EU accession and youth labour mobility from Slovakia: labour market perspective

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Abstract

Slovakia persistently faces one of the highest youth unemployment rates among the EU member states and it also experienced large outflows of youth migrants after its accession to the EU. This paper analyses the impact of structural factors on propensity of youth migrants to migrate. It merges macro-level labour market and economic performance indicators at the regional level with a unique micro-level dataset about migration intentions of graduating students collected at the height of country’s emigration wave and before the world economic crisis. It evaluates relative importance of structural, labour market and individual factors in affecting migration choice of highly educated youth. The analysis shows that labour market conditions and indicators of structural change at the level of regions are significant predictors of propensity to migrate among the graduating students, net of regional earnings levels, individual characteristic and personal perceptions about the ability to find work in the country. The paper links these findings to massive and harsh adjustments that affected different Slovak regions disproportionately during the process of transition and contributed to mismatches between the emerging job opportunities and qualifications of labour force, including the graduating youth. It contributes to understanding the role of sending country structural factors and broader non-migration policy framework, in addition to economic conditions, on migration choices of well-educated youth in Europe.

Key words: structural change, youth, migration, development, return, labour market, unemployment, mismatch

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Introduction

In the transition from the socialist to market economies, the countries of Central and Eastern Europe (CEE)\(^2\) experienced rampant structural change characterized by the shifts in product and export markets, sectoral transition and vast labour re-allocation from state to private enterprises and from old to new sectors. These changes were unprecedented in their speed and scope and necessitated major restructuring in the process of which skill endowments and the ability of labour to adjust to the new modern economies became the key elements of a successful transition in economic and political terms (Bohle and Greskovits 2012; Myant and Drahokoupil 2011). Rich literature emerged to study and to explain labour market transitions, unemployment, job creation and job destruction in the post-communist countries (Boeri 2000; Boeri and Terrell 2002; Jurajda and Terrell 2009; Boeri and Scarpetta 1995). In addition to varied effect of restructuring on utilization of labour of different skills, the transition also had diverse regional effects resulting in growing regional inequalities (Boeri and Scarpetta 1995; Jurajda and Terrell 2009; Heidenreich and Wunder 2008; Heidenreich 2003). An important factor behind these developments has been the spatial allocation of foreign direct investment (FDI) which exacerbated unequal regional distribution of wealth within most CEE countries (Medve-Bálint 2014; Brown, Greskovits, and Kulcsár 2007).

A vast majority of the studies have analysed these labour market adjustment processes as occurring within countries, while little attention has been given to understanding the role of restructuring in shaping international labour adjustment and stimulating international labour migration. In light of the accession of the CEE countries to the European Union in 2004 and an intense outmigration wave that – though unevenly across the countries - ensued (Kureková 2011a; Kahanec and Zimmermann 2010), the question of the link between structural change, labour market deficiencies and international migration remains understudied. Importantly, the post-accession East-West migration has been composed of a high share of youth migrants, often with tertiary education, who migrated to the English speaking destination countries which liberalized their labour markets, the UK and Ireland, in particular (Kaczmarczyk and Okólski 2008; Kureková 2011a; Favell 2008). A majority of young migrants in the UK and Ireland were mostly employed in low-skilld jobs with a limited degree of upward job mobility and low earnings (Clark and Drinkwater 2008; Drinkwater, Eade, and Garapich 2009; Voitchovsky 2014; Johnston, Khattab, and Manley 2014). This has been described as ‘brain overflow’ suggesting that a push

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\(^2\) I refer to the eight countries that joined the EU in May 2004: Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Slovakia and Slovenia.
for increased educational attainment among the youth cohorts has not matched well the structure of the labour demand in the CEE (Kaczmarczyk and Okólski 2008; Galgóczi, Leschke, and Watt 2012; OECD 2012). A labour market slack in the sending countries has been argued to be an important determinant of the choice of many young university graduates without any working experience to migrate (Kureková 2011a; Kahanec and Mýtna Kureková 2014; OECD 2012). Precise push factors beyond wage differentials, however, remain to be understudied.

With the onset of the 2008-2009 economic crisis return of the youth migrants started to some CEE countries (Zaiceva and Zimmermann 2014). The ultimate effects of post-accession migration on the sending countries will depend on whether the returnees will have acquired (or lost) human but also financial and social capital during their migration experience. However, evidence about return patterns of youth migrants to date suggests that due to social and family ties and economic basis provided through these ties, migrants tend to return to the localities of origin, and not to the more prosperous urban centres. Returns to depressed labour markets result in the difficulties in integration of returnees and make positive benefits of labour mobility for sending countries and regions within them rather limited (Radu and Martin 2010; Barcevičius et al. 2012).

