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The World Bank

# In Search of Opportunities

## How a More Mobile Workforce Can Propel Ukraine's Prosperity

**Volume II: Technical Report**

**Report No. 68824-ECA**

## CURRENCY EQUIVALENTS

(Exchange Rate Effective: May 9, 2012)

| | | |
|---|---|---|
| Currency Unit | = | Ukrainian Hryvnias |
| 1 UAH | = | 0.123 USD |
| 1 USD | = | 7.944 UAH |

## ABBREVIATIONS AND ACRONYMS

| | |
|---|---|
| AR Crimea | Autonomous Republic of Crimea |
| ECA | Europe and Central Asia |
| EBRD | European Bank for Reconstruction and Development |
| EPL | Employment Protection Legislation |
| EU | European Union |
| GDP | Gross Domestic Product |
| ILO | International Labour Organisation |
| IOM | International Organisation for Migration |
| LFS | Labor Force Survey |
| LiTS | Life-in-Transition Survey |
| NUTS | Nomenclature of Territorial Units for Statistics |
| OECD | Organisation for Economic Co-operation and Development |
| SES | State Employment Service of Urkaine |
| SSSU | State Statistics Service of Ukraine |
| UAH | Ukrainian Hryvnias |
| ULMS | Ukrainian Longitudinal Monitoring Survey |
| UN | United Nations |
| UNDP | United Nation Development Program |

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The report is organized in two volumes: **Volume I** is intended for policy makers and the general public. It summarizes the findings of the analysis in non-technical language. **Volume II**, on the other hand, is intended for a more technical audience. It presents the analysis in great detail, including the empirical analysis and estimation results. Many of the findings mentioned in Volume I are substantiated in Volume II, and more technically-inclined readers are referred to Volume II for a more detailed discussion of findings.

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# Executive Summary

1. The economic transition in Eastern Europe has been accompanied by a significant acceleration in the agglomeration of capital and people. In Ukraine, however, this process has stalled, with detrimental effects for aggregate productivity and growth. The competitiveness pressures arising from demographic aging and globalization, however, make it more urgent than ever for Ukraine to increase productivity and move production and employment from low-productivity to high-productivity sectors. Increased internal labor mobility is a critical ingredient in this modernization process. There are significant gains to be realized from higher internal labor mobility from lagging to leading regions within Ukraine, both in terms of economic growth, but also in terms of living standards, not only for the movers, but also for the stayers.

2. Internal labor mobility in Ukraine is low when compared to that of other countries and when considering the large disparities in labor market outcomes within the country. Because unemployment rates and wages vary considerably across regions in Ukraine, there are large economic gains to be made from more internal migration. But no matter what measurement of internal migration we use, the observed internal migration rates in Ukraine are considerably below the level we would expect. This suggests that there are significant potential gains from internal labor mobility that are not realized: plenty of opportunities, but few taken.

3. The little migration we see is not necessarily going to the leading regions. For internal migration to be efficient, labor has to move to the areas of the country where productivity—and therefore, wages—are high, and where unemployment is low. However, in Ukraine, internal migration responds only partially to labor market conditions. Migrants are not leaving lagging areas with poor labor market outcomes; and they are not necessarily going to the regions with better labor market conditions. Instead, migrants seem to be pushed from their regions of origin by relatively low levels of social spending and low population density. In addition, workers use commuting as a substitute for residential migration. This suggests that gains from internal labor migration in terms of higher productivity and living standards are not being fully realized.

4. The main barriers to internal mobility are institutional. Internal labor mobility is low and inefficient because of weaknesses in five main areas: (i) administrative procedures, reflected in a population registry system that is outdated and increases the costs of internal migration, relying on other institutions that do not work well either (mainly the rental market); (ii) underdeveloped housing and credit markets, that make it difficult for people to rent or buy housing in leading regions; (iii) human capital, as people in lagging regions often lack the necessary skills to access better economic opportunities in high productivity, modern sectors in the leading regions; (iv) weak formal labor market institutions that reduce dynamism in the labor market, increase informality and do not provide workers with enough reliable information about job openings and labor market conditions; and (v) social benefits that are often tied to the place of residence and that could, in some cases, discourage labor force participation in the first place.

5. In the face of weak institutions and the potential gains to be made by moving from lagging to leading regions, people have found ways around some of these issues: over-reliance on informal social networks and commuting are examples of this. However, these strategies are often inefficient and lead to too little and too costly internal migration. Addressing the institutional bottlenecks that affect internal mobility should allow for people, especially the poor, to access more easily more and better jobs in leading regions. In doing so, aggregate productivity and economic growth can accelerate, and living standards—in both leading and lagging regions—can continue to rise.

6. In addition to the structural transformation in waiting, aging and globalization will make more mobility all the more necessary. Because people mostly migrate when they are young, the fact

that Ukrainian population is ageing rapidly means that people in the future will naturally become less mobile, and the country as whole will also become even less mobile. This will take place at the same time that the pressures for increased productivity, and therefore increased mobility, will become more urgent. Globalization and international competition will make it more pressing that Ukraine pushes ahead with the modernization of its economy. This will require further agglomeration of capital and labor, a process that in Ukraine has so far been slower than in peer countries. There are important gains to be made from a more mobile population, but few are realized at the moment in Ukraine.

# 1 From Dispersion to Agglomeration

**The economic transition in Eastern Europe has been accompanied by a significant acceleration in the agglomeration of capital and people in leading regions. In Ukraine, however, this process has stalled, with detrimental effects for aggregate productivity and growth. The competitiveness pressures arising from demographic aging and globalization, however, make it more urgent than ever for Ukraine to increase productivity and move production and employment from low-productivity to high-productivity sectors. Increased internal labor mobility is a critical ingredient in this modernization process. There are significant gains to be realized from higher internal labor mobility from lagging to leading regions within Ukraine, both in terms of economic growth but also in terms of living standards, not only for the movers, but also for the stayers.**

## 1.1 Introduction

7. In 2009, the World Bank in its annual flagship publication, the *World Development Report*, proposed that economic prosperity and rising living standards require inclusive development, but *unbalanced* spatial growth (World Bank, 2009b). Growing cities, ever more mobile people, and increasingly specialized production are integral to a countries' economic development, and should be encouraged. This move *From Dispersion to Agglomeration* of production, capital, and people proofed fundamental in the economic development of today's industrialized countries in North America, Western Europe, and North-East Asia. Yet, economic prosperity does not happen everywhere in a country at the same time. This means that for development to be inclusive, people need to be brought closer to where economic opportunities and productive jobs lie. In turn, this agglomeration of people and their skills will reinforce economic growth and rising living standards. In due time, the movement of people out of lagging regions into leading regions will in itself lead to convergence in living standards across regions. In other words, policy makers need to avoid the fallacy of dispersing production and bringing jobs to people: it is people who need to come to jobs, and this is what policy makers should encourage.

8. The World Development Report identified three key geographic transformations needed for economic development, characterized by three dimensions—the 3Ds: density, distance, and division. Density refers to the agglomeration of capital and labor, including the all-important process of urbanization. Creating density is the appropriate policy for countries where lagging regions are sparsely populated and workers need to be connected to the locus of economic activity. Labor mobility is an integral part of such a policy. Distance, on the other hand, refers to linking firms and workers from lagging to leading regions in countries where both lagging and leading regions are already densely populated. Fewer countries have this problem, and their policy challenge is to link densely populated areas through connective infrastructure. Division, finally, is an important dimension only for countries divided by ethnicity, religion, culture, or language and applies to even less countries.

9. A country like Ukraine falls squarely within the category of sparsely populated lagging regions and densely populated leading regions. Hence, creating density is the main integration challenge. In other words, the World Development Report recommends for Ukraine to focus on increasing the mobility of capital and labor to places where economic opportunities are abundant and connecting people in lagging regions to economic opportunities in the leading regions.

10. In this report, we focus on the mobility of labor across regions within Ukraine—in other words, internal labor mobility, both permanent residential moves and commuting. The main question of the report is whether Ukrainians go to where the economic activities are, and if not, what keeps them in lagging areas. In doing so, we (i) explore the levels and patterns of internal labor mobility in Ukraine, its drivers, and its constraints; and (ii) derive policy implications. Focusing on labor mobility alone might be somewhat narrow. Indeed, the report does not go into depth of general economic developments, growth, and labor markets. Also, we largely ignore the topic of external migration—which we think is equally important, yet well documented in other places. We believe, though, that internal labor mobility is vital for Ukraine's economic development at this point of its transition and thus, it justifies a close, albeit narrow analysis. This report attempts to fill the existing knowledge gap in internal mobility in Ukraine—a topic that is underexplored due to considerable data limitations. Nevertheless, we present insightful analysis with the existing data, complement it with qualitative research—like a survey among experts and focus groups among recent internal migrants—and then focus on a few key policy areas that promise to unleash the potential of internal labor mobility in Ukraine.

11. The main findings of the report are that internal labor mobility is key to creating more and better jobs in Ukraine, but in fact, internal labor mobility in Ukraine is low, inefficient, and constrained by many factors. Internal labor mobility leads to a more efficient labor allocation in the economy because it improves the quality of the matching between job vacancies and job seeker. A more efficient labor allocation, in turn, leads to higher employment, but also to higher productivity and living standards. This process of agglomeration of labor and production is vital for a country's economy, especially for a transition country like Ukraine, whose economy is going through a fundamental process of structural transformation. In Ukraine, though, the process of agglomeration seems to be less advanced than in other transition countries. The remainder of this introductory section will elaborate on these findings.

12. Section 2 investigates the level of internal mobility in Ukraine and finds that from a comparison with other countries, we would expect internal mobility in Ukraine to be about twice as high from what we actually observe. In addition, internal mobility in Ukraine is not only low when compared to other countries, it is also low when compared to the existing labor market disparities in terms of wages and unemployment rates. In other words, there are plenty of economic opportunities to be realized from migration, but few of these opportunities seem to be taken.

13. Section 3 explores the patterns of internal migration in Ukraine and finds that internal migration seems to be inefficient because people do not go to where the economic opportunities are. Although outmigration seems to be driven by economic conditions, the little internal migration we find is not necessarily going to the leading regions. Commuting, capturing non-residential labor migration, on the other hand, does clearly follow economic opportunities: people commute to places with lower unemployment and higher wages.

14. Section 4 asks what is holding back people? The answer is: weak institutions, in particular in the areas of administrative procedures, housing and credit markets, skill development, labor market institutions, and social benefits. Because of these weaknesses, Ukrainians use supplementary strategies and rely, for example, on social networks or commuting. But these strategies are suboptimal. Reforms in these five areas are key to unleash the potential of internal labor mobility.

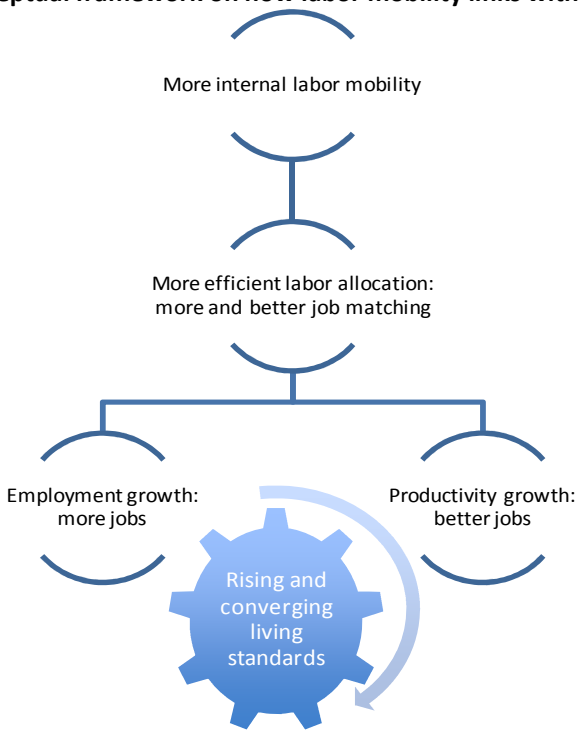
15. Looking into the future, it will be key to complete Ukraine's transition and structural transformation towards a modern economy—even more so because of the future challenges coming from aging and globalization. In Ukraine, so far we have seen relatively little shift from dispersion to agglomeration in output and factors of production. Therefore, in the future, if Ukraine were to continue its transformation to a modern economy, production is bound to agglomerate more, and

increased labor mobility will be an important component of this process. A particular challenge for Ukraine comes from the fact that as the population ages, taking advantage of the positive effects of increased labor mobility on growth and productivity will become a necessity, but at the same time, an older population is less likely to migrate.

### 1.2 More and Better Jobs for Ukraine through Increased Mobility

16. Why care about internal labor mobility? Internal labor mobility is important because it leads to the creation of more and better jobs. Internal labor mobility means a more efficient allocation of labor in the economy—across sectors, occupations and jobs. In the overall labor market, internal mobility increases the number of matches between jobs and workers—and allows for better matching of workers' skills and jobs. For workers, the possibility of moving across regions means that the pool of available jobs is effectively enlarged, increasing the chances of employment but also the chances of a job with higher wages. For firms, a mobile workforce increases the chances of finding a worker with the "right" set of skills it is looking for. Thereby, internal labor mobility increases labor productivity, increasing living standards and economic growth. Moreover, in the process, internal labor mobility also leads to convergence in living standards across individuals but also regions, while reducing overall macroeconomic volatility and contributing to the absorption of geographically-asymmetric shocks. As individuals leave areas with poor labor market outcomes and low wages for economically more dynamic ones, wages rise in the regions of origin and fall at destination. Similarly, when a region experiences a negative shock, workers can leave to regions not affected, accelerating the recovery in the origin area. Figure 1 summarizes the general process though which internal labor mobility can lead to overall rising and converging living standards.

**Figure 1: Conceptual framework on how labor mobility links with economic performance**




*Source:* Authors.

17. Labor markets in Ukraine are less dynamic than in neighboring countries. The rates of job creation and job destruction are lower than in many other transition economies (see Table 1). This is reflected in relative low job turnover and job reallocation rates. In 2007, only 8.3 percent of all jobs

were either destroyed or created, less than half the rate of, for example, Lithuania, Moldova, or Bulgaria. Similarly, less than 3 percent of all jobs moved from contracting forms to expanding firms (job reallocation rate). This is again roughly half the rate seen in other countries. This lack of dynamism in the labor market could reflect low labor mobility—or, it could also be a cause for it.

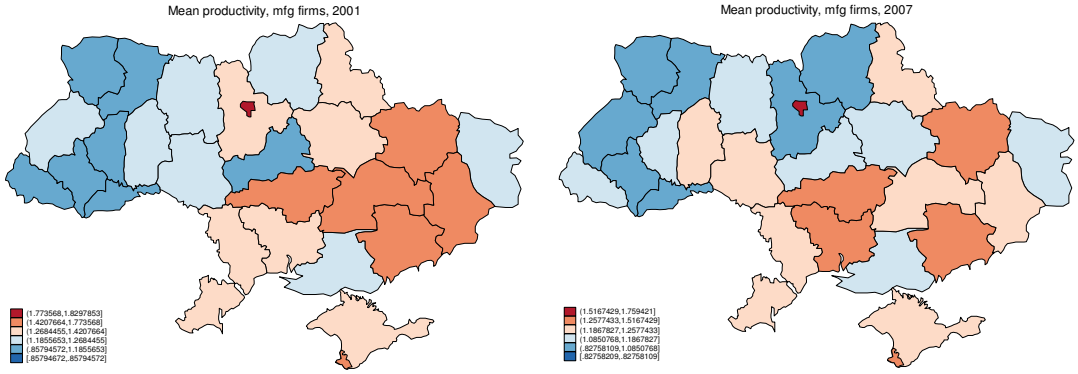
**Table 1: Labor markets in Ukraine are less dynamic than in neighboring countries**
(Job flows as a percent of total employment)

| | Ukraine | Georgia | Moldova | Croatia | Bulgaria | Lithuania | Poland |
|---|---|---|---|---|---|---|---|
| | 2007 | 2006 | 2001 | 2001 | 2000 | 1998-99 | 1999 |
| Job creation | 5.5 | 8.7 | 6.7 | 3.5 | 6.8 | 9.7 | 5.3 |
| Job destruction | 2.7 | 6.6 | 11.2 | 4.9 | 10.8 | 10.7 | 10.1 |
| Employment growth | 2.8 | 2.1 | -4.5 | -1.4 | -4.1 | -0.9 | -4.8 |
| Job turnover | 8.3 | 15.2 | 17.8 | 8.4 | 17.6 | 20.4 | 15.4 |
| Job reallocation | 2.7 | 6.6 | 6.7 | 3.5 | 6.8 | 9.7 | 5.3 |

*Notes:* Job creation is the sum of employment gains in firms that are expanding; job destruction is the sum of employment losses in firms that are contracting; employment growth is job creation minus job destruction; job turnover is job creation plus job destruction; and job reallocation is the minimum of job creation and job destruction;
*Source:* World Bank (2009a).

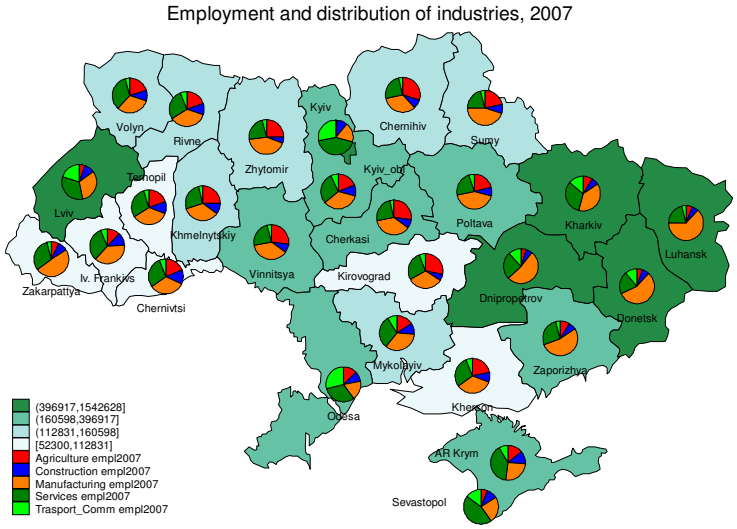
18. Internal labor mobility is critical for fostering structural transformation, that is, for the shift from low productivity to high productivity economic activities. In Ukraine, there are significant gaps in productivity across geographic regions. Figure 2 shows the mean total factor productivity among manufacturing firms according to their location. The most productive manufacturing firms, on average, are located in Kiev, the capital, and the East (Kharkiv, Donetsk, Zaporizhia), the most industrial and populated part of Ukraine. The most eastward region, Luhansk, appears to be lagging behind the "industrial core". These gaps in labor productivity across sectors are not uncommon in most countries. They are, in fact, amplified when taking into account that there are also significant spatial differences across regions in terms of the sectoral composition of output and employment, with large gaps in productivity between the traditional and modern sectors of the economy. But for the modern sector to grow, people need to move to those jobs; this will often mean, moving from one region to another (Figure 3). To the extent that there are barriers to labor mobility, the structural transformation will be impeded and, thereby, economic growth and development will be hindered (McMillan and Rodrik, 2011).

**Figure 2: There is significant variation in productivity across regions in Ukraine**
(Mean total factor productivity in manufacturing firms, 2001 and 2007)




*Source:* Kupets et.al (2012)

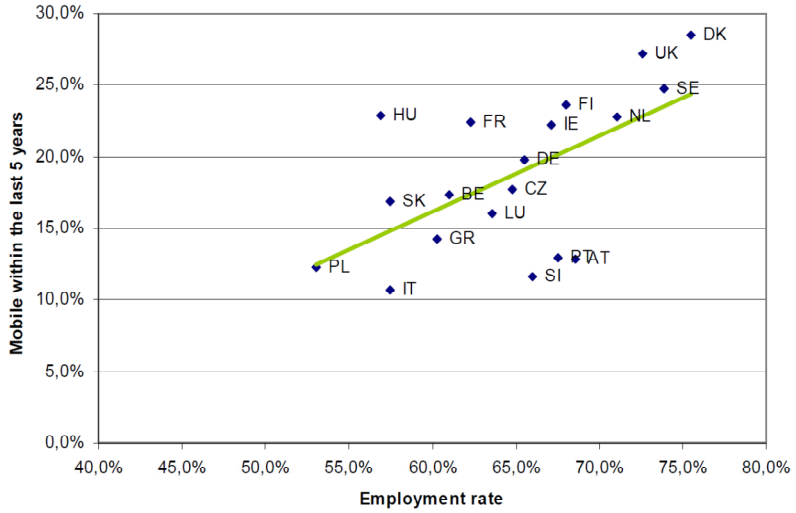
**Figure 3: Sectoral composition of employment varies significantly across regions in Ukraine**
(Sectoral composition of employment by region, 2007)




*Source:* Kupets et.al (2012)

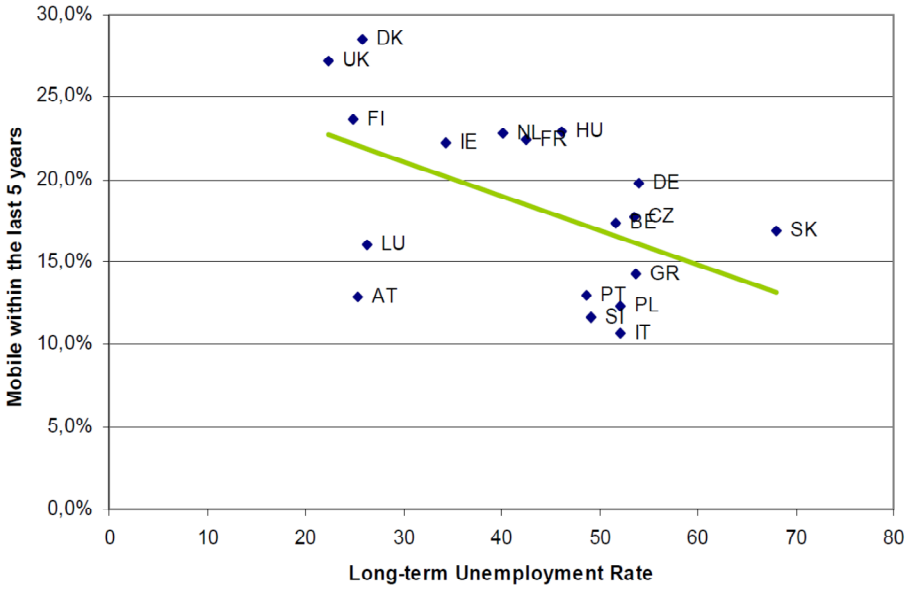
19. Better matching in the labor market means more jobs. The empirical evidence suggests that countries where labor markets are more dynamic and labor mobility higher—across geographic areas and also across jobs—generally have high employment rates and low long-term unemployment rates (Figure 4 and Figure 5). These results are further confirmed in multivariate regression analysis, controlling for the individuals' socio-economic characteristics and also characteristics associated with previous jobs before the move in case on existed (including sector, type of occupation, type of contract, tenure, among others).

**Figure 4: Countries with higher labor market transitions have high employment rates**
(Employment rate versus mobility within the last 5 years by country, 2005)




*Note:* Mobility is measured by number of labor market transitions, that is, changes of jobs.
*Source:* Danish Technical Institute (2008), based on Eurobarometer (2005) and OECD.

**Figure 5: Countries with higher labor market transitions have low long-term unemployment rates**
(Long-term unemployment rate versus mobility within the last 5 years by country, 2005)




*Note: Mobility is measured by number of labor market transitions, that is, changes of jobs.*
*Source: Danish Technical Institute (2008), based on Eurobarometer (2005) and OECD.*

20. Better marching in the labor market also means better jobs since it can stimulate productivity and economic growth. A growing literature provides evidence that internal labor mobility tends to have positive effects on countries' productivity and growth. For example, it is estimated that the economic output of the United States would be twice as high if there were no actual costs of geographic and inter-sectoral labor mobility (Lee and Wolpin, 2006). Similarly, Gang and Stuart (1999), examining so called 'closed' cities in the internal migration history of the former Soviet Union to which the migration was explicitly limited, find that "uncontrolled cities grow significantly faster in almost all the cases" compared to the closed ones. A relatively recent study by Sharpe et al. (2007) for Canada found that interprovincial migration played an increasing role in Canada's economy over the last years. Due to high migration from low-productivity eastern provinces to high-productivity western provinces, Canada received a huge boost to economic growth in 2006. Net output gains arising from interprovincial migration are estimated to be 0.074 percent of GDP in constant 1997 prices and 0.137 percent of GDP in current prices. The study provided evidence that interprovincial migration was responsible for 1.56 percent of trend labor productivity growth in Canada over the 1987-2006 period and 6.23 percent of actual labor productivity growth in 2006.

21. In the developing world, Lall et al. (2006) estimate that the mobility of over 20 million people in India from rural to urban areas in the 1990s accounts for 30 percent of national urban growth. More recently, Bosker et al. (2010) assessed the impact of easing restrictions of China's *hukou* system used to control the movement of people between urban and rural areas and find that increased labor mobility will lead to higher agglomeration—not all in coastal cities—and potentially higher economic growth.

22. By the same token, internal migration can also lead to higher individual and household welfare since people move in search for better economic opportunities. Seeking better economic opportunities, the literature has found that the unemployed—after controlling for a set of socio-economic characteristics—are more likely to move than those employed (Antolin and Bover, 1997; Pissarides and Wadsworth, 1989, among others). Antolin and Bover (1997) find, for example, that in

Spain the estimated probability of migration for the unemployed not registered, who are known for certain not to receive unemployment benefits, is significantly higher than that of the employed. In Ukraine, as we discussed later in this report, this is also the case. Moreover, in a given region, internal migrants are often more likely than non-migrants to be economically active. In 24 of the 35 countries for which the *World Development Report 2009* (World Bank, 2009b) had survey data on internal migration, migrants were more likely to be in the labor force and employed.

23. Workers and potential workers also face incentives to move from lagging regions with weak economic prospects to leading regions within a country (McMaster (1990) in the UK, for example). In other contexts, interregional differences in labor market outcomes have been found, however, to have only a small or no influence at all in internal migration decisions (for example, Groenewold, 1997). This latter literature points at the presence of important constraints to internal labor mobility across countries.

24. In transition countries, internal migration flows do not always respond strongly to regional economic conditions, nor in the expected manner. Ghatak et.al (2007), for Poland –for example— finds that GDP per capital and unemployment have a strong effect on internal migration. However, for the unemployment rate, the population moved to areas with low unemployment rates, although not necessarily leaving areas of high unemployment; for GDP per capita (presumably an indicator of wages and productivity), the nature of the effect was different with people leaving areas with low GDP per capita but not necessarily going to richer areas. Table A 2 presents a summary of additional selected studies on inter-regional mobility in transition countries.[1]

25. When an individual or a household moves in pursue of better economic opportunities, his/her own productivity, wages and access to services can improve. Internal labor mobility has the potential of helping people move out of poverty and generally improve their welfare. There are, for example, potentially important gains to be made in terms of earnings. In the United Kingdom, for example, it is estimated that the long-run wage premium for men who migrate is around 14 percent, and for women around 11 percent (Andrews et.al, 2007). In the United States, the wage premium for internal migrants has been estimated at between 7 and 11 percent (cited in Andrews et.al, 2007). A recent study by Basie and Rim (2006), based on migration between US metropolitan areas, also shows that individuals moved when the wage differential between the origin and destination areas was above a certain threshold. Moreover, the authors find that the probability of migration increases exponentially with the rise in wage differentials.

26. Acting as a balancing force in the labor market—with people moving back and forth between lagging and leading economic areas—internal labor mobility promotes the convergence of living standards across individuals and regions. When people move to more prosperous areas, they contribute to production and boost their own incomes, but they also increase competition among workers in destination areas, reducing it in less dense ones. This, in turn, contributes to the convergence of living standards between low and high productivity areas (World Bank, 2009b). This also means that internal labor mobility contributes to reducing economic volatility and supports the absorption of asymmetric shocks. A region-specific negative shock lowers productivity or employment opportunities in a region, heightening the incentive to move to a different region with better conditions.

27. Migration is, therefore, one of the mechanisms that can, over time, play a critical role in reducing spatial structural imbalances (Bertola, 2000; Jackman and Savouri, 1992). For example, Bertola (2000) concludes that the large and persistent unemployment differentials across European

[1] An extended survey of the literature on internal migration in EU New Member States, including earlier studies using descriptive statistics and micro-level studies using household surveys, is provided in Paci et al. (2007).

regions arise from low labor mobility in the European Union (EU). Similarly, the argument is often made that current evolution of inequality in China is intrinsically related to the *hukou* system of residency permits, which limits internal migration to cities (Economist, 2011; Wing Chan, 2009).

28. The pace at which this spatial adjustment takes place varies across countries, depending largely on how conducive labor market institutions -including wage setting mechanisms and employment protection rules—are for labor reallocation. For instance, Blanchard and Katz (1992), Eichengreen (1993) and Obstfeld and Peri (1998) show that the responsiveness of migration to regional wage and unemployment differentials is much greater in the US than in Europe. Moeller (1995) further suggests that migration is important for the adjustment of regional labor markets in West Germany, but the speed of adjustment is rather low compared to the US. Similarly, internal migration has been found to play only a limited role in facilitating spatial adjustments in transition countries. Fidrmuc (2004), for example, shows that the potential of migration to cushion the adverse effects of asymmetric shocks in transition economies and to eliminate interregional differences in unemployment rates and earnings is very small yet.

29. Moreover, the relationship between internal mobility and spatial inequality appears to be non-linear. In early stages of development, the literature suggests that increased concentration of economic activity is actually associated with increased spatial divergence in socio-economic indicators such as income (World Bank, 2009b).

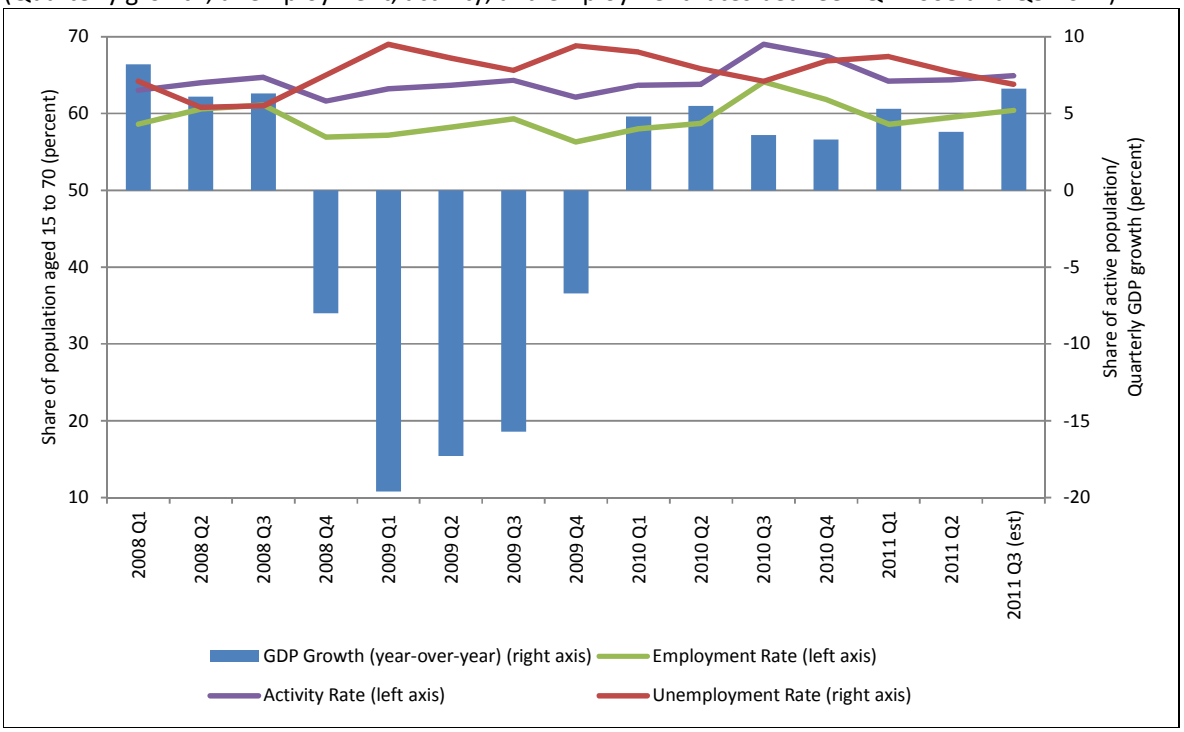
30. It is important to note that there are also potential costs associated high internal mobility. On the one hand, there are transaction and sunk costs at the firm level associated with labor turnover and mobility. These costs can also translate to the worker in the form of a sub-optimal investment in job-specific training. There is also some empirical evidence that short tenures at work can also hinder labor productivity (Gill and Raiser, 2012). In addition, there are potential costs associated with congestion and overcrowding. For this to be the case, however, levels of internal migration need to be high, and appropriate policy planning can help ameliorate some of the potential negative effects of internal labor mobility.

31. In short, there are significant gains to be realized from increase internal labor mobility, both in terms of economic growth but also in terms of living standards, not only for the movers, but also for the stayers. The potential for labor mobility to contribute to higher productivity, economic growth and rising living standards is especially critical for a transition country like Ukraine. We argue why next.

### 1.3 Current Labor Market Trends in Ukraine

32. Just like in other countries of the Europe and Central Asia (ECA) region, the Ukrainian labor market has been severely affected by the financial crisis. The unemployment rate increased significantly from 5.3 percent mid-2008 to 9.5 percent at the beginning of 2009 and has only gradually recovered to around 8 percent (see Figure 6). At the same time, the activity and employment rates of the Ukrainian population contracted in response to the labor market shock. Nevertheless, after the increase in the last quarters of 2010 the activity and employment rates are back to its level before the crisis. Over 1.7 million people aged 15-70 are unemployed or around 7.9 percent of the economically active population of the relevant age group (compared to 1.96 million and 8.6 percent in 2009).

**Figure 6: Employment outcomes are back to pre-crisis levels**
(Quarterly growth, unemployment, activity, and employment rates between Q1 2008 and Q3 2011)




*Note:* GDP growth rates are in relation to same quarter in the previous year.
*Source:* State Statistics Service of Ukraine (2012)

33. Ukraine's population is among the fastest declining in the world due to the high mortality, low (though increasing since 2002) birth rates and outmigration. The country ranks second in the world (together with Bulgaria and Georgia) after Moldova in terms of the pace of aging, and it is classified as "already old" because it surpassed the threshold of 10 percent of population in the 65 and older age group.[2] By 2050, it is projected that the country's population will fall below 40 million.[3] As a consequence, the population is aging rapidly. A quarter of Ukraine's population is expected to be over 60 by 2050, while the number of the working age population is projected to decline from current 70 to 60 percent. In addition, there was and is considerable outmigration, which further decreases the Ukrainian labor force (). These trends will have a strong impact on Ukraine's labor market and medium- and long-term economic growth prospects.

**Box 1: External migration out of Ukraine**

The official outflow out of Ukraine in 2011 was about 14,500 people. While over the period 2003 to 2011 the number of internal moves declined by around 11.7 percent, the relative importance of external migration has increased significantly: the ratio of internal moves to external in 2003 was 11:1 while in 2011 it increased 44:1. At the same time, if employment abroad were impossible, it has been estimated that the unemployment rate in Ukraine in 2008 would be 1.5 times higher than it was. Thus, internal migration reduces pressure on the Ukrainian labor market.[4]

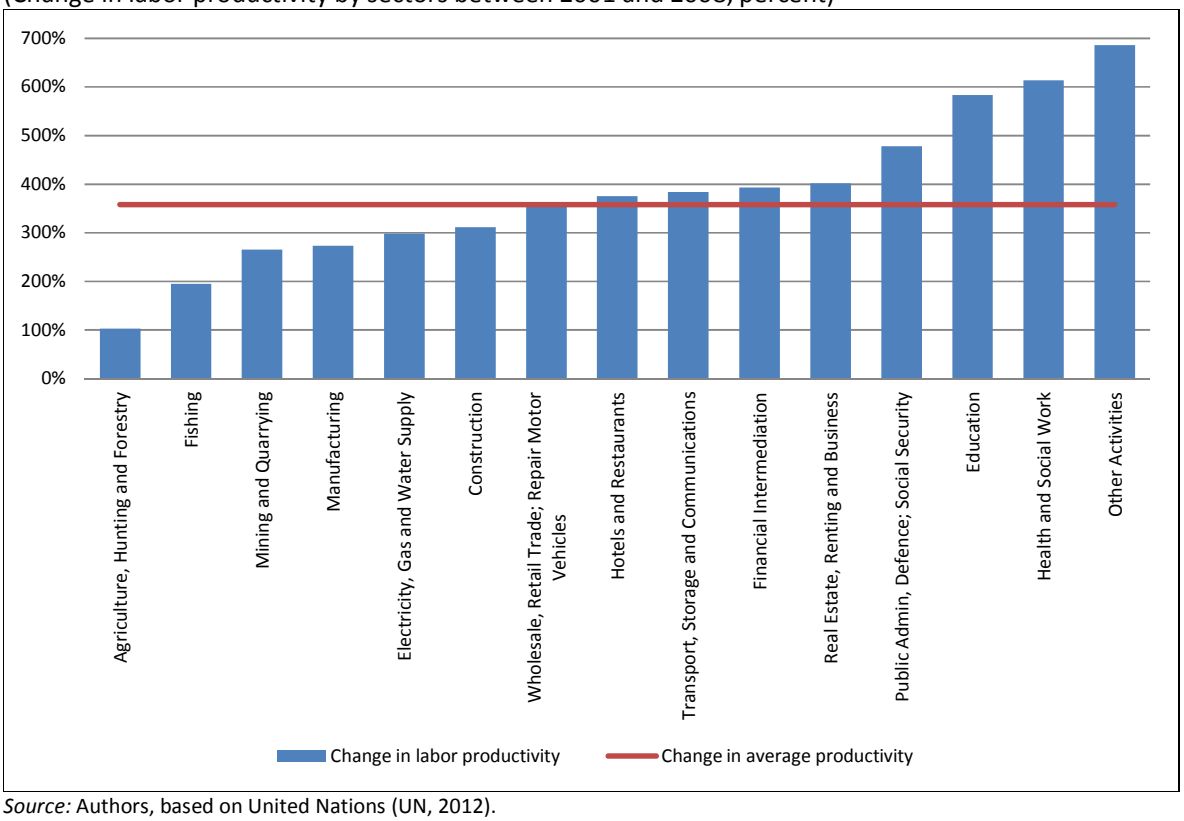
[2] UN *World Population Prospects, the 2010 Revision*
[3] Institute of Demography and Social Studies (2012-2050, medium scenario projections made in September 2011).
[4] Ukrainian Centre for Social Reforms (UCSR), SSC, "Ukrainian External Labour Migraion", 2009; Migration in Ukraine. Facts and Figures. IOM. September 2011.

