.552	34.748	24.057	17.610	6.918
2004	15.196	16.789	2.022	3.615	20.114	19.971	4.850	4.708	59.886	36.692	30.989	7.795

**By region (classification according to geographic location)**

Year	West				Kiev City				Center and North			
	HR	SR	JCR	JDR	HR	SR	JCR	JDR	HR	SR	JCR	JDR
1998	8.672	13.502	0	4.830	16.608	21.201	1.767	6.360	8.465	15.070	0	6.605
1999	9.343	11.073	1.153	2.884	15.556	14.074	7.037	5.556	8.466	11.653	0.896	4.084
2000	9.624	11.502	2.230	4.108	16.788	13.139	6.934	3.285	12.037	15.226	2.366	5.556
2001	12.321	13.038	2.751	3.469	13.732	16.901	2.817	5.986	10.308	13.390	1.169	4.251
2002	13.133	13.253	3.494	3.614	18.545	15.636	8.000	5.091	13.377	16.447	3.399	6.469
2004	24.154	20.462	7.692	4.000	19.524	16.667	6.667	3.810	34.259	21.825	17.725	5.291

Year	East				South			
	HR	SR	JCR	JDR	HR	SR	JCR	JDR
1998	11.354	15.585	1.058	5.289	10.923	13.538	2.769	5.385
1999	11.349	12.822	2.653	4.127	11.690	16.588	0.474	5.371
2000	13.463	15.557	2.393	4.488	15.116	13.621	6.645	5.150
2001	9.855	12.681	0.382	3.209	11.457	10.966	3.928	3.437
2002	16.667	16.667	4.796	4.796	14.332	14.984	4.560	5.212
2004	32.093	22.791	14.326	5.023	33.172	23.971	14.770	5.569

*Note:* *West* stands for Chernivets'ka, Ivano-Frankivs'ka, Khmel'nyts'ka, L'vivs'ka, Rivnens'ka, Ternopil's'ka, Volyns'ka, Zakarpats'ka oblasts, *Center and North* consists of Vinnyts'ka, Zhytomyrs'ka, Kyivs'ka, Kirovohrads'ka, Poltavs'ka, Sums'ka, Cherkas'ka and Chernihivs'ka oblasts, *East* includes Dnipropetrovs'ka, Donetsk'ka, Zaporiz'ka, Luhans'ka and Kharkivs'ka oblasts, and *South* consists of Crimean AR and Sevastopol', Mykolayivs'ka, Odes'ka and Khersons'ka oblasts.

**By region (classification according to share of employment in agriculture and manufacturing)**

Year	Agricultural				Heavily industrialized				Residual			
	HR	SR	JCR	JDR	HR	SR	JCR	JDR	HR	SR	JCR	JDR
1998	8.323	15.259	0	6.936	11.047	15.375	0.711	5.039	10.627	14.737	1.053	5.163
1999	9.214	10.163	2.168	3.117	11.351	12.838	2.568	4.054	10.455	13.853	1.202	4.600
2000	11.354	14.090	2.873	5.609	13.032	15.364	2.126	4.458	13.149	13.258	4.383	4.491
2001	11.533	12.096	3.235	3.797	9.831	13.132	0	3.301	11.701	13.164	2.654	4.117
2002	10.750	14.286	1.414	4.950	16.776	16.921	4.866	5.011	15.118	15.008	5.168	5.058
2004	26.064	19.681	12.057	5.674	31.197	23.162	12.991	4.957	31.168	21.533	14.088	4.453

*Note:* *Agricultural* includes Vinnyts'ka, Zakarpats'ka, Rivnens'ka, Ternopil's'ka, Khmel'nyts'ka, Chernivets'ka, Chernihivs'ka oblasts, *Heavily industrialized* stands for Dnipropetrovs'ka, Donetsk'ka, Zaporiz'ka, Luhans'ka, Sums'ka and Kharkivs'ka oblasts. Ivano-Frankivs'ka, L'vivs'ka, Zhytomyrs'ka, Volyns'ka, Kyivs'ka, Kirovohrads'ka, Poltavs'ka, Cherkas'ka, Crimean AR, Mykolayivs'ka, Odes'ka, Khersons'ka oblasts and Kyiv City belong to the residual group with a relatively diversified economy.

**By age of individual**

Year	<25				25-34				35-44			
	HR	SR	JCR	JDR	HR	SR	JCR	JDR	HR	SR	JCR	JDR
1998	30.785	26.157	10.262	5.634	12.235	15.125	3.372	6.262	11.365	5.004	2.645	5.004
1999	40.553	19.124	26.728	5.300	12.049	12.976	3.090	4.016	10.401	4.681	2.452	4.681
2000	45.291	21.749	28.700	5.157	14.164	14.271	4.473	4.579	12.743	5.206	2.797	5.206
2001	39.655	22.845	20.259	3.448	11.013	12.445	2.753	4.185	11.604	3.787	1.934	3.787
2002	52.328	30.820	28.381	6.874	14.819	15.837	3.167	4.186	12.882	5.367	2.890	5.367
2004	80.226	39.831	45.763	5.367	32.466	24.809	12.098	4.441	22.546	16.181	11.003	4.639

Year	45-54				55+			
	HR	SR	JCR	JDR	HR	SR	JCR	JDR
1998	5.700	12.560	0	6.860	2.664	19.538	0	16.874
1999	4.735	10.227	0	5.492	3.475	21.429	0	17.954
2000	5.672	11.894	0	6.221	4.536	19.222	0	14.687
2001	5.541	11.439	0	5.898	3.695	15.012	0	11.316
2002	8.514	13.768	0.725	5.979	5.442	16.327	0	10.884
2004	18.390	18.063	5.441	5.114	18.508	24.862	0	6.354

**By employment status**

Year	Dependent employee				Member of cooperative/ collective enterprise				Employer, entrepreneur or self-employed				Self-employed/freelancer			
	HR	SR	JCR	JDR	HR	SR	JCR	JDR	HR	SR	JCR	JDR	HR	SR	JCR	JDR
1998	9.993	15.228	0.120	5.355	3.922	11.765	0	7.843	30.000	11.765	21.765	3.529	32.990	3.093	30.928	1.031
1999	10.951	13.399	1.741	4.189	2.128	11.348	0	9.220	14.925	8.955	9.950	3.980	16.667	6.349	12.698	2.381
2000	12.752	14.925	2.664	4.837	4.688	14.844	0	10.156	21.596	6.573	18.310	3.286	20.144	5.036	18.705	3.597
2001	11.555	13.670	1.798	3.913	1.739	16.522	0	14.783	15.510	6.939	10.204	1.633	16.250	6.250	10.000	0.000
2002	14.780	16.347	3.675	5.242	5.102	14.286	0	9.184	20.301	12.030	12.782	4.511	20.455	11.364	13.068	3.977
2004	27.054	21.623	10.132	4.701	8.974	23.077	0	14.103	60.081	25.000	39.516	4.435	71.598	25.444	50.888	4.734