This paper thus seeks to investigate the link between structural change, labour market characteristics and youth labour mobility on the regional level in Slovakia. It evaluates relative importance of structural, labour market and individual factors in affecting migration choice of highly educated youth. Slovakia is a useful case for the analysis of the spatial impact of structural change on migration patterns for several reasons. First, unemployment and youth unemployment have become protracted symptoms of country’s developmental trajectory. Youth unemployment rate stood at 33% in 2004, has never fallen below 19% (2008) and by 2013 rose to 34%. Secondly, stark regional inequalities exist between the Western versus the Central and Eastern regions in the country (Fidrmuc 2004; Pavlinek and Smith 1998; Sokol 2001) (see also Table 2). Third, Slovakia belongs to the new accession states with a high share of post-accession migration (Kureková 2011a; Kahanec and Mýtna Kureková 2014; Bahna 2012). The number of migrants working abroad rose from around 100,000 in 2004 to a peak of 177,000 in 2007, before sharply falling to around 129,000 by 2009 due to the crisis in the key destination countries, and

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3 Studies in lower-income countries tend to find positive impact of migrants on development of region from which they left. For example, (de Haas 2009) reviews evidence for Morocco and finds that migration and remittances have considerably improved living conditions in Moroccan regions with many migrants. He also documents that the effect is rather heterogenous and many factors, such as gender, socio-ethnic background or structural aspects, mediate the impact of migration and remittances on regional development. It might be that the impact of CEE returnees might be positive in the long run, but immediate positive impact appears partial.
stabilized thereafter (Labour Force Survey, Slovak Statistical Office). Fourth, a further motivation to study this case is the availability of a unique dataset about migration intentions of graduating students in 2006 which enables to study structural determinants of youth labour migration at the height of emigration wave from the country.

The paper contributes to understanding the role of sending country structural factors and a broader non-migration policy framework, in addition to economic conditions, on migration choices of well-educated youth within Europe (Czaika and de Haas 2011; de Haas 2011a; de Haas 2011b; Castles 2010). From a theoretical perspective, it goes beyond prevailing neoclassical approaches to migration and provides a more nuanced understanding of migration determinants of the youth in high unemployment country and in a free-mobility context. While the data analysis is carried out at a particular point in time, conceptually this paper proposes a dynamic perspective on migration, which takes into account past developmental trajectories on a regional level and studies an independent role of structural factors. The quantitative approach base on merged macro- and micro-level data models migration as a decision carried out by individuals embedded in specific environments which shape their opportunities and constraints.

The paper is structured as follows. Section II reviews literature about migration, structural change and the role of regional disparities on labour mobility. Section III describes data and analytical approach. Models and expectations are presented in section IV and results are discussed in Section V. The last section concludes and evaluates theoretical and policy implications of the study.

**Literature review**

Theoretical expectations about the effect of economic restructuring on labour flows are not unidirectional and are closely connected to the global capital flows. The studies of migration based on the world system theory (Sassen 1990; Silver 2003) and dual labour market theory (Piore 1979) are based on the debates about interrelation of restructuring, structural change and migration. They propose that globalization of world markets and the expansion of export manufacturing and export agriculture lead to a disruption of traditional work structures and mobilize new segments of the population into regional as well as long-distance migration. The changes in the structure of economy and structural adjustments generate a pool of migrants while at the same time create new opportunities for immigrant workers coming into the country. While these dynamics have been tested in other world
regions, developed and developing alike (Piore 1979; Athukorala and Manning 1999; Ruhs and Anderson 2010; de Haas and Vezzoli 2010), they have not been studied in the context of transition economies.\(^4\)

The studies which investigate migration from the CEE region to the West are typically positioned in the neo-classical theory of migration and base their estimations on wage differentials and probability of employment at destination as the main determinants of migration (Bauer and Zimmermann 1999; Dustmann et al. 2003). A key setback from the perspective of the focus of this paper is that this approach masks large intra-country variations in labour market performance within the sending countries, which are likely to produce uneven internal propensity to search for work abroad, and are important to consider especially from the perspective of the sending countries and the underdeveloped regions within them. The neoclassical approach has faced critique for ahistorical and simplistic approach to understanding migration generally, and also in the context of East-West migration (de Haas 2011a; Kureková 2011a; Kureková 2011b; Massey et al. 1993). A study by Kureková (2011b) attempts to overcome these limitations and investigates the relationship between structural change, labour market imbalances and labour migration from the CEE economies during the transition and after their accession to the EU. It argues that structural change that characterized their transition created different labour market imbalances across the CEE economies, hence creating different structures of employment and unemployment and varied risks and opportunities for workers of different demographic and skill profiles. These imbalances and labour market mismatches in turn induced some workers to seek migration as an exit option more than others, and led to differences in migration rates and in the composition of migrants.