The main migration push factors for Ukrainian international labor migrants are very similar to those for internal migrants. They predominantly move to improve their living standards and in the pursuit of higher salaries (over 56 percent).[5] Income differentials are an important driver of migration decisions. Indeed, though the real average monthly wage in Ukraine increased substantially over the last decade (more than four times), it is still very low in absolute terms (UAH 3,000 or USD 380 in December 2011). Ukraine trails not only developed countries, but also most transition economies in the ECA region in terms of wage earnings. The average migrant wage abroad was USD 820 in 2008, which was almost 3 times higher than the average salary in Ukraine (USD 281). At the same time, wage differentials are not the only factor shaping migration decisions. Social preferences and cultural values also matter.

*Source:* Authors and Kupets et al. (2012).

34. Demographic trends can have direct implications for labor markets through three primary channels: labor supply, labor productivity, and labor demand, because of shifts in the structure of aggregate demand.[6] Even in order to keep the GDP per capita at a current level—given the demographic decline and aging population profile—the country would need to ensure significant productivity gains, which means to "use labor better", which makes internal mobility even more vital. Overall, productivity has been rising over the last 10 years,

**Figure 7: Productivity has been rising, but unevenly**
(Change in labor productivity by sectors between 2001 and 2008, percent)




*Source:* Authors, based on United Nations (UN, 2012).

35. In terms of structural changes in the labor force, the share of wage and salaried workers fell sharply, from around 90.1 percent to 81.1 percent. These losses were almost completely offset by a double increase in the share of self-employed persons (from 8.1 to 17.5 percent), particularly in

[5] See Interrnational Organisation for Migration (IOM, 2011).
[6] See World Bank (2007).

subsistence agriculture and petty trade. Hence, the quality of jobs worsened substantially, particularly in rural areas and mono-structural towns. The share of informally employed individuals in total employment (incidence of informality) increased from 21.5 percent in 2005 to 22.9 percent in 2010, mainly due to subsistence agriculture and other activities of self-employed individuals. The incidence of informality in wage employment increased from 7.5 to 9.7 percent during the period from 2005 to 2010. In terms of occupational composition, the share of unskilled jobs in total employment increased by 6.3 percentage points between 2000 and 2010, following a 34.4 percent increase in its number. At the same time, the share of white-collar and office jobs (the top four occupational groups) fell from 39.2 to 36.9 percent, and the share of service and blue-collar jobs decreased from 43.1 to 39.1 percent.

36. Informal employment, as already mentioned, is widespread in Ukraine. In 2010, 4.6 million people in Ukraine worked in the informal sector, equivalent to 22.9 percent of the total employment (see World Bank, 2001c). As expected, informal employment is widely prevalent among rural population (46.4 percent of total employed rural population in 2009) and relatively less widespread among urban population (10.6 percent of total employed urban population). Overall, more than two out of three persons employed in the informal sector are rural residents, and 80.4 percent of them are engaged in subsistence farming in private agricultural production units as own-account workers or unpaid family helpers. Consequently, the agriculture sector accounts for 65.7 percent of total employment in the informal sector, which is equivalent to about 3 million jobs.

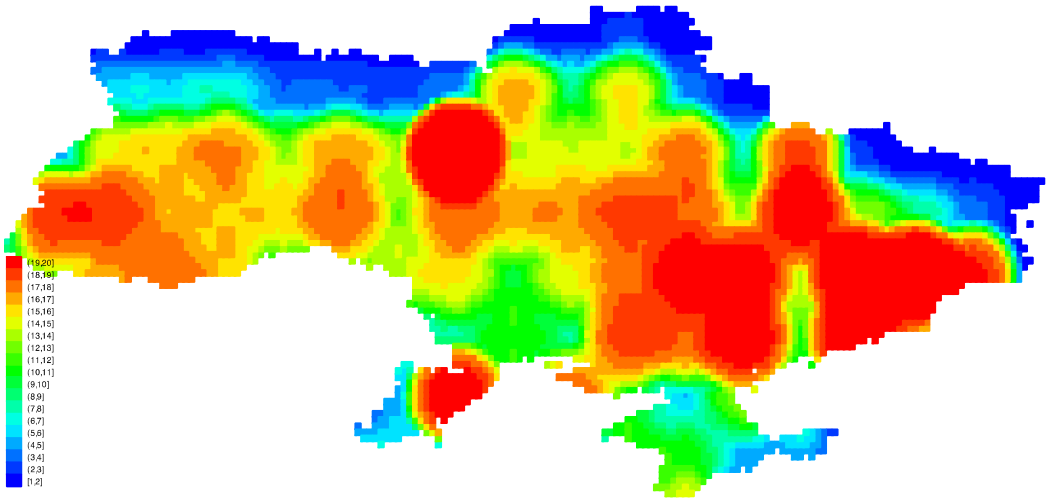
37. Unemployment rates, finally, tend to be lower for university graduates compared to college graduates, but are higher than among the less educated with only general secondary education. This trend might be attributed to serious skills mismatch in the Ukrainian labor market (surplus of youth with higher education compared to labor demand), and the fact that those with low levels of education have lower reservation wages and more time to integrate themselves into the labor market. Around 40 percent of higher education institutions graduates end up in jobs different from their field of study and thus do not use the skills obtained during training.

### 1.4 A Transition Bound to Happen

38. The transition to a market economy in Eastern Europe was typically accompanied by a significant shift from geographic dispersion to agglomeration of capital and production and from low to higher productivity sectors. So if labor were to follow, potentially large economic gains could be realized. Yet, in Ukraine, so far we have seen relatively little shift from dispersion to agglomeration in output and factors of production. Therefore, in the future, if Ukraine were to continue its transformation to a modern economy, production is bound to agglomerate more, and increased labor mobility will be an important component of this process.

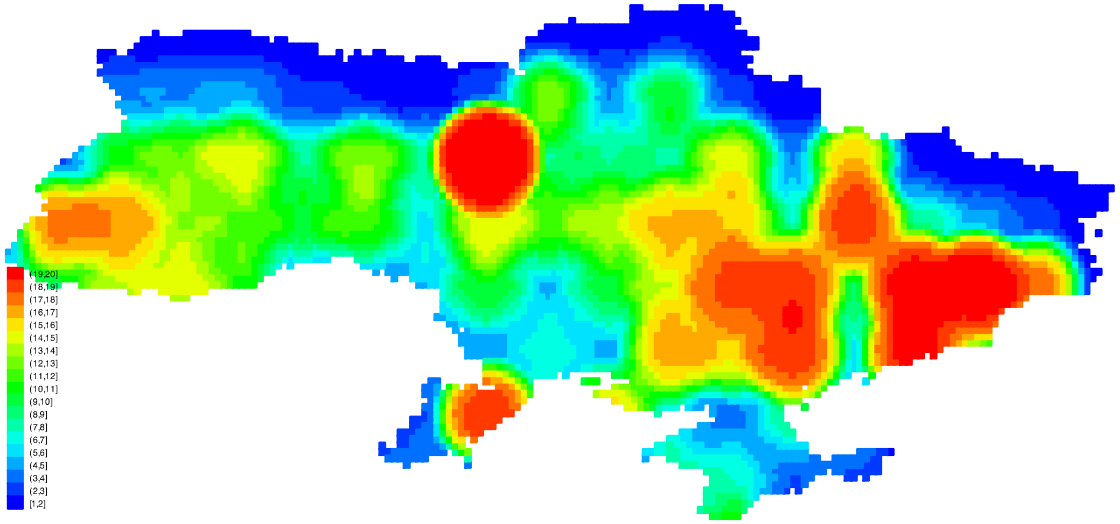
39. At the onset of the transition, production in Ukraine, like in most transition countries, was fairly dispersed. Figure 8 shows the so-called gross cell product—that is, the economic output per 1 degree of latitude by 1 degree of longitude—for Ukraine in 1990, while Figure 9 shows the same for 2005. Two thinks are apparent: first, overall output dropped significantly; and second, during the transition, production became more agglomerated, albeit not at a rapid pace.

**Figure 8: Production in Ukraine at the start of the transition was fairly dispersed**
(Gross cell product 1990, in 2005 US market exchange rate prices; color scale based on 2005 distribution)




*Note:* Gross cell product refers to the estimated output for 1 degree of geographic latitude per 1 degree of geographic longitude.
*Source:* World Bank staff calculations, based on G-Econ (2012).

**Figure 9: Production in 2005 was overall lower, but more agglomerated**
(Gross cell product 2005, in 2005 US market exchange rate prices; color scale based on 2005 distribution)



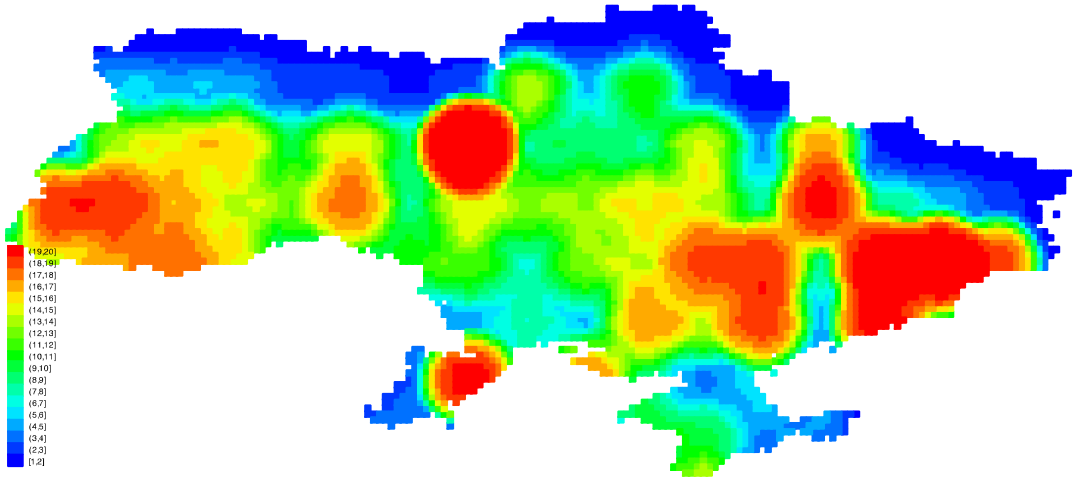

*Note:* Gross cell product refers to the estimated output for 1 degree of geographic latitude per 1 degree of geographic longitude.
*Source:* World Bank staff calculations, based on G-Econ (2012).

40. This is not hugely surprising. As World Bank (2009b) argues, economic growth is always accompanied by agglomeration of production. And more than other countries, former socialist countries had particular regional policies in place that would aim at developing lagging regions and explicitly shifted production to sparsely populated areas, therefore keeping production relatively dispersed. With the beginning of the transition, though, production in these countries started to agglomerate—in most transition countries, more than anywhere else (see below).

41. Population, though, did not agglomerate that much in Ukraine. Figure 10 depicts the population per cell in 1990. As can be seen from a comparison with Figure 11, there was some

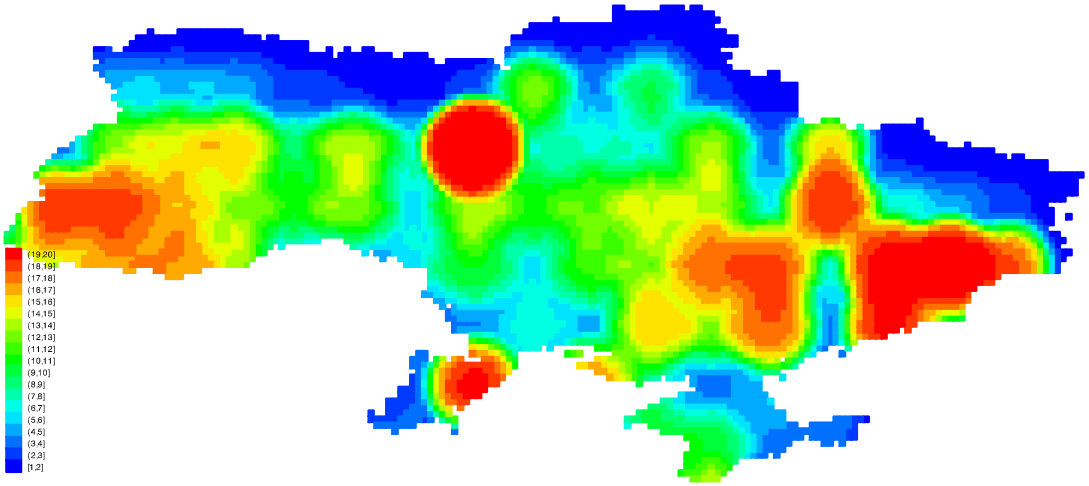
agglomeration until 2005, but not much. In other words, labor did not fully follow the agglomeration of production. In that sense, Ukraine's transition might not yet be fully completed.

**Figure 10: Population density in 1990**
(Population per cell in 1990; color scale based on 2005 distribution)




*Note:* Cell is defined as 1 degree of geographic latitude by 1 degree of geographic longitude.
*Source:* World Bank staff calculations, based on G-Econ (2012).

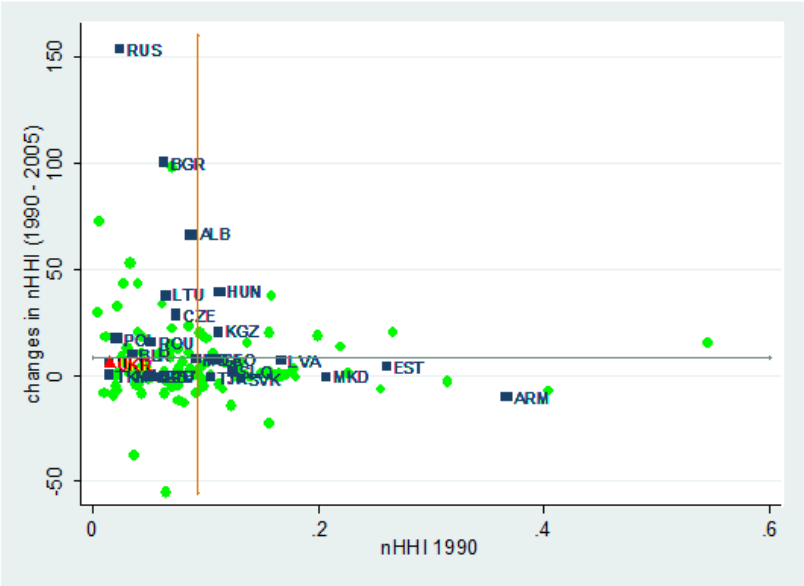
**Figure 11: Population agglomerated by 2005, but not by much**
(Population per cell in 2005; color scale based on 2005 distribution)




*Note:* Cell is defined as 1 degree of geographic latitude by 1 degree of geographic longitude.
*Source:* World Bank staff calculations, based on G-Econ (2012).

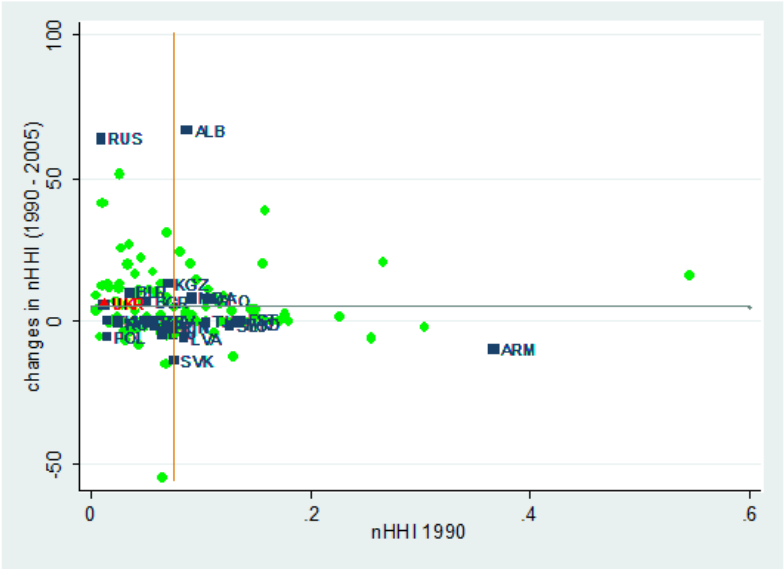
42. The observation that Ukraine's transition is incomplete so far is also confirmed when comparing Ukraine with other countries. Figure 12 depicts the normalized Herfindahl–Hirschman index—a measurement of spatial concentration of production—for most countries worldwide 1990 versus the change between 1990 and 2005. Two observations stand out: first, transition countries like Albania, Bulgaria, and Russia underwent the greatest agglomeration between 1990 and 2005. Second, Ukraine stands out as a country that had one of the least agglomerated productions in 1990, but also one that experience almost no agglomeration since then. The same holds when looking at agglomeration of population (see Figure 13).

**Figure 12: Transition countries saw most economic agglomeration, but not Ukraine**
(Normalized Herfindahl–Hirschman index (nHHI) of GDP in 1990 versus the change in nHHI between 1990 and 2005)




*Note:* Transition countries are depicted with three-letter country code in blue, Ukraine in red, all other countries in green. The red vertical line depicts the median across all countries.
*Source:* World Bank staff calculations, based on G-Econ (2012).

**Figure 13: Population in Ukraine was and is very dispersed**
(Normalized Herfindahl–Hirschman index (nHHI) of population in 1990 versus the change in nHHI between 1990 and 2005)

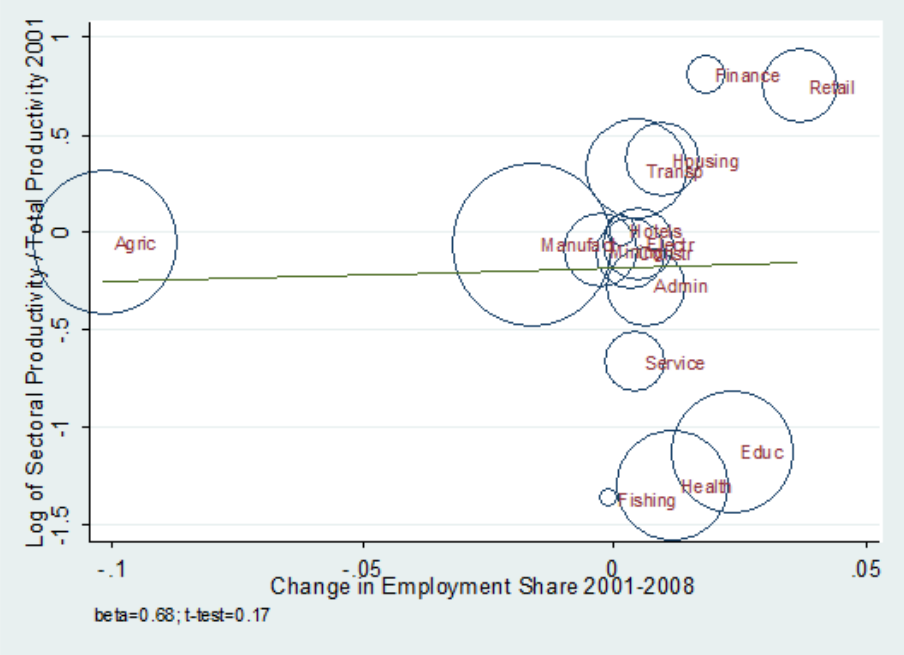



*Note:* Transition countries are depicted with three-letter country code in blue, Ukraine in red, all other countries in green. The red vertical line depicts the median across all countries.
*Source:* World Bank staff calculations, based on G-Econ (2012).

43. This slow agglomeration of production and labor has translated into a slow structural transformation in Ukraine. Figure 14 indicates that between 2001 and 2008 labor has not moved, on

average, to the high productivity sectors. Following McMillan and Rodrik (2011), this figure depicts the change in employment by sector in the horizontal axis (a number to the right of zero means that employment in that particular sector grew faster than for the rest of the economy and, therefore, the share of total employment in that sector grew) and the relative labor productivity of the particular sector relative to the average labor productivity for the economy as a whole (a number above one indicates a sector with high relative labor productivity). While a significant number of workers have left the agriculture sector since the early 2000s—a sector with below-average labor productivity—labor has not always gone to high-productivity sectors. In particular, many workers have gone into the health and education sectors, for example, the two sectors with the lowest overall labor productivity. Sectors with very high productivity remain small, despite having also expanded in recent years (albeit not enough to offset the increase in employment in low productivity sectors). One of the impediments of structural transformation, as discussed in McMillan and Rodrik (2011) and as we have argued is also the case in Ukraine, is low labor mobility, an important component of structural transformations.

**Figure 14: In Ukraine, labor has not moved to high-productivity sectors**
(Change in the share of employment by sector between 2001 and 2008 in percentage points versus the log of sectoral productivity in 2001; size of the circle indicates the share in total employment in 2008)




*Note:* The trend line is depicted in green.
*Source:* World Bank staff calculations, based on ILO (2012) and UN (2012). See McMillan and Rodrik (2011) for a methodological discussion on measuring structural transformation.

44. In addition to the structural transformation in waiting, aging and globalization will make more mobility all the more necessary. Because people mostly migrate when they are young, the fact that Ukrainian population is ageing rapidly means that people in the future will naturally become less mobile, and the country as whole, will also become even less mobile. This will take place at the same time that the pressures for increased productivity, and therefore increased mobility, will become more urgent. Globalization and international competition will make it more pressing that Ukraine pushes ahead with the modernization of its economy. We have argued that this will require further agglomeration of capital and labor, a process that in Ukraine has so far been slower than in peer countries. There are important gains to be made from a more mobile population, but few are realized at the moment in Ukraine. We discuss this next.

# 2 Plenty of Opportunities, but Few Taken

**Internal labor mobility in Ukraine is low when compared to that of other countries and when considering the large disparities in labor market outcomes within the country. Because unemployment rates and wages vary considerably across regions in Ukraine, there are large economic gains to be made from more internal migration. But no matter what measurement of internal migration we use, the observed internal migration rates in Ukraine are considerably below the level we would expect. This suggests that there are significant potential gains from internal labor mobility that are not realized: plenty of opportunities, but few taken.**

## 2.1 How Does Ukraine's Internal Mobility Compare to Other Countries?

45. No matter what measurement or data source we use, internal mobility in Ukraine seems particularly low when compared to other countries. We present data from international surveys as well as from administrative sources and show that internal migration rates are about half of what we would expect when comparing Ukraine to other countries.

### *2.1.1 Measuring Internal Migration Rates*

46. Comparing internal labor mobility across countries is not straightforward. First, data availability severely constraints the measurement of internal labor mobility. For some countries we can use population registries to measure changes in residence of population, for others we have to use the population census or surveys. Rarely are all three measurements available for one country, so whenever we compare internal migration rates across countries, we usually use different data sources for different countries. Box 2 explains how we measure internal migration in the case of Ukraine.

**Box 2: Measuring internal mobility in Ukraine**

According to the United Nations manual, Methods of Measuring Internal Migration (1970), migration is defined as a move from one migration-defining area to another (or a move of some specified minimum distance) that was made during a given migration interval and that involved a change of residence.

The primary source of data on migration flows in Ukraine is administrative data on in-migration (inflows), out-migration (outflows) and net migration (inflows minus outflows) based on registration of population by the place of permanent residence (previously known as *propiska*). This administrative data refers to those changes of residence that are registered with the Ministry of Interior. However, in Ukraine, many moves go unregistered. This means that administrative internal migration data is likely to underestimate actual migration, as corroborated by the survey of labor market experts conducted for this report. However, we complement this source of data with additional microeconomic sources based on household surveys to get a more complete picture of migration patterns and drivers.

Moreover, population migration statistics report movements of the population which are not necessarily motivated by labor market conditions; they also include migrations related to other important life-cycle events such as the start and completion of post-secondary studies, marriage and divorce, birth, aging, and leaving home of children, retirement, improvement of housing conditions, and the alike.[7] In some cases, migration can be also involuntary and of the contracted type, such as job transfers in the public sector (the relocation of military personnel, civil servants, judges, prosecutors, management personnel of public enterprises) as well as in the private sector when "the individual migrates with a job in hand" (Greenwood, 1997). This, however, is a typical problem of most migration studies in CEE countries, as population registers are sometimes the only reliable source of data on migration in these countries (Fidrmuc, 2004; Hazans, 2003a; Andrienko and Guriev, 2004; and Bloze, 2009).

Available migration statistics in Ukraine records all registered residential moves of population within the country during a given period of time (usually month or year) of the following types: (i) within the same administrative unit (intra-regional migration); (ii) between 27 administrative units (inter-regional migration); (iii) total internal migration (the sum of the former two).[8] We will use administrative data on annual internal migration flows for the period 2002-2010.

In addition to administrative data, the other two data sources that include migration-related information is the individual-level data from the Ukrainian Labor Force Survey (LFS) and the Ukrainian Longitudinal Monitoring Survey (ULMS). The former is used in our study for the analysis of the commuting behavior of the employed in 2008-2009. The latter is a rich panel data set that enables a rigorous dynamic analysis of the migration behavior of individuals, their main motives and characteristics, although the sample size of migrants in a given year is relatively small.

Taking into account the average size of Ukrainian regions (1698.9 thousand people in 2010), the administrative division of Ukraine into 27 units is consistent with the NUTS system[9] and corresponds to its second level (NUTS-2). This allows us to compare regional indicators in Ukraine to those in the old and new EU member states.

*Source:* Authors and Kupets (2012) for this report.

47. Second, the definition of what consists a migration incidence is not the same in each country. For example, should a move from one side of the street to the other be considered a migration or not? Since our topic is labor migration, ideally we would like to define migration as all permanent movements of people for work reasons. This implies that a migrant moves from one local labor market to another, where some minimum geographic distance has to be overcome in order to qualify as a migrant. All other movements, in contrast, would qualify as mere residential moves. Shryock and Siegel (1976) suggest defining this minimum distance "at the point at which commuting to work becomes so time-consuming and expensive as to require the substitution of a change of residence" (Shryock and Siegel, 1976: p. 374). In theory, each

[7] For example, according to ULMS (2003, 2004 and 2007) the most frequently mentioned reasons for the change of residence were marriage or moving in with partner, moving in/out from parents or relatives, desire to change housing conditions, and starting studies.

[8] Although population registers count migrations (events) rather than migrants (transitions), we use these terms interchangeably assuming that the share of multiple and return migration is negligible. See United Nations (1970) and Bell et al. (2002) for a summary of issues related to the definition, measurement and collection of data on migration.

[9] NUTS (Nomenclature of Territorial Units for Statistics) is a standard developed, regulated by the EU and implemented in the EU member states.

survey or registry might set the minimum distance that is required to define migration differently. In practice, though, most data sources define migration as a move from one jurisdiction—like town, city, municipality, county, district, state, or region—to another. As these jurisdictions are not uniform across countries, the measured internal migration rates are rarely comparable.

48. Third, even when comparable jurisdictions are used when defining internal migration rates, their actual geographic size might still differ considerably from country to country. For example, German *Länder* and U.S. States are more or less the same type of jurisdiction. Nevertheless, the average size of a German Land is about 22,000 $km^2$ while the average size of a U.S. State is 193,000 $km^2$. Since the size of the unit of measurement varies for the two countries, the internal migration rates are not comparable. The smaller the unit of measurement, the more moves will qualify as migration. For example, internal migration measured at the level of municipalities will be higher than internal migration measured at the level of states. Hence, controlling for the size of the unit of measurement is crucial when comparing internal migration rates.

### *2.1.2 International Comparison of Internal Migration Rates*

49. There are different ways to measure internal migration. In this report we focus on four main measures: in-migration rate, out-migration rate, net migration rate, and gross migration rate, and the overall internal migration rate for a country. All of them refer to a ratio of the migration flow of interest over the total population of interest. Each one of them captures a different aspect of internal migration. Box 3 elaborates.

**Box 3: Indicators for internal mobility used in this report**

According to the United Nations manual, Methods of Measuring Internal Migration (1970), migration is defined as a move from one migration-defining area to another (or a move of some specified minimum distance) that was made during a given migration interval and that involved a change of residence.

Throughout the report, we focus on four of the most frequently used indicators in the analysis of internal population migration across regions:

$$In-migration\_rate_{i,t} = \frac{Inflows_{i,t}}{Population_{i,t}} * 100$$

$$Out-migration\_rate_{i,t} = \frac{Outflows_{i,t}}{Population_{i,t}} * 100$$

$$Net\_migration\_rate_{i,t} = \frac{Inflows_{i,t} - Outflows_{i,t}}{Population_{i,t}} * 100$$

$$Gross\_migration\_rate_{i,t} = \frac{Inflows_{i,t} + Outflows_{i,t}}{Population_{i,t}} * 100$$

where $Inflows_{i,t}$ and $Outflows_{i,t}$ stand for internal (excluding any movements to and from abroad) in-migration and out-migration to/from region *i* during time period *t*, respectively, and $Population_{i,t}$ is the average annual de facto population of the respective region *i* in time period *t.*

The first two equations refer to gross in- and out-migration rates, a measure of a region's attractiveness or unattractiveness, respectively. The third equation defines the net migration rate, which may be used to identify the 'winners' and 'losers' in the context of inter-regional migration. Finally, the gross migration rate in the fourth equation measures the total migration intensity in the respective regions and helps identifying more and less dynamic regions in terms of migration.

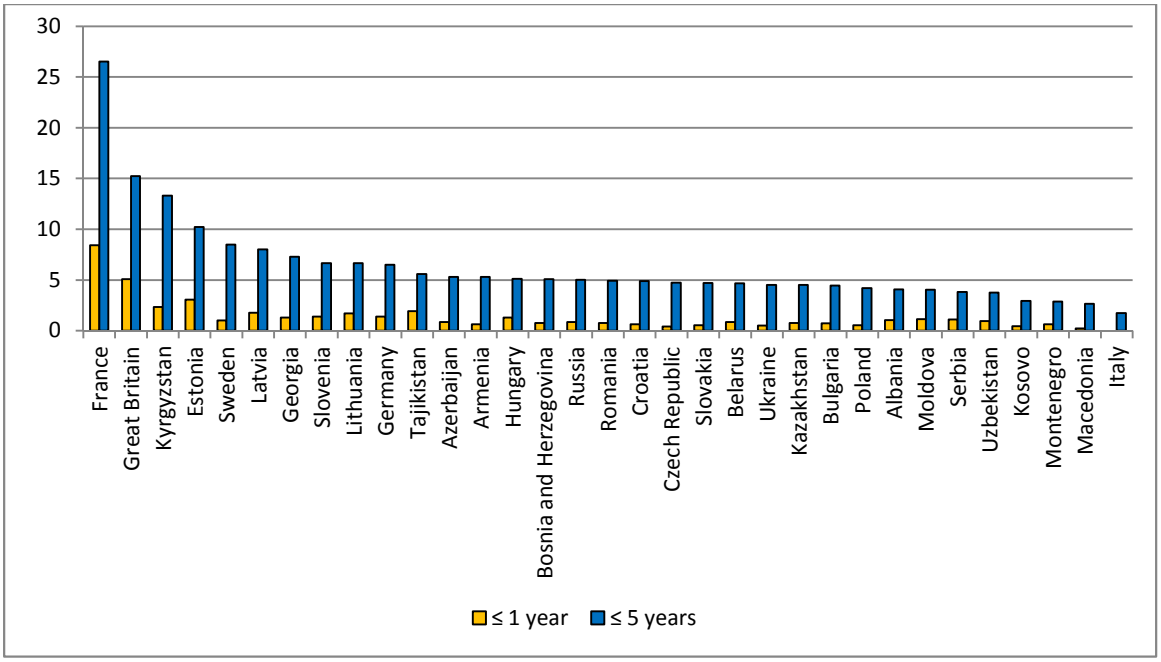
In addition to the indicators discussed above, there is also the internal migration rate for a country as a whole. It is the sum of all internal inflows (or outflows) over all regions divided by the total population of the country.

$$Internal\_migration\_rate_t = \frac{\sum_i Inflows_{i,t}}{\sum_i Population_{i,t}} * 100 = \frac{\sum_i Outflows_{i,t}}{\sum_i Population_{i,t}} * 100$$

*Source:* Authors and Kupets (2012) for this report.

50. No matter how internal migration rates are measured, in Ukraine it seems low when compared to other countries. Let us start by considering measurements of internal migration obtained from survey data. The Life-in-Transition Survey (LiTS), a joint data collection effort by the European Bank for Reconstruction and Development (EBRD) and the World Bank, is a large micro-data set that contains information from all countries of Eastern Europe and Central Asia (ECA) and some western European countries. Since it uses the same questionnaire and methodology across all countries, the advantage is that the data is well comparable across countries. The questionnaire asks individuals, among others, about recent migration experiences, either within the last year, or within the last five years. According to this data, in Ukraine, 0.5 percent of the population moved within the last year, and 4.5 percent within the last five years. The disadvantage is that the data cannot distinguish between external and internal migrations, so numbers refer to both. Nevertheless, this migration rates are clearly at the lower and of the distribution when comparing across countries (see Figure 15). Only 11 countries displayed lower migration rates, while 21 countries displayed higher migration rates than Ukraine.

**Figure 15: Labor migration in Ukraine is low compared to other countries**
(Internal migration rates by country and by when migration happened, 2010)




*Note:* Recent migrants include both internal and international migrants.
*Source:* European Bank for Reconstruction and Development (EBRD) and World Bank (2010).

