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INTERREGIONAL MIGRATION IN UKRAINE: SPACIAL, ECONOMIC AND SOCIAL FACTORS

The paper analyses interregional migration flows in Ukraine in 2008–2012 and their determinants. Migration predominantly occurred either between the neighboring regions with similar social and economic development or to/from the capital city of Kyiv. Meanwhile, people rarely moved from poorer and job-scarce regions in the western part of Ukraine to those that were relatively richer in the east. The paper sheds light on the reasons behind this pattern using administrative data on region-to-region migration flows in 2008 and 2012 and applying the modified gravity model. Geographic distance and a common land border between the regions are important determinants of interregional migration in both years and both samples (one includes the capital city of Kyiv, and another excludes it). At the same time, language differences between Ukrainian regions do not have a significant effect on interregional migration when many other factors are taken into account. This finding helps refute a popular stereotype about the crucial importance of the language issue in Ukraine. Ukrainian migrants tend to be more responsive to the levels of income and unemployment in the origin region rather than in destination.

Key words: *internal migration, modified gravity model, disequilibrium perspective, migration corridors, economic distance.*

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МІЖРЕГІОНАЛЬНА МІГРАЦІЯ В УКРАЇНІ:
РОЛЬ ВІДСТАНІ, ЕКОНОМІЧНИХ ТА СОЦІАЛЬНИХ ФАКТОРІВ

Статтю присвячено аналізу міжрегіональних міграційних потоків в Україні у 2008–2012 рр. та виявленню їх детермінант. Міграція в основному мала місце або між сусідніми регіонами з аналогічним рівнем соціально-економічного розвитку, або в / зі столиці. Водночас люди рідко переїжджали з бідних регіонів із наявним дефіцитом робочих місць, розташованих переважно у західній частині України, у відносно багатші регіони на сході. У статті висвітлено питання можливих причин таких тенденцій на основі аналізу даних державної статистики про зареєстровані потоки між регіонами України у 2008 та 2012 рр. із застосуванням модифікованої гравітаційної моделі. Зокрема, у статті оцінено вплив географічної та економічної відстані, спільного кордону і спільної мови, чисельності та складу населення, доходу на душу населення, рівня безробіття, соціальних та екологічних чинників.

Ключові слова: *внутрішня міграція, модифікована гравітаційна модель, теорія неврівноваженості, міграційні коридори, економічна відстань.*

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МЕЖРЕГИОНАЛЬНАЯ МИГРАЦИЯ В УКРАИНЕ:
РОЛЬ РАССТОЯНИЯ, ЭКОНОМИЧЕСКИХ И СОЦИАЛЬНЫХ ФАКТОРОВ

Статья посвящена анализу межрегиональных миграционных потоков в Украине в 2008–2012 гг. и выявлению их детерминант. Миграция в основном имела место между соседними регионами с аналогичным уровнем социально-экономического развития или же в / из столицы. Люди редко переезжали из бедных регионов с имеющимся дефицитом рабочих мест, расположенных преимущественно в западной части Украины, в относительно более богатые регионы на востоке. Статья освещает возможные причины таких тенденций на основе анализа данных государственной статистики о зарегистрированных потоках между регионами Украины в 2008 и 2012 гг. с применением модифицированной гравитационной модели. В частности, в статье оценено влияние географического и экономического расстояния, общей границы и общего языка, численности и состава населения, дохода на душу населения, уровня безработицы, социальных и экологических факторов на масштабы межрегиональной миграции.

Ключевые слова: *внутренняя миграция, модифицированная гравитационная модель, теория неуравновешенности, миграционные коридоры, экономическое расстояние.*

Introduction. Internal migration is an important social and economic process that has a significant impact on economic and human development of regions, demographic situation and local labor markets. The free movement of workers within the country for economic reasons is critical for the efficient allocation of labor across regions, sectors and occupations. Thus, internal migration can lead to higher labor productivity, better living standards and greater economic growth [1, 2].

However, large economic and social gains from internal migration can be realized if people move from lagging job-scarce regions to those that provide better employment and income opportunities. And the question is whether in Ukraine – one of the largest European countries by area and population – people take the advantages of economic opportunities by moving to better-off regions, and if not, what determines their choice of destination[1].