In the instances of varied returns to labour and varied tightness of labour markets, the standard economic theory of migration would anticipate a trend towards equalization of factors of production

\(^4\) For example, Athukorala and Manning (1999) and Manning (2002) offer an empirical illustration for the countries in East Asia on their developmental paths between 1960s and late 1990s. The initial transition in East Asian economies from agriculture to manufacturing generated labour outflows in the earlier stages of industrialization. Facing labor shortages that development and restructuring brought in the early industrializers – Japan, Korea and Taiwan, the countries would initially export capital but essentially had to turn to importing unskilled labour from less developed economies in the region. This demand for mainly unskilled foreign labour was generated by up-skilling, technological upgrading and a change in the attitudes of domestic population to low-skilled and low-paid jobs. The authors note of two additional parallel migration processes. First, some of the countries continued to see outmigration while experiencing migrant inflows, such as Korea or Japan. Outflows from these countries were induced by the export of FDI that required corporate transfers to the countries of investment. A second type of outflows, typical for the Philippines (or New Zealand), were again highly skilled but were not related to FDI flows. The outmigration of professionals and highly skilled was rather driven by imbalances in the supply and demand for skilled workers at home created by well-developed higher education sector but a relatively underdeveloped economy and large wage differentials between the countries in the region (Manning 2002, 377).
and eventual levelling out of wages. The mechanism of intra-country labour market equalization when labour moves from regions with a lack of work to those with abundant employment opportunities has been in the Central and Eastern Europe very weak. High transportation costs and rigidity of housing markets have been the main reasons of generally very low intra-country mobility in all CEE economies (Paci 2007). Jurajda and Terrell (2009) investigate the intra-country migration in selected CEE economies more systematically and argue that migration behaviour has differed between high skilled and low skilled workers because of the fact that opportunity costs of not working are higher for the highly skilled. According to their argument, social security nets provide disincentives for low skilled to move in the countries where they have been extensive.

Only a few studies have investigated international migration from (or to) different regions within the CEE economies. Among the exceptions are Fihel and Okólski (2009) who in their study of Poland establish that the most strongly affected by the post-accession outflows were the underdeveloped regions of eastern and southern Poland, especially the smaller towns and villages. Kaczmarczyk and Okólski (2008) find in a Polish cross-regional comparison that migration loss was the lowest in Mazowieckie region with the capital city Warsaw and the greatest in Podkarpackie region in the remote south-east corner of Poland. The propensity to move was higher from less urbanized and more backward regions, especially before the accession, and was strongly related to the level of economic development in the regions. The composition of places of origin of Polish migrants altered after 2004: while before the accession there was a clear prevalence of migrants from rural areas (deprived regions), immediately after the enlargement there was a rise in migrants from urban centres and the impact of the place of origin on migration decisions dropped.

Kahanec and Mýtna Kureková (2014) study determinants of migration from Slovakia after the accession and during the Great Recession. Using LFS data on a pooled cross-section for 2003-2011, they run a separate model to evaluate migration determinants for the youth aged 15-24. The study confirms that the peak of youth work migration was in 2006 and 2007, with migration propensities having subsequently declined. Among the youth, females are 3% more likely to work abroad than males, while being a young Roma increases the likelihood by a staggering 36%. Having studied health or social work increases the propensity to migrate by 9%, whereas other fields of study do not have a statistically significant effect. Young unemployed are pushed out by almost 5% more than their employed counterparts. Importantly, the region of origin has a very large impact, significantly stronger than among the general population. Specifically, young people from Prešovský, Košický and Banskobystrický regions
are 43%, 26% and 28% more likely to work abroad than the youth from the Bratislava region in the analysed period. The study measures the effect of region by regional dummy variables, which do not reveal underlying labour market aspects contributing to higher mobility of the youth to seek work abroad from these regions. This paper is more specific in measuring specific structural and labour market characteristics of the Slovak regions, and their interaction with demographic characteristics and perceptions about labour market prospects of the graduating students in 2006.

**Data and approach**

With the available data about intended migration of graduating students, I seek to test how significant is the net effect of regional-level structural change variables on propensity to migrate from different regions in Slovakia. I use logistic regression with clustered standard errors on a dataset that merges macro (regional level) and micro (individual level) data. For two-level data (macro and micro) and in the context of non-independent errors (heteroscedasticity), regression with clustered standard errors is the appropriate modelling approach as non-corrected error estimation would yield biased estimates (Cameron and Miller 2013).