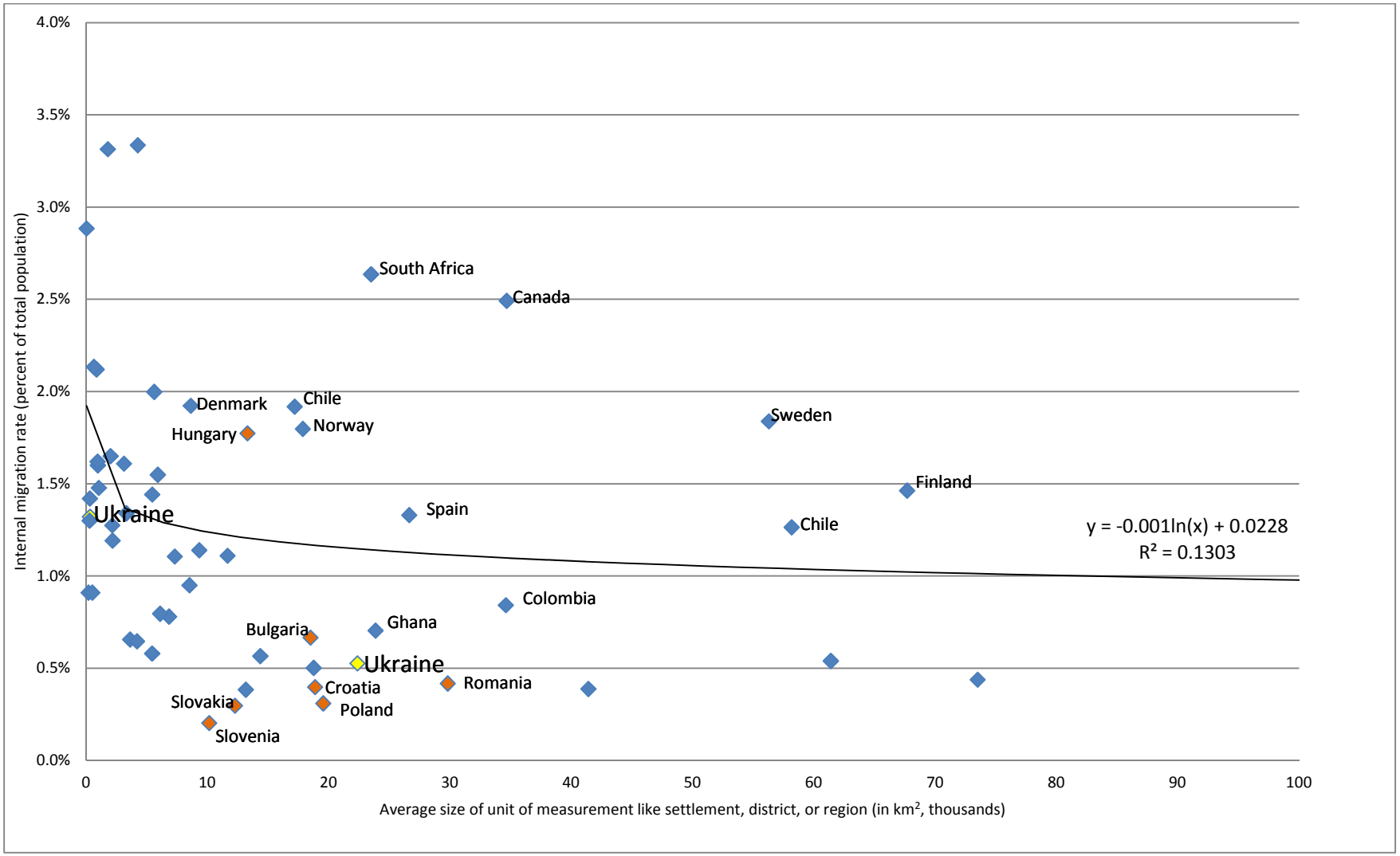
51. Next, let us consider migration data from administrative sources. Migration data provided by the State Statistics Service of Ukraine are based on registration and deregistration cards that are filled out by all persons moving from one settlement to another for a permanent or temporary residence for at least six months. The responsible agencies for collecting and processing these cards are local passport offices (under the Ministry of Internal Affairs). Therefore, these data refer mainly to residential mobility. Using this data, between 2002 and 2009, an average of 1.5 percent of the total population in Ukraine moved across *rayons* (districts), from rural to urban settlements, or between urban settlements. This corresponds to about 600,000 people officially changing their place of residence to another settlement during the year. As expected, mobility across regions is lower—the internal migration rate was 0.5 percent in 2009. During the economic crisis, in 2009, internal migration rates actually fell compared to the average in previous years (from 1.5 percent when measured across settlements to 1.3 percent and from 0.6 percent to 0.5 percent when measured across regions).

52. These rates of internal migration are low when compared to other countries. In particular, by international standards, internal migration rates in Ukraine should be twice as high as those observed today. Figure 16 compares internal migration rates in Ukraine (measured by administrative data at oblast and rayon level) with internal migration rates from other countries. For other countries, the internal migration rates are mainly measured through population registries or, at times, through surveys or the census. The comparison is done controlling for the average size and number of geographical units used to calculate internal migration rates. As discussed above, this is important because differences in statistical geography can prejudice cross-country comparisons. In particular, the number of migrants recorded fundamentally

depends on the number and size of the units into which the territory is divided.[10] For some countries, the figure shows more than one entry, referring to measurements taken at different unites of measurement. Applying a log-linear trend line across the whole sample yields the expected internal migration rate for a given size of the unit of measurement. For Ukraine, actual internal migration rates are about half of what we would expect when comparing to other countries.

[10] This issue is usually known as the "modifiable areal unit problem". Since countries vary in size and territorial divisions (some use towns, other regions, districts, etc.), not considering these differences can be misleading (UNDP, 2009). For a given country, for example, the larger the geographical units considered—ceteris paribus—the lower will be the internal migration rate.

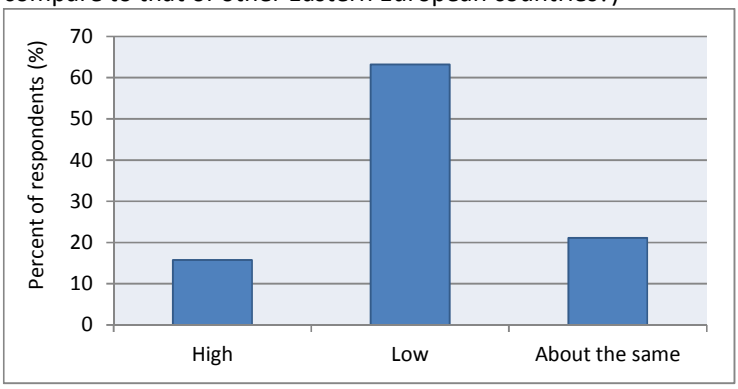
**Figure 16: Labor migration in Ukraine is low compared to other countries, even when controlling for the size of the unit of measurement**
(Internal migration rates by country versus the size of the relevant geographic unit of measurement in km$^2$, various years)




*Note:* Countries display differing internal migration rates, depending on the size of the unit of measurement. For example, internal migration measured at village level (that is, movements from one village to another) is much higher than migration measured across larger geographic areas, like districts or regions. Some countries, like Ukraine, have more than one observation, corresponding to migration rates measured at different levels, like settlements and oblasts in the case of Ukraine. The trend line represents the log-linear trend.
*Source*: Authors' calculations based on UNDP (2009), Eurostat, US Census and, for Ukraine, the State Statistics Service of Ukraine (SSSU).

53. Local labor market and migration experts further confirm that internal migration in Ukraine is relatively low. For this report, a survey of labor market and migration experts in Ukraine was conducted in order to shed some light—beyond quantitative analysis—on Ukrainians attitudes towards internal migration and the main barriers they face when moving from one region to another within Ukraine. See Annex 1 for a description of the survey. According to this survey, 63.2 percent of respondents considered that internal mobility rates in Ukraine are low when compared to those of other Eastern European countries. Only 15.8 percent thought internal migration is high, while 21 percent thought it was at the same level as in peer countries (Figure 17).

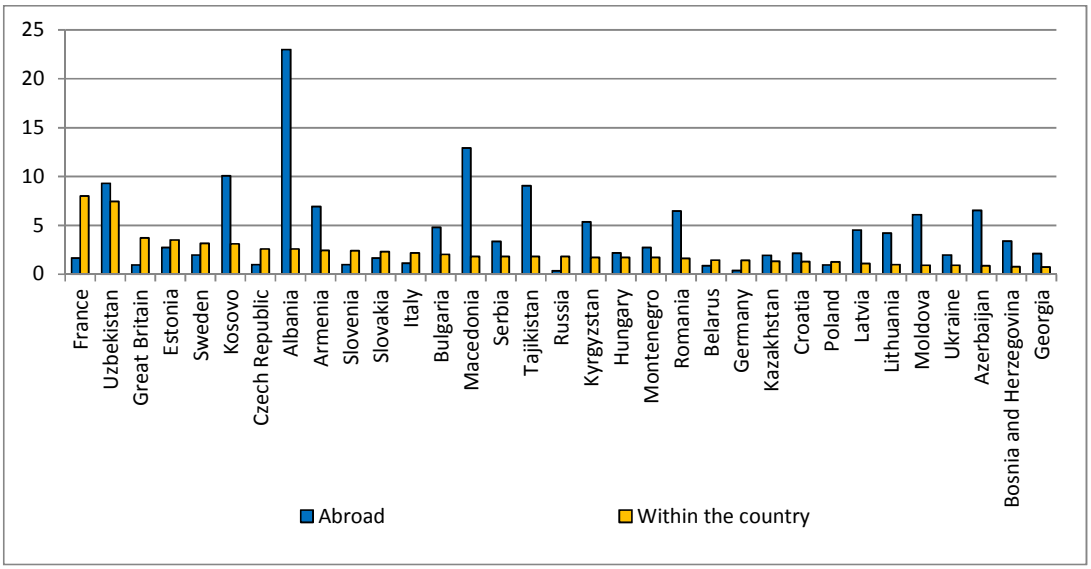
**Figure 17: Ukrainian experts also consider that internal mobility is low in Ukraine**
(Answers, in percent of respondents, to the question: How does internal mobility in Ukraine compare to that of other Eastern European countries?)




*Source: Authors, based on experts' survey on internal migration carried out for this report.*

54. Not only are Ukrainians not very mobile, it seems that also intentions to migrate are low when compared to other countries. The LiTS data provides some insights on the intentions to migrate, either internally or abroad. When asked about intentions to migrate internally (externally) in the near future, only 0.9 percent (2 percent) of Ukrainians answered positively. Only three countries display lower intentions to migrate internally, while 29 countries display higher rates (see Figure 18). Also, Synovate, a global marketing research company, conducted a survey of labor mobility in Russia, Ukraine, Bulgaria, and Serbia (Synovate, 2010). The results of the survey confirmed the finding from LiTS, namely low desire to relocate both in Russia and Ukraine. In particular, if offered a 50 percent increase in salary, around 80 percent of respondents in Russia and Ukraine would still refuse to relocate. In Bulgaria and Serbia, only 50 percent would refuse.

**Figure 18: Intentions to migrate in Ukraine are low compared to other countries**
(Migration intentions by country and destination, 2010)



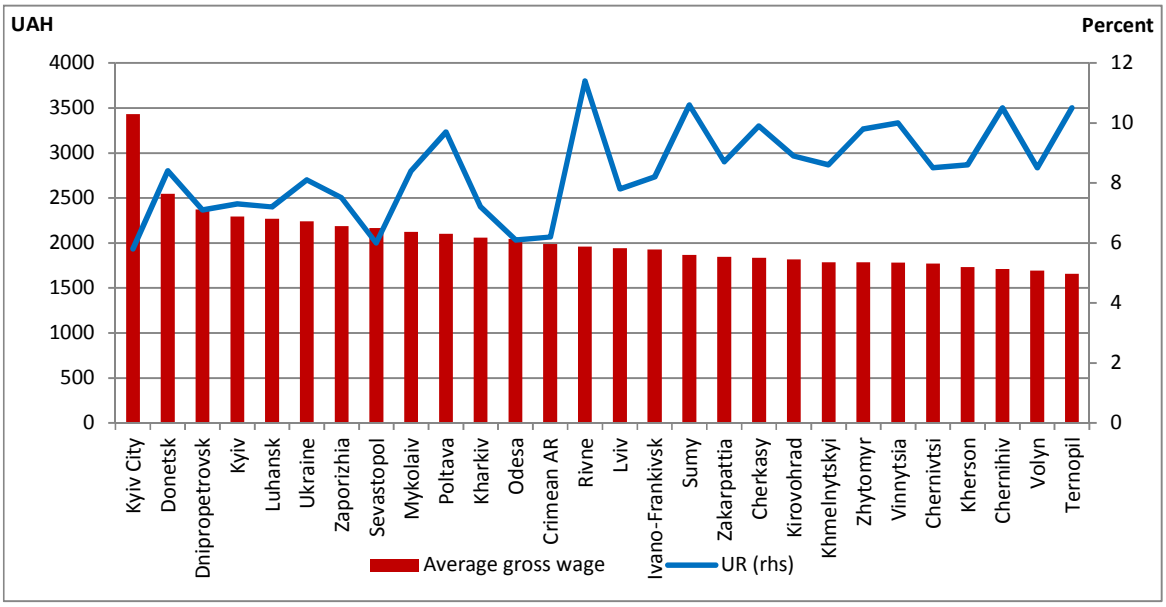

*Source:* EBRD and World Bank (2010).

55. So, in summary, it seems that Ukrainians neither migrate a lot internally nor do they have significant intentions to migrate internally when compared to other countries. This begs the question if maybe there are no gains to be made from internal migration, which is the subject of the next subsection.

## 2.2 The Potential Gains From Internal Mobility

56. Not only are internal mobility rates in Ukraine low when compared to other countries, but also they are low when considering the potential gains from internal mobility. Indeed, given that unemployment rates and wages vary considerably across regions, large economic gains could be realized from *more* internal labor mobility. Figure 19 shows how both unemployment rates and average wages vary considerable across regions in Ukraine. In particular, in 2010, gross average wages varied from UAH 1,500 in Ternopil to UAH 3,500 in Kiev City; and unemployment rates varied from around 6 percent in AR Crimea, Kiev City, Odessa, Sevastopol to almost 12 percent in Rivne.

**Figure 19: Average wages and unemployment rates vary considerable in Ukraine**
(Average wages and unemployment rates across 27 regions, 2010)

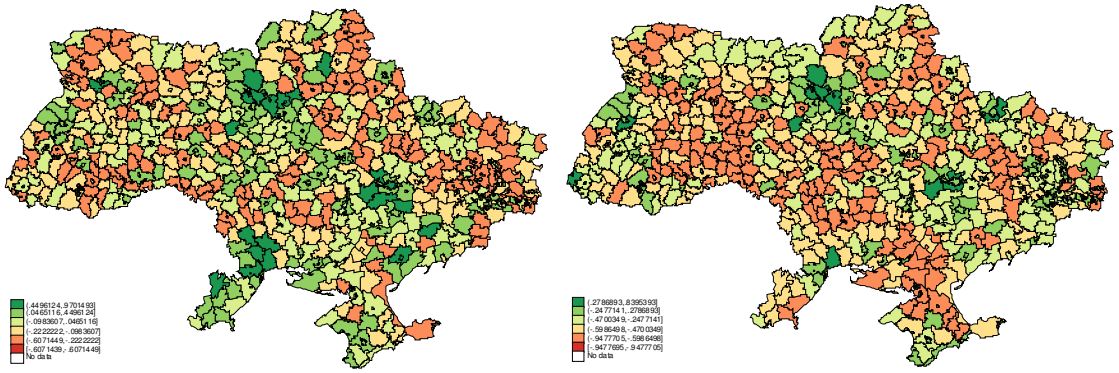



*Note:* Average wages (UAH) refer to left axis, unemployment rates (percent) refer to right axis.
*Source:* Authors, based on SSSU (2010).

57. Economic activities are concentrated in a few regions. Figure 20 shows how economic and employment growth is distributed in Ukraine. Certain regional centers clearly stand out, like Kiev and Sevastopol, and an additional few regional hubs. The large majority of areas, though, displayed low growth rates between 2001 and 2007. These are the lagging regions, from which people will have to be connected to the leading region.

**Figure 20: Growth in firms and employment is concentrated in a handful of areas**

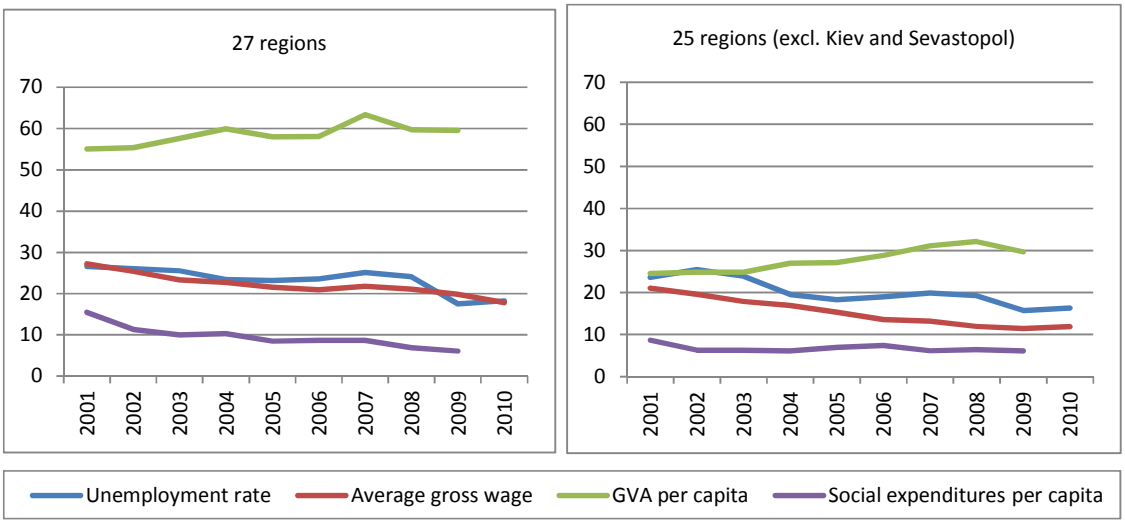
(Change in number of firms, 2001-2007) (Change in total employment, 2001-2007)



*Source:* Kupets et al. (2012)

58. Over time, the dispersion in some economic indicators—like wages, unemployment rates, and social expenditures—narrowed, but considerable gaps remained. Since 2001, the coefficient of variation for the unemployment rate, average gross wages, and social expenditures per capita decreased, so there was indeed some convergence (see Figure 21). But still, it remains high. Tellingly, the coefficient of variation in gross value added per capita increased during the same time, suggesting that production agglomerated.

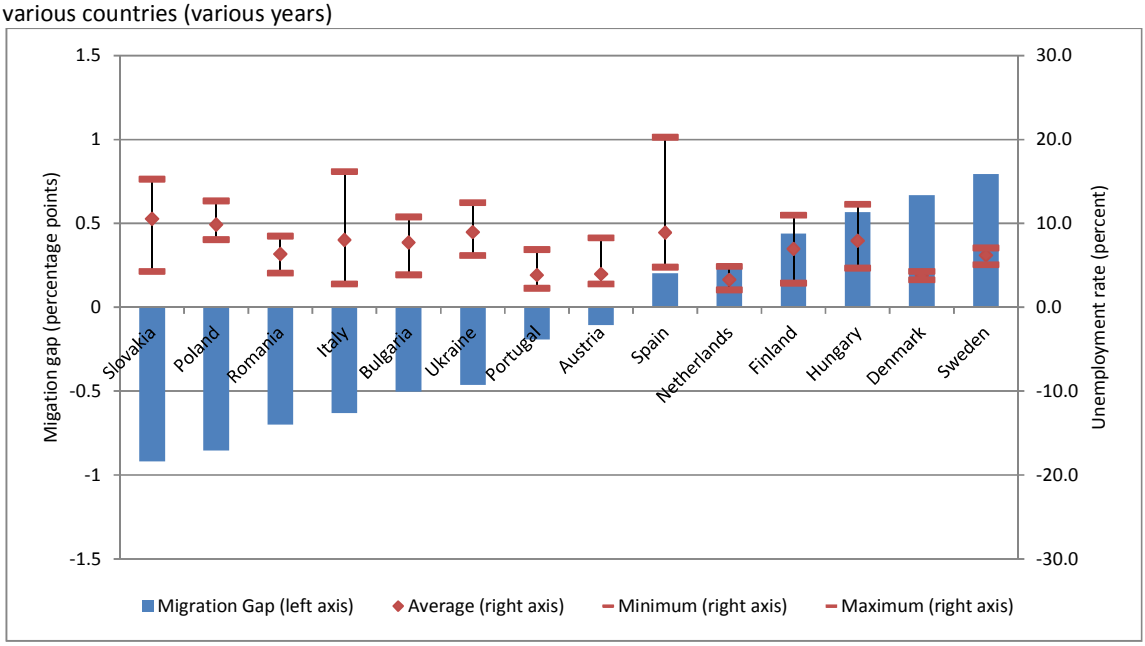
**Figure 21: In the last 10 years, there was some convergence, but gaps remain**
(Coefficient of variation of unemployment rates, average gross wages, gross value added (GVA), and social expenditure per capita across regions in Ukraine, 2001 to 2010)




*Source:* Authors, based on SSSU (2012).

59. In those countries that display the highest internal mobility rates labor market dispersion seem lower. Figure 22 shows that in high-mobility countries like Denmark and Sweden, labor market dispersions are small, while in countries with relative low mobility rates, dispersion seem higher.

**Figure 22: Countries with relative high internal migration (Denmark, Sweden) have the lowest labor market dispersions**
Migration gap and dispersion of unemployment rates (average, minimum, and maximum across regions) for various countries (various years)

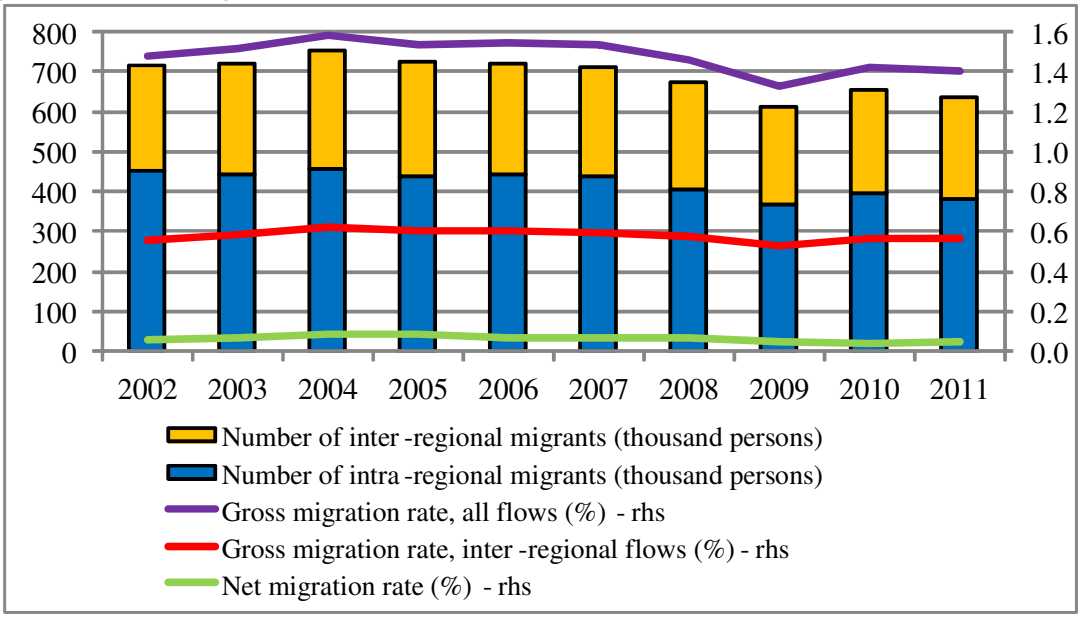



*Note:* The migration gap measures the distance between the expected internal migration rate based on Figure *16* and the actual migration rate. Most countries refer to 2007, except Italy (2005), Portugal (2001), and Ukraine (2009).
*Source:* Authors, based on Eurostat (2012) and SSSU (2012).

## 2.3 Who is Migrating in Ukraine?

60. Official statistics records indicate that about 640,000 people changed residency in Ukraine in 2011, which constitutes about 1.4 percent of the total population. Despite some increase in 2010, gross migration rate is not yet back to its pre-crisis levels (Figure 23). Moves from one region to another (inter-regional migration) represent around 40 percent of total internal migration while moves within the same administrative region (intra-regional migration) about 60 percent.[11]

**Figure 23. Internal migration in Ukraine, 2002-2011**

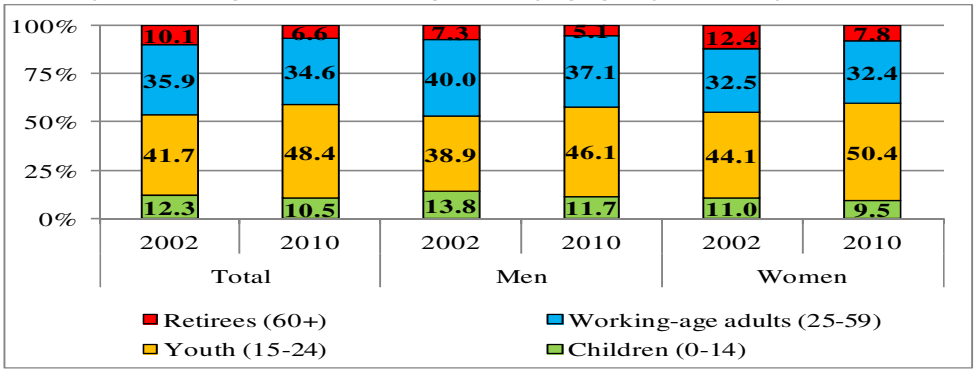



*Source: Authors, based on SSSU.*

61. The age composition of internal migration shows that migrants in working age population (aged 15 to 59) constitute 82.9 percent of total internal migration flows (see Figure 24). At the same time, despite significant regional disparities and urban-rural differences, the number of officially registered moves of working-age migrants decreased from 560,000 people in 2002 to 540,000 people in 2011. The decreasing number and share of working-age adults (aged between 25 and 59) along with an increasing number and share of youth implies that young migrants primarily motivated by education motives are more and more the major migrant group. This finding might also suggest that migration of working-age adults has become more informal—that is, without a registered change of the place of registration—and therefore it is not captured by the official migration statistics.

[11] If we take into account only inter-regional flows, gross migration rate would be less than 0.6 percent of population in 2007-2011.

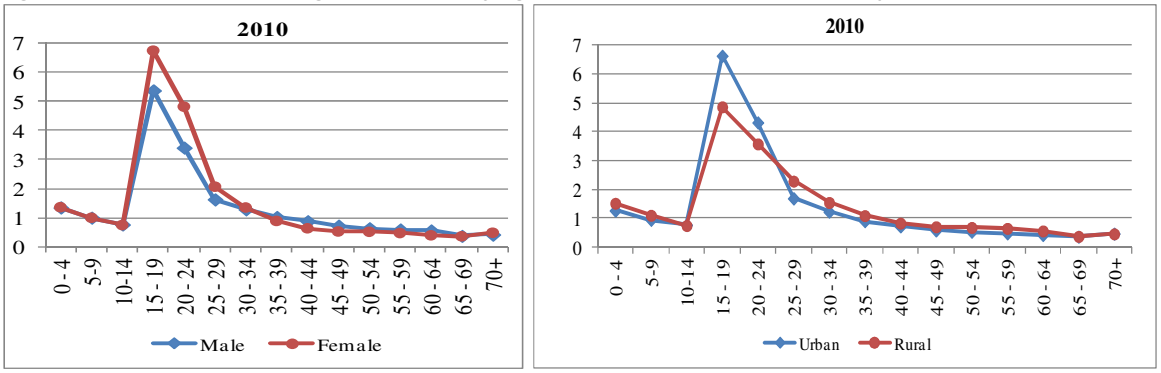
**Figure 24: Composition of (gross) internal migration by age group and sex (percent), 2002 vs. 2010**




*Source:* Authors' calculations, based on SSSU data.

62. In Ukraine the highest propensity to migrate is observed among youth aged 15 to 19.[12] In 2010, their gross internal migration rate was 6 percent, followed by 4.1 percent for the 20-24-year-olds. Furthermore, unlike other age groups, the propensity to migrate internally of these cohorts significantly increased over the last decade. Migration propensity is also relatively high for children under five years, which reflects their migration with parents who are typically in the age groups with high mobility. In general, the age composition of internal migration rates is similar to that found in many other countries.[13] At the same time, compared to developed countries annual internal migration propensity peaks at younger age, and there are no signs of consumption-led retirement migration in Ukraine.[14]

**Figure 25**: **Gross internal migration rates by age, sex, and rural-urban divide (percent), 2010**




*Note:* The gross migration rates show the number of all documented migrants within Ukraine in 2002 and 2010 relative to the average annual de jure population for each sex, five-year age group and each population group (urban vs. rural). The starting point was data on total and international migration inflows and outflows by sex, five-year age groups and urban/ rural divide from which the gross internal migration flows for both sexes and then gross migration rates by age and urban/ rural divide according to eq.(5) were calculated.
*Source:* Authors, based on SSSU.

63. People in their late teens and early twenties move for education, employment and family reasons and therefore play an important role in both the inter-regional and rural to urban migration

[12] Due to data limitations, the following paragraphs refer to total internal migration, that is, both intra- and inter-regional migration.
[13] Available evidence on internal migration in Russia (http://demoscope.ru/weekly/2005/0185/analit01.php) suggests that migration age profiles, particularly for intra-regional migration, are largely comparable to those observed in Ukraine but gender differences in Russia appear to be much more pronounced than in Ukraine.
[14] See, for example Etzo (2008) for Italy, Bell et al. (2002) for Great Britain and Australia, Kupiszewski et al. (2000) for Switzerland, Greenwood (1997) for the US.

turnover. However, the primary reason for officially registered migration of youth is education.[15] After completing their studies some of them come back to their home regions but many find employment and stay in the host towns and cities that are more attractive not only to study but also to work. Given this, migration to study can be often seen as a first step in labor migration. Kupets (2012) based on the latest available statistics on age profiles of migration by regions in 2007 finds that education centers as Kyiv, Kharkiv, Dnipropetrovsk, Odesa, Lviv, Chernivtsi and Sevastopol had net gains of youth population as a whole, since the number of graduates (20-24 years) moving back to their home regions or to some other regions of employment was significantly smaller than the number of incoming teens moving to study[16]. The pattern in most other regions was completely the opposite, with net migration outflows of teens, net migration inflows of young people aged 20-24 years, and resulting net losses of youth population.

64. More than half of all internal migrants in Ukraine (53.7 percent in 2010) are female. This may be partly explained by the higher share of females in total population (53.9 percent in 2010) but also by their higher enrollment rates in higher educational institutions that results in more education-motivated migration among women. Females and urban young people under 30 years have a higher propensity to migrate than their male and rural counterparts. On the other hand, men and rural population appear to have higher propensity of changing their official place of residence in older age when internal migration is more likely to be motivated by labor market reasons rather than by education or marriage. This suggests that rural adult males are more mobile and reactive to employment opportunities outside their settlements, and thus have a higher potential to ease inefficiencies due to the regional disparities within Ukraine.

### 2.4 Where to do migrants go?

65. An analysis of inter-regional migration flows reveals that in most cases, in-migration from other regions approximately matches out-migration to other regions, resulting in about zero net migration rates. But some places, such as Kyiv City, Kharkiv oblast and Sevastopol City, have consistently gained population through internal migration. In total, there are only eight regions in Ukraine which received more people from internal migration than lost during 2002-2011. In addition to the above mentioned regions, these include Kyiv oblast, Odesa oblast, Crimean, Dnipropetrovsk oblast, and Chernivtsi oblast. All other regions were predominantly net losers in terms of inter-regional migration between 2002 and 2011. The region with the biggest net losses was Kirovohrad oblast.

66. Regions that experienced net population gains from inter-regional migration in 2011 are located in different geographic parts of Ukraine (Figure 26). Thus, attractive regions in terms of internal migration are not concentrated in certain areas, for example in the industrially developed East or more diversified economies with developed agriculture and the services sector in the South and the West. Furthermore, only Kyiv City, Kyiv oblast and Odesa oblast can be considered the economic centers of the respective geographic macro-regions when the share of each region in Ukraine's GDP and population is used as the basis. Hence, this first descriptive observation suggests that economic reasons are not the only reasons for population migration in Ukraine.

[15] Many young people certainly can also have labor market reasons for migration but these employment-related moves are most likely to be unregistered as young people can hardly afford to buy an apartment or find alternative ways of being officially registered in the new place of residence. Other important motives for migration of young people are family reasons. As suggested by Hazans (2004), traditionally strong family links sustained between relatives living in different parts of the country make the typical 'travel-to-find-a-spouse-area' larger than one would otherwise expect, and contribute to inter-regional migration which is not necessarily related to labor market differentials in expected way.

[16] Surprisingly, Donetsk region which is ranked second in terms of the number of higher educational institutions (but not in terms of the number of students per 10,000 people) did not attract more teens from the other regions than it lost. Therefore, there were more important factors than the availability of higher educational institutions which had affected decision of young people to out-migrate from this region.

**Figure 26**: **A map of Ukraine by administrative units and net inter-regional migration rate in 2011** (percent of regional population)*


*Note:* * Regions with net gains from inter-regional migration are colored green; regions with net migration losses of more than 0.10% are colored blue; the other regions are colored orange.
*Source:* Author's calculations, based on SSSU.

# 3 The Inefficiency of Current Internal Labor Migration Patterns

**For internal migration to be efficient, labor has to move to the areas of the country where productivity—and therefore, wages—are high, and where unemployment is low. However, in Ukraine, the little internal migration observed responds only partially to labor market conditions. Migrants are not leaving lagging areas with poor labor market outcomes; and they are not necessarily going to the regions with better labor market conditions. Instead, migrants seem to be pushed from their regions of origin by relatively low levels of social spending and low population density. In addition, workers use commuting as a substitute for residential migration. This suggests that gains from internal labor migration in terms of higher productivity and living standards are not being fully realized.**

67. Not only are internal mobility rates in Ukraine low when compared to other countries, but also they are low when considering the potential gains from internal mobility. Indeed, given that unemployment rates and wages vary considerably across regions, large economic gains could be realized from *more* internal labor mobility (see Box 4 for a summary of theories of internal migration).

68. At a glance, internal mobility in Ukraine does not appear to be strongly correlated with labor market conditions. Figure 27 depicts in-migration and out-migration rates across administrative regions in Ukraine in 2010, compared to unemployment rates and wages (adjusted for the local cost of living). If internal mobility is efficient, then regions with high unemployment and low wages should have high departure (out-migration) rates and low arrival (in-migration) rates; conversely, regions with low unemployment and high wages should have low departure rates and high arrival rates. Yet, in Ukraine, this is not the pattern of observed. While regions with high unemployment and low wages do have high departure rates, arrival rates are largely uncorrelated with labor market conditions (if anything, the correlation is weakly positive between arrival and unemployment rates). That is, while people seem to leave places with weak labor markets, they are not necessarily going to areas with better opportunities—they are moving for reasons not directly related to the labor market.

69. These patterns of migration, however, might not have been this efficient in the past. In fact, previous research suggests that in the period right at the beginning of the transition, from 1990 to 1995, internal migration patterns might have been more efficient (see Box 5).

**Box 4: Understanding Internal Labor Mobility: The Theory**

As has been discussed earlier, people migrate for many different reasons, labor market conditions being one of them. Since Ravenstein's laws of migration appeared at the end of the nineteenth century, a large number of conceptual and theoretical frameworks on internal migration have been developed (see Table A 3 for a summary of selected works). Broadly speaking, the existing literature is based on the push-pull models of migration described by Lee (1966). Essentially, in this framework, four groups of factors influence the decision of individuals and households to migrate: 1) factors associated with the origin region; 2) factors associated with the destination region; 3) "intervening" obstacles, such as distance and legal requirements, which increase the cost of migration; and 4) individual and household characteristics. In every region, there are factors that retain people in that area or attract people to it (pull), but there are also factors that tend to repel individuals (push). The question, therefore, from a perspective of labor migration, is the relative importance of labor market factors (mainly wages and the probability and quality of prospective employment) in comparison to other factors in pulling or pushing individuals and households to

migrate. Assuming that differentials in wages and employment conditions between regions represent potential for individual utility gains that can be arbitraged away by migration, these disequilibrium forces are considered to be the most influential factors of migration in the pull-push framework.

Spatial differences within a country in labor market conditions are expected to motivate people to move in search of an improvement in their own welfare and that of other members of their households. Spatial differences in wages, earnings, income and employment opportunities—after accounting for other pull and push factors - represent opportunities for welfare improvements that can be realized through migration. The relative importance of labor market conditions in explaining internal migration depends, however, on the sources of variations in these spatial differences, as well as on their persistence. There are two main views in this respect (Greenwood, 1997):

First, the "disequilibrium" perspective, which argues that the motivation to migrate arises from the existence of regional differences in wages and employment opportunities that do not clear or adjust in the market, and that are, therefore, persistent over time in the absence of labor internal migration.

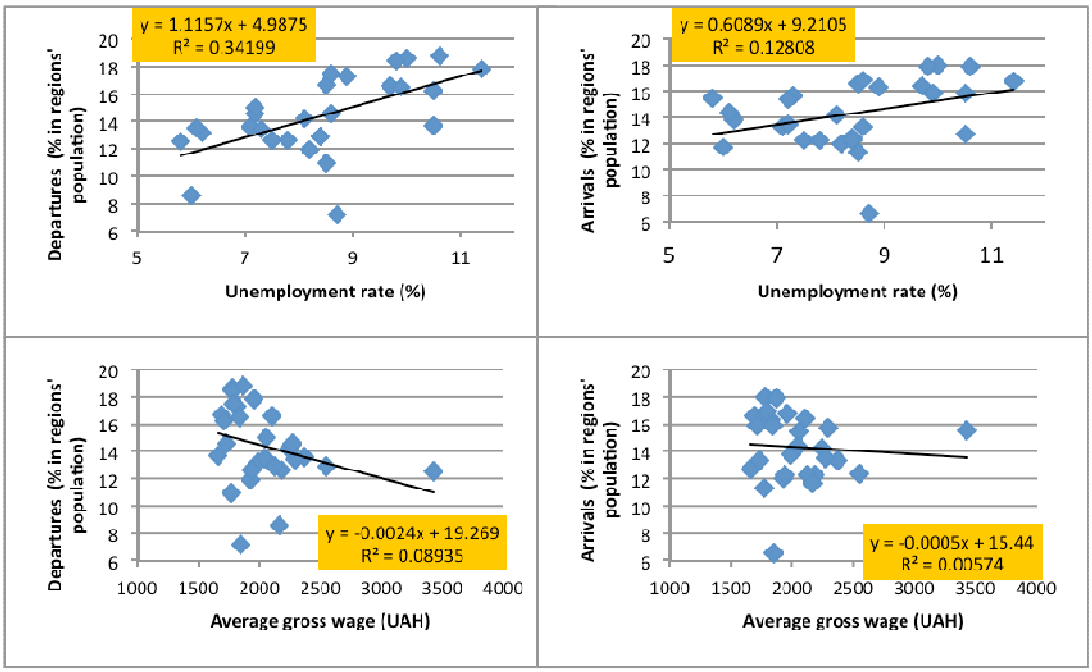
Second, the "equilibrium" perspective, which argues that the observed differences in the job market do actually clear the market because they reflect differences in "amenities" across regions (differences in quality of living, environmental conditions, public goods, among other factors). As a result, proponents of the second approach assume that households and firms are in proximate equilibrium at any point in time and therefore spatial variations in wages do not generally reflect opportunities for utility gains that can be arbitraged through migration. Only non-compensating regional differentials that remain after controlling for amenity differentials across regions should represent utility differentials that would induce migration.