Brief literature review. Some aspects of internal migration flows in Ukraine have been studied by T. Dragunova, E. Libanova, I. Maydanik, O. Malinovska, O. Pozniak, M. Romaniuk, O. Homra, U. Sadova and many other Ukrainian researchers. The author of this article, together with the World Bank economists, has also contributed to the research of internal migration in Ukraine by analyzing the volume and characteristics of migration within the country, including circular labor migration and commuting, as well as the existing barriers to labor mobility and the role of the government in overcoming these barriers [1; 3; 4]. However, the impact of economic and non-economic factors on the interregional migration at different points of the business cycle has been studied very little to date in Ukraine. Following the experience of Russia and developed countries [5; 6; 7], it can be estimated using rich data set and popular econometric models such as the gravity model.

[1] This article does not address migration of internally displaced people within Ukraine in 2014 due to the recent pro-Russian unrest in the Autonomous Republic of Crimea (ARC) and eastern regions (Donbass).

The aim of the paper is to analyze the patterns of interregional migration flows in Ukraine in 2008–2012 and to identify the key factors that affect their size and direction based on the extended gravity model.

Analysis of interregional migration. As Figure 1 shows, interregional migration in Ukraine in 2012 took place predominantly between the neighboring regions, i.e. regions that share a land border[2]. The city of Kyiv is the only region that often appears among the most popular destination regions of internal migrants and is not adjacent to many remote areas. Only in three regions – in the Autonomous Republic of Crimea (ARC), Zakarpattia and Odesa oblasts – migration flows to the non-neighboring regions significantly exceeded flows to the neighboring ones and to Kyiv city.

The analysis of interregional flows in each year during 2008–2011 reveals very similar patterns. However, if these patterns of interregional migration are analyzed over time, a slight decline in the proportion of flows to non-neighboring regions between 2008 and 2012 is observed in all regions, except for Chernivtsi, Donetsk, Odesa, Sumy and Volyn oblasts. This change in the migration patterns can be attributed to the economic downturn, labor market stagnation and subsequent reduction in the net benefits of long-distance migration.

The main migration corridor, which accounted for 7.3% of all interregional flows in Ukraine in 2012, was the city of Kyiv – Kyiv oblast. It is in line with the findings of earlier studies by O. Pozniak and his colleagues, according to which migration flows from Kyiv oblast to the capital city played an important role in the supply of workforce for Kyiv City [8].

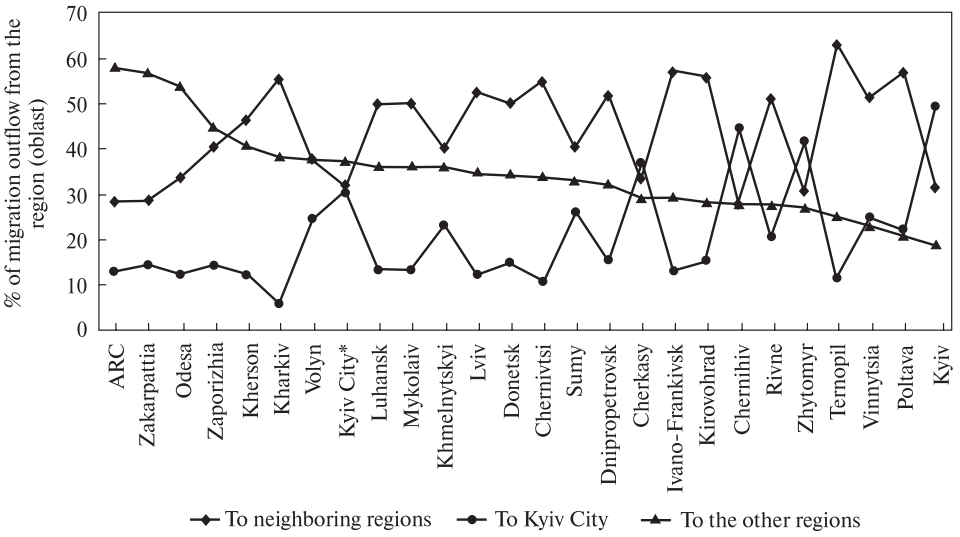

Fig. 1. **Composition of interregional migration flows by the type of destination region, 2012**

Source: Author's calculations based on the State Statistics Service of Ukraine data [10].