Conceptually, this quantitative approach helps to model migration as a decision that is carried out by individuals who are embedded in specific socio-economic contexts. The dataset enables testing the effect of structural level variables on a very specific group of Slovak population – tertiary educated young people – and by design controls for the variation in age and level of education. The analysis assumes that the regions, measured at the NUTS3 level, represent micro-economies which have the capacity to affect migration decisions. This is justified in the context of the administrative changes to the organization of regional governance structures induced by the EU accession process at the end of 1990s.  

*Micro-level data*

The survey was collected in May-June 2006 among the graduating students in Slovakia with the intention of identifying brain drain potential, push factors and barriers of potential mobility (Hanzelová, 2008). NUTS regions became the statistical units on the basis of which a number of regional policies are conducted, i.e. regional development, primary and secondary education, infrastructure projects, cohesion policies, investment promotion, etc.
Kostolná, and Kešelová 2007). It covered 16 higher education institutions in Slovakia with the master level students (graduate level) representing 72.1% and the bachelor level (undergraduate) students 24.2% of the respondents. Different fields of study were widely covered. The total sample consisted of 802 graduates but only 769 cases contain information on all individual level variables used in the analysis. Descriptive statistics is presented in Table 1. Distribution of individuals in the dataset was uneven across different regions and the region of origin was not used as a sampling criterion - data was collected on the level of the higher education institutions. 67% of the respondents studied in the region other than the region of permanent residence. In addition to two demographic controls – gender and marital status, I use the variable in which the respondents were asked whether they believe there is work available for them in Slovakia after finishing their studies. This question allows me to proxy the perceived prospects in domestic labour market, which has been suggested as a potential factor affecting the decision to migrate (Cielinska 2008).

Table 1: Descriptive statistics

<table>
<thead>
<tr>
<th>Gender</th>
<th>%</th>
<th>Region of origin</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>59.6</td>
<td>Bratislavský kraj</td>
<td>15.0</td>
</tr>
<tr>
<td>Female</td>
<td>40.4</td>
<td>Trnavský kraj</td>
<td>7.3</td>
</tr>
<tr>
<td>Marital status</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single</td>
<td>95.3</td>
<td>Nitransky kraj</td>
<td>11.3</td>
</tr>
<tr>
<td>Married (with children)</td>
<td>4.7</td>
<td>Žilinský kraj</td>
<td>10.3</td>
</tr>
<tr>
<td>Do you think there is work available in Slovakia for you after finishing your studies?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>19.2</td>
<td>Prešovský kraj</td>
<td>19.8</td>
</tr>
<tr>
<td>Yes</td>
<td>80.8</td>
<td>Košický kraj</td>
<td>13.3</td>
</tr>
</tbody>
</table>

Macro-level data

Table 2 gives an overview of the macro-level regional performance figures, showing averages between 2001 and 2005 in order to capture average performance in the years before the EU accession and before the survey was conducted among the graduating students in 2006. The selected regional indicators operationalize different theoretical propositions that stem from the neoclassical theory of migration (earnings) on the one hand and the less orthodox migration indicators on the other hand. The two variables approximating structural change are a) cumulative FDI stock and b) a change in the share of

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6 I would like to thank to the Institute for the Research of Family and Labor for making the dataset available to me for the purposes of this paper.

7 The remaining cases were deleted.
industrial employment. I use cumulative foreign capital stock in 2005 (rather than average flows in 2001-2005) to capture overall development of investments throughout the transition.\footnote{Correlation between FDI cumulative stock in 2005 and 2004-2005 average FDI flows (longer time series not available) is strong and significant (0.961, p<0.01) suggesting that there is not too much of a difference between these variables.} The change in the share of industrial employment on overall employment from 2001 to 2005 approximates the degree of change in employment structure in the economy.

The remaining regional level indicators are related to labour market performance (unemployment rate), general economic performance (average net nominal earnings, balance of primary income, social benefits as the share of disposable income) and relative position of the region within the country (regional GDP as share of country GDP). More specifically, unemployment rate measures the degree of labour market slack in the regional economy. Regional GDP as a share of the national GDP is a measure of the distribution of country’s wealth across regions and a measure of inequality. Balance of primary income is a proxy for the ability of a region to provide employment and generate economic activity (market income)\footnote{Primary incomes are considered to be a very important indicator of regional accounts, as they indicate the ability of residential households to generate incomes either as entrepreneurs, employees or receivers of property incomes. Low primary incomes of resident households show dependence of a given region on the support from state or international bodies. They are a marker of less developed regions, and point to the necessity to introduce measures oriented towards improvement of working conditions, creation of new working possibilities and support of entrepreneurial activities.} and should be inversely correlated with social benefits as a share of net disposable income that measures the degree of dependency of a region on the state transfers. The data reveals great diversity across the eight regions (Table 2).