Although two approaches assume that spatial variations in expected utility underlie migration decisions and therefore they belong to the same class of push-pull models described by Lee (1966), the implication of the two different approaches is that a properly specified migration model should include regional wage or income variables, the unemployment rate (as a proxy for employment opportunities), regional rent level, and various regional amenities that nest disequilibrium and equilibrium forces in the same model.

Accounting for other pull and push factors, therefore, migration will contribute to increased aggregate productivity and rising living standards to the extent that people reallocate to regions, sectors and economic activities where productivity –and therefore wages—are high and economic opportunities abound.

*Note:* A more detailed review of internal migration theories is presented in Greenwood (1997), Lucas (1997) and Etzo (2008).
*Source:* Authors and Kupets (2012) for this report.

**Figure 27. Migrants leave lagging regions, but do not go to leading regions**
(Departures and arrivals of internal migrants versus unemployment rates and wages, 2010)




*Source:* Kupets (2012) for this report, based on SSSU data.

**Box 5: Earlier studies on internal mobility in Ukraine**

Earlier studies on internal mobility in Ukraine typically found expected patterns of population migration, with people moving predominantly from poorer and job-scarce regions with worse public good provision, social environment and housing supply, to the ones that are richer and more prosperous in terms of employment prospects, public goods and infrastructure.

However, with few exceptions, these studies have been based on simple correlation analysis between a selected measure of internal mobility and one indicator of interest and have often focused on overall migration flows across regions rather than bilateral flows.

For example, ETF (2009) documents correlations between officially registered inter-regional migration in Ukraine and gross regional product per capita (as a proxy for economic activity), average wages, social environment (including security and risk of diseases), living standards and infrastructure (living conditions, transport, housing) and the number of post-secondary educational institutions.

Regional differences in local budget expenditures per capita have also found to correlated with inter-regional migration flows (Korchynskiy and Kolodiy, 2008). The correlation between local budget expenditures per capita (as a percentage of the national average) and net migration rate is strong and increasing: the coefficient of correlation increased from 0.79 in 2000 to 0.86 in 2006 if local budget expenditures in the same year are used, and from 0.38 in 2000 to 0.84 in 2006 if local budget expenditures are lagged one year. These authors also find a correlation between regional average wages (as a percentage of the national average) and net migration: in 2006 the corresponding coefficients of correlation are 0.79 (wages in the same year) and 0.78 (wages lagged one year).

In addition, urbanization has also been found to correlated with internal migration flows (World Bank, 2005; IDSS, 2007). The World Bank Poverty Assessment (WB, 2005) points to significant positive correlation between the share of urban population in the region and net internal migration

rate. This implies that internal migration occurs primarily from rural, relatively worse off regions, to larger, more densely, populated urban areas. There is also evidence of increasing migration flows between adjacent regions and growing distance of migration moves (IDSS, 2007). A strong and increasing correlation between employment losses in agriculture and migration outflows from rural areas (both within the region and between regions) has also been documented.

Some studies have focused on understanding internal migration in Kiev oblast, an area of high internal migration flows. According to Dragunova and Maidanik (2009), the most important determinants of migration within Kyiv oblast are the number of registered vacancies in the local labor market and the level of wages, while the factors of migration out of Kyiv oblast and to Kyiv City are the unemployment rate and the number of new completed dwellings.

The only study of the determinants of inter-regional migration in Ukraine (based on official statistics), using multivariate econometric analysis, is Martynenko (2004). The author finds that the drivers of internal migration in Ukraine have changed significantly over time, with labor market conditions becoming less and less relevant for internal migration decisions as the transition has progressed.

Net inter-regional migration in 1990-1995 was largely attributed to the differences in wages and the unemployment rate, while various social factors (including the number of doctors/beds in hospitals, life expectancy, the crime rate, the number of tertiary educational institutions, the volume of paid services to population, the average size of the living area in square meters per person and the distance between the centers of regions) seemed to be less important or insignificant.

However, the situation changed in the late 1990-s and early 2000-s. Many factors which were significant before became insignificant (the registered unemployment rate and housing supply), some previously insignificant indicators became significant with expected sign (for example, the crime rate), while the direction of influence of some important variables changed to the opposite (from positive to negative for average wages and from negative to positive for the number of tertiary educational institutions). The results for education and crime rate are in line with previous findings based on univariate analysis and theoretical arguments, but the insignificant effect of the unemployment rate, the urban share and housing supply --as well as the negative correlation between wages and internal migration rates— do differ from the findings from simple correlation analyses.

*Source:* Authors and Kupets (2012) for this report.

70. Microeconomic evidence also supports the hypothesis that in Ukraine internal mobility does not appear to be determined by labor market opportunities. Kupets (2006), for example, shows that the probability of an individual moving from unemployment to employment is lower the higher the unemployment rate of the region where the person resides.[17] This means that local labor market conditions are a significant determinant of an individual's labor market outcomes. If people were mobile, then one would not observe this correlation—or at least not a strong one. The author's results are, therefore, consistent with an environment in which labor mobility is limited and individuals do not necessarily move to other regions where labor market conditions are more favorable.

71. But regions differ across many different dimensions that may matter for determining migration; the next question is, therefore, whether internal migration in Ukraine is correlated with labor market conditions, after accounting for other relevant differences across regions. In order to

[17] This is the case even after controlling for unemployment benefits, alternative sources of income, household income, among other variables.

determine more rigorously the extent to which internal migration in Ukraine is efficient in the sense of responding to labor market conditions, four different sets of factors need to be accounted for:

1) labor market and economic conditions, especially wages and unemployment rates;

2) amenity (environmental) variables, including public social spending, the criminality rate, pollution, the location of the region (in the coast or inland) and whether the region is in an area affected by the Chernobyl disaster in 1986;

3) intervening or gravity variables that affect the cost of migration, including distance, language and population size; and

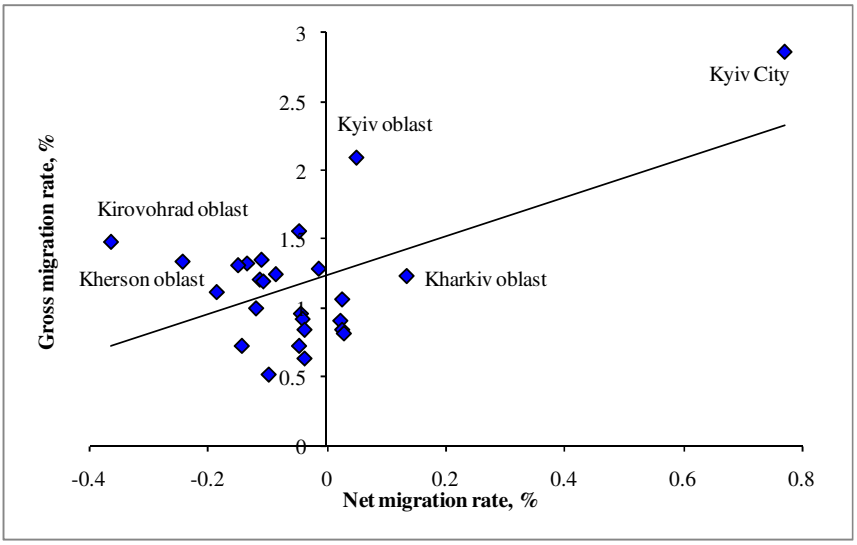
4) population demographic and socio-economic characteristics, including gender, age, education, urban/rural location and key economic sectors.

72. We incorporate these four sets of factors into analyzing internal migration flows in Ukraine. First, we analyze the determinants of inter-regional migration gross flows between 2002 and 2010; then, we look into the role that labor market conditions play in explaining bilateral flows, with a focus on more recent years, 2008 – 2010; third, we discuss the determinants of internal migration at the individual level; and finally, we analyze the patterns and determinants of commuting in Ukraine, a substitute for internal residential migration. All in all, the picture that emerges is rather clear: internal migrants are responding only partially to spatial labor market differentials, leaving untapped a significant part of the potential for higher productivity and living standards.

### 3.1 Determinants of Inter-regional Migration

73. There is significant churning in migration flows across regions, an early indication that labor market conditions are unlikely to be the main driver of internal migration in Ukraine. There is a positive and strengthening correlation between in-migration and out-migration rates since 2004, with correlation coefficients increasing from 0.66 in 2004 to 0.94 in 2010. Figure 28 plots the average rates of gross inter-regional migration in 2002-2010 against net migration for 26 administrative units in Ukraine. As expected, high levels of turnover and positive values of net migration are found in Kiev City and Kiev oblast. Positive net migration but lower levels of turnover are observed in Kharkiv and Dnipropetrovsk oblast in the East, Crimean AR and Odesa oblast in the South oblast, and Chernivtsi oblast in the West. It is also noticeable that other areas of relatively high turnover (but with net losses) tend to be more concentrated in the central part of Ukraine and around the capital region. This indicates that there is a significant amount of churning flows between regions, with in-migration and out-migration cancelling each other out in a number of cases. Moreover, this suggests that internal migration may not be resulting in an efficient relocation of people from less to more productive regions with better employment opportunities.

**Figure 28: Migration-attracting regions also have large migration outflows**
(Average gross inter-regional migration rate versus net migration rate, 2002-2010)




*Source*: Kupets (2012) for this Report, based on SSSU data.

74. The question remains of whether internal migration flows in Ukraine are correlated with labor market conditions when controlling for the set of all relevant differences in socio-economic, demographic and geographic indicators across regions. Using cross-regional data for 27 administrative regions between 2002 and 2010, in-migration, out-migration and net migration rates are estimated.

75. Following the existing literature on internal migration in transition economies (Fidrmuc, 2004; and Hazans 2003a), we estimate the inter-regional migration rates as:[18]

$$m_{i,t} = \beta_0 + \beta_1 w_{i,t-1} + \beta_2 u_{i,t-1} + \alpha' X_{i,t-1} + \delta_t + \xi_{i,t}$$

where:

- $m_{i,t}$ is one of the three region-level migration rates (in-migration, out-migration or net migration);
- $w_{i,t-1}$ is the real wage in the previous year;
- $u_{i,t-1}$ is the unemployment rate in region *i* in the previous year[19];
- $X_{i,t-1}$ is a vector of previous year's region-specific characteristics expected to influence in-migration or out-migration outside of the labor market. Following Fidrmuc (2004), we include the log of the population density to account for the degree of urbanization. We also use a set of regional characteristics to control for differences in demographic composition of population, amenities and local government spending on social services (the latter is taken as the ratio of per capita spending in *i* divided by the nationwide average spending).
- $\delta_t$ refers to year dummies to control for changes in the macroeconomic environment and changes over time in migration flows that are common across regions;

[18] Definitions and data sources of all variables used in the empirical analysis are presented in Annex xx.
[19] Alternative measures are the ratio of regional unemployment rate to the national one and the unemployment difference of region *I* vis-a-vis the national average, as suggested by Pissarides and McMaster (1990). Results are robust to these alternative specifications.

- $\xi_{i,t}$ is the error term.[20]

76. Even after controlling for the four different areas included in push and pull models, interregional migration flows between 2002 and 2010 in Ukraine are not correlated with labor market conditions. Detailed estimation results are reported in Table A 5 for the two samples of regions: a larger sample of regions consisting of all 27 regions and a smaller sample without Kiev and Sevastopol cities. Table 2 summarizes the regression results. When considering all regions —even after controlling for several covariates— it does appear that internal migrants do not respond to labor market incentives at origin nor at destination.[21] This finding echoes the simpler analysis with no controls discussed above. When Kiev and Sevastopol are excluded from the sample, however, it does seem that migrants go to high-wage regions. These results suggest that Kiev and Sevastopol present characteristics—beyond labor markets- that drive migration from and to these places. In particular, results could be explained by the large number of people that leave high-wage Kyiv and Sevastopol cities for permanent residence in suburban areas, partly to areas with more affordable housing (Kupets, 2012). We revisit this issue in Sub-Section 3.4 when discussing commuting. The effect of unemployment rates is not statistically significant in most specifications, although it is weakly related in the expected direction to net migration flows.[22]

**Table 2: What factors are associated with internal migration in Ukraine? Selected indicators**

| | **In-migration rate** | | **Out-migration rate** | |
|---|---|---|---|---|
| | **27 regions** | **25 regions** | **27 regions** | **25 regions** |
| Wage | 0 | + | + | 0 |
| Unemployment rate | 0 | 0 | 0 | + |
| Population density | + | - | 0 | - |
| Share of youth in population | + | 0 | - | 0 |
| Share of elderly in population | + | 0 | 0 | 0 |
| Marriage rate | + | 0 | 0 | 0 |
| Social spending per capita | + | 0 | 0 | + |
| Number doctors per population | 0 | 0 | - | 0 |

*Notes*: Results for 25 regions exclude Kiev and Sevastopol cities. "0" refers to non-statistically significant results; "+" refers to a positive correlation; "-" refers to a negative correlation. Detailed results are presented in Table A 5.
*Source:* Authors, based on Kupets (2012).

[20] Preferred estimations are obtained through a random effects panel regression, after performing the Hausman specification test and the Breusch and Pagan Lagrangian multiplier test. The intuition for this result is that when analyzing overall interregional migration flows, as opposed to bilateral flows, each region can be considered as being a random observation from a larger population after controlling for a number of characteristics. This assumption is stronger, however, when regions like Kiev and Sevastopol are included in the sample as they do have internal migration Dynamics that are likely to be fundamentally different from those in the other regions. We revisit this issue when analyzing bilateral interregional migration flows next.

[21] If anything, it seems that workers are leaving high wage areas. We return to this apparent contradiction when we discuss bilateral interregional migration flows.

[22] Greenwood (1997, p.682) argues that "the failure of unemployment rates to influence migration in the expected direction and/or with the expected relative magnitude can be caused by aggregating population subgroups whose motives for migration differ widely… Since higher unemployment rates are likely to be of most concern to the unemployed and perhaps of little or no concern to those who have a job when they move, the effects of higher unemployment rates may well not be apparent in studies that attempt to explain population or labor force migration with aggregate data". In addition, the specifications under discussion already control for wages, which may capture most of the relevant labor market conditions and is correlated with unemployment rates across regions.

77. It is important to note that this findings are in stark contrast to those existing in the literature for the early post-transition years, when internal migration flows in Ukraine appeared to follow labor market conditions more closely. Martynenko (2004) finds that regional disparities in labor market performance (wages and unemployment rate) were important determinants of internal migration in the early years following the transition. However, after 1995, labor market performance was not the main driver for internal mobility. Instead, inter-regional differences in public goods and infrastructure became more relevant. In particular, the author finds that crime and the lack of places in university education were significant in pushing people to move to new regions. This is consistent with the more recent findings in this report.

78. Social public spending, density and demographics seem to be explaining inter-regional migration flows more recently. As presented in Annex 3, regions that have relatively higher social spending have higher in-migration and net migration rates. A parallel pattern appears for density: those regions that are most densely populated attract a high number of migrants. These two indicators could be capturing important push factors for migration, where public infrastructure and services, together with city-like amenities, appear to drive internal migration. Interestingly, in terms of demographics, results indicate that regions where there are less children are also more likely to attract more migrants. The attractiveness for immigrants of a given region seems to be stronger when the population at destination has a large share of youth. This could be reflecting the importance of education-related migration as the youth will also be concentrated where higher education centers are located. However, results remain even after accounting for the number of students in the region, possibly indicating a broader attraction to dynamic and young places.

79. One important limitation of the analysis above is that the migration flows across pairs of regions are not equally probable. As we show below, migration flows between neighboring regions, for example, or regions that share a common language, tend to be higher, even after controlling for a host of other variables. As a result, analyzing bilateral migration flows may provide a more accurate picture of the determinants of migration than analyzing general migration flows from one region to all others in the country. We now turn to the analysis of bilateral migration flows across regions in most recent years.

### 3.2 Determinants of Inter-regional Migration: Analysis of Bilateral Flows in 2008-2009

80. To analyze bilateral migration flows across regions in Ukraine we use a modified gravity model that accounts for the key four dimensions of push and pull migration models. The empirical analysis is based on a modified gravity model, where migration between two given regions is expected to be directly related to the population size in both origin and destination areas (since the pool of people to migrate is larger) and inversely related to the distance between the two regions (since distance is seen as a proxy for both out-of-pocket financial costs and the psychic costs of moving). In addition to these indicators, the modified gravity model includes other characteristics of the origin and destination regions that are expected to influence the decision to migrate, including labor market indicators, amenity variables and socio-economic characteristics of the population. Thus, the modified gravity model for internal migration includes a behavioral foundation for migration, as well as a mix of disequilibrium and equilibrium notions.

81. Following Andrienko and Guriev (2004), we estimate the modified gravity models in double logarithmic form because of reasonably good fits and easy interpretation of the estimated coefficients as elasticities of migration's response to changes in the independent variables. The estimation results of the random effects models are reported in Table A 6 and summarized in Table 3. The basic equation is:

$$\ln M_{ij,t} = \beta_0 + \beta_1 \ln D_{ij} + \beta_2 \ln P_{i,t} + \beta_3 \ln P_{j,t} + \beta_4 \ln Y_{i,t} + \beta_5 \ln Y_{j,t} +$$
$$+ \beta_6 UR_{i,t} + \beta_7 UR_{j,t} + \lambda' X_{i,t} + \gamma' X_{j,t} + \alpha' X_{ij} + \delta_t + \eta_{ij} + \xi_{ij,t}$$

where:

- $M_{ij,t}$ is migration flows from region *i* (origin) to region *j* (destination) in year *t*;
- $D_{ij}$ is distance between origin and destination proxied by the distance between the two main cities in each region. Migration is expected to decrease with distance ($\beta_1$<0) because the letter serves as a proxy for all direct and indirect costs related to moving. Furthermore, distance reflects the importance of relatives and friends and other forces if a lagged migration variable is not included in the model (Greenwood, 1997);
- $P_{i,t}$ and $P_{j,t}$ refer to the population size in origin and destination areas, respectively. According to the gravity law of spatial interaction, migration is expected to be directly related to the size of origin and destination regions ($\beta_2$>0 and $\beta_3$>0);
- $Y_{i,t}$ and $Y_{j,t}$ refer to income variables (wages, disposable per capita income or gross value added per capita in our case) of origin and destination areas. [23] Based on the disequilibrium perspective, according to which spatial differences in wages or income represent potential for household utility gains that can be realized through migration, the coefficient on the wage or income variable at the place of origin is expected to take a negative sign ($\beta_4$<0), whereas the coefficient on the wage or income variable at destination is expected to take a positive sign ($\beta_5$>0). On the other hand, if we take into account that potential migrants from high-income regions are better able to finance a move to attractive but often expensive areas, the sign on the coefficient of the income variable at origin could turn positive;
- $UR_{i,t}$ and $UR_{j,t}$ are unemployment rates (defined according to the ILO methodology) in origin and destination regions. According to the disequilibrium approach, regions with lower unemployment rates tend to attract migrants from the regions with worse employment opportunities ($\beta_6$>0 and $\beta_7$<0);
- $X_{i,t}$, $X_{j,t}$, $X_{ij}$ are vectors of other explanatory variables which are expected to influence internal migration decisions. In our analysis we include the following variables:
- Dichotomous indicator for neighboring regions (1 if regions *i* and *j* share the same land borders) which is expected to be directly related with migration flows;
- Dichotomous indicator for common language (1 if the main language, either Ukrainian or Russian, in region *i* is the same as in region *j*). It is included in the model to test our hypothesis that language (as well as cultural and religious) differences between various parts of Ukraine are likely to negatively influence migration flows between two regions;
- Comparability index of economic distance between two regions $c_{ij}$ to measure regional differences in the composition of employment by economic sectors. We define this indicator as the Euclidean distance between points $s^i$ and $s^{j:}$ in *n*-space:

$$c_{ij} = d(s^i, s^j) = d(s^j, s^j) = \sqrt{\sum_{l=1}^{n} (s_l^i - s_l^j)^2}$$

[23] In the empirical results discuss here, we focus on wages. For robustness, we also checked results when using per capita disposable income and gross value added; results are very similar to the ones with wages. Here we show the results with wages because the wage rate is one of the most important factors affecting labor supply and mobility of workers across regions, and information on wages is easily available. However, given widespread informality, aggregate wage data may not fully reflect actual wages in the economy

where $s_l^i$ and $s_l^j$ stand for the respective shares of working-age population (in our study aged 15 to 70 years) employed in sector *l* in the origin and destination region, and *n* is the number of sectors. We focus on five sectors - agriculture, industry, construction, public services, and market services.[24, 25] This is an indicator not traditionally included in the literature, and that we have constructed to capture (i) that the economic cycle and the structure of the economy could differ significantly for regions with different economic structures (services versus agricultural regions, say) and (ii) that when moving from a region with a given economic specialization to another with a different specialization, the skills required may be fundamentally different, leading to frictions in mobility if adjustment takes time. On the one hand, the first element could lead to increased migration flows the more the economic structure between two regions differs since workers could move to take advantage of booming labor markets when the local labor market stalls; on the other hand, the second element could lead to lower migration flows as the economic distance between two regions increases if skills are a constraint. Which of these two forces prevails is, therefore, an empirical matter.

- A set of demographic variables to proxy characteristics of the population at risk to move, namely its age composition, the share of urban population, the share of women, and the share of population with complete higher education;[26]
- Indicators for amenities (or "negative" amenities) are also included, following the equilibrium perspective of migration. In particular, indicators such as crime rate, air pollution, the presence of a sea coast, the presence of areas most affected by the Chernobyl disaster, number of doctors and higher education students per 10,000 residents, per capita expenditures of local governments on education, health, and social assistance are included in the model. Results are expected to be in line with the Tiebout hypothesis that people 'vote with their feet' preferring regions with better public goods provision (Tiebout, 1956);
- Housing market characteristics, in particular an indicator of new dwellings commissioned during a year (in square meters per person), the average price per **square meter** for the apartment bought at secondary market (per square meter) and the average monthly rent payment in the main regional city to control for responsiveness of migration to housing prices;[27]
- $\delta_t$ is a time dummy for 2009 (2008 is a base year) to control for macroeconomic conditions and time trends in bilateral migration flows constant across pairs of regions;

[24] Initially, we used the same comparability index as in Jackman and Savouri (1992) measured as the square of the difference in the proportion of population employed in industry and construction in origin and destination regions but it failed to account for the differences in the employment structure.

[25] We estimated also the same model using the measure of economic distance calculated for 60 narrow (2-digit NACE) sectors but results are very similar to the one with economic distance for 5 broad sectors.

[26] The only regularly published indicator on the composition of region's population by education level in Ukraine is the share of population aged 6 years and over with complete higher education which is based on the Household Budget Survey (HBS). We also use an alternative indicator calculated on the basis of the individual-level Labor Force Survey data—the share of population (total as well as economically active) aged 25-70 years with complete higher education. Taking into account that all three measures (one according to the HBS data and two according to the LFS data) are highly correlated, we present results using the education indicator for the labor force based on the LFS data.

[27] In the final model, we do not include rental and housing prices because migration itself can affect prices in the destination region causing them to go up. In addition, these prices are available only for large cities and therefore they are not necessarily good proxies for living costs in the whole region.

- $\eta_{ij}$ are unobserved random group-specific variables which are assumed to be uncorrelated with the independent variables included in the model.[28]
- $\xi_{ij,t}$ is the error term.

**Table 3: What factors are associated with internal migration in Ukraine according to the gravity model? Selected variables**

| Variable | Correlation with internal migration flows, 27 regions |
|---|---|
| Wage (origin) | + |
| Unemployment rate (origin) | 0 |
| Wage (destination) | + |
| Unemployment rate (destination) | - |
| Distance | - |
| Population density (origin) | + |
| Population density (destination) | + |
| Share of youth in population (destination) | + |
| Share of labor force with completed higher education (origin) | + |
| Social spending per capita in health (origin) | - |
| Social spending per capita in social assistance (origin) | - |

*Notes*: Results are based on specification (2) in Table A 6. "0" refers to non-statistically significant results; "+" refers to a positive correlation; "-" refers to a negative correlation.
*Source:* Authors, based on Kupets (2012).

82. The effects of basic gravity variables on migration flows between regions are highly significant and robust to the various specifications (Table A 6). The estimated distance elasticity of migration (-1.24) suggests that with a one percent increase in the distance between two regions, decreases migration flows from one region to another about 1.24 percent, other factors held constant. That migration decisions are very sensitive to distance could reflect that regions that are geographically close or neighboring each other have better interregional transportation links (and, therefore, lower transport costs associated with migration and trips back to the origin region where relatives and friends keep living) and make it easier to access relevant information on labor markets and living conditions at potential destinations. More populous regions send and attract more migrants, in line with expectations in the gravity model.

83. Similar to the results obtained when analyzing general interregional migration flows, labor market conditions only partially explain internal mobility in the case of bilateral flows in Ukraine. People appear to go to low unemployment areas, but only marginally so (the coefficient is only marginally statistically significant and it is close to zero), and wages at destination have no effect on

[28] The preferred specification is a fixed-effect model since each pair of regions in Ukraine is fairly idiosyncratic, not necessarily representive of all other regional pairs. That is, the link between Kiev and Kiev City, for example, is characterized by specific transportation networks and firm location characteristics that define the nature of the internal migration flows. These links are unlikely to be present between all or most pairs of regions in Ukraine. The standard Hausman test for fixed-effects versus random effects models confirms that random effects do not yield consistent estimators. Since a simple fixed-effect model would not allow us to estimate coefficients for time-invariant regresssors such as distance, we apply a Hausman –Taylor (1981) instrumental variable approach for the random effects model, assuming that wages, the unemployment rate and the share of the population with higher education are endogenous time-varying variables. The Hausman specification test indicates that the procedure makes random effects estimators be consistent and efficient.

internal migration decisions. That is, people are not going to leading regions with high wages and employment opportunities. In fact, in some cases, people appear to be leaving high-wage areas. This is probably an indication that there are factors, beyond labor markets, that are pushing people out. It could also point at financial and credit constraints faced by potential internal migrants as people need resources to be able to finance migration.

84. Estimates on the education variable seem to support the hypothesis of the self-selective nature of inter-regional migration, with the higher educated being generally more mobile. The larger the share of persons with complete higher education in the labor force at origin, the larger the migration flows between two regions. Demographic variables in the beginning of the observed period, such as the share of women, are also important determinants of migration flows. That more women migrate could be explained by the fact that women are more likely to migrate due to marriage and also are more likely to be enrolled in higher education, for which Ukrainians often change residence (Kupets, 2012). The unexpected negative effect of the urban share of the population at the destination region when Kiev and Sevastopol are excluded, may be linked to the fact that these urban areas are predominantly located in the Eastern part of Ukraine, highly dependent on industries that have not been modernized and which may deter individuals from locating there (Kupets, 2012). This would be consistent with evidence from firm surveys that find that it takes significantly more time to fill a job vacancy in Ukraine than in most other transition economies, but particularly so for skilled manual workers required for industry (World Bank, 2009a).

85. In addition to push factors associated with labor markets driving internal bilateral migration flows in Ukraine, other factors associated with social and environmental factors seem to also be at play. First, overall per capita social spending by local governments (sum of expenditure on health, education and social assistance) seem to play a key role in detracting migrants at origin, indicating that the supply of local public goods roughly measured by local government spending does influence migration. If we distinguish between three components of total social spending (model 2), it appears that in a larger sample with Kiev and Sevastopol cities, it is lower health and social assistance spending per capita at origin that discourage out-migration. Other amenity variables included in the model have significant coefficients but not necessarily the expected sign. For example, poor environmental quality (measured by emissions of air pollutants) seems to push people to out-migrate but also attracts migrants.

86. Given the location of heavy industrial objects in some regions with sea coast (namely, in Donetsk and Zaporizhia oblasts) and decreasing access of population to affordable housing and public beaches in the other (for example, in Odesa oblast and Crimean AR), it seems not surprising that less people appear to be attracted by regions with a sea coast than by the regions without it. People appear also more likely to move to the regions with higher crime rates. Finally, poor environmental quality (measured by emissions of air pollutants) does not push people to out-migrate even though it distracts them from in-migration.

87. Finally, a few caveats are in order when interpreting the results from this analysis. First, the gravity model—as the model of general interregional migration—is based on aggregated administrative data for migration flows. Since these data only include registered migration, the discussions on determinants of migration flows should be interpreted within this context. To the extent that people who do not register their change of residence migrate for reasons that are fundamentally different from those of other internal migrants, the results discussed here would not apply to them.

88. Second, an implicit assumption underlying the specification above and the underlying model is that individuals have accurate information about wages, employment opportunities, public services, housing prices, and other conditions in other regions and their own. We return to the issue

of information in Section 4. Since there is usually a time lag in dissemination of this information and it takes time to plan a move, the above model is estimated with all independent variables lagged one period.

89. Third, another limitation of the gravity model lies in the fact that it uses aggregate data, taking mostly average or median values for the indicators of interest. But, to the extent that migrants represent a special subset of the overall population, results should be interpreted with care. For example, as we discuss Section 2, internal migrants tend to be better educated than the average population. If this is the case, the wage for the relevant segment of the labor market for migrants may differ significantly from the average wage for the whole economy, which is used in the gravity model. A similar argument could be made in relation to the unemployment rate. In the next section, therefore, we look into the specific characteristics of individual internal migrants in Ukraine.

90. Fourth, care should also be taken when interpreting the sign of the income variable at origin region. *Ceteris paribus*, higher wages at the origin destination should reduce the incentives to migrate for labor reasons but, at the same time, people from richer regions may find it easier to finance migration. Therefore, to the extent that migration is costly and there are credit constraints to financing migration, the interpretation of this variable is not clear. In the case of Ukraine, we find that the coefficient on wages in the origin regions is positive, suggesting that migration costs and credit constraints are relevant in determining who is able to migrate.

91. we find that the coefficient on wages in origin regions is negative (although not statistically significant when looking at all 27 administrative regions), suggesting that –despite migration costs and possible credit constraints, low wages still push people to move.

92. In short, the evidence from interregional migration—both overall and bilateral- suggests that although unemployment rates and average wages do affect internal migration in Ukraine, the pattern is only imperfectly consistent with the role of migration as a mechanism of regional adjustment and contributor to aggregated productivity increases. In order for internal migration to be an efficient in this sense, gross and net immigration should be positively related to average wages and negatively to unemployment, while gross emigration should be positively related to unemployment and negatively to wages. However, this is not the pattern we observe in Ukraine. This suggests that there are opportunities for higher productivity and living standards that are left untapped and not realized due to the lack of internal migration in Ukraine. Before discussing this further, we first turn to better understanding who is migrating and why from individual survey data.

### 3.3 Determinants of Individual Migration Decisions in Ukraine

93. As has been discussed above, one important limitation of the analysis done so far is that the official registry data only includes changes in the place of residence that are registered with the Ministry of Interior. Therefore, one can gain significant insights into the determinants of overall internal migration flows by using household surveys. Since these surveys are based on individuals' migration histories, independent of whether the moves are registered or not, they are able to capture information on unregistered moves not included in the official records.

94. There are significant data limitations when analyzing the determinants of individuals' internal migration decisions. There is one survey, the Ukrainian Longitudinal Monitoring Survey (ULMS), which allows for an analysis of internal labor migration beyond commuting. This is a panel survey that includes three waves for 1997, 2002 and 2007. Using this survey, Voznyak (2008, 2009)

examines the determinants of internal migration decisions in Ukraine during this period.[29] Table 4 summarizes key findings.

**Table 4: What factors are associated with internal migration in Ukraine according to estimations on the individual level?**

| If the individual is… | Correlation with internal migration probability |
|---|---|
| Unemployed (especially men) | + |
| Inactive (especially women) | + |
| Male | + |
| Older | - |
| Graduated from higher education (especially for men) | + |
| Married (especially for young women) | + |
| Owner of its home | - |
| Living in an urban area | + |

*Source:* Authors, based on Voznyak (2008).

95. At the individual level, the evidence on the link between labor markets and internal migration is consistent with the aggregate findings described earlier. In particular, individuals only partially respond to labor market conditions. It is found that males are more likely to move to another place of residence when they are unemployed, while females are more likely to move when they are inactive (see Table 5). Similarly, it is found that internal mobility increased in regions with favorable labor markets in terms of low unemployment rates. At the same time, Ukrainians seem not to respond to regional differences in the average wage.

[29] It is not clear from the mentioned papers whether the author has excluded people born abroad as well as moves within the same settlement (less likely to be employment-induced). This issue is particularly important as the ULMS fixes all changes in the respondent's place of residence, including those taking place within the boundaries of the same town or village. Only changes of residence that are of little importance from the point of view of the respondent's life history, that is, the changes of dormitory places or private accommodation during studies, are not considered in the ULSM.

**Table 5: The unemployed are more likely to migrate internally**
(Migration probabilities by labor market status, 2006)

| | Men | | | Women | | |
|---|---|---|---|---|---|---|
| **Oblast** | **Employed** | **Unemployed** | **Inactive** | **Employed** | **Unemployed** | **Inactive** |
| **AR Crimea** | 4.60 | 5.65 | 4.86 | 4.99 | 5.33 | 5.55 |
| **Cherkasy** | 6.08 | 7.13 | 6.34 | 5.98 | 6.33 | 6.38 |
| **Chernigiv** | 4.76 | 5.81 | 5.03 | 5.01 | 5.35 | 5.40 |
| **Chernivtsi** | 4.29 | 5.35 | 4.56 | 5.58 | 5.93 | 5.98 |
| **City of Kyiv** | 4.94 | 6.00 | 5.21 | 4.99 | 5.33 | 5.39 |
| **Dnipropetrovsk** | 6.50 | 7.55 | 6.76 | 6.21 | 6.56 | 6.61 |
| **Donetsk** | 4.01 | 5.06 | 4.27 | 4.74 | 5.08 | 5.13 |
| **Ivano-Frankivsk** | 5.54 | 6.60 | 5.81 | 5.52 | 5.87 | 5.92 |
| **Kharkiv** | 4.38 | 5.43 | 4.64 | 4.62 | 4.97 | 5.01 |
| **Kherson** | 5.66 | 6.71 | 5.92 | 5.49 | 5.83 | 5.88 |
| **Khmelnytsky** | 5.46 | 6.52 | 5.73 | 5.22 | 5.56 | 5.61 |
| **Kirovograd** | 6.81 | 7.87 | 7.08 | 6.79 | 7.14 | 7.19 |
| **Kyiv** | 5.88 | 6.93 | 6.15 | 5.65 | 6.00 | 6.05 |
| **Luhansk** | 5.15 | 6.20 | 5.41 | 6.11 | 6.45 | 6.50 |
| **Lviv** | 4.49 | 5.54 | 4.75 | 5.11 | 5.46 | 5.50 |
| **Mykolaiv** | 5.31 | 6.36 | 5.57 | 5.05 | 5.40 | 5.45 |
| **Odesa** | 4.69 | 5.75 | 4.96 | 5.45 | 5.80 | 5.85 |
| **Poltava** | 4.52 | 5.57 | 4.78 | 4.77 | 5.11 | 5.16 |
| **Rivne** | 4.08 | 5.14 | 4.35 | 5.31 | 5.66 | 5.71 |
| **Sumy** | 5.16 | 6.21 | 5.43 | 5.17 | 5.52 | 5.57 |
| **Ternopil** | 4.93 | 5.99 | 5.20 | 5.02 | 5.37 | 5.42 |
| **Vinnytsya** | 6.28 | 7.34 | 6.55 | 6.48 | 6.83 | 6.88 |
| **Volyn** | 6.22 | 7.28 | 6.49 | 6.19 | 6.54 | 6.59 |
| **Zakarpattya** | 5.32 | 6.37 | 5.58 | 5.16 | 5.51 | 5.56 |
| **Zaporizhzhya** | 4.19 | 5.24 | 4.45 | 6.17 | 6.52 | 6.57 |
| **Zhytomyr** | 4.52 | 5.58 | 4.79 | 4.61 | 4.96 | 5.00 |

*Source:* Authors, based on Voznyak (2009).

96. In addition, Voznyak (2008) finds that, as expected, the internal migration probability is higher among men, decreases with age (with more rapid decline among women than among men) and increases with educational attainment (with stronger correlation for men than for women). Consistent with the more aggregate findings, being married is also found to be positively related with women' probability of changing the place of residence, although not with men's.[30] Furthermore, married youth migrate much often than non-married youth. The study also found a positive correlation between the number of children under 15 and the internal migration probability for men and insignificant correlation for women.