**By occupation group**

Year	White-collar workers				Skilled blue-collar workers				Unskilled blue-collar workers			
	HR	SR	JCR	JDR	HR	SR	JCR	JDR	HR	SR	JCR	JDR
1998	8.779	12.808	0.541	4.570	10.235	15.876	0	5.642	15.102	18.571	2.857	6.327
1999	8.892	9.393	2.505	3.006	9.746	15.519	0	5.773	17.125	13.742	7.188	3.805
2000	9.566	10.950	2.140	3.524	14.109	16.301	3.204	5.396	17.178	15.133	7.157	5.112
2001	9.828	10.849	2.170	3.191	11.501	13.916	1.495	3.910	14.000	15.000	2.800	3.800
2002	12.242	11.856	3.608	3.222	16.853	17.207	5.539	5.893	18.384	19.394	6.061	7.071
2004	19.847	15.862	7.586	3.602	32.644	23.859	12.920	4.134	43.195	31.213	20.562	8.580

**By position in wage distribution**

Year	Bottom third				Medium third				Top third			
	HR	SR	JCR	JDR	HR	SR	JCR	JDR	HR	SR	JCR	JDR
1998	12.936	5.852	9.548	2.464	13.292	6.438	9.657	2.804	14.623	10.377	7.429	3.184
1999	12.488	16.873	1.430	5.815	12.859	12.067	4.847	4.055	14.465	11.959	6.264	3.759
2000	12.235	17.374	0.897	6.036	18.782	12.183	10.406	3.807	14.544	12.136	6.018	3.611
2001	12.861	15.005	1.678	3.821	12.629	12.442	3.461	3.274	14.271	9.234	8.290	3.253
2002	15.201	17.674	3.938	6.410	15.785	14.856	5.200	4.271	15.502	11.770	7.273	3.541

**By formal/ informal activity at the main job**

Year	Formal				Informal			
	HR	SR	JCR	JDR	HR	SR	JCR	JDR
2004	21.003	19.896	5.433	4.325	100	41.515	67.576	9.091

*Note:* Informal =1 if a person is an employee and is not officially registered at his job, or if he/she is an employer/ self-employed but this activity is not registered.

**Table A21: Probit estimates of probability of being in new job in 2003 (marginal effects)**

NEW HIRE = 1 if tenure<12 months	(1)		(2)		(3)	
Male	0.012	(0.013)	0.009	(0.013)	0.011	(0.013)
<i>Age &lt;25</i>						
25-34	-0.147**	(0.011)	-0.144**	(0.011)	-0.142**	(0.011)
35-44	-0.202**	(0.012)	-0.194**	(0.012)	-0.191**	(0.012)
45-54	-0.213**	(0.012)	-0.202**	(0.012)	-0.200**	(0.012)
55+	-0.172**	(0.008)	-0.165**	(0.008)	-0.164**	(0.009)
<i>Primary/ unfinished secondary education</i>						
General secondary	-0.021	(0.022)	-0.020	(0.022)	-0.023	(0.022)
Vocational	-0.006	(0.022)	0.002	(0.022)	0.001	(0.022)
Special secondary or unfinished higher	-0.047*	(0.020)	-0.044*	(0.020)	-0.041	(0.021)
Higher	-0.013	(0.022)	-0.014	(0.023)	-0.012	(0.023)
Kiev City	0.032	(0.026)	0.012	(0.024)	0.013	(0.024)
<i>Firm size 1-4</i>						
5-19	0.032	(0.022)	0.051*	(0.028)	0.063*	(0.029)
20-49	-0.031	(0.021)	-0.008	(0.026)	0.008	(0.028)
50-99	-0.038	(0.021)	-0.007	(0.028)	0.007	(0.030)
100-499	-0.049*	(0.019)	-0.011	(0.026)	0.007	(0.028)
500+	-0.067**	(0.019)	-0.019	(0.027)	-0.004	(0.028)
<i>Agriculture</i>						
Manufacturing	0.044	(0.026)	0.036	(0.026)	0.045	(0.027)
Construction	0.057	(0.040)	0.045	(0.039)	0.047	(0.039)
Trade & restaurants	0.078**	(0.030)	0.046	(0.029)	0.062*	(0.031)
Transport and communications	0.049	(0.034)	0.060	(0.036)	0.075*	(0.038)
Financial intermediation & business activities	0.108*	(0.063)	0.110*	(0.065)	0.127*	(0.068)
Public administration	0.012	(0.039)	0.043	(0.046)	0.053	(0.047)
Education & health care	0.015	(0.026)	0.038	(0.030)	0.049	(0.031)
Other activities	0.109**	(0.037)	0.118**	(0.038)	0.127**	(0.039)
<i>State</i>						
New private			0.121**	(0.027)	0.098**	(0.026)
Privatized			0.003	(0.019)	0.002	(0.019)
Self-employed			0.083*	(0.040)	0.034	(0.037)
Other			-0.003	(0.038)	-0.010	(0.037)
Informal (non-registered) activity					0.092**	(0.030)
Observed P	0.166		0.166		0.166	
Predicted P (at x-bar)	0.140		0.138		0.138	
Number of observations	3545		3497		3483	
Pseudo R2	0.1354		0.1455		0.1499	
Log likelihood	-1379.84		-1345.14		-1332.09	

Note: dF/dx is for discrete change of dummy variable from 0 to 1. Standard errors are in brackets.

\*\* Indicates 1% significance level. \*Indicates 5% significance level.

**Table A22: Probit Estimates of Worker Separation During 1998-2002 (marginal effects)**

SEP =1 if separated, =0 if stayed at the same job	(1)		(2)	
<i>Tenure &lt;1</i>				
(1;2]	0.043**	(0.012)	0.030**	(0.009)
(2;5]	0.030**	(0.010)	0.030**	(0.008)
(5;10]	0.003	(0.010)	0.019**	(0.008)
(10;20]	-0.013	(0.009)	0.006	(0.008)
20+	0.008	(0.010)	0.008	(0.009)
<i>Age &lt;25</i>				
25-34			-0.028**	(0.004)
35-44			-0.031**	(0.005)
45-54			-0.048**	(0.004)
55+			-0.045**	(0.003)
Male			0.023**	(0.004)
<i>White-collar</i>				
Skilled workers			0.006	(0.005)
Unskilled workers			0.011	(0.007)
Kiev City			0.060**	(0.019)
<i>Firm size 1-4</i>				
5-19			0.028**	(0.012)
20-49			0.028**	(0.013)
50-99			0.008	(0.011)
100-499			0.012	(0.011)
500+			0.006	(0.010)
<i>State</i>				
New private			-0.004	(0.006)
Privatized			-0.018**	(0.004)
Self-employed			-0.038**	(0.005)
<i>Year 1998</i>				
1999	-0.024**	(0.007)	-0.012*	(0.005)
2000	-0.009	(0.007)	-0.004	(0.005)
2001	-0.021**	(0.007)	-0.009	(0.005)
2002	0.003	(0.008)	0.003	(0.005)
Observed P	0.142		0.062	
Predicted P (at x-bar)	0.137		0.048	
Number of observations	19514		14482	
Pseudo R2	0.0215		0.0912	
Log likelihood	-7798.07		-3066.98	

*Note:* Data are pooled over 1998-2002. dF/dx is for discrete change of dummy variable from 0 to 1. Robust standard errors adjusted for clustering on individual identifier are in brackets. All regressions include industry and regional dummies.