A correlation matrix of regional level variables provides important insights for deciding which regional level variables to include in the models (Table 3), as strongly correlated variable would cause multicollinearity problem. There are very strong and significant relationships between several measures of general economic performance, relative positioning of regions and some of the structural change variables: the average net earnings are very strongly and significantly correlated with the balance of primary income, FDI stock, regional GDP share and social benefits as the share of disposable income. This suggests that factors like regional earnings levels are strongly affected by the FDI stock and that lower ability to generate market income (balance of primary income) or higher dependence on state transfers (social benefits as the share of disposable income) are projected in the average net earnings and vice-versa. High correlation between these variables means that replacing average earnings with FDI stock
should generate similar statistical effect on the dependent variable, although these variables measure
different factors. Strong and significant relationship between average earnings and cumulative foreign
direct investment stock in 2005 at the level of regions further implies that transnational capital has not
only been the driver of marketization and structural change but that it is a good predictor of earnings at
the regional level.\textsuperscript{10} A different measure of structural change – change in the share of industrial
employment - is not correlated with the average earnings. This allows entering this variable into the
analysis together with average earnings.

\textsuperscript{10} For a convincing empirical evidence on the impact of FDI flows on regional level output in mid-2000s see
(Medve-Bálint 2010).
Table 2: Regional performance indicators: 2001-2005 average

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Bratislavský</td>
<td>519.25</td>
<td>4.19</td>
<td>0.97</td>
<td>279,802</td>
<td>155,321</td>
<td>0.16</td>
<td>231.32</td>
</tr>
<tr>
<td>Trnavský</td>
<td>399.84</td>
<td>11.11</td>
<td>1.12</td>
<td>24,461</td>
<td>81,875</td>
<td>0.24</td>
<td>102.86</td>
</tr>
<tr>
<td>Trenčiansky</td>
<td>374.26</td>
<td>9.67</td>
<td>1.07</td>
<td>20,294</td>
<td>83,873</td>
<td>0.26</td>
<td>90.85</td>
</tr>
<tr>
<td>Nitriansky</td>
<td>363.69</td>
<td>17.98</td>
<td>1.02</td>
<td>13,255</td>
<td>93,678</td>
<td>0.28</td>
<td>85.95</td>
</tr>
<tr>
<td>Žilinský</td>
<td>374.80</td>
<td>12.96</td>
<td>1.00</td>
<td>25,862</td>
<td>91,617</td>
<td>0.28</td>
<td>81.08</td>
</tr>
<tr>
<td>Banskobystrický</td>
<td>363.23</td>
<td>21.59</td>
<td>0.85</td>
<td>10,754</td>
<td>82,164</td>
<td>0.31</td>
<td>82.15</td>
</tr>
<tr>
<td>Prešovský</td>
<td>337.66</td>
<td>19.96</td>
<td>0.98</td>
<td>7,086</td>
<td>86,168</td>
<td>0.32</td>
<td>60.19</td>
</tr>
<tr>
<td>Košický</td>
<td>402.78</td>
<td>21.67</td>
<td>1.03</td>
<td>35,506</td>
<td>95,159</td>
<td>0.31</td>
<td>89.03</td>
</tr>
</tbody>
</table>

Source: Slovak Statistical Office. FDI cumulative: SARIO (reports about FDI dynamics in each Slovak region).

Table 3: Correlations Matrix

<table>
<thead>
<tr>
<th></th>
<th>Average earnings</th>
<th>Unemployment Rate</th>
<th>Regional GDP on country GDP</th>
<th>Balance of net primary income</th>
<th>Social benefits as share of disposable income</th>
<th>Change in industrial employment</th>
<th>FDI stock cumulative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average Earnings</td>
<td>1</td>
<td>-0.704</td>
<td>0.975***</td>
<td>0.918**</td>
<td>-0.901***</td>
<td>0.018</td>
<td>0.956***</td>
</tr>
<tr>
<td>Unemployment rate</td>
<td>-0.704</td>
<td>1</td>
<td>-0.744**</td>
<td>-0.609</td>
<td>0.919</td>
<td>-0.359</td>
<td>-0.690</td>
</tr>
<tr>
<td>Regional GDP/country GDP</td>
<td>0.975***</td>
<td>-0.744**</td>
<td>1</td>
<td>0.946***</td>
<td>-0.928*</td>
<td>-0.065</td>
<td>0.983***</td>
</tr>
<tr>
<td>Balance of net primary income</td>
<td>0.918**</td>
<td>-0.609</td>
<td>0.946***</td>
<td>1</td>
<td>-0.816***</td>
<td>-0.169</td>
<td>0.981***</td>
</tr>
<tr>
<td>Social benefits/disposable income</td>
<td>-0.901*</td>
<td>0.919</td>
<td>-0.928*</td>
<td>-0.816**</td>
<td>1</td>
<td>-0.211</td>
<td>-0.872**</td>
</tr>
<tr>
<td>Change in industrial employment</td>
<td>0.018</td>
<td>-0.359</td>
<td>-0.065</td>
<td>-0.169</td>
<td>-0.211</td>
<td>1</td>
<td>-0.141</td>
</tr>
<tr>
<td>FDI stock cumulative</td>
<td>0.956***</td>
<td>-0.690</td>
<td>0.983***</td>
<td>0.981***</td>
<td>-0.872*</td>
<td>-0.141</td>
<td>1</td>
</tr>
</tbody>
</table>