97. Like in other countries, tenancy—as opposed to home ownership- is found to be an important predictor of internal migration, and it appears to be the most important factor of migration for men and the second most important factor for women in terms of marginal effects.

98. Finally, the settlement type is also found to be an important determinant of internal migration flows. As with the aggregate data, people moved from urban areas more often than from

[30] This is slightly different from the findings on the determinants of internal migration in other contexts. For example, Kulu and Billari (2004) and Finnie (2004)—in Estonia and Canada, respectively, find that married individuals are less likely to migrate than single ones and that the number of children negatively affects the probability to migrate.

rural areas, and the intensity of outflows from urban settlements declines with its size (from small town to large cities). This could reflect the fact that in small towns there was an over-supply of labor following the closure of old enterprises and weak growth in the modern private sector, while rural areas were attractive for many migrants due to the possibility of employment in subsistence agriculture (used as a buffer against unemployment) and lower living costs (Kupets, 2012).

## 3.4 Commuting: Patterns and Determinants

99. In an environment of low overall residential labor mobility, commuting can play a significant balancing role in labor markets. This is precisely the case in Ukraine. In fact, more than residential internal labor mobility, commuting responds to labor market conditions.

100. Taking into account that employment opportunities are better in urban areas than in the countryside and in larger cities compared to the smaller ones, and that the transport costs of commuting in terms of money and time are usually lower than the transaction costs and non-economic costs of residential relocation, commuting is often viewed as a substitute for labor and residential migration in facilitating transitions out of joblessness and smoothing regional disparities (EC, 2007; Paci et al., 2007; Hazans, 2003b).

101. In our study of commuting in Ukraine based on the individual-level LFS data in 2005-2010, we use two definitions of commuting. The first is a broader one and defines commuters as the employed individuals aged between 15 to 70 years who cross a local boundary to reach their workplace (that is, their workplace differs from the place of residence of their households) independently of whether the commute is inter-regional or intra-regional. In order to be able to compare our results to those found in the CEE countries, in our second definition we cover only inter-regional commuters in line with Paci et al. (2007) where regions refer to 26 administrative units described above (see Chapter 2.1), with the exception of Sevastopol City, analyzed together with the AR Crimean.[31]

### *3.4.1 Scope of Commuting and Its Main Characteristics*

102. According to the Labor Force Survey (LFS, see Table 6), the total number of commuters, that is, those who cross a local boundary to reach their workplace, was above 2.6 million people in 2010, or 13.2 percent of the employed population in Ukraine. Despite a slight increase in the commuting rate between 2008 and 2010, inter-regional commuting rates (1.6 percent in 2010) remain low when compared to the EU15, but are largely comparable to those observed in Poland, Romania or Bulgaria (see Figure 4.1 in Paci et al., 2007).

[31] We must note, however, that not all people are properly classified as daily commuters here because many of them may in fact work and live in the region which is different from their permanent place of residence according to registration (where other household members live and take part in the survey), i.e. they are temporary labor migrants rather than genuine commuters. Anecdotal evidence suggests that this is often the case for workers from the oblasts adjacent to Kiev oblast who work in Kiev City or oblast on weekdays and returning home for weekends only. Unfortunately, there are no direct questions about the commuting time, distance and frequency of trips in the Labor Force Survey that would provide the required information for distinguishing such temporary migrants.

**Table 6: Size and rates of commuting, 2005-2010**

**A) Number (thousand people)**

| | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 |
|---|---|---|---|---|---|---|
| **Total** | | | | | | |
| All commuters | 2,162.6 | 2,227.0 | 2,406.9 | 2,710.4 | 2,659.0 | 2,664.4 |
| Intra-regional | 1,883.2 | 1,947.4 | 2,109.1 | 2,310.0 | 2,325.1 | 2,347.0 |
| Inter-regional | 279.4 | 279.6 | 297.8 | 400.4 | 333.9 | 317.4 |
| **Urban** | | | | | | |
| All commuters | 938.7 | 986.8 | 1,031.0 | 1,079.3 | 961.3 | 986.8 |
| Intra-regional | 731.4 | 783.8 | 842.1 | 847.2 | 767.1 | 794.2 |
| Inter-regional | 207.3 | 203.0 | 188.9 | 232.1 | 194.2 | 192.7 |
| **Rural** | | | | | | |
| All commuters | 1,223.9 | 1,240.3 | 1,375.9 | 1,631.1 | 1,697.7 | 1,677.6 |
| Intra-regional | 1,151.8 | 1,163.6 | 1,267.0 | 1,462.8 | 1,558.0 | 1,552.8 |
| Inter-regional | 72.1 | 76.6 | 108.8 | 168.3 | 139.7 | 124.7 |

**B) Commuting rate (share of the employed population, %)**

| | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 |
|---|---|---|---|---|---|---|
| **Total** | | | | | | |
| All commuters | 10.5 | 10.8 | 11.6 | 13.0 | 13.2 | 13.2 |
| Intra-regional | 9.2 | 9.5 | 10.2 | 11.1 | 11.6 | 11.6 |
| Inter-regional | 1.4 | 1.4 | 1.4 | 1.9 | 1.7 | 1.6 |
| **Urban** | | | | | | |
| All commuters | 6.7 | 7.0 | 7.2 | 7.5 | 7.0 | 7.2 |
| Intra-regional | 5.2 | 5.6 | 5.9 | 5.9 | 5.6 | 5.8 |
| Inter-regional | 1.5 | 1.4 | 1.3 | 1.6 | 1.4 | 1.4 |
| **Rural** | | | | | | |
| All commuters | 18.8 | 19.2 | 21.2 | 25.2 | 26.3 | 26.0 |
| Intra-regional | 17.7 | 18.0 | 19.5 | 22.6 | 24.1 | 24.1 |
| Inter-regional | 1.1 | 1.2 | 1.7 | 2.6 | 2.2 | 1.9 |

*Note*: Respondents working abroad are excluded.
*Source:* Kupets (2012) for this Report, based on individual-level LFS data.

103. Analysis of commuting rates based on monthly data reveals some seasonality in the share of commuters within their region of residence, with an increase in May-August and a decrease in other months. This might be a sign of the growing incidence of short-distance movements during spring and summer season related to jobs in agriculture, retail trade, catering, construction and transport.

104. Commuting rates (both intra- and interregional) of rural population are much higher than of people living in urban areas where employment opportunities are usually better. In fact, each fourth person employed living in rural area works in another place, predominantly within the same oblast. However, rural employed population in Ukraine is less likely to commute than their counterparts in other transition economies (see, Hazans (2003b) for example, on the Baltic States).

105. In 2010, 75.8 percent of all inter-regional commuters from the countryside and 76.5 percent of urban commuters from urban areas were absorbed by Kiev City, and workers living in Kiev oblast made up the lion's share of them (45.6percent among rural inter-regional commuters to Kiev City and 660.3 percent among their urban counterparts). Commuting and temporary labor mobility to Kiev City from adjacent rayons of Kiev oblast have been well documented. For example, according to a survey of local authorities in rural areas in Kiev oblast conducted in April 2009, 32.4 percent of the employed in the surveyed rural areas, predominantly from neighboring rayons, worked in Kiev City, compared to 57 percent working in the same rayon and 8.6 percent working in other rayons of Kiev oblast (Yakobinchuk, 2009). Another survey of the non-resident employed population in Kiev City carried out by the Institute of Demography and Social Studies in 2005 revealed that 36.3 percent of all labor migrants in the capital city are rural residents, with about 70 percent of them living in Kiev (without registration) and 30 percent commuting between their homes in the countryside and their places of work in Kiev on a daily basis (IDSS, 2007). Overall, the ratio of labor migrants to commuters

in Kiev City is found to be about 8 to 5 (Poznyak, 2007). There are no significant differences between these two groups of workers in their composition by age (with higher share of youth aged 20 to 29), education (with highly educated workers accounting for about 60 percent) and place of residence (with prevalence of urban residents) but there are noticeable differences in terms of economic sector and occupation. Commuters were predominantly employed in low paid jobs in education, health care and social work, public administration, and scientific activity while labor migrants who temporarily lived in Kiev worked in relatively higher paid jobs in retail trade, catering, construction and transport (IDSS, 2007). However, growth in commuting between Kiev oblast and Kiev in 2008-2009 may reflect so-called 'suburbanization' rather than employment-induced mobility as many persons changed residence from Kiev City to the suburban zone but did not change their workplace in Kiev City.

106. In terms of the correlates of commuting at the individual level, Table A 7 shows, Ukrainian women are more likely to commute (within the region as well as outside it) than their male counterparts. This contradicts the pattern found in developed economies,[32] but it does not necessarily mean that women in Ukraine face few spatial constraints. As a survey of the registered unemployed in 2010 showed (Kupets, 2010), women prefer jobs with favorable working conditions for them, defined by respondents as those with flexible or fewer working hours, easier work and a suitable location closer to home. However, lack of suitable jobs in their place of residence may force many women to find jobs elsewhere. Greater flexibility on the part of Ukrainian women, already documented in the literature (see, for example, ETF, 2009 and Kupets, 2010) may explain this result.

107. As expected, the proportion of employees who commute appears to decline with age. This finding, as documented before, indicates that youth are more likely to be mobile but it may also suggest that young workers face more difficulties in finding decent jobs in the local labor market and in settling in the destination place by renting or buying housing.

108. Commuting rates almost uniformly decrease with education and the skill level proxied by occupation group according to the ISCO-88. This suggests that commuting plays an important role at the macro-level in compensating a shortage of low-skilled manual workers (those wages are usually too low to encourage residential mobility) in Kiev City and other booming cities and areas. Commuting rates by employment status and economic sector are presented in Table A 7. Moreover, there are significant differences in the composition of intra- and inter-regional commuters by economic sector and occupation. Agriculture, industry and public sector have larger shares among intra-regional commuters, whereas construction and services' shares are significantly larger among inter-regional commuters.

109. At first sight, it may seem surprising that informally employed workers who have more flexibility have a lower commuting rate than their counterparts working in the formal sector. But when workers engaged in subsistence agriculture are excluded from the sample of the employed population, the pattern changes to the opposite and becomes in line with our expectations: informal workers have slightly higher incidence of intra-regional commuting (14.7 per cent compared to 13.4 percent among formal workers) and significantly higher incidence of inter-regional commuting (3.2 vs. 1.7 percent, respectively).

110. The pattern of commuting varies also by geographic region. Not surprisingly, intra-regional commuting occurs more often than inter-regional commuting (see Table A 8).[33] The seven oblasts with the highest intra-regional commuting rates are all located in the Western part of Ukraine. As

[32] See Box 4.1 in Paci et al. (2007) on arguments suggested in the literature for lower commuting rates among women than men.

[33] Data on commuting by regions should be interpreted with care because of a small cell size or few observations that impair reliability of estimates.

have been already discussed, Kiev City is the most popular destination for migrant workers, attracting 76.2 percent of all interregional commuters in 2010. Other popular regions attracting relatively more workers from other regions are Kiev, Odesa, Dnipropetrovsk and Donetsk oblasts, and AR Crimean.

111. Finally, it is also worth noting, that in six regions workers were more likely to commute abroad (or migrate for a short period) than to another region of Ukraine. These are bordering oblasts in the West (Volyn, Zakarpattia, and Chernivtsi oblasts) and in the East (Kharkiv oblast) as well as two Black sea regions in the South (AR Crimean and Odesa oblast). Russia is the only destination country for external migrants (covered by LFS) from Russian-speaking Kharkiv oblast and one of two destinations for residents of AR Crimea, but it is also important destination for the residents of oblasts located in the West. This suggests that higher expected returns, rather than just geographic or cultural proximity, encourage many workers to find employment in Russia and not in Ukraine. Odesa oblast is unique here as external outflows of its workers are mostly related to officially registered employment of merchant seamen in Greece, Spain, Norway, Turkey, Panama and the United States.

### *3.4.2 Individual Determinants of Commuting in Ukraine*

112. To analyze the determinants of commuting in Ukaine, we used the pooled LFS for six available years (2005-2010).[34] Estimation results and descriptions of the models used are reported in Table A 9 and summarized in Table 7.

**Table 7: What factors are associated with interregional commuting in Ukraine according to estimations on the individual level?**

| If the individual is… | Correlation with commuting probability |
|---|---|
| Living in areas with high unemployment rate | + |
| Living in areas with low wages | + |
| Working in areas with low unemployment rate | + |
| Working in areas with high wages | + |
| Male | - |
| Graduated from higher education | + |
| Married | - |
| Blue-collar | + |
| Working in the agriculture sector | - |
| Living in rural areas | + |

*Notes:* Results are based on Table A 9. "0" refers to non-statistically significant results; "+" refers to a positive correlation; "-" refers to a negative correlation.
*Source:* Authors, based on Kupets (2012).

113. Critically, commuting does seem to respond efficiently to labor market conditions. Focusing on specification four, regional labor market indicators are generally significant and have expected signs: workers are more likely to commute to another region from regions with higher unemployment rate and lower average wage reported in the previous year; at the same time, regions with lower unemployment rate and higher wages encourage higher commuter inflow from other regions.

[34] We use a logit specification, commonly used in the empirical studies of commuting and labor mobility (see Hazans, 2003b, and Paci et al., 2007, for the Baltic State and new EU member states, respectively).

114. As found also with simple correlations, female workers are significantly more likely to commute to work, particularly to other regions, than men. Single workers are generally more mobile than widowed or separated workers and both groups of workers are more mobile than married persons, but marital status appears to be a significant determinant only in the case of intra-regional commuting. Thus family reasons are very important for short-distance moves but they do not matter for the decision to work in other regions or, most likely, are relatively less important than other reasons (e.g. lack of well-paid jobs in the origin region).

115. Education is a significant determinant of the decision to commute but its effect is not uniform across specifications. According to model (4), the probability of inter-regional commuting increases with educational attainment whereas the probability of intra-regional commuting is inversely correlated with educational attainment (except for the least educated workers which have the lowest probability of commuting in both cases). As expected, wage and salary workers are much more likely to commute than other categories (namely, own-account workers, most of whom are rural residents engaged in subsistence agriculture for sale or barter, employers and unpaid family helpers) which are usually tightly bound to the place of residence.

116. Employment- and skill-related characteristics also matter in explaining of the commuting behavior. For example, workers in agriculture are much less likely to commute for work than workers in all other broadly defined sectors. Construction workers are significantly more mobile than industrial workers, whereas the latter have higher probability of commuting that services workers and public sector employees. Given this, it is not surprising that inter-regional commuting is much more prevalent among blue-collar workers than among their counterparts with elementary occupations. These findings provide some evidence that on the back of low residential mobility between Ukrainian regions, commuting can help reduce geographical imbalances of skills providing a solution to region-specific skill shortages, for instance in Kiev City and other metropolitan areas.

117. Finally, the place of residence and regional characteristics are important predictors of commuting. Residents of Kiev City are very unlikely to take jobs elsewhere, while residents of rural areas are much more likely to commute than urban residents.

118. In short, commuting does seem to strongly respond to labor market conditions across regions, acting de facto as a substitute for residential internal migration.

# 4 The Barriers to Internal Mobility

**The main barriers to internal mobility are institutional. Internal labor mobility is low and inefficient because of weaknesses in five main areas: (i) administrative procedures, reflected in a population registry system that is outdated and increases the costs of internal migration, relying on other institutions that do not work well either (mainly the rental market); (ii) underdeveloped housing and credit markets, that make it difficult for people to rent or buy housing in leading regions; (iii) human capital, as people in lagging regions often lack the necessary skills to access better economic opportunities in high productivity, modern sectors in the leading regions; (iv) weak formal labor market institutions that reduce dynamism in the labor market, increase informality and do not provide workers with enough reliable information about job openings and labor market conditions; and (v) social benefits that are often tied to the place of residence and that could, in some cases, discourage labor force participation in the first place. In the face of weak institutions and the potential gains to be made by moving from lagging to leading regions, people have found ways around some of these issues: over-reliance on informal social networks and commuting are examples of this. However, these strategies are often inefficient and lead to too little, too costly internal migration. Addressing the institutional bottlenecks that affect internal mobility should allow for people, especially the poor, to access more easily more and better jobs in leading regions. In doing so, aggregate productivity and economic growth can accelerate, and living standards – in both leading and lagging regions – can continue to rise.**

## 4.1 Moving from Dispersion to Agglomeration in Labor Markets

119. The introduction of this report talks about the three key spatial dimensions of economic development, namely density, distance, and division. Density refers to the agglomeration of capital and labor (mostly within regions), distance to linking firms and workers from lagging to leading regions (mostly within countries), and division to economic integration (mostly across countries). Depending on the characteristics of a country, policy will have to emphasize one, two, or all three of these dimensions.

120. Instead, the policy discussion about how to advance the welfare of people in economically depressed regions very often focuses on moving economic production to lagging areas. In other words, policy makers tend to focus on how to bring jobs to people. There are indeed circumstances where such policies are warranted. But they are few. Instead, as the experience in most countries has shown, the most effective policy approach is first and foremost to focus on connecting people—especially poor people—to where economic opportunity flourishes. Economic development excels on agglomeration of economic production, and policies that aim at dispersing production will fail to reap the benefits of agglomeration (see World Bank, 2009b). In other words, it is about bringing people to jobs—and, as far as lagging regions are concerned, to invest in people, not in places.

121. How can this be achieved? For each of the dimensions mentioned above, there is a set of policies that aim at strengthening economic integration within that dimension. The most important dimension is density, and policies within this dimension support agglomeration of capital and labor. Policies that build up density should be part of any policy of economic integration. They are an essential policy for most countries, especially those with sparsely populated lagging areas and already densely populated leading areas. These policies focus on **institutions** that are universal in their aims and have no specific geographic bias—in other words, according to the World Development Report 2009, these are policies that are “spatially blind”, focus on portable investments in people, and should make it easier for people to move toward economic opportunity. They focus on investments in and protection of human capital, like education, health care, and social

protection policies, and functioning labor, credit, and housing markets. These are investments that facilitate connecting people to places that can create more and better jobs.

122. In countries where lagging regions are densely populated and have large numbers of poor people, spatially connective **infrastructure** policies should complement spatially blind institutions. These policies aim to reduce the distance between densities—that is, to connect high density places through roads, railroads, and communication technologies. Finally, only when countries face divisions caused, for instance, by ethnicity, language barriers, or religious heterogeneity, that prevent people from connecting to leading regions, then **incentives** in the form of regional development policies, subsidies, and industry location regulations may be appropriate. Table 8 summarizes these policy instruments, when they are appropriate to use, and gives examples of these policy instruments and countries.

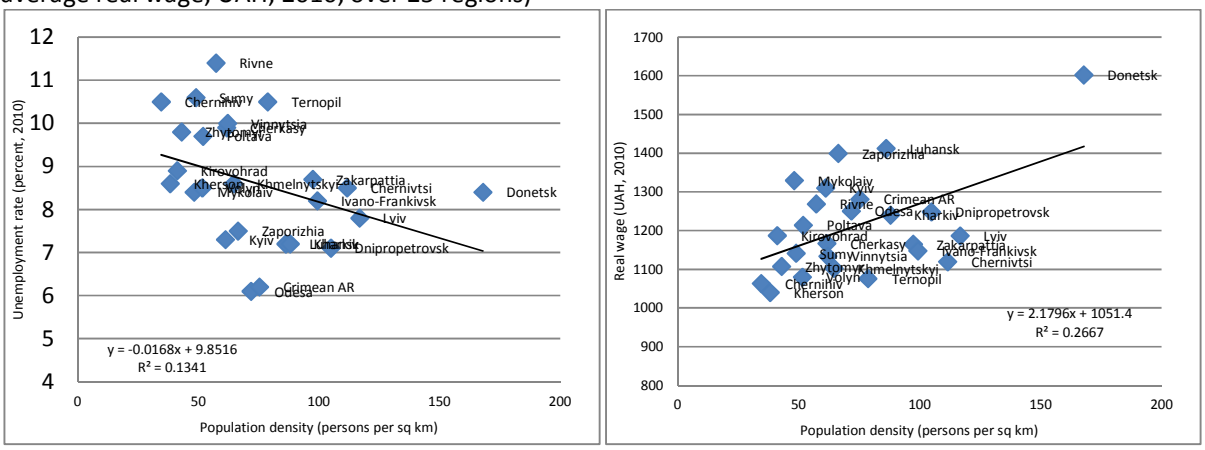
**Table 8: Policy priorities for economic integration: what policy for what country?**
(Country examples, policy challenge, and policy instruments by country type)

| Country type: | Sparsely populated lagging regions | Densely populated lagging regions in united countries | Densely populated lagging regions in divided countries |
|---|---|---|---|
| **Country examples:** | Chile, China, Ghana, Honduras, Pakistan, Peru, Russia, Sri Lanka, Uganda, **Ukraine** | Bangladesh, Brazil, Colombia, Egypt, Mexico, Thailand, Turkey | India, Nigeria |
| **Policy challenge:** | Create **density** | Overcome **distance** | Overcome **division** |
| **Policy instrument:** | | | |
| **Spatially blind institutions** | Fluid labor and land markets, investments in and protection of human capital (education, health care, and social protection policies) | Fluid labor and land markets, investments in and protection of human capital (education, health care, and social protection policies) | Fluid labor and land markets, investments in and protection of human capital (education, health care, and social protection policies) |
| **Spatially connective infrastructure** | -- | Transport, information, and communication infrastructure | Transport, information, and communication infrastructure |
| **Spatially targeted incentives** | -- | -- | Regional development policies, regional subsidies |

*Source:* Authors, adapted from World Bank (2009b).

123. How does Ukraine fit into this policy framework? Ukraine's lagging regions only sparsely populated. Figure 29, for example, depicts population density versus unemployment rates and real wages over 25 regions. It shows a negative correlation for the unemployment rate and a positive correlation for real wages. In other words, more sparsely populated regions also have higher unemployment rates and lower average wages. Hence, Ukraine's focus should be on spatially blind institutions, including basic services provision, that aim at creating density by making portable investments in people and help them to connect to economic opportunity.

**Figure 29: Ukraine's lagging regions are also the least populated ones**
(Population density, persons per sq km, versus the unemployment rate, percent, 2010 and the average real wage, UAH, 2010, over 25 regions)




*Note:* Sample excludes Kiev city and Sevastopol. The correlation, though, remains the same even with Kiev City and Sevastopol included, or Donetsk excluded.
*Source:* Kupets (2012) for this report.

124. In this context, enhancing internal labor mobility is key, and essential for Ukraine to become a modern economy, as the experience of other countries has shown. For example, in Ireland, the ability of its population to react to economic developments by moving internally and internationally, has served the country well in the past, including during the recent crisis. The policies that have supported the mobility of Ireland's population are based on relative flexible labor regulations, on a focus on developing Dublin as the main engine of job creation in Ireland, on enhancing the mobility of the labor force by investing in skills, and on keeping its borders open for international migrants who bring the skills that are missing in the domestic labor market (see Box 6).

**Box 6: Ireland, the most mobile Europeans**

The Irish are the most mobile of all Europeans, with nearly 15 percent of Ireland's population having moved within the EU. Internally, Dublin has been the preferred place to which the Irish move. Regionally, the United Kingdom—as a large and familiar neighbor—has been the preferred destination. Internationally, it is the United States, where more than 10 percent of the population claims Irish ancestry. The reasons why the Irish are mobile span culture, geography, and labor laws. First, the Irish have reacted to big developments—both good and bad—by moving, and their cultural proximity to the United Kingdom and the United Sates has made them prone to leaving when times are tough. Second, Irish labor laws provide enterprises with flexibility to manage its workforce: indices of economic freedom rate Ireland the freest economy in Europe, and the fifth freest in the world. Third, the national development strategy—including the use of cohesion funds—has promoted concentration around Dublin and made workers mobile by investing in their skills. Fourth, Ireland has kept barriers to immigration low. It did not impose quotas on workers from the new EU member states. And the quantity and quality of immigration is high—half all immigrants since 1998 had tertiary education. The current crisis has led to these movements being reversed. But the greater mobility of the Irish will help them deal better with the economic distress.

*Source:* Gill and Raiser (2012).

125. Another example is the United States, which has one of the most mobile labor forces worldwide. Arguably, as a country of immigrants, mobility has been embedded in US society from its beginning. But the fact that the costs of internal migration are low also plays an important role: the housing market is fluid, rental housing is widely available, buying and selling property is simple and relatively affordable, and the mortgage market is developed (albeit, as the crisis has shown,

imperfect). Also, just like in Ireland, flexible labor laws allow for high job turnover rates and flexible wages that prompt people to relocate to where economic opportunities are. A high share of tertiary-educated workers also contributes to high mobility (see Box 7).

**Box 7: The United States, the most mobile labor force in the developed world**

Labor mobility is much higher in the United States than in other developed countries. Over the past decade, three times as many Americans moved to find jobs and better lives than Europeans. On average, an American moves 11 times during his or her life. This higher level of labor mobility partly reflects the culture of a country built through immigration. Americans consider mobility an essential ingredient to the pursuit of a better life. It also reflects policy, as housing and labor market regulations make housing turnover easier than in other countries, allowing workers and employers flexibility. This mobility has direct and indirect costs: young Americans often live far from their families, and workers enjoy fewer protections than those in other developed countries. But they also benefit from the ability to negotiate wages, change employers quickly, and start businesses. Countries seeking to create jobs, nudge people back to work, increase earnings and economic growth, and make their economic structures more flexible can draw lessons from how the United States' policy environment has supported labor mobility.

*Source:* Gill and Raiser (2012).

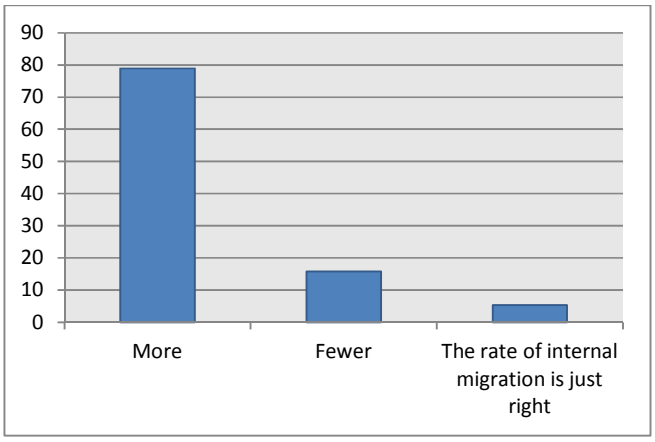
126. But what are the constraints to internal labor mobility in Ukraine, and which spatially blind policies can help Ukraine overcome these constraints? The next subsection will focus on what the barriers are and try to prioritize policies to address these barriers.

### 4.2 Policies to Facilitate Internal Labor Mobility

127. Although the analysis of Section 2 and 3 has shown that mobility in Ukraine seems low and inefficient, it cannot give us an explicit answer if there are barriers and what they are. In order to answer these questions, we complement the quantitative analysis with findings from qualitative methodologies. To this end, we have conducted two qualitative surveys: a survey among Ukrainian labor market experts and two focus group discussions with recent migrants to Kiev (see Annex 1 and 2).

128. According to the experts' survey, there are indeed barriers to move. Over three quarters (79 percent) of the experts indicate that given the regional differences in labor market outcomes in Ukraine, more people would like to move than actually do so for labor reasons (see Figure 30). In other words, people are constrained in their decisions on internal mobility. The focus group discussions confirm this finding, with most participants indicating that they faced major barriers in their migration experience.

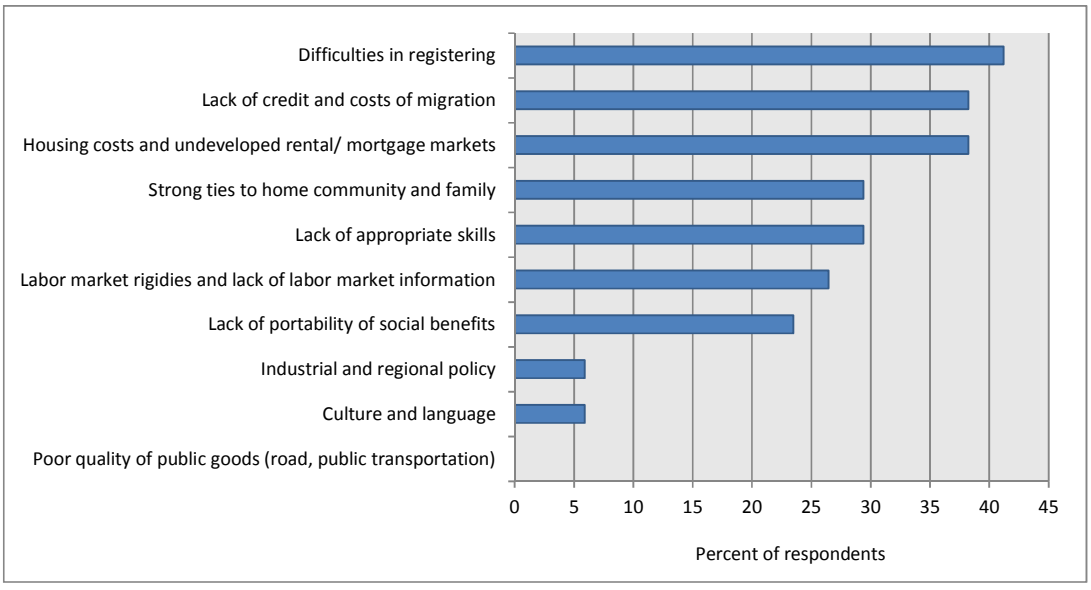
**Figure 30. Experts think there are barriers to internal mobility in Ukraine**
(Answers, in percent of respondents, to the question: Given regional differences in labor market conditions in Ukraine, do you think more or less people would like to move than currently move for labor reasons?)




*Source*: Authors, based on experts' survey on internal migration carried out for this report.

129. In terms of what these barriers are, the experts list the population registry, lack of access credit and the costs of migration, and the underdeveloped housing and mortgage market as the top three barriers (Figure 31). This finding is again confirmed by the focus group discussions. Other potential barriers that featured prominently in both surveys are skills, labor market institutions, and the design of social benefits. Interestingly, also the strong ties to local communities feature prominently, likely reflecting both affective ties to family and communities that like people to their hometowns and prove an identity, but also the importance of social informal networks in overcoming the other barriers to internal mobility (Box 8). We will now discuss each of these barriers in turn.

**Figure 31: The most important barriers according to experts: registry, credit, and housing**
(Percent of respondents who listed the barrier as one of the three most important ones)




*Source:* Authors, based on experts' survey on internal migration carried out for this report.

**Box 8**: **The role of social networks in overcoming institutional weaknesses and facilitating internal labor mobility**

People in Ukraine face significant barriers when deciding to move. The institutions that are supposed to help people connect to economic opportunity—housing markets, government institutions like the population registry, labor and the education and social protection systems—are underperforming. As a result, Ukrainians often circumvent these institutions and have to rely on alternative solutions, which are mostly unregulated and do not provide formal protection, entail high levels of uncertainty, and use social networks *in lieu* of formal institutions.

Social networks can be an efficient way of overcoming some of the barriers to internal mobility, but not always. The housing market is a good example. When searching for housing, using social networks can be a very efficient means. But it takes one only so far. Social networks are typically tighter—and hence more efficient—in the close proximity of one's home and therefore an important complement to other channels. But further away, they will be less tight and hence less efficient, and relying only on social networks alone can limit one's options. Formal institutions, like a fluid and transparent housing market, are also then needed.

In the case of Ukraine, a second dimension applies: In order to officially register at the place of residence, one either needs to live with a relative, own or co-own a property, or have an official rental contract. For the latter, taxes apply that increase the rent. Because tax morale is low for a variety of reasons, people circumvent this requirement by using their social networks: They either live with a relative, co-own a tiny share of an apartment, or simply do not register their rental contract. The consequence is that the vast majority of people have informal rental agreements, which do not protect the landlord nor the renter formally. Ultimately, it considerably increases uncertainty on both sides about the true price and the default risks of the rental agreement, and this uncertainty increases the costs of migration, especially to places further away from one's home.

The labor market is another, even more telling example. As with housing, social networks can be an efficient complement to formal search channels for jobs. But again, relying on social networks alone, as a substitute for formal search channels, limits people's options with regard to job search and could prevent them from connecting to economic opportunities. The large extent of informal employment in Ukraine further limits people's horizons. Individuals circumvent the formal institutions of the labor market and either work informally or underreport their wages. As a consequence, the payment of wages is associated with high levels of uncertainty, as the focus group discussions show. When looking for a (new) job, Ukrainians use their social networks to get reassurances about the reliability of their prospective employer with regards to wage payments and promised envelope payments. Absent these reassurances, the risks and hence the costs of migration, are higher.

Social protection and access to credit, finally, are the last examples. In the absence of effective formal social protection mechanisms that support risk management, people will have to rely on informal social risk management mechanisms; or, in the absence to formal access to credit, they will have to rely on families and friends for loans, including for financing migration. Strong ties to local communities are essential to have access to these informal risk management mechanisms and access to credit. Again, these can be valuable complements to formal institutions, but if they act as a substitute to formal institutions, they can either hold people back, or, maybe even more importantly, influence migrants destination decisions since people will prefer to go where they can build on an existing network. This might not necessarily be where the economic opportunities are.

*Source:* Authors.

### *4.2.1 Population Registry*

130. Ukraine maintains a regional system of residential registration, an inheritance—albeit reformed—of the old "propiska" system. The propiska systems inherited from the Soviet Union was a population registration system that required official permission to be registered at a new address in a given city as some restrictions on movements existed. It was abolished in Ukraine in 2001 (Perrin, and Poulain, 2008). According to the Law on Freedom of Movement and Free Choice of the Place of Residence in Ukraine (effective since January 2004), Ukraine citizens, as well as a foreigner or a stateless person who stays in Ukraine legally, shall register their place of residence with the Ministry of Interior within ten days of arrival at the new place of residence. The new place of residence is defined as the administrative-territorial unit where a person lives for at least 6 months during a year. To be registered, a person has to submit a written application, internal passport, proof of payment of stamp duty (or the document exempting payment), and two copies of the filled form of deregistration from the previous place of residence (Kupets, 2012).

131. According to the Law on Freedom of Movement and Free Choice of the Place of Residence, it is prohibited to require any other documents in order to register, but in practice, proof of rental or ownership of a residence is also required. According to the Civil Code of Ukraine, the place of residence is a place where a person permanently or predominantly lives as an owner, under the terms of the tenancy contract or under other statutory terms. Therefore, in practice, to be registered, a person needs to provide grounds for registration in this particular place, that is, proof of residence such as an authorization to occupy an apartment, a property certificate or a rental contract.

132. The way the current registration system works increases migrations costs and increases uncertainty, deterring internal migration. The grounds for residence make it expensive to move and creates inefficiencies since people need to rely on family members that accept to register you at their place of residence, or lead to absurd situations where people own a tiny bit of an apartment, like a door or a room. Since the rental market is predominantly informal and purchase of housing is usually too expensive, migrants most often do not have grounds to register at the new location. Without registration, though, there is uncertainty about the accessibility to *free* medical services and, as a consequence, sick leave. Although it seems that, legally, residency is not a requirement for social services, many people still think this is the case—maybe due to the discretionary enforcement of the law or simply misinformation.

133. From the focus group discussions, it is also clear that migrants, are not completely sure of when residency registration is a requirement:

> *"Usually, if you have children in a kindergarten and in school, registration is needed. But in Kiev, this is not a problem. In Kiev, it is better with this than in other regions." (Focus group 2, respondent 1)*

> *"Nowadays everything should be paid in hospitals, that is why the residence permit is not been asked." (Focus group 2, respondent 7)*

134. As a result of these costs and increased uncertainty, Ukrainians perceive the registration system as a barrier to internal mobility. Administrative obstacles to workers' mobility, in the form of the registration system, are cited the most often by labor market experts as critical in limiting internal mobility in Ukraine (Figure 31). Results from the focus group discussions carried out for this report, echo these concerns. Especially among the low-skilled focus group participants, difficulties and costs associated with the registration system ranked among the most significant problems encountered when moving across regions in Ukraine.

135. However, the registration system per se does not seem to constitute an overwhelming constraint to internal mobility because those who have moved have found ways around it. Some of these strategies have been discussed above: leaving with family members, "owning" bits and pieces of apartments, not registering at all in the first place, but also the development of a market where people charge to register others "artificially". These options are available to all people and, thus, avoid deterring internal migration in most cases. In any case, they cause a deadweight loss and are, this, inefficient. It is not clear whether reforming the registration system could also be relevant for changing people's perceptions about the barriers to move and also to reduce inefficiencies in other markets that could themselves affect internal mobility.

136. To a large extent, the key for improving the registration system seems to lie outside the administrative systems; rather, proper reform is likely to require coordinated actions in the tax system and rental markets. There are a number of steps that could be taken to simplify the registration process and harmonize/unify the regional population registries (Perrin and Poulain, 2008). But the pervasive effects of the system will only be ameliorated with complementary reforms in other areas that make it difficult or unattractive for internal migrants to provide grounds for residency. As became clear in the focus group discussions and in the consultations for this report, both renters and landlords lack the incentives to register rental contracts. For landlords, on the one hand, registering a contract means paying additional taxes on rental income; for renters, on the other, registering would mean paying higher rents because of the tax burden. Additional constraints related to the housing and rental markets are discussed below.