\*\* Indicates 1% significance level. \*Indicates 5% significance level

**Table A23: Annual Rates of Job Flows in Manufacturing and Mining**

**Total by years**

Year	JCR	JDR	Gross	Net	Excess	Percentage Excess between*	n
1998	2.536	8.960	11.496	-6.424	5.073	0	681
1999	3.470	6.057	9.527	-2.586	6.940	22.495	1683
2000	3.860	6.475	10.335	-2.614	7.721	10.569	1387
2001	3.419	7.612	11.031	-4.194	6.837	2.657	1892
2002	6.867	10.937	17.805	-4.070	13.735	28.426	1364
2003	3.690	6.512	10.202	-2.821	7.380	6.072	2053

Source: Ukrainian Labor Flexibility Survey, author's calculations

\* Share of excess job reallocation resulting from employment shifts between industrial sectors  
(16 sectors)

**By firm size**

Year	1-19					20-49					50-99				
	JCR	JDR	Gross	Net	Excess	JCR	JDR	Gross	Net	Excess	JCR	JDR	Gross	Net	Excess
1998	1.379	2.759	4.138	-1.379	2.759	4.688	9.495	14.183	-4.808	9.375	3.988	9.847	13.835	-5.860	7.976
1999	14.190	14.765	28.955	-0.575	28.380	20.041	13.057	33.099	6.984	26.115	6.001	8.115	14.116	-2.114	12.002
2000	5.949	7.649	13.598	-1.700	11.898	3.683	20.954	24.636	-17.271	7.365	5.174	16.229	21.403	-11.054	10.349
2001	22.194	17.704	39.897	4.490	35.407	13.282	15.840	29.123	-2.558	26.565	7.298	16.704	24.002	-9.407	14.595
2002	6.972	17.615	24.587	-10.642	13.945	15.217	9.434	24.650	5.783	18.867	8.828	15.259	24.087	-6.431	17.655
2003	13.217	8.424	21.641	4.793	16.848	7.317	12.515	19.832	-5.198	14.635	8.725	16.146	24.871	-7.421	17.450
Year	100-499					500+									
	JCR	JDR	Gross	Net	Excess	JCR	JDR	Gross	Net	Excess					
1998	4.333	7.624	11.957	-3.291	8.666	2.241	9.158	11.399	-6.917	4.481					
1999	5.801	7.814	13.615	-2.012	11.602	2.856	5.612	8.468	-2.757	5.712					
2000	5.558	10.486	16.044	-4.929	11.115	3.486	5.424	8.910	-1.937	6.973					
2001	5.990	12.066	18.056	-6.076	11.980	2.614	6.246	8.860	-3.632	5.229					
2002	7.251	11.598	18.849	-4.347	14.502	6.679	10.679	17.358	-3.999	13.358					
2003	5.854	9.826	15.680	-3.973	11.707	2.797	5.078	7.875	-2.280	5.594					



### By ownership form

Year	State or municipal					Joint-stock companies				
	JCR	JDR	Gross	Net	Excess	JCR	JDR	Gross	Net	Excess
1998	2.703	6.048	8.751	-3.346	5.406	2.383	9.589	11.973	-7.206	4.767
1999	2.433	4.306	6.739	-1.873	4.866	2.823	6.420	9.243	-3.598	5.646
2000	3.092	6.295	9.387	-3.202	6.184	3.658	6.353	10.011	-2.695	7.316
2001	1.959	7.209	9.168	-5.249	3.919	2.815	7.458	10.274	-4.643	5.631
2002	3.186	11.080	14.266	-7.893	6.373	5.864	11.129	16.993	-5.265	11.729
2003	1.601	5.335	6.937	-3.734	3.203	3.596	6.493	10.090	-2.897	7.193
Year	Partnership LTD or private					Other				
	JCR	JDR	Gross	Net	Excess	JCR	JDR	Gross	Net	Excess
1998	5.943	4.664	10.607	1.279	9.329	3.530	10.215	13.745	-6.685	7.059
1999	19.956	6.155	26.111	13.800	12.310	4.738	6.590	11.328	-1.853	9.476
2000	13.504	8.811	22.315	4.693	17.622	4.686	7.658	12.343	-2.972	9.371
2001	14.045	10.386	24.430	3.659	20.771	5.624	8.595	14.219	-2.970	11.249
2002	29.533	9.502	39.035	20.031	19.004	7.932	9.399	17.331	-1.467	15.863
2003	9.567	7.793	17.360	1.774	15.587	2.448	8.236	10.684	-5.788	4.896

### By region (classification according to geographic location)

Year	West					Kiev City					Center and North				
	JCR	JDR	Gross	Net	Excess	JCR	JDR	Gross	Net	Excess	JCR	JDR	Gross	Net	Excess
1998	2.004	14.184	16.188	-12.180	4.008	1.448	11.936	13.384	-10.489	2.896	3.692	6.171	9.863	-2.478	7.385
1999	3.419	7.524	10.943	-4.105	6.838	2.854	7.855	10.708	-5.001	5.707	3.666	6.876	10.541	-3.210	7.331
2000	4.674	10.670	15.344	-5.995	9.349	4.292	6.847	11.139	-2.555	8.583	3.492	6.346	9.838	-2.854	6.984
2001	3.372	15.137	18.509	-11.765	6.744	4.700	6.691	11.392	-1.991	9.401	3.996	6.490	10.486	-2.494	7.992
2002	4.009	8.353	12.362	-4.344	8.018	4.135	7.955	12.090	-3.820	8.270	3.113	7.044	10.156	-3.931	6.225
2003	4.174	9.490	13.663	-5.316	8.347	5.156	7.607	12.763	-2.452	10.311	4.594	5.993	10.588	-1.399	9.189
Year	East					South									
	JCR	JDR	Gross	Net	Excess	JCR	JDR	Gross	Net	Excess					
1998	0.823	7.129	7.953	-6.306	1.647	7.185	9.832	17.017	-2.647	14.370					
1999	3.533	4.360	7.893	-0.827	7.066	2.958	7.829	10.786	-4.871	5.916					
2000	3.051	4.184	7.235	-1.134	6.102	7.157	9.084	16.241	-1.927	14.313					
2001	2.525	4.876	7.401	-2.352	5.049	5.564	7.881	13.445	-2.317	11.128					
2002	10.994	14.405	25.399	-3.412	21.987	4.016	11.356	15.372	-7.340	8.032					
2003	2.581	5.038	7.620	-2.457	5.162	4.829	8.556	13.385	-3.726	9.659					

*Note: West* stands for Chernivets'ka, Ivano-Frankivs'ka, Khmel'nyts'ka, L'vivs'ka, Rivnens'ka, Ternopil's'ka, Volyns'ka, Zakarpats'ka oblasts, *Center and North* consists of Vinnyts'ka, Zhytomyrs'ka, Kyivs'ka, Kirovohrads'ka, Poltavs'ka, Sums'ka, Cherkas'ka and Chernihivs'ka oblasts, *East* includes Dnipropetrovs'ka, Donets'ka, Zaporiz'ka, Luhans'ka and Kharkivs'ka oblasts, and *South* consists of Crimean AR and Sevastopol', Mykolayivs'ka, Odes'ka and Khersons'ka oblasts.