Notes: * Kyiv City is assumed to have the same neighboring regions as Kyiv oblast; the flows from Kyiv City to Kyiv oblast are used instead of the flows to the capital city. Regions are shown in descending order according to the share of flows to the other regions (neither neighboring oblasts nor Kyiv City).

[2] Here we refer to regions as the first-level administrative units, which include 24 oblasts (provinces), Autonomous Republic of Crimea and Kyiv City. Sevastopol – another city with a special legal status in Ukraine – is excluded from the analysis because it is significantly different from the other administrative regions by population. Moreover, the nature of migration to/from Sevastopol, which hosts the Black Sea Fleet, may differ significantly from migration between the other regions.

However, in recent years migration in the opposite direction – from Kyiv City to Kyiv oblast – has gained particular importance[3]. We attribute this reversal to resettlement of wealthyor, conversely, not very wealthy families from the capital city to the fast-growing suburban towns and villages that offer housing in different price segments. As the majority of these residential migrants keep working in Kyiv City, they tend to disregard the labor market conditions in the destination region when moving to a new place of residence.

Other important interregional migration corridors include the following: Cherkasy oblast – Kyiv City (2.65% of all movements in 2012), Zhytomyr oblast – Kyiv City (2.37%), Chernihiv oblast – Kyiv City (2.24%), and Donetsk oblast – Kharkov oblast (2.27%).

Table 1 reveals that Ukrainians are more likely to move to neighboring regions with similar levels of socio-economic development clustered in the same macroregion rather than to more developed regions in a different macroregion (Table 1). For example, only 5.7% of the total 56,553 migrants to the Eastern macroregion came from eight Western oblasts in 2012 (compared to 6.4% in 2008). The shares of migrants from the Western macroregion are also quite low in the other macroregions, except for Kyiv city.

Table 1. **Interregional migration by macroregion (% of total flows into the region of destination), 2008 and 2012**

		Destination region				
		Kyiv City	**North & Center**	**East**	**South**	**West**
Origin region	2008					
	Kyiv City	–	27.3	5.1	6.9	10.8
	North & Center	59.9	32.4	23.9	24.6	16.3
	East	14.6	19.1	49.7	29.2	8.5
	South	8.5	9.7	14.9	28.5	6.5
	West	17.0	11.5	6.4	10.8	57.9
	Total (%)	100	100	100	100	100
	Total (flows)	51,044	72,451	58,504	32,410	44,158
	2012					
	Kyiv City	–	29.9	5.4	7.7	12.7
	North & Center	57.1	32.9	22.8	23.4	15.5
	East	16.9	17.8	52.1	30.1	7.9
	South	8.5	8.8	14.1	28.2	5.8
	West	17.5	10.5	5.7	10.8	58.2
	Total (%)	100	100	100	100	100
	Total (flows)	50,181	81,215	56,553	30,654	46,276

Source: Author's calculations based on the State Statistics Service of Ukraine data [9; 10].
Notes: North & Center includes Vinnytsia, Zhytomyr, Kyiv, Kirovohrad, Poltava, Sumy, Cherkasy, and Chernihiv oblasts; East includes Dnipropetrovsk, Donetsk, Zaporizhia, Luhansk, and Kharkiv oblasts; South includes Autonomous Republic of Crimea, Mykolaiv, Odesa and Kherson oblasts.

[3] For example, in 2008 the flow from Kyiv oblast to the capital city made up 3.9% of all interregional flows in Ukraine, whereas the flow in the opposite direction accounted for only 3%. However, these proportions have reversed in favor of the flow from Kyiv City to oblast since 2010. In 2012, they were 3.3% and 4%, respectively.

The main hypotheses. Our preliminary analysis shows that distance between regions is an important spatial factor that influences the decision to migrate within Ukraine. This is in line with the economic theory and empirical evidence in developed countries: distance provides a serious obstacle to migration because it serves as a proxy for the direct and indirect costs of moving, including transportation, opportunity, information and emotional costs [5; 11]. High migration costs tend to lock up low-wage workers and the unemployed in lagging regions and therefore prevent them from escaping to distant regions with better employment and income opportunities.