137. At the heart of the needed reforms are also governance and institutional weaknesses that create pervasive incentives: many people would rather not have rental contracts to be able to keep undeclared economic activities; residency is sometimes asked as a requirement to justify side payments. A systemic approach that improves the incentives to register by improving overall governance and institutions is, therefore, fundamental. We return to this issue below.

*4.2.2 Access to Housing and Credit*

138. Very high rates of home ownership, combined with lack of affordable (rental) housing, are critical barriers to internal mobility in Ukraine. Overall housing-related constraints—housing costs, underdeveloped real estate, rental and mortgage markets and high home ownership rates—are the second most critical barrier to internal mobility in Ukraine according to local experts (Figure 31). Among participants in the focus group discussions, similarly, housing was considered the main obstacle to internal migration into leading regions, especially Kiev.

> *"For example, when I was working in my hometown, it meant that I lived at home, worked quietly, went to work, and had a small salary. When you arrive in Kiev, you should rent an apartment. This rent is very high…almost all of my first salary went to rent." (Focus group 1, respondent 4).*

139. A survey of internal labor mobility conducted in Russia, Ukraine, Bulgaria and Serbia showed an extremely low desire to relocate in the Ukraine (Synovate, 2010). Offered a 1.5-time increase in salary, around 80 percent of respondents in the Ukraine would nonetheless not relocate; in Bulgaria and Serbia the figure is only half of the sample. More than half of the surveyed Ukrainians would, however, change their mind if they were provided with housing, a powerful illustration of how important the housing market in Ukraine is in determining labor mobility. Imperfections in the housing market were explicitly mentioned in this survey as the key constraint to internal mobility.

140. The empirical evidence discussed in this report in Section 3 also supports this view. First, home ownership is found to be the most important correlate of internal migration among men and the second most important one among women in Ukraine (Voznyak, 2008). People who own their

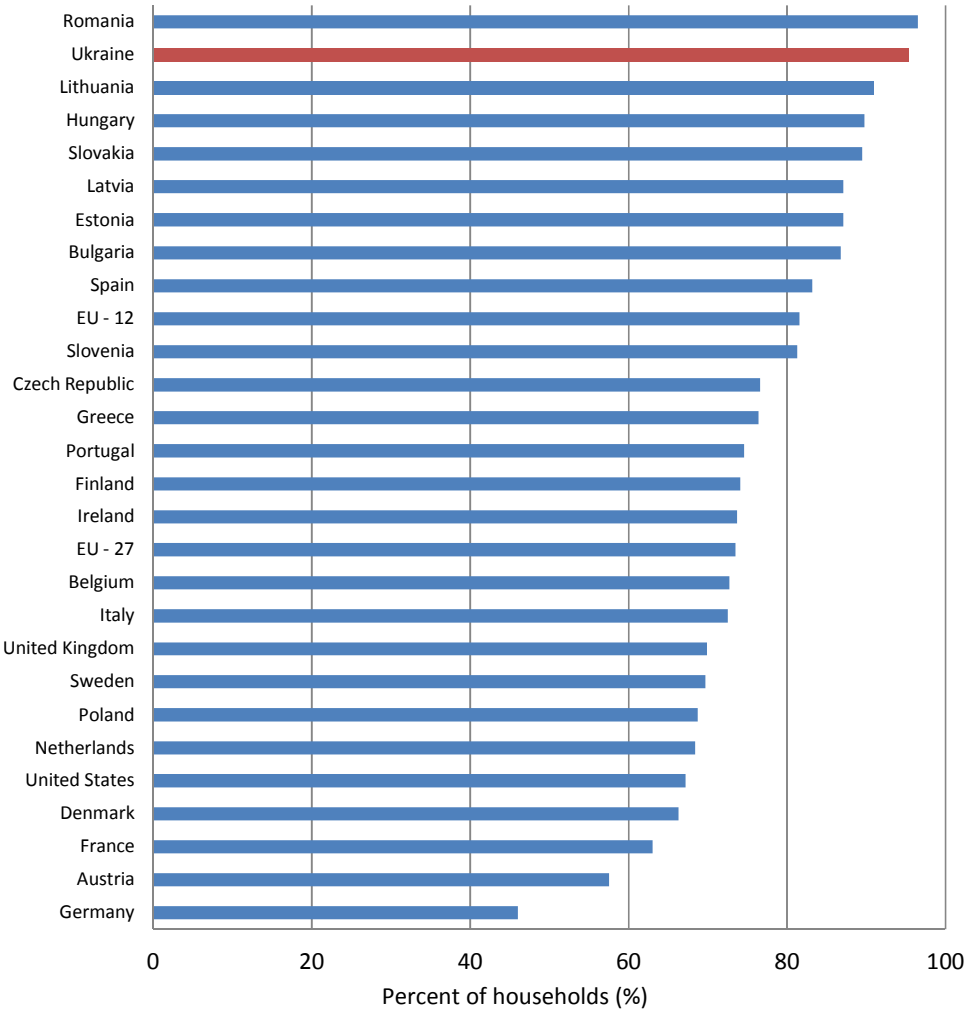
house, as opposed to renting it, are significantly less likely to move to a different region within Ukraine, even after controlling for a wide set of socio-economic and demographic individual characteristics. Second, the large—and increasing –role that commuting plays in matching people to jobs strongly suggests that the costs of residing in leading regions are high. Commuting is used a way around that constraint since it allows people to access the jobs in the leading regions without having to actually live and find housing there.

141. In other contexts as well, housing-related issues have been found to increase the cost of internal mobility and reduce the incentives to move. Home ownership has been found to be associated with a decrease labor mobility (Bloze, 2009; Fidrmuc and Huber, 2003; Green and Hendershott, 2001). In addition, housing availability and housing prices in other countries have also been found to matter in determining internal mobility (Dragunova and Maidanik, 2009; Fidrmuc and Huber, 2003; Ghatak, et.al, 2004).

142. While these are most often not causal empirical relationships, there are indeed good reasons to think that the housing market significantly affects individuals' decisions to migrate within Ukraine. First, there is a very high home ownership rate, with 95 percent of households owning the house they live in (Figure 32) and only 2.4 percent of all Ukrainian dwellings being rentals.[35] This partly reflects a legacy from the transition when homes were transferred to their occupants at little or no cost. Second, there are significant price differentials across regions in Ukraine, with housing in leading regions being significantly more expensive than in lagging regions. In combination with thin rental and mortgage markets, this makes it difficult for people to be able to sell/rent their homes at origin and buy/rent at destination.

[35] The difference arises because some people own multiple houses.

**Figure 32**: **Home ownership in Ukraine is very high**
(Owner occupancy rates, selected countries (percent)



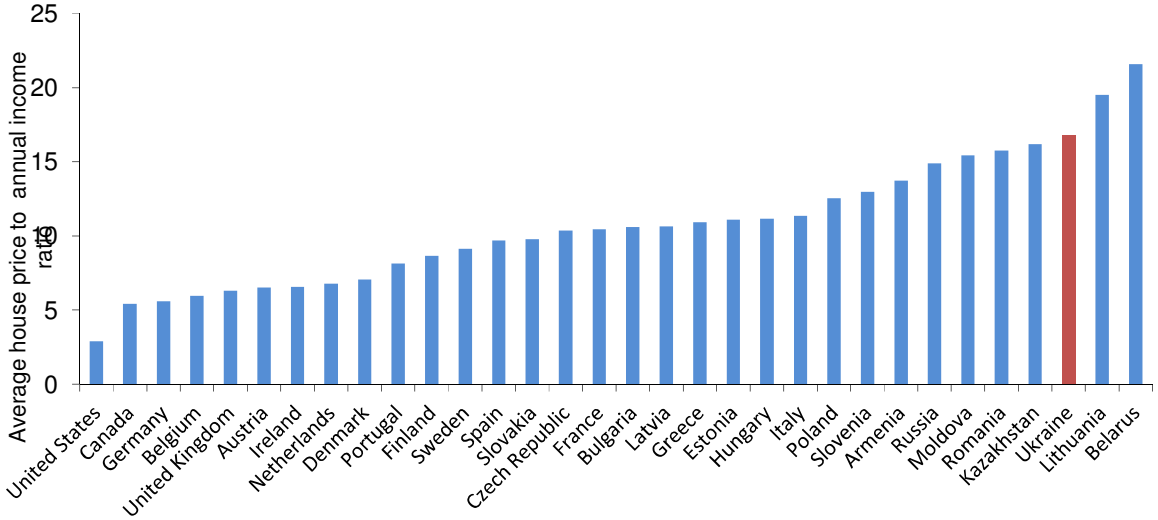

*Source*: Komarov (2012) for this report, based on Eurostat SILC (2009) and Ukraine Household Budget Survey (2010)

143. High homeownership can discourage internal migration. Home ownership per se could discourage mobility because the perceived cost of staying in one's home is low. Home-owners face high relocation and transaction costs, such as the financial, administrative and time commitments associated with selling an old house. There are also numerous personal attachments to ones' own house, which further contributes to a lessened propensity of giving up one's old house. Not only owning a house, but also buying a new house comes with transaction costs. Put technically, home-owners' income-migration elasticity is likely to be lower than that of renters'; they are less responsive to the perks of a new job.

144. Expensive housing in leading regions and under-developed real estate, rental and mortgage markets make it difficult for people to sell the homes they own in lagging regions and go where the jobs are. Housing in Ukraine is expensive, representing, on average, more than 15 times annual income (Figure 33). This is the highest ratio in the ECA region after Lithuania and Belarus, and seven times higher than in the United States. Critically, there are significant differences in relative housing costs across regions (Figure 34). Leading regions, like Kiev and Sevastopol, have relative housing prices that are twice as high as those in other parts of the country. There also are significant regional

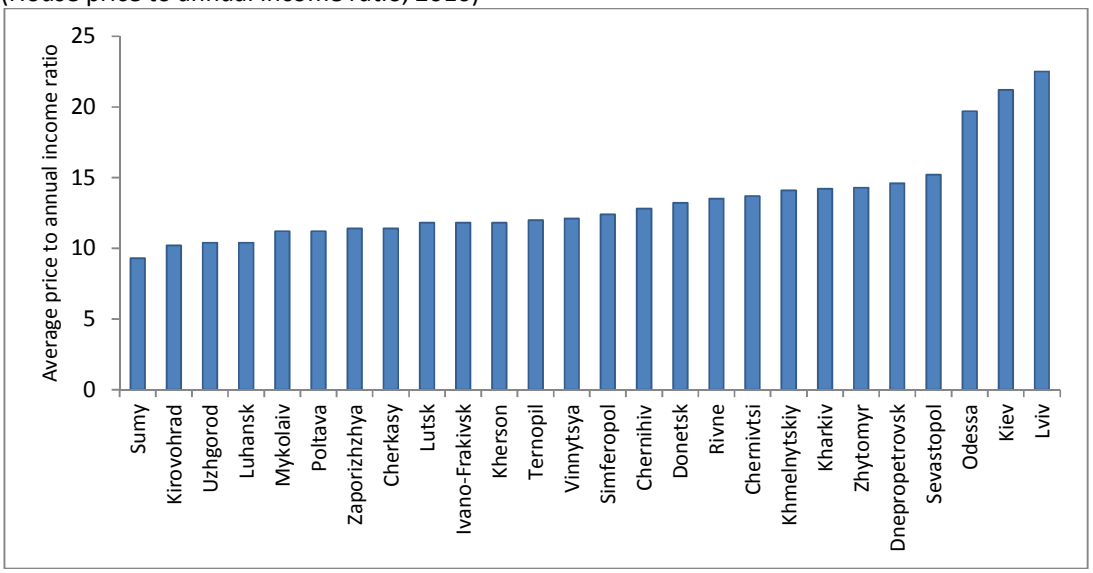
differences in rental costs. For example, renting a benchmark one bedroom apartment costs approximately 43 percent of the average household monthly disposable income in Kiev and 44 percent in Sevastopol, compared to only half that in Zaporizhzhya or Uzhgorod (Komarov, 2012). With this price differences and in the absence of financing options, people in lagging regions find it difficult to move and find appropriate housing in the leading regions.

**Figure 33**: **Housing in Ukraine is expensive, even with the financial crisis**
(House price to annual income ratio, 2010)




Source*:* Komarov (2012) for this report.

**Figure 34**: **Housing costs are significantly higher in leading regions, even with the financial crisis**
(House price to annual income ratio, 2010)



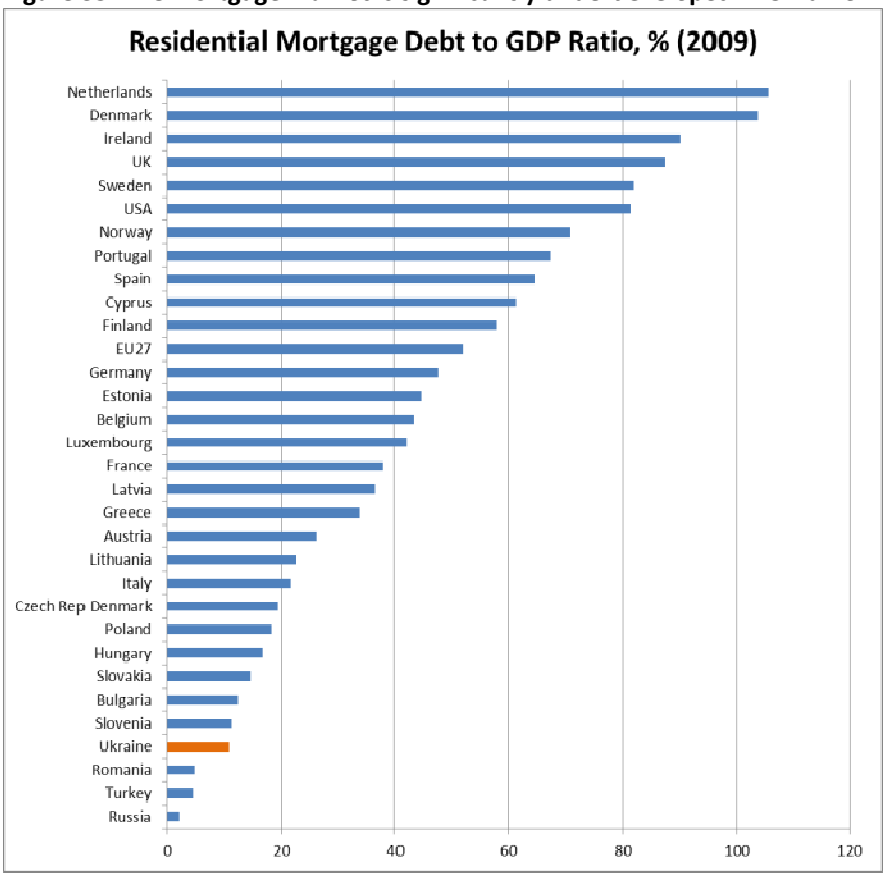

Source*:* Authors based on Komarov (2012) for this report. Data is from the State Statistics Service of Ukraine and the joint database of the Association of Realtors of Ukraine.

145. The large housing price differentials across regions, together with the high rate of home ownership, make well-functioning housing, real estate and rental markets a must. Flexible and liquid household markets have been associated with increased mobility (Barker, 2004; Cameron and

Muellbauer, 1998). Komrov (2012), for this report, provides a detailed analysis of some of the key features and weaknesses of the housing, real estate and rental markets in Ukraine. For internal migrants, two elements are likely to be critical: having access to affordable rental units but also deepening of the credit and mortgage market.

146. A fundamental constraint for affording housing in leading regions is the lack of access to credit and underdeveloped mortgage markets. Financial markets, together with the services they provide, such as mortgages and other loans, are crucial for labor mobility (Hoj, 2011; Oswald, 1999; Coulson and Fisher, 2009; Haurin and Gill (2002); and Van Leuvensteijn and Koning, 2004). Well-functioning credit markets can help both in financing the move itself and also in financing housing arrangements at destination. They can be particularly useful in cases, like Ukraine, where there are significant price differentials in housing across regions and there is a very high home ownership rate. These reforms, critically, are likely to also have a feedback effect on housing prices. Yet, Ukraine has a small mortgage market, with basic legislation passed only in 2003. Residential mortgage debt increased sharply during the pre-crisis years and reached its peak of 11 percent of GDP in 2009. This is comparable to rates in Bulgaria and Slovenia but significantly below those in the rest of the European Union and OECD countries (Figure 34). This leads to high out-of-pocket payments from savings: in Kiev for example, 80 percent of housing was funded with household's own funds (Komarov, 2012). This is likely to be a tall order for internal migrants, especially youth and the poor.

**Figure 35: The mortgage market is significantly underdeveloped in Ukraine**



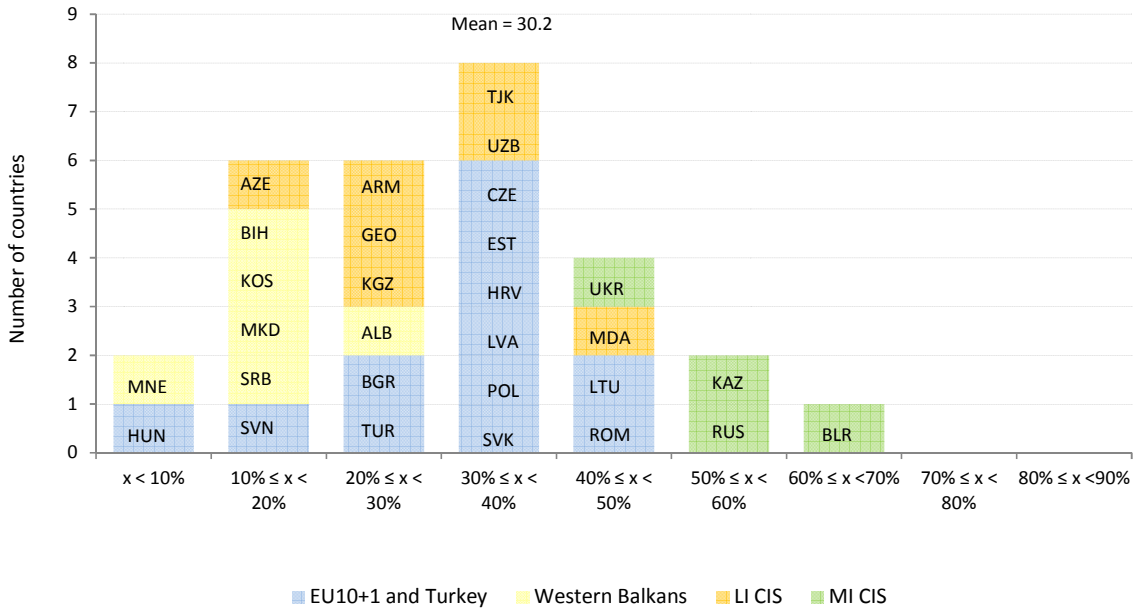

Source: Komarov (2012) for this report.

147. Ensuring a better functioning housing market—including its complementary markets, real estate, rental and credit markets—is, therefore, fundamental in addressing existing barriers to internal labor mobility in Ukraine. Komarov (2012), in background work for this report, suggests a detailed list of policy options directed at improving the overall functioning of these markets. Overall, policies should support the deepening of mortgage lending, while managing risks, and the smooth operation of the rental and housing market. For the former, in addition to legislative reforms, fostering developing further options for long-term funding for example through increased participation of institutional investors, would be important. For the latter, increasing liquidity in the rental market is key, especially for youth who are more likely to migrate but who can also not afford buying. Improving, for example, the incentives for registering rental contracts in the first place could provide the necessary institutional backdrop for making renting more transparent and more attractive for migrants.

### *4.2.3 Skills*

148. Firm surveys show that skills have become increasingly binding for enterprise performance and job creation in recent years. Skilled labor shortages have become the second most commonly reported constraint to growth in the enterprise surveys across all countries in ECA, second only to tax rates (World Bank 2011a). On average, 30 percent of firms considered education and skills to be a major or severe constraint in 2008 (see Figure 36). In Ukraine, the survey has shown that the number was above average, with 40 to 50 percent of firms indicating that skills are a very important constraint.

**Figure 36: Skills are an important constraint for many firms in Europe, and particularly in Ukraine**
(Distribution of firms that consider skills as a major or very severe constraint, 2008)

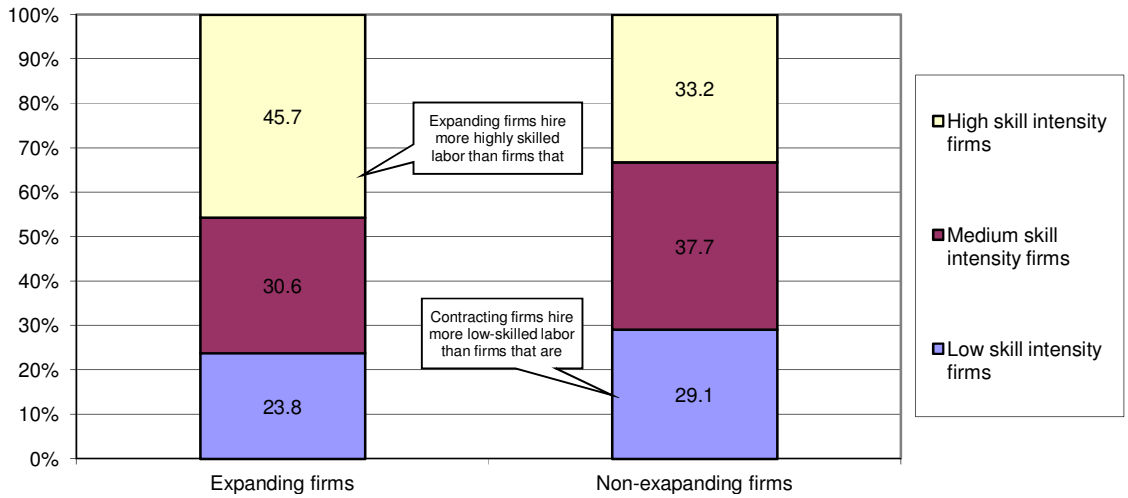



*Note:* EU10+1 is the new member states of Eastern Europe and Croatia. LI is low-income, MI is middle income countries of the Community of Independent States (CIS).
*Source:* World Bank (2011a).

149. In Ukraine, demand for high skilled labor comes from expanding, highly productive firms. An employer survey from 2005 showed that jobs in firms with growing employment are more likely to

be skill-intensive (see Figure 37). We also know from Section 2 that the most productive firms are located in leading regions, and this is also where employment growth happens. Not surprisingly and just like in other countries, the better educated are more likely to migrate, as discussed in Section 2. Therefore, skills are critical for helping people in lagging regions connect to the most productive jobs in leading regions.

**Figure 37: Growing firms demand more skilled workers, who, in turn, contribute to growth**
(Percentage distribution growing and declining firms by human capital intensity, 2005)

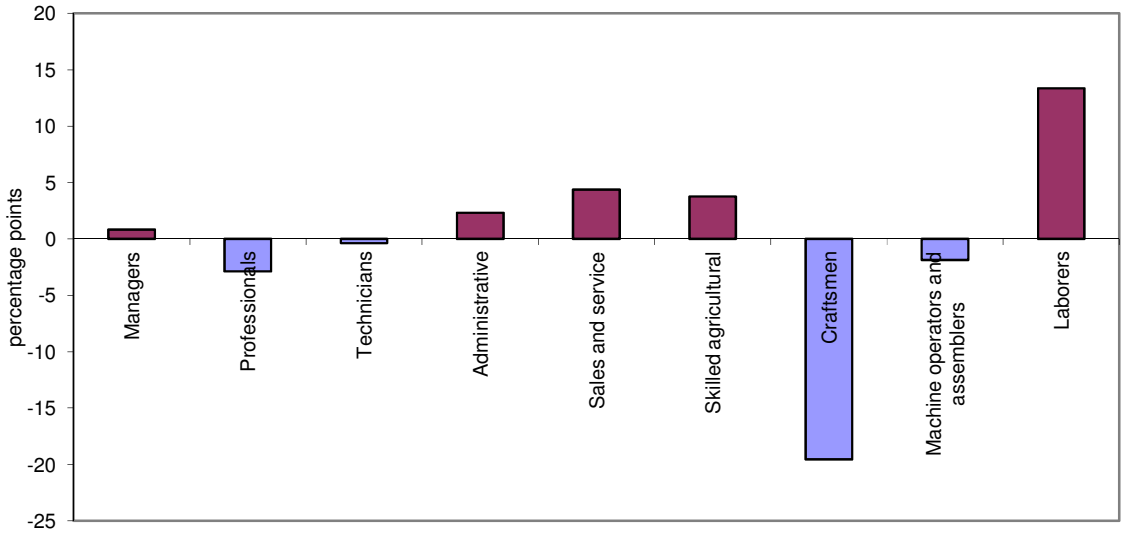



*Note:* The skill intensity groups are defined as follows: Low = human capital index <= M – 0.5*SD. Medium = M – 0.5*SD < human capital index <= M + 0.5*SD. High = human capital index > M + 0.5*SD. Where human capital index is an average of the distribution of a firm's workforce by educational levels (primary education=0, tertiary education = 3); M= Mean, SD = Standard Deviation
*Source:* World Bank (2009a).

150. At the aggregate level, mobility can help improve overall productivity by ameliorating existing skills mismatches. The evidence for Ukraine suggests a considerable skills mismatch, with an oversupply in certain occupations (laborers, sales and services, skilled agriculture) and concurrent undersupply in others (craftsmen, professionals, and machine operators, see Figure 38). Also, it takes firms considerably longer in Ukraine to hire workers with the required skills than in other countries in the region (see Figure 39). This is especially true for skilled and non-production workers. Increasing internal labor mobility can help improve the matching process in the labor markets. That mobility improves the quality of jobs matching—and hence decreases the skills mismatch—is also echoed in the focus group discussions. As one participant puts it:

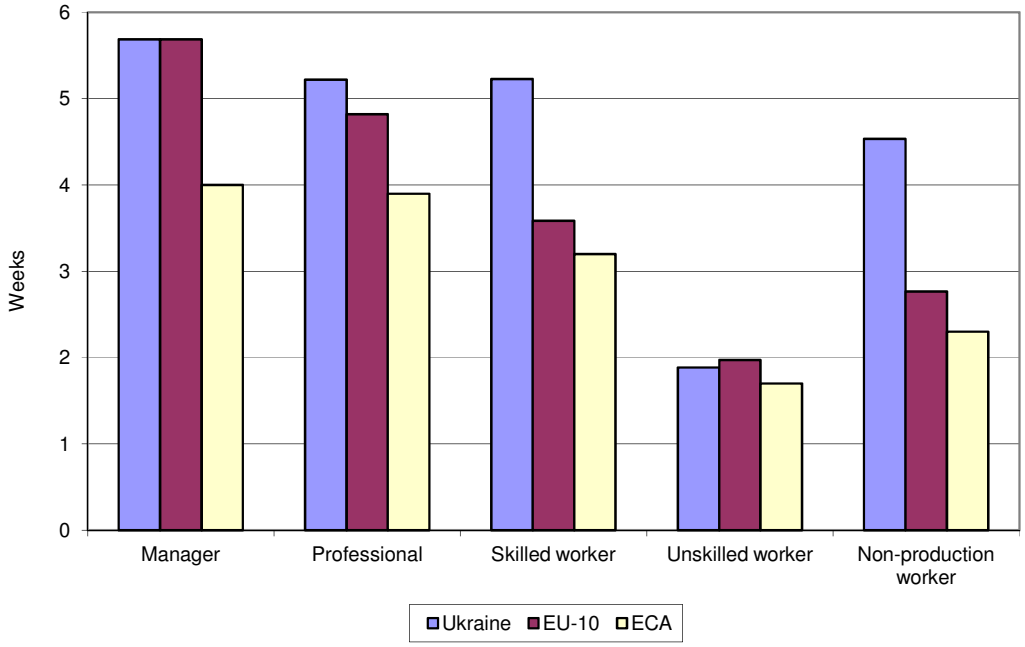
> *"At home, I get a low salary. Moreover, it is impossible to find a job according to my specialization."*
> *(Focus group 2, respondent 8)*

**Figure 38: Skills mismatch: too few craftsmen and too many low-skilled workers**
(Excess supply of labor over demand by occupation, 2006)




*Source:* World Bank (2009a).

**Figure 39: Recruiting a worker with the required skills is difficult in Ukraine**
(Time needed to fill a vacancy in weeks, by occupation, 2005)




*Source:* World Bank (2009a).

151. Skills are fundamental to increasing productivity and economic growth more generally. As discussed in Gill and Raiser (2012), skills are critical for innovation and firms' growth. Recent studies from OECD and developing countries clearly point to the central role of skills—cognitive abilities, socio-emotional, knowledge, and technical skills—in determining individual productivity. Skills encompass not only technical skills, but also generic ones. The latter consist, on the one hand, of

cognitive skills (literacy, numeracy, and problem solving), and, on the other hand, of non-cognitive skills (socio-emotional and behavioral such as team work, self-discipline, perseverance). There is evidence that a solid base of generic skills is a prerequisite for further acquisition of technical skills, whether through post-secondary education or on the job.[36] Furthermore, the foundation for the development of generic skills is built early in life and during adolescence, and hinge upon having access to adequate nutrition, nurturing environments, and the quality of basic education.[37]

152. Therefore, in order to facilitate labor mobility, people need to have skills that are transferable across sectors and occupations. For this, people need to have the ability to acquire new knowledge, that is, they need a good foundation of cognitive and non-cognitive skills. For the younger generation, this base of strong cognitive skills can still be provided by the educational; system, albeit a reformed one. For the stock of current workers who are already out of the traditional education system, the policy challenge is to find effective ways to provide these foundations and encourage re-training in new, modern occupations.

153. Many of these challenges can be addressed through effective policy interventions. As discussed extensively in a recent World Bank report, such interventions should focus on overcoming failures in information and quality assurance that lead many people to make sub-optimal skills investments (too few engineers, technicians, and competent managers; see World Bank 2011a). In terms of efficiency of education systems, Ukraine has struggled to reorganize its school networks in the face of shrinking student cohorts, resulting in a misallocation of scarce resources—for example, in maintenance of nearly empty schools rather than in restoring the attractiveness of the teaching profession (Coupe, Olefir, and Alonso, 2011).

154. Also, other ECA countries that inherited a similar education system as Ukraine are rethinking their training and vocational education systems to avoid specialization in narrow (technical) fields too early in a students' career. Although it may make students more ready for their first job, they may lack enough generic skills to retrain to different jobs later in their career and adapt flexibly to a changing labor demand. Therefore, these technical and vocational education and training systems may have to put more emphasis on also developing generic skills.

155. It might also be relevant for Ukraine to ensure that pre-school and basic education curricula and pedagogic practice pays adequate attention to the critical development of cognitive and non-cognitive skills. This is important when it comes to setting learning standards and targets, training teachers, and when assessing learning in both cognitive and behavioral dimensions. The experience with related reforms and interventions in Europe and the rest of the world can offer useful lessons. Finally, life-long learning will become increasingly important given the demographic trends.

156. The education system needs to become increasingly responsive to labor market needs. This will require a more direct involvement of the private sector in the design and provision of higher and vocational education and a more active role in providing students and young workers with on-the-job learning and training opportunities. At the same time, students and workers need to have access to appropriate labor market data like prevailing wages, career advancement, and vacancy rates in order to make informed decisions about their human capital investments. Labor market observatories and public and private labor market intermediaries could play an important role in providing this information, especially for potential internal migrants.

[36] See Carneiro and Heckman (2002) for U.S evidence, Brunello and Schlotter (2011) for Europe, and World Bank (2011b) for summary evidence in middle income countries.
[37] See World Bank (2011b).

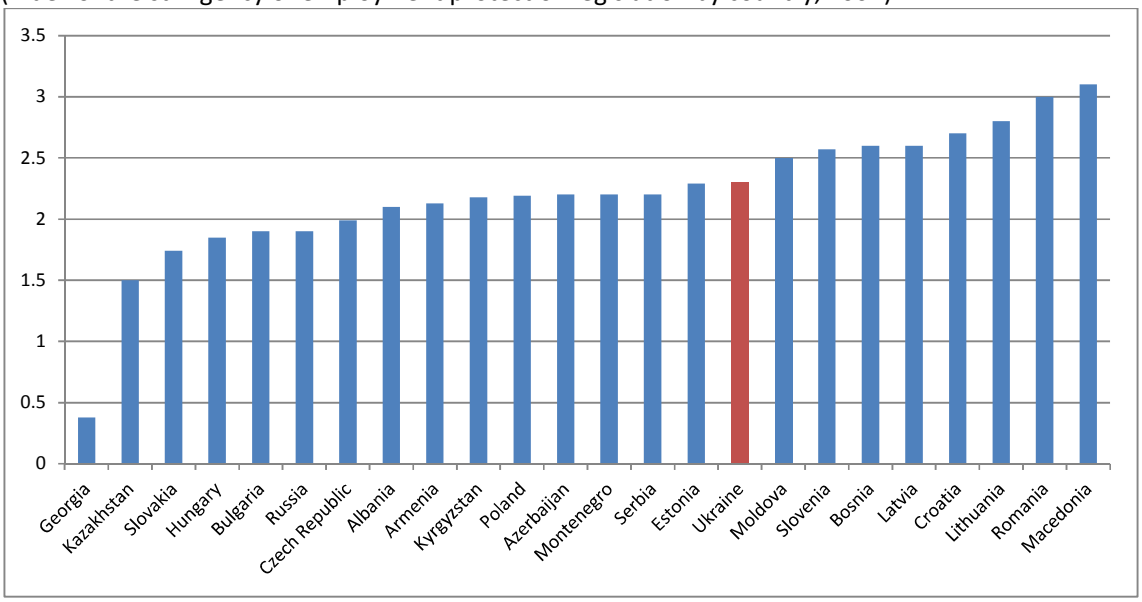
157. In short, it is the formation of the *right* skills rather than diplomas that should be the focus of reforms (World Bank, 2011a). To that end, though, more evidence is needed on the learning and employment outcomes of students and graduates in order to inform policy design and monitoring.

### *4.2.4 Labor Market Institutions*

158. The importance of strong labor market institutions for internal labor mobility is motivated by two facts: first, the lack of dynamism in the Ukrainian labor market (see Table 1); and second, the evidence that informal, social networks act as a partial, but at times, inefficient and inequitable substitute for formal institutions. With this in mind, we will focus on three particular aspects of the labor market: employment protection legislation (EPL); informality; and labor market information and intermediation.

159. Labor market regulations, such as EPL, that regulate also the hiring and firing process of workers, could be a critical determinant of the dynamism of labor markets, especially in cases like Ukraine where regulations are very stringent. Overall, the evidence linking EPL and labor turnover and employment outcomes is mixed, as discussed in the upcoming 2013 World Development Report on Jobs. There appears to be a threshold-effect over which these labor market regulations become binding (a such called "plateau").[38] In Ukraine, where EPL is relatively high when compared to other ECA countries, EPL could hinder dynamism in the labor market and therefore labor mobility (see Figure 40).