**By region (classification according to share of employment in agriculture and manufacturing))**

Year	Agricultural					Heavily industrialized					Residual				
	JCR	JDR	Gross	Net	Excess	JCR	JDR	Gross	Net	Excess	JCR	JDR	Gross	Net	Excess
1998	2.965	5.629	8.594	-2.664	5.931	0.936	7.501	8.437	-6.566	1.871	3.980	11.879	15.859	-7.900	7.960
1999	5.051	7.538	12.590	-2.487	10.103	3.454	4.393	7.847	-0.940	6.908	2.830	7.592	10.422	-4.762	5.660
2000	5.430	10.059	15.489	-4.630	10.859	2.849	4.455	7.304	-1.606	5.698	4.621	7.808	12.429	-3.188	9.241
2001	5.388	12.258	17.646	-6.869	10.777	2.651	4.784	7.434	-2.133	5.301	3.668	9.494	13.162	-5.827	7.335
2002	3.272	8.582	11.854	-5.311	6.543	9.759	13.905	23.665	-4.146	19.519	4.228	7.760	11.988	-3.532	8.456
2003	4.347	7.776	12.123	-3.429	8.694	2.745	5.016	7.761	-2.271	5.490	4.662	7.959	12.620	-3.297	9.323

*Note:* Agricultural includes Vinnyts'ka, Zakarpats'ka, Rivnens'ka, Ternopil's'ka, Khmel'nyts'ka, Chernivets'ka, Chernihivs'ka oblasts, Heavily industrialized stands for Dnipropetrovs'ka, Donetsk, Zaporiz'ka, Luhans'ka, Sums'ka and Kharkivs'ka oblasts. Ivano-Frankivs'ka, L'vivs'ka, Zhytomyrs'ka, Volyns'ka Kyivs'ka, Kirovohrads'ka, Poltavs'ka, Cherkas'ka, Crimean AR, Mykolayivs'ka, Odes'ka, Khersons'ka oblasts and Kyiv City belong to the residual group with relatively diversified economy.

**By position in the distribution of labor productivity**

Year	Bottom third					Medium third					Top third				
	JCR	JDR	Gross	Net	Excess	JCR	JDR	Gross	Net	Excess	JCR	JDR	Gross	Net	Excess
1998	1.608	14.929	16.537	-13.321	3.216	3.678	8.148	11.827	-4.470	7.356	2.019	4.727	6.746	-2.708	4.038
1999	2.690	9.423	12.113	-6.732	5.381	2.453	5.600	8.053	-3.147	4.906	4.474	2.477	6.951	1.997	4.954
2000	3.369	14.315	17.684	-10.946	6.738	4.406	3.915	8.321	0.491	7.830	3.734	3.200	6.934	0.534	6.400
2001	3.060	17.667	20.727	-14.607	6.120	2.822	6.040	8.862	-3.218	5.644	2.988	4.627	7.615	-1.639	5.976
2002	13.391	16.878	30.268	-3.487	26.781	3.604	8.157	11.761	-4.552	7.209	7.399	10.924	18.323	-3.525	14.798
2003	3.652	17.015	20.666	-13.363	7.303	3.446	7.615	11.061	-4.169	6.892	3.777	4.048	7.825	-0.271	7.554

*Note:* For definition of labor productivity see text.

**By position in the distribution of “total factor productivity”**

Year	Bottom					Medium					Top				
	JCR	JDR	Gross	Net	Excess	JCR	JDR	Gross	Net	Excess	JCR	JDR	Gross	Net	Excess
1999	0.953	12.092	13.045	-11.139	1.906	2.630	3.727	6.357	-1.097	5.260	4.261	2.631	6.892	1.630	5.263
2000	1.833	15.809	17.642	-13.976	3.666	3.752	3.950	7.702	-0.198	7.503	5.107	2.326	7.433	2.781	4.652
2002	2.212	30.397	32.610	-28.185	4.425	2.344	5.532	7.876	-3.187	4.689	13.741	2.652	16.393	11.089	5.304

*Note:* For definition of “total factor productivity” see text.

**Table A24: Estimates of Firm-level Net Employment Growth Rate in Manufacturing and Mining in 2003**

grem	(1)		(2)		(3)		(4)	
ln(size)	0.009	(0.005)	0.007	(0.005)	-0.006	(0.006)	-0.002	(0.006)
ln(labor productivity)	-		-		0.055*	(0.008)	0.054*	(0.008)
Ownership form								
Liability company	0.099*	(0.024)	0.097*	(0.024)	0.050*	(0.023)	0.017	(0.025)
Joint-stock company	-0.009	(0.016)	-0.008	(0.016)	-0.020	(0.015)	-0.026	(0.015)
Private enterprise	0.095*	(0.044)	0.094*	(0.044)	0.052	(0.045)	0.016	(0.046)
Other types of ownership	-0.003	(0.024)	0.000	(0.024)	-0.004	(0.024)	-0.022	(0.024)
Industrial sector								
Fuel industry	-0.092*	(0.024)	-0.095*	(0.024)	-0.068*	(0.022)	-0.066*	(0.023)
Ferrous metallurgy	0.000	(0.024)	-0.009	(0.024)	-0.005	(0.027)	0.014	(0.028)
Machine building and metals industry	-0.080*	(0.019)	-0.080*	(0.019)	-0.028	(0.022)	-0.015	(0.023)
Non-ferrous metallurgy	-0.077	(0.043)	-0.085*	(0.043)	-0.073	(0.038)	-0.072	(0.039)
Chemical and petrochemical industry	-0.069*	(0.033)	-0.072*	(0.033)	-0.069*	(0.031)	-0.055	(0.031)
Wood and paper industry	-0.130*	(0.030)	-0.123*	(0.030)	-0.086*	(0.031)	-0.066*	(0.032)
Construction materials industry	-0.010	(0.024)	-0.006	(0.024)	0.014	(0.026)	0.030	(0.026)
Glass and pottery, china industry	-0.110	(0.066)	-0.107	(0.066)	-0.066	(0.064)	-0.044	(0.064)
Light industry	-0.145*	(0.026)	-0.141	(0.026)	-0.069*	(0.028)	-0.047	(0.028)
Food processing industry	-0.063*	(0.019)	-0.059*	(0.019)	-0.063*	(0.021)	-0.044*	(0.022)
Microbiological industry	-0.141*	(0.027)	-0.147*	(0.026)	-0.157*	(0.031)	-0.133*	(0.025)
Bakery, serial and feedstuff industry	-0.081*	(0.036)	-0.081*	(0.036)	-0.046	(0.036)	-0.037	(0.037)
Medical industry	-0.020	(0.025)	-0.024	(0.026)	-0.042	(0.032)	-0.027	(0.032)
Printing industry	-0.084*	(0.031)	-0.084*	(0.032)	-0.075	(0.033)	-0.051	(0.034)
Other branches of industry	-0.027	(0.037)	-0.027	(0.037)	-0.016	(0.040)	-0.005	(0.040)
Type of region								
Heavily industrialized region	-		0.039*	(0.017)	0.028	(0.017)	0.029	(0.017)
With diversified economy	-		0.018	(0.015)	0.003	(0.015)	0.002	(0.015)
Enterprise age (years)								
11-20	-		-		-		-0.025	(0.027)
21-50	-		-		-		-0.027	(0.019)
51-100	-		-		-		-0.068*	(0.021)
101+	-		-		-		-0.083*	(0.026)
Constant	-0.028	(0.038)	-0.038	(0.039)	-0.129*	(0.039)	-0.113*	(0.041)
Number of observations	2052		2052		2009		2005	
R-squared	0.038		0.040		0.081		0.089	