Notes: N=8. All data: averages for 2001-2005 period, FDI stock cumulative in 2005. *** - Significant at the 0.01 level, ** - Significant at the 0.05 level, * - Significant at the 0.1 level.
Model and expectations

Different model specifications are tested performing logistic regression with clustered standard errors on a dataset that merged the presented macro-level regional data and micro-level data. The question on whether the respondent is thinking about looking for work abroad after finishing his/her studies is used as the dependent variable to proxy the propensity to migrate. Out of the whole sample, 43.8% of the respondents were not thinking about looking for work abroad, 23.9% were thinking about looking for work abroad in their field of study and at the university level position, 14.2% in a different field of study but for a university level position and 18.1% in a different field of study and not for a university level position. I dichotomize this variable as ‘0’ for those not thinking to look for work abroad (43.7%) and ‘1’ as those thinking to look for work abroad (56.3%).

The goal is to test the significance of regional level variables in addition to average earnings and controlling for individual level variables. The selection of macro-level regional variables – earnings, unemployment rate, change in industrial employment and cumulative FDI stock – represent key variables of different migration theories. Average earnings are the main migration determinant proposed by the neoclassical theory of migration. Unemployment rate measures labour market performance of a given region and can be considered a key variable of labour market slack of a given region. The change in the share of industrial employment on total employment proxies structural change. Finding the latter two variables significant in addition to or instead of average earnings would confirm an independent effect of structural change indicators and support the argument that it is not only wages and wage differentials, but the character of economic opportunities, labour market conditions and economic structure that are affecting migration choices.

I anticipate that the different socio-economic performance of regions in Slovakia, partly caused by the process of structural change and partly inherited, should lead to different propensity to migrate. Also, while young people with tertiary education are likely to compete in the national rather than regional labour markets, it is reasonable to expect that students’ perceptions about their employment chances and prospects are strongly shaped by the experience and situation of their parents who are embedded in specific regional labour markets.

Due to the fact that regression with clustered standard errors is bounded in degrees of freedom by the number of clusters which is in this case the eight regions in Slovakia, I do not test more than 7 parameters simultaneously. In order to avoid multicollinearity, the models were constructed in a following way. The first model tests only the individual level variables (M1), while the following specifications test a number of regional level variables in different combinations (M2-M8). Model 2 (M2) adds average earnings, M3 unemployment rate, M5 change in industrial employment and M7
replaces earnings variable with FDI stock. M4, M6 and M8 differ from the previous models in leaving out the individual level variable about the perceptions about the availability of work in Slovakia in order to see if the effect of macro-level variables changes if we leave out personal expectations and perceptions about labour market performance and individual chances. Intercepts were estimated in all models but are not reported. Table 4 presents the results reporting odds ratios. ¹¹

Results and discussion

Individual level variables show very consistent results across different models. Gender is not a significant predictor of propensity while being married decreases the odds of migrating approximately 7 times. The ‘work in Slovakia’ variable, which measures perceived prospects of finding a job in the Slovak labour market, is a significant predictor of odds of thinking about migrating for work abroad at 90% level; it decreases the odds of migrating by about 56%. This indicator does not attain significance in the first two models that do not test macro-indicators or only include earnings. This seems to suggest that the significance of personal perceptions of labour market chances are accentuated and brought out in the context of regional macro-performance.