**Figure 40: Ukraine is among the countries with more stringent employment protection legislation**
(Index of the stringency of employment protection legislation by country, 2007)



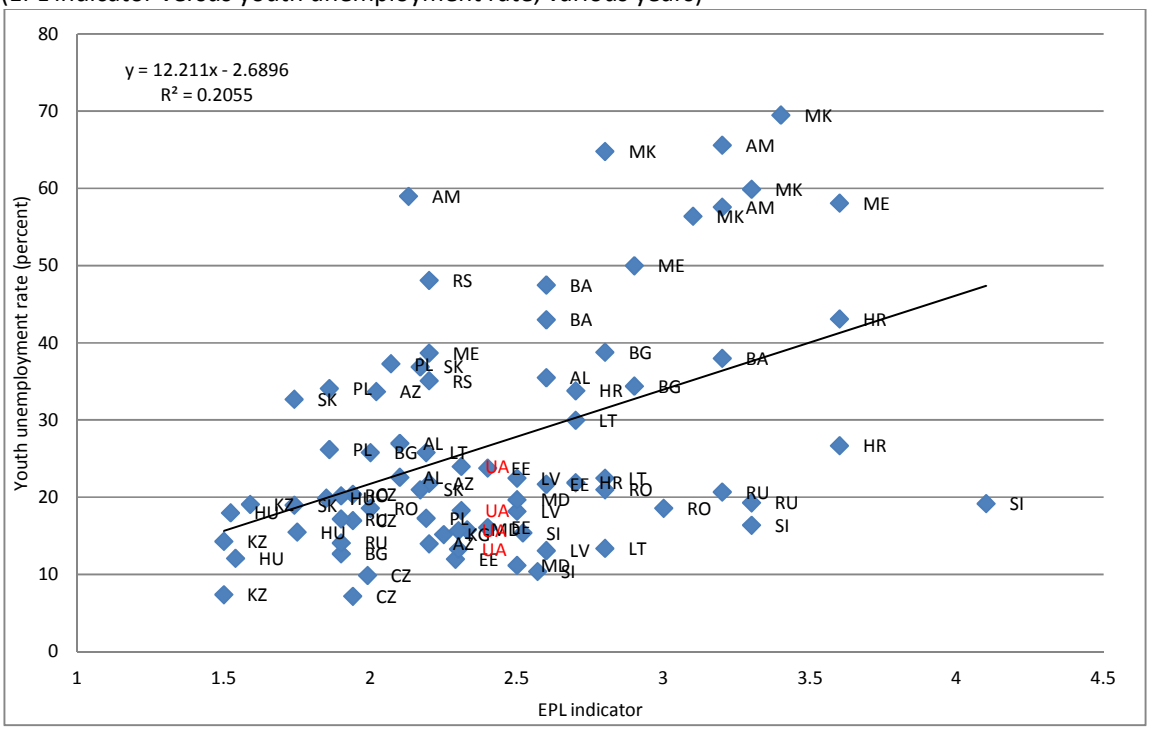

*Source:* Lehmann and Muravyev (2011)

160. For workers to move, a fluid labor market is essential. High job turnover rates, in terms of recreation of existing jobs and the creation of new ones, increases the chances of employment and

[38] For example, there is evidence that EPL hinders job turnover (Haltiwanger et al., 2006; and Micco and Pages, 2006; Kugler and Pica, 2008; Boeri and Jimeno, 2005) as well as increasing the duration of employment, but also unemployment (Djankov, et al., 2010; Aterido et al., 2009; McKenzie, 2010). In an empirical study, Kugler and Pica (2008) provide evidence for a negative relationship between employment protection legislation and hiring rates.

the quality of matching between employers and workers. If labor markets are static, people have fewer opportunities to change jobs—and therefore, fewer incentives to look for and move to better jobs, especially when far from home. For new entrants into labor markets, static labor markets are particularly detrimental. Figure 41 shows a clear positive correlation between the stringency of EPL and youth unemployment rates, consistent with EPL's tendency to protect those who are in formal employment, but also to create challenges for those outside.

**Figure 41: Stringent EPL is positively associated with higher youth unemployment in ECA**
(EPL indicator versus youth unemployment rate, various years)




*Source:* Authors, based on Lehmann and Muravyev (2011).

161. Even in the presence of high informality, EPL affects firms' decisions at the margin (new firms, new hires in existing firms, for example), but also EPL has an important role to play in the governance of the labor market and provides a needed balance between flexibility and protection. At the moment, this balance is not provided, and as a result, Ukrainians have found ways around it. For example, EPL regulates the terms of labor contracts, including notice periods for layoffs, length of contract, and severance pay. All of these provisions ensure a necessary level of security and certainty that increases the expected payoff from labor market decisions, including labor migration. If worker do not have this security, they might deterred from moving to take up insecure jobs in the informal sector. The uncertainty of payment of wages, as already discussed above, is another manifestation of the pervasive effects of informality on labor markets and mobility. The focus group discussions confirmed these effects, in particular how the uncertainty of payment of wages affects migration decisions.

162. In addition to labor market regulations and informality, information asymmetries in terms of available job opportunities and working conditions are an important barrier to internal mobility. Empirical results for Ukraine and elsewhere show that migration does crucially depend on distance, reflecting not only migration costs but also information asymmetries. As discussed in the previous subsection on skills, employment observatories and public and private intermediaries are essential for overcoming information barriers.

163. In short, institutional reforms of the labor regulations are important for creating a dynamic labor market in Ukraine. The current labor code dates from before the transition and, although many times amended, many provisions need to be revised. In addition, there are many reforms in the field of labor inspection services, labor taxation, and governance that are also needed to reduce informality and improve labor market functioning (see World Bank, 2011c). The challenge is to rebalance labor regulations as to provide the much needed flexibility to increase the dynamism of the labor market, while offering sufficient protection to workers to have a proper safety net that facilitates labor market transitions.

### *4.2.5 Social Benefits*

164. Social benefits can be both a barrier and a promoter of internal migration. If designed well, social benefits like unemployment insurance and social assistance can help people to overcome financial constraints and connect with better jobs in leading regions. If badly designed, social benefits might prevent people from entering in the labor market and keep them at their place of residence in lagging areas. The key is to find the right balance between the generosity of the benefit and the disincentive to look for economic opportunities leading regions and to ensure that eligibility criteria for benefits do not bind people to their current place of residence.

165. Overall, social benefits in Ukraine have substantial coverage, but do not seem too generous, with some exceptions. About 67 percent of the population received—either directly or indirectly, as a member of a recipient household—at least one social protection transfer in 2007 (see Table 9).[39] Overall, social assistance programs cover 42 percent of the population, mainly due to the child allowance and the housing and utility privileges. Overall, social assistance benefits do not seem to be particularly generous. Among the poorest quintile, the last-resort social assistance benefit does not represent more than a quarter of post-transfer household income (see Figure 42). This is considerably less than in other countries.

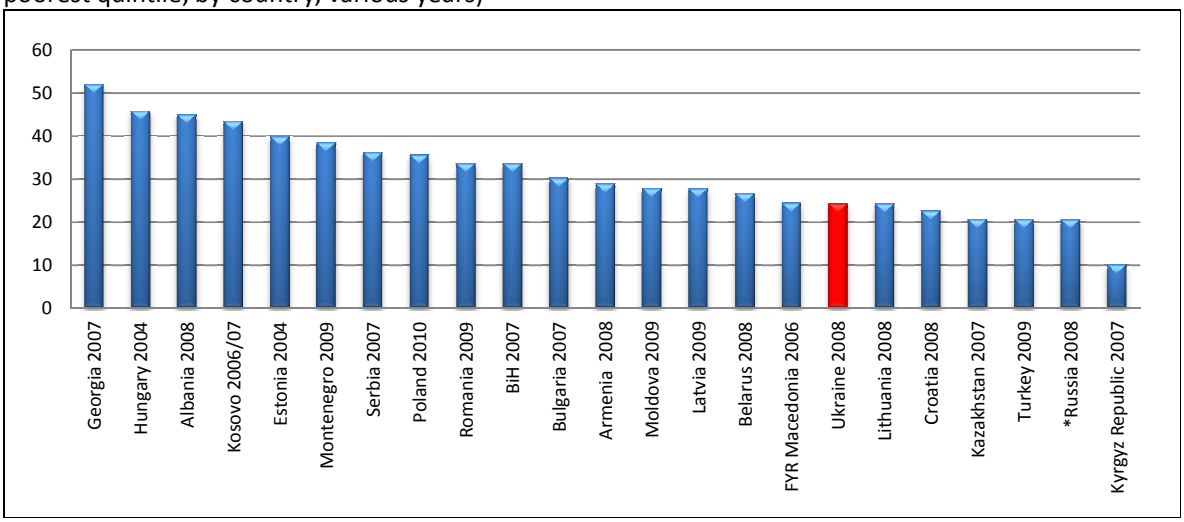
**Table 9: Coverage of social protection programs, 2007**

| | Total | Deciles of total per capita income, net of each SP transfer | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | D1 | D2 | D3 | D4 | D5 | D6 | D7 | D8 | D9 | D10 |
| All social protection | 67.0 | 99.6 | 93.9 | 86.3 | 75.9 | 68.9 | 67.0 | 53.8 | 49.6 | 40.6 | 34.3 |
| All social insurance | 52.1 | 97.7 | 82.8 | 68.3 | 52.1 | 48.9 | 47.4 | 38.3 | 32.7 | 28.4 | 24.6 |
| Pension | 52.1 | 97.7 | 82.8 | 68.3 | 52.1 | 48.9 | 47.4 | 38.3 | 32.7 | 28.4 | 24.6 |
| All labor market programs | 5.3 | 12.5 | 10.7 | 5.8 | 5.3 | 5.1 | 4.0 | 2.2 | 3.4 | 2.7 | 1.0 |
| Unemployment benefits | 5.3 | 12.5 | 10.7 | 5.8 | 5.3 | 5.1 | 4.0 | 2.2 | 3.4 | 2.7 | 1.0 |
| All social assistance | 42.4 | 58.6 | 46.3 | 45.8 | 49.0 | 43.0 | 43.5 | 41.2 | 34.5 | 31.3 | 30.6 |
| For children 0-3 years old | 12.9 | 28.5 | 22.2 | 14.4 | 14.6 | 12.3 | 10.0 | 10.0 | 8.0 | 4.9 | 4.2 |
| For lone mothers | 1.9 | 6.5 | 4.5 | 2.2 | 1.2 | 2.1 | 0.7 | 1.0 | 0.3 | 0.3 | 0.2 |
| For children cared by non-relatives | 0.2 | 0.6 | 0.5 | 0.3 | 0.1 | 0.2 | 0.2 | 0.1 | 0.3 | 0.0 | 0.0 |
| Child birth grant | 6.5 | 17.4 | 11.4 | 8.2 | 6.6 | 5.6 | 4.2 | 5.2 | 2.1 | 2.4 | 2.2 |
| Other child allowances | 1.9 | 5.1 | 2.5 | 3.0 | 2.4 | 1.4 | 1.5 | 1.4 | 0.8 | 0.4 | 0.7 |
| Last-resort program | 2.4 | 11.8 | 5.0 | 2.2 | 1.2 | 1.9 | 0.5 | 1.0 | 0.1 | 0.4 | 0.1 |
| Housing and utility allowance, urban | 1.7 | 1.9 | 2.1 | 2.9 | 1.5 | 2.4 | 1.5 | 2.0 | 1.2 | 0.8 | 0.7 |
| Housing and utility allowance, rural | 2.1 | 3.0 | 1.9 | 3.4 | 2.1 | 1.8 | 3.3 | 2.5 | 1.6 | 1.0 | 0.5 |
| Housing and utlity privileges | 22.0 | 10.9 | 17.6 | 22.7 | 28.1 | 23.8 | 25.4 | 25.1 | 21.5 | 23.1 | 22.0 |
| Other social assistance | 14.4 | 13.3 | 11.7 | 13.3 | 17.3 | 14.7 | 16.7 | 17.2 | 13.9 | 12.9 | 12.8 |

*Notes:* Program coverage is the portion of population in each group that receives the transfer.
*Source:* World Bank (2010).

[39] We count here both direct and indirect beneficiaries, as all of them share the respective income. For example, all persons living in a household with a pensioner are considered covered by the social protection system.

**Figure 42: Social assistance benefits in Ukraine are less generous than in other ECA countries**
(Social assistance benefits as percent of post-transfer consumption for beneficiary household in the poorest quintile, by country, various years)




*Note:* Since the data refer to various years before and during the financial crisis, data is not fully comparable.
*Source:* World Bank (2012).

166. The child birth grant could be possibly an exception in terms of generosity. With spending per beneficiary at about UAH 12,500 (USD 1,600) it seems exceptionally high when compared to spending on other beneficiaries (see Table A 10). Anecdotal evidence suggests that this benefit might indeed prevent people from moving, especially when taking into account the higher purchasing power in lagging, rural areas. The empirical analysis in Section 3 also hinted at a possible role for social expenditures as a possible barrier to internal migration: Expenditures on social assistance and health at origin seem to discourage outmigration.

167. Another important barrier to internal labor mobility could arise from eligibility criteria for social benefits. If the eligibility criteria are such that they are tied to the place of residence and the benefit is not portable across regions, it could prevent people from moving. For example, last resort social assistance benefits might only be accessible where the applicant has resided for a minimum number of years. In Ukraine, this does not seem to be the case in a technical sense. In other words, people can apply to social benefits or unemployment insurance independently from where they resided previously. Nevertheless, the receipt of benefits is tied to the *official* place of residence. So, to the extent that people are moving informally and do not officially register at their place of residence, social benefits might indeed not be easily accessible at the actual place of residence.

168. Finally, certain subsidy programs outside the social benefit system might also provide incentives to people to stay in lagging areas instead of moving to leading areas. For example, the "Own House" program provides subsidized loans to individuals for the construction or purchase of a house in rural areas. Almost 80,000 loans were granted between 1998 and 2010 (see Komarov, 2012).[40]

169. In summary, social benefits and subsidy programs should be designed spatially blind, balanced, and promote labor force participation to connect people to more and better jobs. In Ukraine, there seems to be some room to re-consider the design of certain subsidy and social protection programs. Although social assistance programs are not overly generous when compared to other countries, there is some anecdotal and empirical evidence that they could undermine

[40] At the same time, the program also supports connecting houses to gas supply, which is an example of a spatially blind policy.

internal mobility, especially the child birth grant. Social benefits by and large appear to be independent of the place of registry, but the challenge lies in the fact that many people do not officially register in their actual place of residence.

# 5 References


Andrews, M., K. Clark and W. Whittaker. 2007. “The Employment and Earnings of Migrants in Great Britain.” *IZA Discussion Paper* 3068. Bonn, Germany: Institute for the Study of Labor.

Andrienko, Y. and S. Guriev. 2004. “Determinants of Interregional Mobility in Russia.” *Economics of Transition*, 12: 1-27.

Antolin, P. and O. Bover. 1997. "Regional Migration in Spain: The Effect of Personal Characteristics and of Unemployment, Wage and House Price Differentials Using Pooled Cross-Sections." *Oxford Bulletin of Economics and Statis*tics, 59 (2): 215-235.

Aterido, R. 2009. “Big Constraints to Small Firms' Growth? Business Environment and Employment Growth across Firms.” Washington, DC: *World Bank Policy Research Working Paper* Series 5032.

Barker, K. 2004. *Review of Housing Supply. Delivering Stability: Securing our Future Housing Needs. Final Report—Recommendations*. London, UK: HMSO.

Basile, R. and J. Lim. 2006. "Wages Differentials and Interregional Migration in U.S.: An Empirical Test of the Option Value of the Waiting Theory." *Real Economics Applications Laboratory Working Paper REAL* 06-T-4. Urbana Champaign, IL: The University of Illinois.

Bell, M., M. Blake, P. Boyle, O. Duke-Williams, P.Rees, J. Stillwell and G. Hugo. 2002. “Cross-national comparison of internal migration: issues and measures.” *Journal of the Royal Statistical Society* A, 165(3): 435-464.

Bertola, G. 2000. "Labour Markets in the European Union." *IFO Studien*, 46: 99-122.

Blanchard O. and L. Katz. 1992. "Regional Evolutions." *Brookings Papers on Economic Ac*tivity, 1:1-74.

Bloze G. 2009. "Interregional Migration and Housing Structure in an East European Transition Country: A View of Lithuania 2001-2008." *Baltic Journal of Economics*, 9 (2): 47-66.

Boeri, T. and J. Jimeno. 2005. “The Effects of Employment Protection: Learning from Variable Enforcement.” *European Economic Review* 49, 2057–2077.

Bosker, M., S. Brakman, H. Garretsen and M. Schramm. 2010. “Increased Labor Mobility and China's Economic Geography”, *CESifo Working Paper* 3271. Munich, Germany: CESifo.

Brunello, Giorgio and Martin Schlotter (2011). “Non Cognitive Skills and Personality Traits: Labour Market Relevance and their Development in Education & Training Systems.” *IZA Discussion Paper No. 5743.* Bonn, Germany: Institute for the Study of Labor.

Buscher H., C. Lang and G. Hardt. 2005. "The Performance of European Labour Markets on the Basis of Data Obtained from the June 2004 ad hoc Labour Market Survey." EU-Project

ECFIN/2004/A3-02, Final Report, available at: http://ec.europa.eu/economy_finance/ indicators/business_consumer_surveys/studies_en.htm. Last accessed May 12, 2012.

Cameron, G. and J. Muellbauer. 1998. "The Housing Market and Regional Commuting and Migration Choices." *Scottish Journal of Political Economy*, Scottish Economic Society, 45(4): 420-46.

Carneiro, P. and J. Heckman. 2002. "The Evidence on Credit Constraints in Post-Secondary Schooling." *IZA Discussion Paper* No. 518. Bonn, Germany: Institute for the Study of Labor.

Coulson, N. and L. Fisher. 2009. "Housing Tenure and Labor Market Impacts: The Search Goes On." *Journal of Urban Economics*, 65(3): 252-264.

Coupe, T., A. Olefir, and J. Alonso. 2011. "Is Optimization an Opportunity? An Assessment of the Impact of Class Size and School Size on the Performance of Ukrainian Secondary Schools." *World Bank Policy Research Working Paper* No. 5879. Washington, DC: World Bank.

Danish Technical Institute. 2008. *Job Mobility in the European Union. Optimising its Social and Economic Benefits*. Copenhagen, Denmark.

Djankov, S., C. Freund, and C. S. Pham. 2010. "Trading on Time." *Review of Economics and Statistics* 92 (1): 166–173.

Dragunova T. and I. Maidanik. 2009. "Present Trends and Determinants of Migration of Population in Kyiv oblast." *Demography and Social Economy*, 1 (11): 125-135.

Economist. 2011. "The Rich and the Rest: What to do (and not do) about inequality." January 20.

Eichengreen, B. 1993. "Labor Markets and European Monetary Unification." In P. Masson and M. Taylor (eds.) *Policy Issues in the Operation of Currency Unions*. Cambridge, UK: Cambridge University Press.

European Bank for Reconstruction and Development (EBRD) and World Bank. 2010. *Life in Transition Survey 2010*. Online database. Available at http://www.ebrd.com/pages/research/ economics/data/lits.shtml. Last accessed May 6, 2012.

European Commission (EC). 2007. "Regional Labour Market Adjustment in the Accession Candidate Countries: Final report." HPSE-CT-2001-00063. Available at: http://cordis.europa.eu/ documents/documentlibrary/100124391EN6.pdf. Last accessed May 12, 2012.

European Training Foundation (ETF). 2009. "Black Sea Labour Market Reviews—Ukraine Country Report." Available at: http://etf.europa.eu/web.nsf/pages/Black_Sea_Labour_Market_ Reviews_- _Ukraine_country_report_EN. Last accessed on May 11 2012.

Fidrmuc, J. 2004. "Migration and Regional Adjustment to Asymmetric Shocks in Transition Economies." *Journal of Comparative Economics*, 32: 230-247.

Fidrmuc, J. and P. Huber. 2003. "The Puzzle of Rising Regional Disparities and Falling Migration Rates during Transition." Vienna, Austria: Austrian Institute for Economic Research. Mimeo.

Finnie, R. 2004. "Who Moves? A Panel Logit Model Analysis of Inter-Provincial Migration in Canada." *Applied Economics* 36 (16): 1759-1779.

Gang, I.N. and R. Stuart. 1999. “Mobility Where Mobility is Illegal: Internal Migration and City Growth in the Soviet Union.” *Journal of Population Economics* 12(1):117-34.

Geographically based Economic data (G-Econ). 2012. Online database. Available at http://gecon.yale.edu. Last accessed May 11, 2012.

Ghatak, S., A. Mulhern and J. Watson. 2007. "Interregional Migration in Transition Countries: The Case of Poland." *Economics Discussion Paper* 2007/7. London, UK: School of Economics, University of Kingston.

Gill, I. and M. Raiser. 2012. *Golden Growth: Restoring the Lustre of the European Economic Model*. Washington, DC: World Bank.

Green, R. and P. Hendershott. 2001. “Home Ownership and the Duration of Unemployment: A Test of the Oswald Hypothesis.” Working Paper. Aberdeen, UK: University of Aberdeen.

Greenwood, M.J. 1997. “Internal Migration in Developed Countries.” *Handbook of Population and Family Economics*, *Edition 1, Volume 1, Number 1*, eds. M.R. Rosenzweig and O. Stark. Part 2: 647-720.

Groenewold, N. 1997. "Does Migration Equalise Regional Unemployment Rates? Evidence from Australia." *Papers in Regional Science*, 76 (1): 1-20.

Lall, S.V., H. Selod, and Z. Shalizi. 2006. "Rural-Urban Migration in Developing Countries: A Survey of Theoretical Predictions and Empirical Findings", *Policy Research Working Paper,* 3915. Washington, DC: World Bank.

Lehmann, H. and A. Muravyev. 2011. “Labor Markets and Labor Market Institutions in Transition Economies.” *IZA Discussion Paper* No 5905. Bonn, Germany: Institute for the Study of Labor.

Lee, D. and K.I. Wolpin. 2006. “Intersectoral Labor Mobility and the Growth of the Service Sector.” *Econometrica* 74(1):1-46.

Haltiwanger, J., S. Scarpetta, and H. Schwieger. 2006. “Assessing Job Flows Across Countries: The Role of Industry, Firm Size and Regulations.” *IZA Discussion Paper* No. 2450.

Haurin, D. and L. Gill. 2002. “The Impact of Transaction Costs and the Expected Length of Stay on Homeownership.” *Journal of Urban Economics* 51: 563-584.

Hazans, M. 2003a. “Determinants of Inter-Regional Migration in the Baltic States.” *ZEI Working Paper,* B17-2003. Bonn, Germany: Center for European Integration Studies.

Hazans M. 2003b. "Commuting in the Baltic States: Patterns, Determinants, and Gains.” *Center for European Integration Studies (ZEI) Working Paper* No. B02-2003.Bonn, Germany.

Hoj, J. 2011. “Improving the Flexibility of the Dutch Housing Market to Enhance Labour Mobility.” *OECD Working Paper* No.833, Paris, France: OECD.

Institute of Demography and Social Studies (IDSS). 2007. "Population of Ukraine. Social and demographic problems of Ukrainian villages." Kiev, Ukraine: IDSS.

International Labor Organization (ILO). 2012. *Laborsta Database, Employment by sector data*. Geneva, Switzerland: International Labor Office. Available at http://laborsta.ilo.org. Last accessed May 12, 2012.

International Organisation for Migration (IOM). 2011. *Facts and Figures*. Kiev, Ukraine: IOM.

Jackman, R. and S. Savouri. 1992. "Regional Migration in Britain: An Analysis of Gross Flows Using NHS Central Registry Data." *The Economic Journal*, 102: 1433-1450.

Komarov, V. (2012). "Housing Market and Labor Mobility." Background paper for this report. Mimeo.

Korchynskiy, V. and S. Kolodiy. 2008. "The Impact of Interregional Differentiation in Local Budget Expenditures and Wages on Internal Migration of Ukrainian Population." *Finance of Ukraine*, 1: 47-54.

Kugler, A. and G. Pica. 2008. "Effects of Employment Protection on Worker and Job Flows: Evidence from the 1990 Italian Reform." *Labour Economics* 15, 78–95.

Kulo, H. and F. Billari. 2004. "Multilevel Analysis of Internal Migration in a Transition Country: The Case of Estonia." *Regional Studies* 38 (6): 679 - 696.

Kupets, O. 2006. "Determinants of Unemployment Duration in Ukraine." *Journal of Comparative Economics*, 34: 228-247.

Kupets O. 2010. "Gender Mainstreaming in the Ukrainian Labour Market and the Role of the Public Employment Service." ILO SRO Budapest, Hungary.

Kupets, O. 2012. "Characteristics and Determinants of Internal Mobility in Ukraine." Background paper for this report. Mimeo.

Kupets, O., V. Vakhitov, and S. Babenko. 2012. "Jobs Case Study Ukraine. Demographic Change." Background paper for *World Development Report 2013*. Mimeo.

Lee, E. S. 1966. "A Theory of Migration." *Demography*, 3 (1): 47-57.

Lucas, R. E. B. 1997. "Internal Migration in Developing Countries." *Handbook of Population and Family Economics*, *Edition 1, Volume 1, Number 1*, eds. M.R. Rosenzweig and O. Stark. Part 2: 721-798.

Martynenko, T. 2004. "Regional Migration and the Evolution of Regional Unemployment Pattern in Ukraine." EERC (KSE) MA thesis. Kiev, Ukraine. Available at http://www.kse.org.ua/library/ma_thesis/theses_2004. Last accessed May 9, 2012.

McKenzie, D. 2010. "Impact Assessment in Finance and Private Sector Development: What have we learned and what should we learn?" Washington, D.C.: World Bank.

McMillan, M. and D, Rodrik. 2011. "Globalization, Structural Change and Productivity Growth." *NBER Working Paper* No. 17143. Cambridge, MA.

Moeller, J. 1995. "Empirische Analyse der Regionalentwicklung." In B. Gahlen; H. Hesse and H. Ramser (eds.). *Standort und Region*, *Wirtschaftswissenschaftliches Seminar Ottobeuren*, Vol. 24. Tübingen, Germany.

Micco, A. and C. Pages. 2006. "The Economic Effects of Employment Protection: Evidence from International Industry-Level Data." *IZA Discussion Paper* No. 2433.

Obstfeld, M. and G. Peri. 1998. "Regional Non-adjustment and Fiscal Policy: Lessons for EMU." *NBER Working Paper* No.6431. Cambridge, MA.

Oswald, A. 1999. "The Housing Market and Europe's Unemployment: A Nontechnical Paper." Warwick, UK: University of Warwick. Mimeo.

Paci P., E. Tiongson, M. Walewski, J. Liwiński and M. Stoilkova. 2007. "Internal Labor Mobility in Central Europe and the Baltic Region." *World Bank Working Paper* No. 105. Washington, DC: World Bank.

Perrin, N. and M. Poulin. 2008. "An Assessment of the State Systems for Data Collection, Analysis and Data Sharing on Migration and Migration Statistics in Ukraine." Kiev, Ukraine: International Organization for Migration.

Pissarides, C. and J. Wadsworth. 1989. "Unemployment and the Inter-Regional Mobility of Labor." *The Economic Journal*, 99: 739-755.

Poznyak, O (ed.). 2007. *Migration Processes in Ukraine: Current Situation and Future Trends*. Uman.

Ravenstein, E.G. 1889. "The Laws of Migration." *Journal of the Royal Statistical Society*, 52: 241-305.

Sharpe, A., A. Arsenault and D. Ershov. 2007. "The Impact of Interprovincial Migration on Aggregate Output and Labour Productivity in Canada, 1987-2006." *CSLS Research Report 2007-02*. Ottawa, Canada: Centre for the Study of Living Standards.

Shryock, H.S., J.S. Siegel and Associates. 1976. *The Methods and Materials of Demography.* New York, NY: Academic Press.

Sjaastad, L. A. 1962. "The Costs and Returns of Human Migration." *Journal of Political Economy, Supplement,* 70: 80-89.

Stark O. and D. E. Bloom. 1985. "The New Economics of Labor Migration." *American Economic Review,* 75 (2): 173-178.

Stouffer, S.1940. "Intervening Opportunities: A Theory Relating to Mobility and Distance." *American Sociological Review,* 5 (6): 845-867.

Synovate. 2010. *Survey of Labour Mobility in Russia, Ukraine, Bulgaria and Serbia*. Available at http://www.synovate.com/russia/news/press/2010.10.20.01.shtml. Last accessed May 9, 2012.

Tiebout, C. 1956. "A Pure Theory of Local Expenditures." *Journal of Political Economy,* 64 (5): 416–424.

Todaro M. P. 1969. “A Model of Labor Migration and Urban Unemployment in Less Developed Countries.” *American Economic Review*, 59: 138-148.

United Nations. 1970. *Methods of measuring internal migration. Manual VI*. New York, NY: United Nations.

United Nations Statistics Division (UNSD). 2012. *The Economic Statistics Branch, National Accounts Official Country Data database*. Available at http://data.un.org/Default.aspx. Last accessed May 12, 2012.

Van Leuvensteijn, M. and P. Koning. 2004. "The Effect of Home Ownership on Labor Mobility in the Netherlands." *Journal of Urban Economics*, 55(3): 580-596.

Voznyak, R. 2008. “Who Moves: A Micro Level Study of Migration in Ukraine.” EERC (KSE) MA thesis. Kiev, Ukraine. Available at: http://www.kse.org.ua/library/ma_thesis/theses_2008. Last accessed May 9, 2012.

Voznyak, R. 2009. “Moves: A Micro Level Study of Migration in Ukraine.” *Business Inform*, 4: 34-37.

Wing Chan, K. 2009. "The Chinese Hukou System at 50." *Eurasian Geography and Economics*, 50 (2): 197-221.

World Bank. 2005. “Ukraine Poverty Assessment: Poverty and Inequality in a Growing Economy.” *Report No. 34631-UA*. Washington, DC: World Bank.

World Bank. 2007. *From Red to Gray. The “Third Transition” of Aging Populations in Eastern Europe and the Former Soviet Union*. Washington, DC: World Bank.

World Bank. 2009a. *Ukraine Labor Demand Study.* Washington, DC.

————. 2009b. *World Development Report 2009. Reshaping Economic Geography*. Washington, DC: World Bank.

————. 2010. “Improving Targeting Accuracy of Social Assistance Programs in Ukraine.” Technical Note for the Government of Ukraine. Washington, DC: World Bank. Available at: http://siteresources.worldbank.org/UKRAINEINUKRAINIANEXTN/Resources/UkraineHMTNote.pdf. Last accessed on May 17, 2012.

————. 2011a. *Skill, Not Just Diplomas. Managing Education for Results in Eastern Europe and Central Asia*. Washington, DC: World Bank.

————. 2011b. “Strengthening Skills and Employability in Peru.” *World Bank Report No. 61699-PE*. Washington, DC: World Bank.

————. 2011c. “Policies to Reduce Informal Employment. An International Survey.” Technical Note for the Government of Ukraine. Washington, DC: World Bank. Available at: http://siteresources.worldbank.org/UKRAINEINUKRAINIANEXTN/Resources/455680-1310372404373/PoliciestoReduceInformalEmploymentEng.pdf. Last accessed on May 17, 2012.

————. 2012. *Europe and Central Asia Social Protection Database*. Washington, DC: World Bank.

Yakobinchuk V. 2009. "The Impact of Labor Migration on Rural Unemployment in Kyiv Oblast." *Ukraine: Labour Aspects*, 6: 33-37.

Zipf G. K. 1946. "The $P_1P_2/D$ Hypothesis: On the Intercity Movement of Persons." *American Sociological Review*, 11: 677-686.

# Annex 1: Survey of Labor Market Experts

In order to get additional information on the barriers to internal mobility in Ukraine, the team conducted a survey on the topic among labor market experts.

The team prepared a short questionnaire (11 questions) on internal mobility, which was sent to a panel of 46 experts (19 answered full questionnaires). The respondents included four trade union representatives; four representatives from employers' organizations or members of employers' organizations and eleven labor market and migration experts from think tanks and universities.

Although not representative and subjective in nature, this exercise can provide a simple and cost-effective way to get a better sense of the most binding constraints to internal mobility in Ukraine and the local perceptions on the role and importance of internal labor mobility for Ukraine's economic growth and development.

The questionnaire focused on two main areas:

1. Assessing perceptions in Ukraine on labor market mobility; and
2. Identifying, from the experts' views, which are the most critical barriers to internal labor mobility in Ukraine.

A complete description and results of the experts' survey are available from the authors.

# Annex 2: Focus Group Discussions

In order to complement the analytical work, the team carried out a series of focus group discussions and in-depth interviews in Ukraine to better understand the attitudes of migrant workers, the unemployed and employed towards internal migration, as well as their motivations to move and the most salient barriers to internal mobility.

The focus groups were conducted by the Kiev International Institute of Sociology based in Kiev, Ukraine.

There were two different sets of focus group discussions:

1. Seventeen focus groups among employed and unemployed, carried out as background work for the 2013 WDR on Jobs. These focus groups covered a wide range of topics (attitudes towards jobs, definition of good jobs, international migration, job search strategies, obstacles for getting a good job, the role of employment in helping households cope with negative shocks), including internal labor mobility. The research was aimed at collection of the qualitative data recording the attitudes of specific groups towards jobs. The fieldwork was carried out between March and April 2012 in four regions: Western Ukraine (Lviv and Vidnyky), Eastern Ukraine with an economy dependent on heavy industries (Donetsk, Ukrainsk), AR Crimea region, dependent on seasonal activities like tourism (Evpatoria, Ujutnoe, Simferopol), and the capital city of Kiev. In total, 157 informants participated and six in-depth interviews were conducted.

2. Two focus groups among migrant workers in Kiev, one with high-skilled participants and the other with low-skilled participants. The fieldwork was conducted on 30 April 2012 in the capital city of Kiev. Nineteen informants came to participate and filled in a rescreening questionnaire; sixteen participated in the FGD. All participants had moved to Kiev for labor reasons from different regions of Ukraine: East, South, West and Center-North. The two groups were balanced in terms of gender and age.

The table below summarizes the key characteristics of the different focus groups.

**Table A 1: Composition focus groups internal mobility**

| FG | Region | Target group |
|---|---|---|
| 1 | Kiev | High-skilled migrants. |
| 2 | Kiev | Low-skilled migrants. |
| 1 | Donetsk (mono-industrial towns) | Workers from mono-industrial town. |
| 2-3 | Donetsk, Lviv | Unemployed women aged 45-50. |
| 4-5-6 | Donetsk, Lviv, Crimea (Sevastopol) | Unemployed men aged 45-50. |
| 7-8-9 | Donetsk, Lviv, Kiev | Graduates of university or high school entering the labor market (one year after graduation):<br>(IT graduates in Lviv, sociology graduates in Kiev, engineer graduates in Donetsk). |
| 10 | Kiev | Highly skilled freelancers and self-employed/private entrepreneurs (IT specialists, journalists, lawyers, economists, accountants, consultants, and so on). |
| 11-12 | Donetsk, Lviv | Informally employed women (street market) from the city. |
| 13 | Kiev | Informally employed men (including casual workers in elementary jobs, for example, in construction) – labor migrants to Kiev. |
| 14-15-16 | Crimea | Seasonal workers in agriculture, hotels, restaurants, transport and other activities related to summer resorts;<br><br>inactive people renting their apartments during the high tourism season. |
| 17 | Lviv | Youth aged 20-24 who are not employed nor enrolled in an education institution. |

A complete description and results of the FGDs are available from the authors.

# Annex 3: Tables

**Table A 2: Summary of selected empirical studies of inter-regional mobility in transition countries**

| Author(s) | Country (period) | Dependent variable(s) | Independent variables | Main findings |
|---|---|---|---|---|
| Andrienko and Guriev (2004) | Russia (1992-1999) | Bilateral migration flows in a given year (log) | Gravity, economic, demographic, infrastructure, amenity variables in origin and destination regions | Gravity variables have expected signs.<br><br>Unemployment is an important determinant of migration but its effect is significant only in the origin region (OLS regression with between effects).<br><br>Higher income both in the origin and destination regions discourages migration. But in several specifications of the model with fixed-effects, it is found that rising income may increase rather than decrease migration outflow. The authors argue that liquidity constraints to migration explain the latter finding.<br><br>Education in the origin region significantly increases outflows from the region.<br><br>Geographical and demographic variables also play an important role, e.g. people do not tend to leave regions with access to the sea and the largest rivers. The demographic and ethnic structure of the population is very significant in all specifications.<br><br>Small business privatization, approximated by the share of privatized firms in trade and services, seems to encourage both migration inflows and outflows. |
| Fidrmuc (2004) | Czech Republic (1992-1998), Slovakia (1992-1996), Hungary (1994-1998), Poland (1992-1997) | Gross inflow and outflow rates and net inflow rate as a percentage of the region's end-year population | Unemployment rate (lagged), wage ratio (lagged), population density (log), year dummies, district fixed or random effects | Unemployment tends to have the expected sign in the regressions with net migration but it is significant only in the regressions for the Czech Republic and Slovakia. Unemployment discourages gross inflow but does not affect outflow significantly in the Czech Republic and Slovakia, although the coefficient has the correct positive sign. For Poland, unemployment discourages not only inflow but also outflow.<br><br>Wages do not appear to significantly affect net migration in three countries whereas in Poland the coefficient has the wrong (negative) sign. Wages are positively correlated with gross inflow and outflow rates in the Czech Republic and Poland, but they do not affect gross migration significantly in Slovakia. |
| Hazans (2003a) | Latvia (1993-2001) | Gross inflow and outflow rates and net inflow rate per 1000 population | Unemployment rate, gross monthly wage (log), population density (log), mortality rate, marriage rate, divorce rate (all variables are lagged one year) + year dummies | High unemployment significantly encourages outflows and inflows in the late transition (1997-1999).<br><br>High wages significantly encourage gross and net inflows, and the size of this effect has almost doubled in the late transition compared to the whole period.<br><br>Demographic variables are also important determinants of regional migration flows (e.g. divorce rate is positively correlated with outflows, while marriage rate is positively correlated with gross |

| | | | | |
|---|---|---|---|---|
| | | | | and net inflows). |
| Bloze (2009) | Lithuania (2001-2008) | Gross inflow and outflow rates and net inflow rate per 1000 population | Unemployment rate, wage ratio, marriage rate, divorce rate, cities/suburbs, new dwellings, share of private home ownership, housing space per capita, year dummies | Unemployment has a significant negative impact on net inflows and positive impact on gross outflows, while the impact is insignificant in the case of gross inflows.<br><br>The wage effect is statistically significant and positive in all three cases. The positive sign of wages in case of outflows may be related to urban-suburban movements.<br><br>The coefficients for marriage and divorce rates are not significant.<br><br>Housing variables are significant determinants of net inflows and gross outflows. |
| Bunea (2012) | Romania (2004-2008) | Ratio in-migrants / out-migrants | Population of each county, real GDP per capita, registered unemployment rate OR employment rate, private dwelling rate, university graduates per 1,000 inhabitants, degree of urbanization, amenities index (public sewerage and gas distribution pipes and drinking water supply network + urban green spaces area) or density of public roads, infant mortality, population density, crime rate. | In the GMM model there are only two significant factors – population and the amenity index.<br><br>Apart from the amenity index significance, results also reveal the importance of the social network theory (as shown by significant lagged migration ratio). |

*Source:* Kupets (2012) for this Report.