*Note:* Dependent variable is  $grem = 2(empl2003 - empl2002) / (empl2003 + empl2002)$ . Robust standard errors are in brackets. Labor productivity is defined as value of sales in thds. UHA in 2002 divided by the total number of workers in the end of 2002. Omitted age category: 10 years or under. Omitted ownership category: state or municipal firms. Omitted industry category: energy industry. Omitted regional type: agricultural region.

\*Indicates 5% significance level.

**Table A25: Summary Statistics of Earnings at the Primary Job in the Reference Week in 2003 and 2004**

2003	Obs	Mean	Std.Dev.	Coefficient of variation	Median	Min	Max
Total	2538	295.83	196.93	0.666	240	17	2500
State	1428	278.19	177.08	0.637	215	20	1700
New private	378	345.26	266.62	0.772	275	50	2500
Privatized	607	318.34	190.60	0.599	270	17	2000
Firm size 1-4	126	199.97	119.47	0.597	185	20	1000
Firm size 5-19	358	256.61	182.37	0.711	200	48	2000
Firm size 20-49	342	253.81	162.81	0.641	200	32	1500
Firm size 50-99	334	274.46	179.11	0.653	219	17	1525
Firm size 100-499	550	297.81	172.33	0.579	250	30	1000
Firm size 500+	601	380.11	227.68	0.599	340	60	2000
No union	657	298.74	219.17	0.734	220	17	2500
Union	1797	296.60	183.13	0.617	245	20	2000
Formal	2412	297.91	198.33	0.666	240	17	2500
Informal	126	256.08	163.38	0.638	200	50	1000
2004	Obs	Mean	Std. Dev.	Coefficient of variation	Median	Min	Max
Total	2674	398.39	253.29	0.636	320	20	3000
State	1523	380.66	233.10	0.612	300	40	2000
New private	483	419.85	274.18	0.653	350	70	2200
Privatized	414	430.09	273.32	0.635	350	80	3000
Firm size 1-4	167	285.55	145.60	0.510	250	90	1000
Firm size 5-19	405	353.60	231.48	0.655	300	40	1600
Firm size 20-49	390	341.71	203.70	0.596	300	20	1500
Firm size 50-99	316	380.70	242.64	0.637	300	80	2000
Firm size 100-499	556	401.78	248.78	0.619	329	60	3000
Firm size 500+	601	501.98	273.19	0.544	450	70	2000
No union	813	389.10	267.65	0.688	300	20	2200
Union	1787	403.99	240.86	0.596	331	60	2000
Formal	2437	399.27	250.97	0.629	320	20	3000
Informal	232	388.75	275.79	0.709	300	70	2200

Source: ULMS 2003-2004 (balanced panel), full-time civil employees, questions E72 in ULMS-2003 and E68 in ULMS-2004: “How much is the monthly salary you were supposed to be paid (including ‘pay in envelope’) at this job last month, after taxes and excluding bonuses? If you receive all or part of your pay in foreign currency, please convert that to hryvnias and report the total amount”

**Table A26: OLS Estimates of Mincerian Earnings Functions for Full-time Civilian Dependant Workers, 2003**

Dependent var.: ln (wage2003)	(1')	(1)	(2)	(3)	(4)	(5)
Adjusted years of schooling	0.047** (0.005)	0.059** (0.005)	0.057** (0.005)	0.057** (0.005)	0.040** (0.005)	0.040** (0.005)
Potential experience (years)	0.012** (0.003)	0.012** (0.003)	0.010** (0.003)	0.010** (0.003)	0.012** (0.003)	0.012** (0.003)
Potential experience <sup>2</sup> /1000	-0.291** (0.061)	-0.289** (0.057)	-0.256** (0.059)	-0.256** (0.060)	-0.270** (0.059)	-0.272** (0.059)
Female	-0.368** (0.022)	-0.268** (0.021)	-0.255** (0.021)	-0.255** (0.021)	-0.259** (0.021)	-0.260** (0.021)
Capital (Kyiv)	0.285** (0.040)	0.241** (0.039)	0.189** (0.039)	0.190** (0.039)	0.189** (0.038)	0.180** (0.040)
Tenure (years)			0.008* (0.003)	0.008* (0.003)	0.006 (0.003)	0.005 (0.003)
Tenure <sup>2</sup> /1000			-0.131 (0.081)	-0.132 (0.081)	-0.105 (0.080)	-0.093 (0.080)
Ownership						
New private			0.264** (0.039)	0.261** (0.041)	0.243** (0.040)	0.238** (0.040)
Privatized			-0.009 (0.027)	-0.009 (0.027)	-0.012 (0.027)	-0.011 (0.027)
Firm size (number of employees)						
5-19			0.181** (0.056)	0.184** (0.056)	0.193** (0.055)	0.193** (0.055)
20-49			0.223** (0.057)	0.227** (0.056)	0.237** (0.056)	0.235** (0.056)
50-99			0.263** (0.058)	0.266** (0.057)	0.268** (0.056)	0.268** (0.057)
100-499			0.298** (0.056)	0.302** (0.056)	0.300** (0.055)	0.301** (0.055)
500+			0.444** (0.058)	0.447** (0.058)	0.453** (0.057)	0.450** (0.057)
Informal				0.021 (0.062)	0.049 (0.060)	0.046 (0.060)
Trade union				0.002 (0.028)	-0.011 (0.028)	-0.011 (0.028)
Occupation group						
Skilled blue-collar					-0.097** (0.026)	-0.096** (0.026)
Unskilled blue-collar					-0.242** (0.030)	-0.239** (0.030)
Region group						
Heavily industrialized region						0.059* (0.026)
Region with relatively diversified economy						0.060* (0.027)
Sector dummies	No	Yes	Yes	Yes	Yes	Yes
Constant	5.100** (0.064)	4.534** (0.070)	4.218** (0.088)	4.211** (0.088)	4.529** (0.096)	4.488** (0.097)
Number of observations	2428	2428	2428	2428	2428	2428
R-squared	0.15	0.2924	0.3314	0.3314	0.3478	0.3492

*Note:* Sample consists of full-time civilian dependant employees with reported answers on all variables used in the empirical analysis for 2003. Dependent variable is log of net monthly earnings at the primary jobs for employees in the reference month (March-June) 2003. Robust standard errors are in parentheses. Omitted ownership category: state or municipal firms. Omitted size category: 1-4 employees. Omitted occupation category: white-collar. Omitted region group: agricultural region. See Sabirianova and Gorodnichenko (2005) for definitions of adjusted years of schooling and demographic variables.