Besides, we suggest considering the following reasons for specific patterns of interregional migration in Ukraine when migrants who leave lagging areas with poor labor market outcomes do not necessarily go to the regions with better conditions:

- cultural, religious, linguistic and political differences between certain parts of Ukraine, which are particularly prominent between Western and Eastern-Southern regions and have deterring effects on migration interchange between them (as seen in Table 1);
- structural factors caused by restructuring of the national economy and economic specialization of Ukrainian regions, in conjunction with demographic and psychological factors. Reluctance of adult skilled workers, who often have some region-specific human capital, to adapt to the changing socio-economic context through retraining and occupational mobility prevents them from migration to distant regions that might specialize in other economic activities than the origin region. At the same time, younger persons who have not accumulated region-specific skills and are in general more mobile are most likely to change their location radically;
- significant differences in housing and living costs between less and more prosperous regions [1] that are often not compensated by the wage premium and fringe benefits due to existing wage and labor market rigidities in Ukraine. These differences discourage potential migrants from moving to relatively better-off but more expensive areas;
- differences in location-specific topological, climatological, and environmental amenities or disamenities, prevailing conditions in housing and land markets, local taxes and the associated availability of public goods. As the equilibrium theoretical perspective and empirical evidence in developed countries suggest [5; 12], these non-economic factors can have a very significant influence on the decision where to move.

Econometric model. Our empirical analysis is based on the modified gravity model which became common in the migration literature since the 1960-s [5]. The key to the basic gravity model is the Zipf's law of spatial interaction according to which migration between two regions is hypothesized to be directly related to the size of relevant origin and destination populations, and inversely related to the distance between these regions [13]. The extended model is based upon behavioral foundations and includes a mix of disequilibrium- and equilibrium-type variables.

In this paper the extended modified gravity model is specified in a cross-sectional framework as follows:

$$\ln M_{ij} = \beta_0 + \beta_1 \ln D_{ij} + \beta_2 \ln P_i + \beta_3 \ln P_j + \beta_4 \ln Y_i + \beta_5 \ln Y_j + \\ + \beta_6 UR_i + \beta_7 UR_j + \lambda' X_i + \gamma' X_j + \alpha' X_{ij} + \xi_{ij}, \quad (1)$$

where

- M_{ij} refers to migration flows from a region i (origin) to a region j (destination) in a given year;

- D_{ij} is distance between administrative centers (oblast centers) of origin and destination regions[4]. As discussed before, migration is expected to decrease with distance (i.e. $\beta_1<0$) which serves as a proxy for direct and indirect costs related to moving. Furthermore, distance reflects the importance of relatives and friends if lagged migration variable is not included in the model [5];
- P_i and P_j refer to the average annual population size of origin and destination areas, respectively. According to the Zipf's gravity law of spatial interaction, migration is expected to be directly related to the size of origin and destination regions (i.e. $\beta_2>0$ and $\beta_3>0$);
- Y_i and Y_j are the average real disposable per capita income in origin and destination regions[5]. According to the disequilibrium perspective [5], spatial differences in wages or income represent potential for household utility gains that can be realized through migration. Hence, income is expected to take a negative sign for the origin region ($\beta_4<0$) and a positive sign for the destination region ($\beta_5>0$). However, income in the origin region can have a positive sign if there are liquidity constraints, as in the case of Russia [6], and potential migrants from higher-income regions are more likely to finance their move;
- UR_i and UR_j are the unemployment rates (defined according to the ILO methodology) in origin and destination regions. According to the disequilibrium approach, regions with lower unemployment rates and supposedly higher rates of employment growth tend to attract migrants from the regions with worse employment opportunities (i. e. $\beta_6>0$ and $\beta_7<0$);
- X_i, X_j, X_{ij} are vectors of other explanatory variables that are expected to influence migration decisions. To test our hypotheses we include the following variables:
- dummy variables for common language (takes the value of 1 if the main language, either Ukrainian or Russian, in region i is the same as in region j, and 0 otherwise) and common border (1 if two regions share a land border, and 0 if not)[6];
- comparability index[7] or economic distance between two regions c_{ij} to measure the differences in the composition of regional employment by economic sectors. It is defined by us as the Euclidean distance between points s^i and s^j in n-space:

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

where s_l^i and s_l^j stand for the shares of population employed in sector l in origin and destination regions, respectively. n is the number of sectors which is equal to five broad sectors such as agriculture, industry, construction, public services (such as public administration and defense, education, health care and social work) and private services (all other services). It is expected that if the economic distance is small, migration flows between two regions are larger because potential migrants may have better chances of getting a similar job in the destination area;

[4] Although Kyiv City is an administrative center of Kyiv oblast, the distance between the city of Kyiv and settlements in the oblast is assumed 30 km.

[5] This article uses disposable income per capita as an income variable and not wages, which are usually used in the similar studies in developed countries. This is because Ukrainian official statistics on average monthly wages, which is based on the survey of registered firms with more than 10 employees, has many shortcomings and does not cover other important income items such as social assistance, income from entrepreneurial activities, property income, private transfers, etc.

[6] As before, Kyiv City is assumed to have the same neighboring regions as Kyiv oblast.

[7] Jackman and Savouri [14] first introduced the comparability index that they measured as the square of the difference in the proportion of population employed in industry and construction in origin and destination regions.

- a set of demographic variables indicating the composition of population in terms of its propensity to move, namely its age composition (share of youth (15–24 years) and prime-age population (25–59 years)), and the share of urban population in total resident population in the beginning of a given year;
- a set of social, topological and environmental variables to account for the possible equilibrium-type factors influencing the choice of destination. They include the crime rate (number of registered crimes per 100,000 population), air pollution indicator (emissions of air pollutants from stationary and mobile sources of pollution in kg per person), the presence of a sea coast (dummy variable), number of doctors of all specializations (per 10,000 residents), number of students of colleges and universities (per 10,000 residents), and new dwellings commissioned during a year (in square meters per 1,000 people)[8];
- ξ_{ij} refers to disturbance terms.

Most explanatory variables were lagged one year to ensure that they are predetermined and sequentially exogenous. Given a short period with available statistics on bilateral interregional migration flows in Ukraine (2008–2012), we did not apply a dynamic panel model as has been done by Andrienko and Guriev [7]. Instead, we estimate the model (1) for two years – 2008 and 2012 – to identify and compare the determinants of interregional migration in two different stages of the business cycle: a recession phase when the global economic and financial crisis has hit Ukraine in the end of 2008 and the economy started to slow down, and a recovery phase when the economy recovered slowly, following one of the deepest recessions in Europe in 2009 (with real GDP contraction of about 15%).

Data. Information on interregional migration comes from administrative statistics on the number of arrivals and departures by region in 2008 and 2012, which is determined according to registration/de-registration of residence by the State Migration Service of Ukraine [9; 10]. Although these statistical data have many reasons for criticism[9], their great advantage is reliability and frequency, as they are the only source of information on migration flows of population within the country, which is regularly published by the State Statistics Service of Ukraine.

In total, there are 650 observations on bilateral migration flows (matrix 26 * 25) for each year in a larger sample of regions, and 600 observations (25 * 24) in a smaller sample, which excludes Kyiv City as migration to/from it does not always comply with the common rules of migration[10].

The estimation results of the modified gravity model for two years and two samples are provided in Table 2. The effects of basic gravity variables on migration flows are significant and robust to specification changes. As expected, larger regions send and attract more migrants. The estimated distance elasticity of migration ranges between minus 0.91–0.92 in 2008 to minus 0.96–1 in 2012. Hence, distance does provide a serious obstacle to migration within

[8] It should be noted that the list of these indicators is not exhaustive and can be extended or changed if there is a sufficient number of observations. For example, real per capita expenditures of local governments on education, health, and social assistance can be used instead of the number of doctors and students (see [4] for Ukraine). Andrienko and Guriev [6] also examined the impact of poverty rates, life expectancy at birth, homicide rates, the number of hospital beds, indicators of public transport and roads, telephone lines, the average temperature in summer and winter, the presence of seaport, subsidies in agriculture, etc. on interregional migration in Russia. Living and housing costs are also important factors of internal migration but regional-level statistics is not available in Ukraine.