All tested regional level macro-indicators are significant predictors of propensity to migrate among the graduating students in Slovakia. This is in line with the expectation that the regional performance significantly shapes the decisions of young people to migrate, although they might not be necessarily competing in the regional labour market but rather in the national labour market. Higher regional unemployment rate and a larger change in the share of industrial employment on total employment increase the odds of thinking about migration after graduating significantly and strongly. In fact, change in industrial employment is the strongest factor of all tested variables and increases the odds of thinking about migrating by more than 4 times when controlling for individual level determinants, unemployment rate and earnings (Model 5) and by nearly 11 times when controlling for individual level determinants, unemployment rate and FDI stock (Model 7). ¹²

The results show that higher average earnings increase rather than decrease the odds of migration although the actual effect is small (a euro increase in average net nominal monthly earnings increases the odds of thinking about migration by about 0.005%). Similar effect – significant but relatively small – is true for cumulative FDI stock tested in Models 7 and 8. In line with

¹¹ Standard logistic regressions without error correction and with robust standard errors were also carried out; where the individual level predictors gain greater significance, while regional level predictors have lower significance. Parameter estimates remained unchanged. The results are available upon request.

¹² Let me emphasize that this is the case even though the students in the sample are from all fields of study, not only technical fields which would be more directly affected by the change in industrial employment.
expectations, FDI is a significant predictor of propensity to think about migration but, as was the case with earnings, not in the expected direction. This seems to suggest that for the potential young migrants, earnings have a positive and enabling effect on migration rather than a solely ‘pushing’ effect as argued by the neoclassical theory (de Haas 2007; de Haas 2010). It also suggests that reasons for migration of young and educated people are complex. Their mobility is inspired by school-to-work transition and the difficulties related to this process. The unexpected direction of the effect of cumulative FDI stock could in turn imply that although more foreign direct investment means more employment which should translate into less migration, it is not only the number of jobs but equally the match between the emerging employment opportunities and skill endowments of the graduating students that are important.

In sum, the analysis showed that both individual and regional level factors matter in affecting the propensity to migrate. Marital status, perceptions about the ability to find a job in Slovakia and the degree of change in industrial employment have the strongest effect on shaping decisions about seeking work abroad after graduating. The role of one’s perceptions of finding employment in Slovakia after graduating is strengthened when regional level indicators related to economic performance are taken into account. In addition to this, there is strong evidence demonstrating that regional performance in the early 2000s in Slovakia is an outcome of the process of transition and the degree and the form of structural change, strongly shaped by the dynamics of transnational capital inflows.
Table 4: Logistic Regression with clustered standard errors, odds ratios

<table>
<thead>
<tr>
<th>Odds ratio</th>
<th>M1(B)</th>
<th>M2(B)</th>
<th>M3(B)</th>
<th>M4(B)</th>
<th>M5(B)</th>
<th>M6(B)</th>
<th>M7(B)</th>
<th>M8(B)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Individual level</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender (1= female)</td>
<td>0.967 (0.835)</td>
<td>0.957 (0.789)</td>
<td>0.954 (0.777)</td>
<td>0.967 (0.840)</td>
<td>0.952 (0.770)</td>
<td>0.966 (0.835)</td>
<td>0.958 (0.796)</td>
<td>0.972 (0.861)</td>
</tr>
<tr>
<td>Marital status (1= not single)</td>
<td>0.141*** (0.000)</td>
<td>0.141*** (0.000)</td>
<td>0.141*** (0.000)</td>
<td>0.145*** (0.000)</td>
<td>0.139*** (0.000)</td>
<td>0.143*** (0.000)</td>
<td>0.142*** (0.000)</td>
<td>0.147*** (0.000)</td>
</tr>
<tr>
<td>Work in Slovakia (1= yes)</td>
<td>0.659 (0.107)</td>
<td>0.652 (0.103)</td>
<td>0.639* (0.084)</td>
<td>0.634* (0.079)</td>
<td>0.634* (0.078)</td>
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<tr>
<td><strong>Regional level</strong></td>
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<td></td>
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</tr>
<tr>
<td>Average net earnings (average 2001-2005)</td>
<td>1.002*** (0.000)</td>
<td>1.004*** (0.000)</td>
<td>1.004*** (0.000)</td>
<td>1.005*** (0.000)</td>
<td>1.005*** (0.000)</td>
<td></td>
<td></td>
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<tr>
<td>Unemployment rate (average 2001-2005)</td>
<td>1.038*** (0.000)</td>
<td>1.036*** (0.000)</td>
<td>1.050*** (0.000)</td>
<td>1.046*** (0.000)</td>
<td>1.057*** (0.000)</td>
<td>1.053*** (0.000)</td>
<td></td>
<td></td>
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<tr>
<td>Change in industrial employment (2005 over 2000)</td>
<td></td>
<td></td>
<td>4.543*** (0.000)</td>
<td>4.043*** (0.000)</td>
<td>10.84*** (0.000)</td>
<td>9.067*** (0.000)</td>
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<tr>
<td>FDI stock (Cumulative in 2005, SKK mil.)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1.000004*** (0.000)</td>
<td>1.000004*** (0.000)</td>
<td></td>
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<tr>
<td><strong>N</strong></td>
<td>769</td>
<td>769</td>
<td>769</td>
<td>769</td>
<td>769</td>
<td>769</td>
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<tr>
<td>Pseudo R square</td>
<td>0.0282</td>
<td>0.0296</td>
<td>0.0338</td>
<td>0.0287</td>
<td>0.0352</td>
<td>0.0299</td>
<td>0.0350</td>
<td>0.0297</td>
</tr>
</tbody>
</table>