**Table A 3. Summary of Internal Migration Theories**

| Author | Theoretical approach | Key ideas |
|---|---|---|
| Ravenstein (1876-1889) | General laws of migration | The majority of migrants move only a short distance.<br><br>There is a process of absorption, whereby people immediately surrounding a rapidly growing town move into it; the labor supply gaps these migrants leave in the regions of origin are filled by migrants from more distant areas. In this way, each main current of migration produces a compensating countercurrent.<br><br>Long-distance migrants tend to move to the great centers of commerce or industry.<br><br>Rural populations have a higher propensity to migrate than urban populations. Women have a higher propensity to migrate than men within the county of their birth, but males more frequently venture beyond that county boundary.<br><br>Economic factors are the major determinants of migration. |
| Stouffer (1940) | Theory of "intervening" opportunities | The number of people migrating a given distance is directly proportional to the opportunities at destination and inversely proportional to the number of "intervening" opportunities. These intervening opportunities refer to obstacles to migration, such as distance or legal restrictions, which may persuade a migrant to settle in a place in the route rather than proceeding to the originally planned destination. |
| Zipf (1946) | $P_1P_2/D$ hypothesis,<br><br>size-distance (gravitational) theory | The number migrants moving between any two communities whose populations are $P_1$ and $P_2$ and which are separated by the distance, D, is proportionate to the ratio, $P_1*P_2/D$, subject to the effect of modifying factors. |
| Tiebout (1956) | Voting with feet (Tiebout hypothesis) | Given that individuals have differing personal valuations of local public goods and services and varying ability to pay the accompanying taxes, individuals will move from one local community to another until they find the one which maximizes their personal utility subject to their constraints. |
| Lee (1966) | "Push-pull" theory of migration | Four groups of factors influence the process of migration: 1) factors associated with the area of origin; 2) factors associated with the area of destination; 3) intervening obstacles; and 4) personal factors. In every region, there are factors that retain people in that area or attract people to it (pull), but there are also factors that tend to repel individuals (push). There are also other factors to which people are essentially indifferent. Intervening obstacles may prevent migration from taking place or may reduce the number of migrants. Migrants responding primarily to pull factors at destination tend to be positively selected whereas migrants responding primarily to push factors at origin tend to be negatively selected. |
| Todaro (1969)<br><br>Sjaastad (1962) | Disequilibrium approach: neoclassical economic theory with human capital approach | Spatial differences in wages, earnings or income and employment probabilities (disequilibria) reflect opportunities for individual utility gains that can be realized through migration. Therefore, economic factors are the most influential of the push-pull factors.<br><br>The potential migrant will select that locality at which the real value of his expected net benefit from migration is greatest. |
| Research started after Harris and Todaro (1970) | Segmented or dual labor market theory | Migration stems from intrinsic labor demand in a segmented local labor market, not from the rational decisions made by individuals, in other words, from pull factors rather than push factors. Migrant workers are needed as labor supply into secondary sector jobs. |

| | | |
|---|---|---|
| Stark and Bloom (1985) | New economics of labor migration | Spatial economic imbalances enable people to make rational choices in order to maximize their utility, but individuals do not make these choices independently. A wider social entity such as a household or even community must be considered as well.<br><br>Migration can be viewed as a strategy for households to diversify risks.<br><br>Relative deprivation is an important determinant of migration. An individual who is relatively more deprived can be expected to have a stronger incentive to migrate than a person who is less relatively deprived.<br><br>Migration can be interpreted as a process of innovation adoption and diffusion. |
| Jackman and Savouri (1992) | Job-matching theory | Labor migration as a special case of job-matching (i.e. hiring) is viewed as the consequence of successful job search rather than as a pre-condition for it.<br><br>A higher rate of out-migration from regions of high unemployment is explained by the fact that unemployed people are more likely to migrate because they are more active in job search. |
| Graves (several works) as cited in Greenwood (1997) | Equilibrium approach | Regional differentials in wages and prices do not generally reflect utility differences that can be arbitraged through household migration. Only non-compensating regional differentials that remain after controlling for amenity differentials across regions should represent utility differentials that would induce migration. The implication of this view for migration analysis is that a properly identified migration model should include both regional amenity and regional wage and variables. |
| Hsieh and Liu (1983) | Quality of life approach | Individual's satisfaction with his living place is determined not only by economic factors but also by the quality of all other aspects of his life, including political, environmental, health and education, and social factors. If the quality of all aspects of life in region *i* is relatively poorer than in other regions, a net out-flow of population from region *i* to other regions is expected. |

*Source*: Kupets (2012) for this Report

**Table A 4: Description of variable and data sources for inter-regional migration estimations**

| Variable name | | Definition | Source |
|---|---|---|---|
| In-migration, out-migration | A | Total number of people who migrated to/from region in given year, respectively | SSSU Yearbooks "Population migration" in 2002-2007, on-line Express-bulletins on demographic situation in 2008-2010 |
| Bilateral migration | G | Number of people who migrated from region *i* to region *j* in a given year | SSSU, Demographic yearbooks "Population of Ukraine" in 2008 and 2009 |
| Distance | G | Distance between the main regional cities of oblasts (so-called oblast centers and Simferopol in the Crimean AR) as well as Kyiv City, km | Official letter of the State Custom House of Ukraine N11/6-10.19/1268-ЕП (Feb 2010) |
| Neighbor | G | Dummy: 1 if regions *i* and *j* share the same land borders, 0 if not | Kupets (2012) |
| Common language | G | Dummy: 1 if the same language (Ukrainian or Russian) dominates in regions *i* and *j*, 0 if not | Kiev International Institute of Sociology, Household survey |
| Wage | B | Average gross monthly wage in a given year, adjusted by regional gross-value-added deflator, UAH | SSSU web-page |
| Unemployment | B | Unemployment rate (ILO definition), percent | SSSU web-page for 2008-2010 and statistical-analytical yearbooks "Economic activity of population" for 2001-2007 |
| Comparability index | G | The square of the difference in the proportion of population aged 15 to 70 years employed in industry and construction between regions *i* and *j* | Kupets (2012), based on the composition of employment taken from SSSU, Statistical-analytical yearbooks "Economic activity of population" in 2008 and 2009 |
| Population | B | Average de jure population in a given year, persons (to calculate per capita expenditures of local governments and to use in the gravity model)<br><br>Average de facto population in a given year, persons (to calculate migration rates) | Data bank of population statistics http://stat6.stat.lviv.ua/ukrcensus/Dialog/statfile1_c.asp |
| Population density | A | Density of de facto population as of beginning of a given year, persons per square meter | |
| Urban share | G | Share of urban population de jure population as of beginning of 2008, % | |
| Share of women | G | Share of women in de jure population as of beginning of 2008, % | |
| Share of youth | B | Share of 15-24 years old in de jure population as of beginning of 2008, % | |
| Share of prime age population | B | Share of 25-59 years old in de jure population as of beginning of 2008, % | |

| | | | |
|---|---|---|---|
| Share of old | B | Share of 60+ years old in de jure population as of beginning of 2008, % | |
| Marriage (divorce) rate | B | Number of marriages (divorces) per 1,000 de facto population | |
| Higher education | G | Share of the labor force aged 25 to 70 years with complete higher education in 2008, % | Kupets (2012), based on the individual-level LFS data |
| Crime rate | B | Number of registered crimes per 100,000 de facto population | SSSU, Yearbooks "Social indicators of the standard of population living" |
| Air pollution | B | Emissions of air pollutants from stationary and mobile sources of pollution, kg per person | |
| Doctors | B | Number of doctors of all specializations per 10,000 population (end-year) | SSSU, Yearbooks "Regions of Ukraine" |
| Students | B | Number of students of higher education institutions of the I-IV levels of accreditation per 10 ,000 population as of beginning of academic year | |
| Social expenditures | B | The sum of per capita expenditures of local governments on education, health care, and social assistance, UAH | Kupets (2012), based on the data of the Ministry of Finance on the structure of local expenditures published in yearbooks "Budget of Ukraine" |
| Total expenditures | B | Total expenditures of local governments per capita, UAH | |
| New dwellings | B | Commissioning of new housing, square meters per person | SSSU web-page (Commissioning of new housing) |
| Housing price | G | Average price of an apartment at secondary market in the main regional city, USD per square meter | World Bank data base collected for Internal Mobility Study |
| Rental price | G | Average monthly rent payment for one bedroom apartment in the main regional city, USD | |
| Chernobyl | G | Dummy for regions having areas which have been most affected by Chernobyl disaster affected by the Cherbobyl disaster (Volyn, Zhytomyr, Kyiv, Rivne and Chernihiv obslasts) | Kupets (2012) (based on the Decree of the Cabinet of Ministers N 106, July 23, 1991) |
| Coast | G | Dummy for regions with a sea coast (Donetsk, Zaporizhia, Odesa, Mykolaiv, Kherson oblast and Crimean AR) | Kupets (2012) |

*Note*: G refers to variables used only in the gravity model (analysis of bilateral migration flows in 2008-2009), A refers to variables used only in the analysis of aggregate migration rates in 2002-2010, B refers to variables used in both types of analysis.
*Source*: Kupets (2012) for this Report.

**Table A 5: Regression results of for inter-regional migration**

(Determinants of inter-regional migration rates, 2002-2010)

| | 27 regions | | | | | | 25 regions | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | (1) | | (2) | | (3) | | (4) | | (5) | | (6) | |
| | In-migration rate | | Out-migration rate | | Net migration rate | | In-migration rate | | Out-migration rate | | Net migration rate | |
| Wage | 0.001 | (0.001) | 0.002*** | (0.001) | -0.001 | (0.001) | 0.004*** | (0.001) | 0.001 | (0.001) | 0.003** | (0.001) |
| Unemployment rate | -0.001 | (0.004) | 0.004 | (0.003) | -0.007* | (0.004) | 0.001 | (0.004) | 0.005* | (0.002) | -0.004 | (0.004) |
| Density (log) | 0.107* | (0.059) | -0.020 | (0.058) | 0.119*** | (0.037) | -0.256*** | (0.055) | -0.267*** | (0.070) | 0.055 | (0.051) |
| Share of youth | 0.100*** | (0.021) | -0.029* | (0.016) | 0.128*** | (0.021) | 0.028 | (0.022) | -0.022 | (0.016) | 0.058** | (0.027) |
| Share of prime age | 0.077*** | (0.013) | 0.007 | (0.012) | 0.054*** | (0.013) | 0.015 | (0.012) | 0.018 | (0.012) | -0.001 | (0.013) |
| Share of elderly | 0.057*** | (0.013) | 0.009 | (0.011) | 0.042*** | (0.009) | 0.018 | (0.012) | -0.002 | (0.012) | 0.016 | (0.013) |
| Marriage rate | 0.031* | (0.017) | 0.001 | (0.014) | 0.032* | (0.017) | 0.003 | (0.015) | -0.004 | (0.012) | 0.015 | (0.016) |
| Crime rate | -0.000 | (0.000) | -0.000 | (0.000) | 0.000 | (0.000) | 0.000 | (0.000) | -0.000 | (0.000) | 0.000 | (0.000) |
| Air pollution | -0.001*** | (0.000) | -0.001*** | (0.000) | -0.000 | (0.000) | -0.000** | (0.000) | -0.000** | (0.000) | -0.000 | (0.000) |
| Doctors | 0.001 | (0.001) | -0.001** | (0.001) | 0.002 | (0.001) | -0.000 | (0.001) | -0.000 | (0.001) | -0.000 | (0.001) |
| Students | 0.000 | (0.000) | 0.000*** | (0.000) | -0.000* | (0.000) | 0.000 | (0.000) | 0.000*** | (0.000) | 0.000 | (0.000) |
| Social expenditures | 0.005*** | (0.001) | -0.000 | (0.001) | 0.005** | (0.002) | 0.000 | (0.001) | 0.002*** | (0.001) | -0.001 | (0.001) |
| New dwellings | 0.052 | (0.101) | -0.106 | (0.076) | 0.120 | (0.102) | 0.080 | (0.086) | -0.077 | (0.063) | 0.173* | (0.091) |
| Constant | -6.997*** | (0.956) | 0.433 | (0.814) | -6.557*** | (0.868) | -0.323 | (1.061) | 0.847 | (1.084) | -1.735 | (1.247) |
| Year dummies | Yes | | Yes | | Yes | | Yes | | Yes | | Yes | |
| Random effects | Yes | | Yes | | Yes | | Yes | | Yes | | Yes | |
| Number of observations | 216 | | 216 | | 216 | | 200 | | 200 | | 200 | |
| Number of groups | 27 | | 27 | | 27 | | 25 | | 25 | | 25 | |
| $R^2$ within | 0.5100 | | 0.6404 | | 0.4749 | | 0.3446 | | 0.7109 | | 0.3433 | |
| $R^2$ between | 0.7227 | | 0.3819 | | 0.8933 | | 0.3416 | | 0.4444 | | 0.5324 | |
| $R^2$ overall | 0.7158 | | 0.3869 | | 0.8495 | | 0.3418 | | 0.4598 | | 0.4917 | |

*Notes*: Dependent variable is the corresponding region-level inter-regional migration rate. All independent variables except for density and age composition (as they are taken as of beginning of a given year) are lagged by one year. Smaller sample excludes Kyiv and Sevastopol cities. Robust standard errors in parentheses. *, **, *** denote significance levels at the 10%, 5%, and 1% level, respectively.

*Source*: Kupets (2012) for this Report.

**Table A 6: Regression results for inter-regional bilateral flows in 2008-2010**
(Modified gravity model, Hausman and Taylor Instrumental Variable method)

| | Large sample (with Kyiv and Sevastopol cities) | | | | Small sample | |
|---|---|---|---|---|---|---|
| | (1) | | (2) | | (3) | |
| Distance ij (log) | -1.24*** | (0.29) | -1.24*** | (0.30) | -1.27*** | (0.33) |
| Common language | 0.06 | (0.37) | 0.06 | (0.38) | 0.05 | (0.42) |
| Population *i* (log) | 0.97*** | (0.35) | 0.96*** | (0.36) | 0.87* | (0.52) |
| Population *j* (log) | 0.65* | (0.35) | 0.60* | (0.36) | 0.94* | (0.52) |
| Real wage *i* (log)# | 0.76*** | (0.19) | 0.51** | (0.23) | 0.46* | (0.25) |
| Real wage *j* (log)# | 0.29 | (0.19) | 0.41* | (0.23) | 0.44* | (0.25) |
| Unemployment rate *i*# | 0.00 | (0.01) | 0.00 | (0.01) | -0.00 | (0.01) |
| Unemployment rate *j*# | -0.01* | (0.01) | -0.01* | (0.01) | -0.01** | (0.01) |
| Economic distance ij (11 sectors) | 0.00 | (0.00) | 0.00 | (0.00) | 0.00 | (0.00) |
| Urban share *i* | 0.01 | (0.01) | 0.01 | (0.01) | 0.01 | (0.02) |
| Urban share *j* | -0.00 | (0.01) | -0.01 | (0.01) | -0.03* | (0.02) |
| Share of women *i* | 0.24* | (0.14) | 0.27* | (0.14) | 0.27** | (0.13) |
| Share of women *j* | 0.61*** | (0.14) | 0.60*** | (0.14) | 0.50*** | (0.13) |
| Share of youth *i* | -0.04 | (0.02) | -0.04* | (0.02) | -0.01 | (0.03) |
| Share of youth *j* | 0.16*** | (0.02) | 0.16*** | (0.02) | 0.15*** | (0.03) |
| Share of prime age *i* | 0.04 | (0.03) | 0.04 | (0.03) | 0.06* | (0.03) |
| Share of prime age *j* | -0.07** | (0.03) | -0.07** | (0.03) | -0.02 | (0.03) |
| Share of educated *i*# | 0.01*** | (0.00) | 0.01** | (0.00) | 0.00 | (0.00) |
| Share of educated *j*# | 0.00 | (0.00) | 0.00 | (0.00) | 0.00 | (0.00) |
| Marriage rate *i* | 0.02 | (0.02) | 0.00 | (0.02) | 0.02 | (0.02) |
| Marriage rate *j* | -0.04** | (0.02) | -0.03 | (0.02) | -0.03* | (0.02) |
| Doctors *i* (log) | 0.16 | (0.12) | 0.23* | (0.12) | 0.12 | (0.11) |
| Doctors *j* (log) | 0.16 | (0.12) | 0.14 | (0.12) | 0.11 | (0.11) |
| Students of HEI *i* (log) | -0.22 | (0.20) | -0.24 | (0.20) | -0.09 | (0.21) |
| Students of HEI *j* (log) | -0.22 | (0.20) | -0.25 | (0.20) | -0.26 | (0.21) |
| Crime rate *i* (log) | -0.10 | (0.08) | -0.10 | (0.08) | -0.03 | (0.08) |
| Crime rate *j* (log) | 0.21*** | (0.08) | 0.21*** | (0.08) | 0.31*** | (0.08) |
| Air pollution *i* (log) | -0.17** | (0.08) | -0.11 | (0.08) | -0.21*** | (0.07) |
| Air pollution *j* (log) | -0.14* | (0.08) | -0.16* | (0.08) | -0.16** | (0.07) |
| Coast *i* | -0.26 | (0.42) | -0.26 | (0.44) | -0.29 | (0.46) |
| Coast *j* | -0.02 | (0.42) | -0.03 | (0.44) | 0.16 | (0.46) |
| Chernobyl *i* | -0.02 | (0.46) | -0.04 | (0.48) | -0.02 | (0.47) |
| Chernobyl *j* | -0.14 | (0.46) | -0.15 | (0.48) | -0.01 | (0.47) |
| New dwellings *i* (log) | -0.10 | (0.08) | -0.13 | (0.08) | -0.04 | (0.09) |
| New dwellings *j* (log) | -0.00 | (0.08) | 0.02 | (0.08) | 0.03 | (0.09) |
| Total social expenditures *i* (log) | -0.63*** | (0.18) | | | -0.36 | (0.28) |
| Total social expenditures *j* (log) | -0.17 | (0.18) | | | -0.58** | (0.28) |
| Education expenditures *i* (log) | | | 0.46 | (0.34) | | |
| Education expenditures *j* (log) | | | -0.44 | (0.34) | | |
| Health expenditures *i* (log) | | | -0.63*** | (0.22) | | |
| Health expenditures *j* (log) | | | 0.05 | (0.22) | | |
| Social assist. expenditures *i* (log) | | | -0.17** | (0.08) | | |
| Social assist. expenditures *j* (log) | | | 0.02 | (0.08) | | |
| Year 2009 | -0.10 | (0.06) | -0.11 | (0.07) | -0.08 | (0.06) |
| Year 2010 | 0.04 | (0.08) | 0.02 | (0.09) | 0.07 | (0.09) |
| Constant | -55.93*** | (13.44) | | | | |
| *N* | 2106 | | 2106 | | 1800 | |
| *p-value (Hausman test: FE vs. HTIVM)* | 0.4922 | | 0.7705 | | 0.30 | |

*Notes*: Dependent variable is the log of migration flows between two regions. Index i denotes source region, and index j denotes destination region. Robust standard errors in parentheses. *, **, *** denote significance levels at the 10%, 5%, and 1% level , respectively. Smaller sample excludes Kyiv and Sevastopol cities.
# Endogenous time-varying explanatory variables (assumed to be correlated with the unobserved random effect) in the Hausman-Taylor IV method.
*Source*: Kupets (2012) for this report.

**Table A 7: Indicators of commuting by socio-demographic characteristics, 2010**

| Characteristic/ Category | Proportion | | | Commuting rate (share of the employed population, %) | |
|---|---|---|---|---|---|
| | Non-commuters | Intra-regional | Inter-regional | Intra-regional | Inter-regional |
| **Sex** | | | | | |
| Male | 50.9 | 39.0 | 31.1 | 9.2 | 1.0 |
| Female | 49.1 | 61.0 | 68.9 | 14.0 | 2.1 |
| **Marital status** | | | | | |
| Married | 63.9 | 62.9 | 54.9 | 11.5 | 1.4 |
| Single | 19.5 | 24.3 | 32.3 | 14.0 | 2.5 |
| Widowed or separated | 16.6 | 12.8 | 12.8 | 9.2 | 1.3 |
| **Age** | | | | | |
| 15-24 years | 10.3 | 13.9 | 18.0 | 14.9 | 2.6 |
| 25-34 years | 25.4 | 29.3 | 30.7 | 13.2 | 1.9 |
| 35-44 years | 24.4 | 26.4 | 26.0 | 12.5 | 1.7 |
| 45-59 years | 33.6 | 29.4 | 23.9 | 10.4 | 1.1 |
| 60-70 years | 6.4 | 1.1 | 1.5 | 2.2 | 0.4 |
| **Education** [a)] | | | | | |
| Lower secondary and less | 8.0 | 6.7 | 4.1 | 10.0 | 0.8 |
| Upper secondary | 43.0 | 53.4 | 51.9 | 14.0 | 1.8 |
| Post-secondary non-tertiary | 20.9 | 19.5 | 18.4 | 11.0 | 1.4 |
| Tertiary | 28.1 | 20.4 | 25.6 | 8.7 | 1.5 |
| **Occupation group** | | | | | |
| Legislators, senior officials and managers | 10.0 | 5.5 | 7.7 | 8.0 | 1.5 |
| Professionals | 17.3 | 10.4 | 11.5 | 8.7 | 1.3 |
| Technicians and associate professionals | 13.6 | 14.0 | 11.1 | 14.0 | 1.5 |
| Clerks | 4.1 | 3.1 | 2.9 | 10.7 | 1.3 |
| Service workers and shop and market sales workers | 16.9 | 17.5 | 20.4 | 13.9 | 2.2 |
| Skilled agricultural workers | 1.2 | 1.8 | 0.2 | 19.3 | 0.3 |
| Craft and related workers | 13.1 | 15.9 | 21.4 | 15.8 | 2.9 |
| Plant and machine operators and assemblers | 13.1 | 17.6 | 14.1 | 17.5 | 1.9 |
| Elementary occupations | 10.7 | 14.2 | 10.6 | 17.3 | 1.7 |
| **Employment status at main job** | | | | | |
| Wage and salary workers | 78.6 | 97.1 | 98.9 | 13.9 | 1.9 |
| Self-employed and unpaid family helpers in subsistence | 16.1 | 0.0 | 0.0 | 0.0 | 0.0 |
| Other | 5.4 | 2.9 | 1.1 | 6.7 | 0.4 |
| **Economic sector** [b)] | | | | | |
| Agriculture | 22.0 | 9.2 | 1.8 | 5.3 | 0.1 |
| Industry | 18.5 | 25.5 | 13.0 | 15.5 | 1.1 |
| Construction | 5.7 | 9.9 | 23.8 | 17.8 | 5.8 |
| Services | 33.4 | 32.4 | 47.5 | 11.3 | 2.2 |
| Public sector | 20.3 | 23.0 | 13.8 | 13.1 | 1.1 |
| **Type of employment** [c)] | | | | | |
| Formal | 75.5 | 88.7 | 81.8 | 13.4 | 1.7 |
| Informal | 24.5 | 11.3 | 18.2 | 5.7 | 1.3 |
| **Type of settlement (Residence)** | | | | | |
| Rural | 27.2 | 66.2 | 39.3 | 24.1 | 1.9 |
| Urban | 72.8 | 33.8 | 60.7 | 5.8 | 1.4 |
| **Macroregion (Residence)** [d)] | | | | | |
| Kyiv City | 7.9 | 0.0 | 3.2 | 0.0 | 0.7 |
| Center and North | 22.3 | 20.4 | 73.9 | 10.4 | 5.1 |
| East | 33.9 | 27.6 | 8.4 | 9.8 | 0.4 |
| South | 16.1 | 13.2 | 2.2 | 9.9 | 0.2 |
| West | 19.8 | 38.9 | 12.3 | 20.6 | 0.9 |
| **Macroregion (Employment)** [d)] | | | | | |
| Kyiv City | 7.9 | 0.0 | 76.2 | 0.0 | 14.9 |
| Center and North | 22.2 | 20.4 | 9.1 | 10.9 | 0.7 |
| East | 33.9 | 27.6 | 6.5 | 9.8 | 0.3 |
| South | 16.2 | 13.2 | 4.9 | 9.9 | 0.5 |
| West | 19.8 | 38.9 | 3.3 | 20.9 | 0.2 |

*Notes:* Respondents working abroad are excluded. a) Education is classified according to the International Standard Classification of Education (ISCED). Tertiary education includes complete higher and basic higher education according to the national classification; post-secondary non-tertiary education stands for incomplete higher education; upper secondary education is complete general secondary education; lower secondary education and less includes basic general secondary education, primary general education and no any education. b) Workers engaged in subsistence agriculture are reclassified as those working in agriculture (before they had missing information about a sector of employment). Public sector includes education, health care and social work, and public administration defined according to the NACE Rev.1 classification. Services sector includes all types of market service activities. c) Informal employment refers to all persons employed in the informal sector as well as wage and salary workers holding informal jobs (i.e. employed by oral agreement) in formal sector enterprises.
*Source*: Kupets (2012) for this Report, based on individual-level LFS data.

**Table A 8: Indicators of commuting by regions, 2010**

| Region | Share of a region in total commuting flows (%) | | | Commuting rate (share of the employed population, %) | | |
|---|---|---|---|---|---|---|
| | Intra-regional | Inter-regional | International | Intra-regional | Inter-regional | International |
| Crimean AR and | 6.1 | 0.5 | 3.5 | 13.2 | 0.1 | 0.3 |
| Vinnytsia | 2.9 | 4.3 | 5.4 | 9.8 | 2.0 | 0.6 |
| Volyn | 3.7 | 1.4 | 6.8 | 20.2 | 1.1 | 1.2 |
| Dnipropetrovsk | 4.9 | 1.6 | 5.2 | 7.5 | 0.3 | 0.3 |
| Donetsk | 7.8 | 3.9 | 3.5 | 9.2 | 0.6 | 0.1 |
| Zhytomyr | 2.8 | 6.0 | 3.3 | 11.6 | 3.4 | 0.5 |
| Zakarpattia | 4.3 | 0.3 | 2.6 | 18.9 | 0.2 | 0.4 |
| Zaporizhia | 3.3 | 0.8 | 0.6 | 9.4 | 0.3 | 0.1 |
| Ivano-Frankivsk | 7.1 | 2.4 | 1.7 | 31.4 | 1.5 | 0.3 |
| Kyiv oblast | 5.5 | 42.1 | 0.1 | 17.1 | 17.6 | 0.0 |
| Kirovohrad | 1.3 | 2.2 | 1.6 | 6.8 | 1.7 | 0.3 |
| Luhansk | 2.5 | 1.0 | 0.3 | 5.7 | 0.3 | 0.0 |
| Lviv | 11.6 | 0.0 | 0.0 | 24.9 | 0.0 | 0.0 |
| Mykolaiv | 0.9 | 0.6 | 0.0 | 3.8 | 0.4 | 0.0 |
| Odesa | 4.0 | 0.3 | 13.8 | 8.9 | 0.1 | 1.0 |
| Poltava | 2.3 | 2.5 | 1.9 | 8.4 | 1.2 | 0.2 |
| Rivne | 3.7 | 3.5 | 5.4 | 18.3 | 2.3 | 0.9 |
| Sumy | 1.9 | 1.6 | 1.9 | 8.8 | 1.0 | 0.3 |
| Ternopil | 2.7 | 0.9 | 0.3 | 14.9 | 0.7 | 0.1 |
| Kharkiv | 9.0 | 1.1 | 11.0 | 16.7 | 0.3 | 0.7 |
| Kherson | 2.2 | 0.9 | 0.2 | 10.7 | 0.6 | 0.0 |
| Khmelnytskyi | 2.4 | 3.2 | 4.1 | 9.8 | 1.7 | 0.6 |
| Cherkasy | 2.3 | 6.1 | 5.6 | 9.4 | 3.4 | 0.8 |
| Chernivtsi | 3.3 | 0.7 | 19.0 | 20.3 | 0.5 | 3.9 |
| Chernihiv | 1.5 | 9.1 | 2.0 | 7.2 | 6.0 | 0.3 |
| Kyiv City | 0.0 | 3.2 | 0.5 | 0.0 | 0.7 | 0.0 |

*Notes:* Respondents working abroad are excluded. Figures for the pooled sample of 2008 and 2009 data.
*Source*: Kupets (2012) for this Report, based on individual-level LFS data.

**Table A 9: Determinants of the commuting decision, 2005-2010**

| Variable | Binary regression (logit) | | | | | | Multinomial regression (mlogit) | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | **(1) Labor force** | | **(2) Employed** | | **(3) Wage and salary workers** | | **(4) Employed** | | | |
| | Commuter vs. non- | | Commuter vs. non-commuter | | Commuter vs. non-commuter | | Intra-regional commuter vs. non- | | Inter-regional commuter vs. non- | |
| | Odds | SE | Odds | SE | Odds | SE | Odds | SE | Odds | SE |
| Female | 1.707*** | (0.012) | 1.594*** | (0.014) | 1.545*** | (0.014) | 1.579*** | (0.014) | 2.162*** | (0.083) |
| Single | 1.180*** | (0.012) | 1.177*** | (0.014) | 1.179*** | (0.014) | 1.183*** | (0.014) | 1.037 | (0.049) |
| Widowed or separated | 1.005 | (0.010) | 1.024** | (0.012) | 1.021* | (0.012) | 1.028** | (0.012) | 0.956 | (0.051) |
| Age | 1.119*** | (0.002) | 1.003 | (0.003) | 0.985*** | (0.003) | 1.004 | (0.003) | 0.992 | (0.011) |
| Age squared (/100) | 0.846*** | (0.002) | 0.978*** | (0.003) | 1.001 | (0.003) | 0.977*** | (0.003) | 0.990 | (0.014) |
| Upper secondary education | 1.663*** | (0.021) | 1.127*** | (0.016) | 1.113*** | (0.016) | 1.124*** | (0.016) | 1.207*** | (0.081) |
| Post-secondary non-tertiary ed. | 1.874*** | (0.027) | 1.079*** | (0.018) | 1.077*** | (0.018) | 1.071*** | (0.018) | 1.303*** | (0.101) |
| Tertiary education | 1.767*** | (0.026) | 1.007 | (0.018) | 0.999 | (0.018) | 0.998 | (0.018) | 1.321*** | (0.110) |
| Blue-collar worker | | | 1.285*** | (0.016) | 1.120*** | (0.013) | 1.284*** | (0.016) | 1.356*** | (0.072) |
| White-collar worker | | | 1.102*** | (0.017) | 0.974* | (0.014) | 1.094*** | (0.017) | 1.344*** | (0.092) |
| Wage and salary worker | | | 6.409*** | (0.164) | | | 6.408*** | (0.167) | 5.615*** | (0.715) |
| Industry | | | 6.577*** | (0.099) | 5.564*** | (0.081) | 6.647*** | (0.101) | 4.386*** | (0.382) |
| Construction | | | 8.902*** | (0.166) | 6.795*** | (0.126) | 8.803*** | (0.166) | 9.228*** | (0.818) |
| Services | | | 5.329*** | (0.078) | 4.173*** | (0.060) | 5.326*** | (0.079) | 4.564*** | (0.383) |
| Public sector | | | 3.599*** | (0.054) | 3.059*** | (0.044) | 3.638*** | (0.055) | 2.119*** | (0.185) |
| Informal employment | | | 0.523*** | (0.008) | 0.675*** | (0.010) | 0.509*** | (0.008) | 1.053 | (0.057) |
| Urban, residence | 0.230*** | (0.002) | 0.073*** | (0.001) | 0.075*** | (0.001) | 0.072*** | (0.001) | 0.189*** | (0.008) |
| Capital city, residence | 0.040*** | (0.003) | 0.086*** | (0.006) | 0.089*** | (0.006) | 0.041*** | (0.004) | 0.521*** | (0.101) |
| Unemployment rate, residence | 1.039*** | (0.003) | 4.208*** | (0.230) | 4.374*** | (0.243) | 1.036 | (0.031) | 19.826*** | (2.091) |
| Real wages, residence | 1.001*** | (0.000) | 0.997*** | (0.000) | 0.997*** | (0.000) | 1.009 | (0.030) | 0.053*** | (0.006) |
| Unemployment rate, work | 0.249*** | (0.014) | 0.239*** | (0.013) | 0.249*** | (0.014) | 1.002*** | (0.000) | 0.998*** | (0.001) |
| Real wages, work | 1.003*** | (0.000) | 1.003*** | (0.000) | 1.003*** | (0.000) | 0.998*** | (0.000) | 1.004*** | (0.000) |
| Year 2006 | 1.019 | (0.013) | 1.115*** | (0.016) | 1.105*** | (0.016) | 1.112*** | (0.016) | 1.285*** | (0.095) |
| Year 2007 | 1.020 | (0.013) | 1.166*** | (0.017) | 1.158*** | (0.017) | 1.174*** | (0.018) | 1.125 | (0.091) |
| Year 2008 | 1.146*** | (0.015) | 1.232*** | (0.019) | 1.224*** | (0.019) | 1.236*** | (0.019) | 1.346*** | (0.112) |
| Year 2009 | 1.073*** | (0.015) | 1.240*** | (0.019) | 1.230*** | (0.020) | 1.251*** | (0.020) | 1.175** | (0.097) |
| Year 2010 | 1.034** | (0.014) | 1.174*** | (0.019) | 1.171*** | (0.019) | 1.188*** | (0.019) | 1.404*** | (0.104) |
| Number of observations | 1,391,423 | | 1,346,706 | | 917,093 | | 1,346,706 | | | |
| Pseudo $R^2$ | 0.106 | | 0.300 | | 0.270 | | 0.351 | | | |

*Notes:* Respondents working abroad are excluded. All variables except for age, age squared, unemployment rate and wage are dummies. Base categories for dummies: male, married, lower secondary education or less, unskilled worker, self-employed or unpaid family helper, employed in agriculture, formally employed, living in rural area, not residing in the capital city, and year 2008, respectively. Regional unemployment rate and average wages are lagged one year (the source of data is statistics on unemployment rates according to the ILO methodology and average monthly nominal wages in 26 administrative units except for Sevastopol City, which is analyzed together with Crimean AR). See definitions of education, economic sector and informal employment in the notes to Table A.7. Odds ratios significantly different from 1 at the 10%, 5%, and 1% level (based on robust standard errors) are denoted by *, **, and ***, respectively.
*Source:* Kupets (2012) for this Report, based on individual-level LFS data.

**Table A 10: Overview of social assistance benefits, 2008**

| | Income-tested | Spending, thousand (UAH) | Number of beneficiaries, end of year | Spending per beneficiary (UAH) | Spending per beneficiary (USD) |
|---|---|---|---|---|---|
| Social benefits to low-income families (Guaranteed Minimum Income – GMI) | Yes | 1,012,526 | 149,463 | 6,774 | 854 |
| Child-care benefit for children under three years | Mixed | 2,177,176 | 1,187,992 | 1,833 | 231 |
| Social benefit for child birth | No | 5,671,991 | 452,888 | 12,524 | 1,580 |
| Maternity benefit (for uninsured persons and self-employed) | No | 187,035 | 27,906 | 6,702 | 845 |
| Social benefits to single mothers | Mixed | 1,329,019 | 504,898 | 2,632 | 332 |
| Social benefits for children under guardianship | No | 295,236 | 36,000 | 8,201 | 1,034 |
| Temporary social benefits for children deprived of alimony support | No | 123,993 | 36,715 | 3,377 | 426 |
| Foster family benefits (for orphans or abandoned children) | No | 109,112 | - | -- | -- |
| Social benefits for invalids from childhood and children invalids | No | 1,933,733 | 278,281 | 6,949 | 876 |
| Social benefits for those who do not have pension | Yes | 9,566 | 17,579 | 544 | 69 |
| Social care benefit | Yes | 42 | 582 | 72 | 9 |
| Social benefit to low-income individual for taking care of mentally disabled | Yes | 8,861 | 11,268 | 786 | 99 |
| Housing subsidy | Yes | 715,225 | 100,386 | 7,125 | 899 |
| Subsidy for purchase of liquefied gas, solid or furnace fuel | Yes | 198,368 | 399,454 | 497 | 63 |
| Privileges for housing and utility | No | 3,013,698 | | -- | -- |
| Privileges for purchase of liquefied gas, solid or furnace fuel | No | 358,579 | 13,000,000 | -- | -- |
| Privileges for transport and other privileges | No | 1,209,244 | | -- | -- |
| **Total spending for social assistance programs** | | **18,353,440** | | | |
| **Share of social assistance programs in GDP** | | **1.9%** | | | |

*Source:* World Bank (2012).