\*Indicates 5% significance level. \*\*Indicates 1% significance level.

**Table A27: OLS Estimates of Mincerian Earnings Functions for Full-time Civilian Dependant Workers, 2004**

Dependent var.: ln (wage2004)	(1')	(1)	(2)	(3)	(4)	(5)
Adjusted years of schooling	0.070** (0.005)	0.081** (0.005)	0.077** (0.005)	0.077** (0.005)	0.059** (0.006)	0.058** (0.006)
Potential experience (years)	0.009** (0.003)	0.010** (0.003)	0.006* (0.003)	0.007* (0.003)	0.007* (0.003)	0.007* (0.003)
Potential experience <sup>2</sup> /1000	-0.263** (0.064)	-0.259** (0.059)	-0.212** (0.063)	-0.215** (0.063)	-0.213** (0.062)	-0.207** (0.062)
Female	-0.380** (0.023)	-0.284** (0.023)	-0.284** (0.022)	-0.286** (0.022)	-0.288** (0.022)	-0.287** (0.022)
Capital (Kyiv)	0.260** (0.047)	0.224** (0.046)	0.186** (0.046)	0.188** (0.046)	0.182** (0.046)	0.147** (0.048)
Tenure (years)			0.011** (0.003)	0.010** (0.003)	0.009** (0.003)	0.009** (0.003)
Tenure <sup>2</sup> /1000			-0.188* (0.085)	-0.180* (0.086)	-0.181* (0.084)	-0.170* (0.084)
Ownership						
New private			0.176** (0.037)	0.183** (0.039)	0.176** (0.039)	0.169** (0.039)
Privatized			0.007 (0.029)	0.013 (0.030)	0.012 (0.029)	0.008 (0.029)
Firm size (number of employees)						
5-19			0.124** (0.048)	0.132** (0.049)	0.138** (0.048)	0.137** (0.049)
20-49			0.168** (0.052)	0.179** (0.053)	0.180** (0.053)	0.179** (0.053)
50-99			0.232** (0.053)	0.242** (0.054)	0.242** (0.053)	0.243** (0.054)
100-499			0.286** (0.050)	0.293** (0.051)	0.301** (0.050)	0.301** (0.051)
500+			0.422** (0.052)	0.426** (0.053)	0.428** (0.053)	0.433** (0.053)
Informal				0.065 (0.049)	0.081 (0.048)	0.088 (0.048)
Trade union				0.041 (0.031)	0.029 (0.031)	0.036 (0.031)
Occupation group						
Skilled blue-collar					-0.083** (0.028)	-0.083** (0.028)
Unskilled blue-collar					-0.220** (0.032)	-0.216** (0.032)
Region group						
Heavily industrialized region						0.021 (0.027)
Region with relatively diversified economy						0.077** (0.028)
Sector dummies	No	Yes	Yes	Yes	Yes	Yes
Constant	5.158** (0.071)	4.643** (0.133)	4.514** (0.107)	4.460** (0.112)	4.696** (0.120)	4.680** (0.122)
Number of observations	1954	1954	1954	1954	1954	1954
R-squared	0.1897	0.3076	0.3538	0.355	0.3694	0.3711

*Note:* Sample consists of full-time civilian dependant employees with reported answers on all variables used in the empirical analysis for 2004. Dependent variable is log of net monthly earnings at the primary jobs for employees in the reference month (May-August) 2004. Robust standard errors are in parentheses. Omitted ownership category: state or municipal firms. Omitted size category: 1-4 employees. Omitted occupation category: white-collar. Omitted region group: agricultural region. See Sabirianova and Gorodnichenko (2005) for definitions of adjusted years of schooling and demographic variables.

\*Indicates 5% significance level. \*\*Indicates 1% significance level.

**Table A28: Quantile Regression Estimates of Mincerian Earnings Functions for Full-time Civilian Dependant Workers, 2003**

Dependent var.: ln (wage2003)	OLS		θ=0.10		θ=0.25		θ=0.50		θ=0.75		θ=0.90	
Adjusted years of schooling	0.040**	(0.005)	0.029**	(0.007)	0.041**	(0.006)	0.042**	(0.006)	0.049**	(0.006)	0.047**	(0.007)
Potential experience (years)	0.012**	(0.003)	0.006	(0.004)	0.004	(0.003)	0.010**	(0.003)	0.017**	(0.003)	0.014**	(0.004)
Potential experience <sup>2</sup> /1000	-0.272**	(0.059)	-0.147	(0.077)	-0.124	(0.071)	-0.234**	(0.067)	-0.375**	(0.068)	-0.298**	(0.092)
Female	-0.260**	(0.020)	-0.131**	(0.029)	-0.199**	(0.025)	-0.268**	(0.023)	-0.304**	(0.023)	-0.317**	(0.029)
Capital (Kyiv)	0.180**	(0.036)	0.037	(0.049)	0.123**	(0.045)	0.161**	(0.041)	0.155**	(0.042)	0.273**	(0.052)
Tenure (years)	0.005	(0.003)	0.009*	(0.004)	0.008*	(0.004)	0.004	(0.003)	0.002	(0.004)	0.004	(0.004)
Tenure <sup>2</sup> /1000	-0.093	(0.079)	-0.249*	(0.101)	-0.156	(0.093)	-0.059	(0.089)	0.029	(0.096)	-0.033	(0.118)
Ownership												
New private	0.238**	(0.037)	0.053	(0.051)	0.166**	(0.046)	0.266**	(0.042)	0.308**	(0.041)	0.355**	(0.050)
Privatized	-0.011	(0.025)	0.008	(0.035)	0.008	(0.032)	-0.002	(0.029)	0.008	(0.030)	-0.041	(0.039)
Firm size												
(number of employees)												
5-19	0.193**	(0.048)	0.386**	(0.064)	0.099	(0.059)	0.122*	(0.054)	0.191**	(0.055)	0.247**	(0.065)
20-49	0.235**	(0.051)	0.490**	(0.066)	0.139*	(0.062)	0.166**	(0.057)	0.244**	(0.058)	0.235**	(0.069)
50-99	0.268**	(0.051)	0.496**	(0.066)	0.153*	(0.063)	0.201**	(0.058)	0.287**	(0.059)	0.362**	(0.070)
100-499	0.301**	(0.050)	0.504**	(0.065)	0.166**	(0.062)	0.233**	(0.056)	0.358**	(0.058)	0.405**	(0.067)
500+	0.450**	(0.053)	0.593**	(0.070)	0.293**	(0.065)	0.391**	(0.059)	0.477**	(0.060)	0.524**	(0.071)
Informal	0.046	(0.049)	-0.046	(0.067)	0.019	(0.060)	0.013	(0.055)	0.029	(0.056)	0.236**	(0.063)
Trade union	-0.011	(0.027)	0.025	(0.038)	0.065	(0.033)	-0.009	(0.030)	-0.095**	(0.030)	-0.023	(0.036)
Occupation group												
Skilled blue-collar	-0.096**	(0.027)	-0.064	(0.039)	-0.067*	(0.033)	-0.081**	(0.030)	-0.099**	(0.030)	-0.088*	(0.035)
Unskilled blue-collar	-0.239**	(0.031)	-0.120**	(0.045)	-0.165**	(0.038)	-0.217**	(0.035)	-0.215**	(0.035)	-0.302**	(0.041)
Regional group												
Heavily industrialized region	0.059*	(0.028)	0.018	(0.039)	0.029	(0.035)	0.038	(0.032)	0.058	(0.032)	0.058	(0.039)
Region with relatively diversified economy	0.060*	(0.028)	0.041	(0.038)	0.024	(0.035)	0.057	(0.032)	0.076*	(0.032)	0.088*	(0.040)
Constant	4.488**	(0.096)	3.776**	(0.134)	4.310**	(0.115)	4.542**	(0.107)	4.709**	(0.109)	4.949**	(0.126)
Number of observations	2426		2426		2426		2426		2426		2426	
Pseudo R-squared	0.3492		0.1283		0.1426		0.2253		0.2582		0.2509	