[9] Namely, a large number of people, who change the actual place of residence within the country but do not change the place of registration, are neglected. A substantial time lag between the actual movement to some other place and the official registration of new residence in the State Migration Service is possible. Furthermore, migrants may provide false information about the destination place during their de-registration from the previous place of residence.

[10] Alternative source of data – the Labor Force Survey – has been used by the author for the analysis of temporary labor migration and commuting in Ukraine [3].

Ukraine, particularly in 2012. Also, as expected, migration flows tend to be significantly larger between the regions that share a land border compared to non-neighboring regions.

Meanwhile, the common language is a not significant factor in explaining interregional migration when other important factors are taken into account. This finding refutes a widespread perception that the language issue has a significant impact on many social and economic processes in Ukraine.

The estimated impact of key economic disequilibrium-type variables such as disposable per capita income and the unemployment rate is very sensitive to the samples and years used, as its significance and direction changes. If we stick to the year 2012 and a smaller sample, which does not include flows between the capital city and other regions, we get expected results: the unemployment rate in the region of origin has a significant and positive impact on migration flows, and disposable income has a significant and negative impact. Hence, low income and lack of employment opportunities in the region of origin are important factors that encourage out-migration. On the other hand, economic variables in the region of destination do not have significant effect on migration flows. In our opinion, this can be explained not so much by little importance of these factors for migrants as by the lack of reliable information on employment opportunities and income adjusted for the cost of living in the region of destination.

The positive, although not always significant, effect of economic distance suggests that the greater the difference in the employment structure between two regions, the higher the expected migration flows between them (ceteris paribus). This unexpected result can be attributed to the selective nature of migration between dissimilar places, especially long-distance migration, as the fast-developing regions with a diverse economic structure tend to attract the best educated and adaptable workers.

Demographic variables are also important determinants of interregional migration flows. The significant and positive impact of the share of people aged 25 to 54 years in the region of origin shows that that this age group seems to respond best to the economic opportunities that may appear in other regions.

The negative (inverse) relationship between the urban share in the region of destination and interregional migration flows in 2012 can be interpreted in a way that migrants might be discouraged from moving to the densely populated regions with a high urban share because of the negative aspects of urban life such as increased daily costs, traffic and infrastructure congestion, high crime rate, poor environmental quality, negative health effects, etc.

Many social and environmental factors used to describe amenities or disamenities in the regions of origin and destination, have significant impact, but not always in an expected direction. For example, people are more likely to leave regions with a higher crime rate and fewer doctors, but, surprisingly, they are also more likely to move to the areas with high crime rates and relatively fewer doctors. Poor environmental quality (measured by emissions of air pollutants) did not influence migration flows in 2012 whereas it discouraged both in-migration and out-migration in 2008.

Conclusions and ideas for further research. There are several important findings of our study. First, geographic distance and similarity of regions (proxied by the presence of a common land border) are found to be very important factors of interregional migration in Ukraine, regardless the phase of the business cycle. Second, migrants respond better to economic constraints (high unemployment and low income) in their place of rigin rather than to the possible opportunities in the destination region, whereas their response to non-economic factors is not always in an expected direction. This may be attributed to information asymmetries about working and living conditions in distant areas. From