*Note: p values in parentheses. ***- significant at the 0.01 level; ** - significant at the 0.05 level, *-significant at the 0.1 level.*
Conclusion

Central and Eastern European post-communist countries have experienced a successful economic and political transition which culminated in their accession to the European Union in 2004. The transition process was marked by vast restructuring with negative social and economic impact resulting in labour market imbalances and structural problems. In several countries, youth labour markets were particularly affected. The EU accession in effect widened employment opportunities to the youth and labour mobility was perceived as a mechanism for remedying youth unemployment in the respective countries. A significant decline in unemployment rates, including youth unemployment, took place which was partly caused by significant outflows of workers (OECD 2012; Rutkowski 2007; Galgóczi, Leschke, and Watt 2009).

To date the link between economic restructuring, structural change and international mobility has not been fully understood. This paper addresses this gap and investigates the link between structural change, labour market characteristics and youth labour mobility on the regional level in Slovakia. It evaluates relative importance of structural, labour market and individual factors in affecting migration choice of highly educated youth in a free mobility context. The analysis shows that labour market conditions and indicators of the degree of structural change at the level of regions are significant predictors of propensity to migrate of graduating students, in addition to net regional earnings, individual level characteristic and personal perceptions about the ability to find work in the country. This confirms that massive and harsh adjustments that the Eastern and Central part of Slovakia experienced during the process of transition carried over to the post-accession migration as the employment potential remained relatively limited or was characterized by the mismatches between emerging jobs and labour force qualifications. This suggests that structural change has been affecting migration patterns also of the young graduates that face difficulties in school-to-work transition.

The findings of this paper have important theoretical and policy-related implications. Studying specific conditions of localities and their change over time and taking into account wider range of migration determinants related to labour market conditions and factors such as the match between employment opportunities and human capital endowments can help us to understand (and to predict) future migration flows and their composition much better than the oversimplified neo-classical framework. With respect to earnings, I find that for the graduating students in Slovakia higher regional earnings seem to enable rather than inhibit migration. This suggests that the crucial factor is not (higher) wages but job opportunities that match the migrants’ profiles in terms of skill requirements, preferences or location. The analysis shows that sending countries need to be given
more research attention about determinants of migration: in addition to the structures, policies and institutions in receiving countries, structural conditions in home states are equally important in helping to understand migration structures, patterns, and changes.13

A finding of the independent impact of structural factors has further policy implications. Regional inequalities in Slovakia have not evened out and continue to persist, which has implications on return migrants and their integration trajectories. Due to social and family ties and economic basis provided through these ties, migrants tend to return to the localities, where they left from. These often continue to be characterized by depressed labour markets leading to difficulties in integration of returnees and making positive benefits of labour mobility for sending countries and regions within them limited (Radu and Martin 2010; Barcevičius et al. 2012). Contrary to the macro-economic benefits in sending countries shown in a marked decline of youth unemployment rates (OECD 2012; Rutkowski 2007; Galgóczi, Leschke, and Watt 2009; Pryymachenko and Fregert 2011), micro-level impact of youth mobility therefore remains blurred. On the one hand migration experience might generate important individual-level benefits and give signals to employers who value a set of skills and characteristics that living and working abroad helps to develop. On the other hand, persisting structural problems in regional labour markets might deter migrants from return or make their integration into local labour market a difficult and discouraging process. While migrants are often perceived as bearers of economic development and growth, in the context of persisting structural problems, they might become discouraged and enter unemployment registries of home states rather than contribute to development (Schroth 2013; White 2014). Policy focus should therefore consider return migrants, especially educated youth, as a specific target group with a large potential, which might however need specific guidance upon return.

13 For an account of the role of sending countries’ non-migration policies and institutions see (Kureková 2013).
References


Bauer, Thomas, and Klaus F. Zimmermann. 1999. *Assessment of Possible Migration Pressure and Its Labour Market Impact Following EU Enlargement to Central and Eastern Europe*. IZA.