*Note:* Sample consists of full-time civilian dependant employees with reported answers on all variables used in the empirical analysis for 2003. Dependent variable is log of net monthly earnings at the primary jobs for employees in the reference month (March-June, 2003). Robust standard errors are in parentheses. Omitted ownership category: state or municipal firms. Omitted size category: 1-4 employees. Omitted occupation category: white-collar. Omitted regional group: agricultural region. See Sabirianova and Gorodnichenko (2005) for definitions of adjusted years of schooling and demographic variables. All specifications include sector dummies.

\*Indicates 5% significance level. \*\*Indicates 1% significance level.

**Table A29: Quantile Regression Estimates of Mincerian Earnings Functions for Full-time Civilian Dependant Workers, 2004**

Dependent var.: ln (wage2004)	OLS		$\theta=0.10$		$\theta=0.25$		$\theta=0.50$		$\theta=0.75$		$\theta=0.90$	
Adjusted years of schooling	0.058**	(0.006)	0.055**	(0.010)	0.056**	(0.007)	0.059**	(0.007)	0.056**	(0.009)	0.073**	(0.010)
Potential experience (years)	0.007*	(0.003)	0.007	(0.005)	0.005	(0.003)	0.008*	(0.003)	0.007	(0.005)	0.011*	(0.005)
Potential experience <sup>2</sup> /1000	-0.207**	(0.063)	-0.205*	(0.095)	-0.174*	(0.070)	-0.221**	(0.074)	-0.224*	(0.098)	-0.264**	(0.101)
Female	-0.287**	(0.022)	-0.178**	(0.038)	-0.254**	(0.024)	-0.256**	(0.026)	-0.321**	(0.034)	-0.392**	(0.036)
Capital (Kyiv)	0.147**	(0.049)	0.095	(0.077)	0.171**	(0.052)	0.181**	(0.057)	0.126	(0.077)	0.146	(0.077)
Tenure (years)	0.009**	(0.003)	0.003	(0.005)	0.008*	(0.003)	0.011**	(0.004)	0.005	(0.005)	0.008	(0.005)
Tenure <sup>2</sup> /1000	-0.170	(0.087)	0.034	(0.119)	-0.161	(0.089)	-0.275**	(0.100)	-0.099	(0.134)	-0.191	(0.134)
Ownership												
New private	0.169**	(0.038)	0.101	(0.062)	0.170**	(0.041)	0.232**	(0.044)	0.141*	(0.058)	0.205**	(0.057)
Privatized	0.008	(0.030)	0.067	(0.047)	0.086**	(0.032)	0.019	(0.035)	-0.083	(0.047)	-0.054	(0.049)
Firm size												
(number of employees)												
5-19	0.137**	(0.046)	0.113	(0.072)	0.105*	(0.049)	0.157**	(0.054)	0.112	(0.073)	0.192*	(0.080)
20-49	0.179**	(0.049)	0.200**	(0.077)	0.171**	(0.051)	0.228**	(0.057)	0.171*	(0.079)	0.252**	(0.091)
50-99	0.243**	(0.051)	0.268**	(0.079)	0.204**	(0.053)	0.230**	(0.059)	0.237**	(0.083)	0.311**	(0.094)
100-499	0.301**	(0.048)	0.332**	(0.076)	0.267**	(0.050)	0.306**	(0.057)	0.292**	(0.079)	0.367**	(0.091)
500+	0.433**	(0.050)	0.384**	(0.081)	0.370**	(0.052)	0.446**	(0.058)	0.474**	(0.080)	0.604**	(0.090)
Informal	0.088*	(0.043)	0.038	(0.067)	0.109*	(0.046)	0.131**	(0.050)	0.066	(0.068)	0.153*	(0.073)
Trade union	0.036	(0.031)	0.055	(0.049)	0.104**	(0.032)	0.072*	(0.036)	-0.018	(0.048)	-0.064	(0.047)
Occupation group												
Skilled blue-collar	-0.083**	(0.028)	-0.058	(0.049)	-0.042	(0.031)	-0.062	(0.033)	-0.100*	(0.044)	-0.071	(0.043)
Unskilled blue-collar	-0.216**	(0.033)	-0.185**	(0.055)	-0.155**	(0.037)	-0.179**	(0.039)	-0.275**	(0.051)	-0.271**	(0.054)
Region group												
Heavily industrialized region	0.021	(0.029)	-0.036	(0.045)	0.004	(0.032)	-0.012	(0.034)	0.029	(0.046)	0.098*	(0.048)
Region with relatively diversified economy	0.077*	(0.029)	-0.011	(0.046)	0.024	(0.032)	0.053	(0.035)	0.091*	(0.046)	0.127**	(0.049)
Constant	4.680**	(0.267)	4.698**	(0.203)	4.626**	(0.170)	4.549**	(0.267)	4.975**	(0.249)	4.618**	(0.213)
Number of observations	1950		1950		1950		1950		1950		1950	
Pseudo R-squared	0.3711		0.1578		0.1984		0.2459		0.2394		0.2443	

*Note:* Sample consists of full-time civilian dependant employees with reported answers on all variables used in the empirical analysis for 2004. Dependent variable is log of net monthly earnings at the primary jobs for employees in the reference month (May-August, 2004). Robust standard errors are in parentheses. Omitted ownership category: state or municipal firms. Omitted size category: 1-4 employees. Omitted occupation category: white-collar. Omitted regional group: agricultural region. See Sabirianova and Gorodnichenko (2005) for definitions of adjusted years of schooling and demographic variables. All specifications include sector dummies.

\*Indicates 5% significance level. \*\*Indicates 1% significance level.



**Table A30: Expenditures of the State Employment Fund (State Unemployment Insurance Fund from 2001) as a percentage of GDP, 1995-2003**

	1995	1996	1997	1998	1999	2000	2001	2002	2003
Total expenditures	0.19	0.14	0.21	0.32	0.41	0.36	0.47	0.67	0.69
<i>including expenditures on:</i>									
Unemployment benefits	0.02	0.05	0.14	0.20	0.26	0.24	0.27	0.35	0.36
ALMP	0.06	0.03	0.02	0.03	0.04	0.04	0.04	0.07	0.08
Operational costs of the Public Employment Service	0.06	0.04	0.05	0.05	0.05	0.05	0.06	0.08	0.07

Source: "Rynok praci v Ukraini u 2003 rotsi", Table XI.4.

**Table A31: Structure of Expenditures of the State Unemployment Insurance Fund on Labor Market Programmes in Ukraine in 2003**

	thds. UHA	%
Total Expenditures	1817077.0	100
<i>including expenditures on:</i>		
Employment subsidies	92825.9	5.11
Job creation programmes for the displaced workers from the coal mining sector	98220.1	5.41
Labor market training	94620.3	5.21
Public works	33107.0	1.82
Public employment services (information and counseling services connected with job placement for unemployed (current as well as potential) and employers)	72427.5	3.99
Lump-sum unemployment benefit to support unemployed persons starting their own businesses (estimated average amount is 1744.8 UHA)	84621.9	4.66
Unemployment benefits	946711.7	52.10
Unemployment assistance and funeral benefit	62662.7	3.45
Early retirement for labor market reasons (reimbursement to the Pension Fund)	87723.1	4.83

Source: [http://www.dcz.gov.ua/control/uk/publish/article/main?art\\_id=16126980&cat\\_id=8974125](http://www.dcz.gov.ua/control/uk/publish/article/main?art_id=16126980&cat_id=8974125)

**Table A32: Distribution of Unemployment Benefit Recipients by Size of Unemployment Benefits and By Regions, end-2003**

Region	Total, persons	By size of UB, in % to Total							
		80 UHA	80.01- 100 UHA	100.01- 140 UHA	140.01- 185 UHA	185.01- 237 UHA	237.01- 300 UHA	300.01- 365 UHA	more than 365 UHA
<b>Ukraine</b>	<b>684306</b>	<b>45</b>	<b>28.4</b>	<b>9.1</b>	<b>6.2</b>	<b>4.2</b>	<b>2.9</b>	<b>1.9</b>	<b>2.3</b>
Crimean AR	26668	54.5	19.8	6.5	5.4	5	3.8	2	3
Vinnitskaya	24177	44.4	29	10	5.9	4.4	2.8	1.8	1.7
Volynskaya	20075	48.6	33.7	7.3	4.5	2.7	1.6	1.6	0
Dnepropetrovskaya	47453	41.8	24.7	10.7	7.4	5.4	4.2	2.3	3.5
Donetskaya	45030	40.4	21.6	12.6	8.7	6	4.4	2.7	3.6
Zhytomirskaya	26180	38.9	33.9	9.9	6.7	4.2	3.1	3.3	0
Zakarpatskaya	22504	49.4	28.3	10.4	5.1	3.7	1.8	0.6	0.7
Zaporozhskaya	24014	45.7	22	40.6	7.1	5.1	3.6	2.3	3.6
Ivano-Frankovskaya	23495	46.5	32.7	8	4.8	2.9	2.1	1.1	1.9
Kievskaya	22036	30.7	31.5	12	8.8	6.2	4.4	2.6	3.8
Kirovogradskaya	21789	47.2	27.7	9.4	5.8	3.9	2.5	1.5	2
Luganskaya	28096	45.2	23.9	11.3	7.7	4.7	3.4	1.6	2.2
Lvovskaya	38607	48.2	33.1	6.5	4.4	2.8	2	1.2	1.8
Nikolaevskaya	18579	43.9	29.2	8.2	5.8	4	2.6	1.6	4.7
Odesskaya	21085	51.9	28	6.3	5	3.1	2.2	1.5	2
Poltavskaya	27745	39.5	30.8	9.7	7.1	4.8	3.3	1.9	2.9
Rovenskaya	27522	37.8	41.1	7.6	5.9	3.5	2.1	0.9	1.1
Sumskaya	20673	35.8	35.3	10.8	7.2	4.6	2.6	1.7	2
Ternopolskaya	31017	57.1	30	5.2	3.5	1.7	1	1.5	0
Kharkovskaya	37961	41.8	23	10.9	7.6	5.7	4.4	2.5	4.1
Khersonskaya	28513	51.2	27.6	7.9	5.3	3.2	2.2	1.2	1.4
Khmelnitskaya	21348	48.2	32.2	7.4	5.1	3	1.9	2.2	0
Cherkasskaya	30690	48.8	26.1	9.4	5.8	3.9	2.7	1.5	1.8
Chernovitskaya	23000	58.1	26.8	6.3	3.4	2.4	1.4	0.8	0.8
Chernigovskaya	20188	35.1	35.2	10.2	7.2	4.8	3.1	4.4	0
Kiev city	4784	19.5	10.5	6.9	7.8	8.2	9.8	8.6	28.7
Sevastopol	1077	39.4	12.2	8.1	6.5	8.5	7.2	4.5	13.6

**Table A33: Participation in ALMP in Ukraine During 1992-2003**

Year	Number staying on the register (NR)	Employed with help of PES		Participated in training programmes		Participated in public works		Employed on subsidised jobs		Received lump-sum UB to start-up business	
		number of persons	% to NR	number of persons	% to NR	number of persons	% to NR	number of persons	% to NR	number of persons	% to NR
1992	618387	193532	31.3	9596	1.6	4929	0.8	n/a		n/a	
1993	557512	199538	35.8	36448	6.5	13037	2.3	n/a		n/a	
1994	569223	202269	35.5	52266	9.2	15756	2.8	n/a		n/a	
1995	640091	229747	35.9	97190	10.5	22706	3.6	n/a		n/a	
1996	982626	241359	24.6	67969	6.9	29715	3	n/a		n/a	
1997	1455150	303471	20.9	53378	3.70	52068	3.6	n/a		n/a	
1998	2036708	390593	19.2	105238	5.17	95908	4.7	n/a		n/a	
1999	2475900	467548	18.9	126518	5.11	151815	6.1	n/a		n/a	
2000	2744097	597049	21.8	137164	5.00	250711	9.1	n/a		n/a	
2001	2760239	772726	28	147199	5.33	301977	10.9	13099	0.5	20061	0.7
2002	2799215	831810	29.7	163447	5.84	345211	12.3	27739	1.0	39210	1.4
2003	2835197	877268	30.9	175495	6.19	378584	13.4	36947	1.3	48539	1.7