Table 2. **Determinants of interregional migration flows, 2008 and 2012**

Variable	26 regions				25 regions (without Kyiv City)			
	2008		2012		2008		2012	
Distance (log)	−0.901***	(0.049)	−0.955***	(0.054)	−0.917***	(0.046)	−0.998***	(0.049)
Population i (log)	0.823***	(0.105)	1.018***	(0.103)	1.303***	(0.142)	1.128***	(0.106)
Population j (log)	0.841***	(0.110)	0.910***	(0.098)	1.255***	(0.148)	0.991***	(0.101)
Common border	0.858***	(0.058)	0.854***	(0.063)	0.898***	(0.061)	0.883***	(0.065)
Common language	0.034	(0.038)	0.075*	(0.039)	0.004	(0.037)	0.029	(0.038)
Disposable income i (log)	−0.006	(0.272)	−0.023	(0.253)	−1.117***	(0.361)	−0.808**	(0.341)
Disposable income j (log)	0.327	(0.264)	0.602**	(0.244)	−0.618*	(0.344)	0.172	(0.327)
Unemployment rate i	−0.054**	(0.024)	0.087***	(0.027)	−0.004	(0.027)	0.075***	(0.028)
Unemployment rate j	−0.080***	(0.024)	0.010	(0.027)	−0.041	(0.027)	0.006	(0.027)
Economic distance (log)	0.006***	(0.002)	0.009***	(0.002)	0.002	(0.003)	0.004*	(0.002)
Urban share i	0.003	(0.005)	−0.006	(0.005)	−0.010*	(0.006)	−0.011**	(0.005)
Urban share j	0.006	(0.005)	−0.020***	(0.005)	−0.006	(0.006)	−0.023***	(0.005)
Share of youth i	−0.004	(0.028)	0.078**	(0.037)	−0.099***	(0.031)	0.022	(0.039)
Share of youth j	−0.090***	(0.028)	−0.086**	(0.038)	−0.172***	(0.032)	−0.120***	(0.039)
Share of prime–age (25–54) i	0.074***	(0.028)	0.086***	(0.029)	0.104***	(0.028)	0.080***	(0.030)
Share of prime–age (25–54) j	0.026	(0.027)	0.004	(0.030)	0.049*	(0.027)	0.001	(0.031)
Number of doctors i (log)	−0.176	(0.185)	−0.575***	(0.197)	−0.498***	(0.186)	−0.736***	(0.196)
Number of doctors j (log)	−0.241	(0.182)	−0.753***	(0.182)	−0.538***	(0.181)	−0.837***	(0.177)
Number of students i (log)	0.057	(0.091)	0.326***	(0.108)	0.123	(0.087)	0.353***	(0.107)
Number of students j (log)	0.119	(0.093)	0.626***	(0.110)	0.186**	(0.088)	0.654***	(0.107)
Crime rate i (log)	−0.205*	(0.116)	0.755***	(0.174)	0.176	(0.152)	0.789***	(0.181)
Crime rate j (log)	0.078	(0.117)	1.010***	(0.181)	0.394***	(0.147)	1.061***	(0.184)
Air pollution i (log)	−0.230***	(0.046)	−0.072	(0.087)	−0.179***	(0.048)	0.042	(0.093)
Air pollution j (log)	−0.291***	(0.049)	0.017	(0.086)	−0.247***	(0.051)	0.085	(0.091)

Variable	26 regions				25 regions (without Kyiv City)			
	2008		2012		2008		2012	
Sea coast i	–0.012	(0.073)	0.207***	(0.059)	–0.016	(0.071)	0.193***	(0.061)
Sea coast j	0.451***	(0.072)	0.502***	(0.057)	0.456***	(0.069)	0.512***	(0.059)
New dwellings i (log)	–0.036	(0.054)	–0.150***	(0.047)	–0.087	(0.055)	–0.172***	(0.048)
New dwellings j (log)	–0.020	(0.054)	–0.129***	(0.049)	–0.058	(0.054)	–0.146***	(0.048)
Constant	–17.886***	(5.132)	– 41.827***	(4.603)	–14.258***	(5.024)	–31.324***	(5.227)
Number of observations	650	650	600	600				
R2	0.888	0.908	0.875	0.898				

Source: Author's calculations based on the State Statistics Service of Ukraine data.
Notes: Dependent variable is the log of migration flows between two regions (see model (1) above). Index i denotes an origin region, and index j denotes a destination region. Most variables (except for population shares and economic distance) are lagged one year.
Robust standard errors in parentheses. *, **, *** denote significance levels at the 10%, 5%, and 1% level, respectively.

this follows, that the government and labor market institutions need to provide reliable information on job openings, working conditions, wages, living costs, retraining programs, affordable housing and social indicators across all regions of Ukraine. Besides, in order to make Ukrainians more mobile and responsive to new opportunities, it is important for the government to modernize the population registry and social welfare systems, develop housing and credit markets, and remove labor market rigidities [1].

In further studies, it would be important to estimate a more sophisticated econometric model, using a larger panel of data on bilateral migration flows and including more economic and social variables that can influence migration decisions. Another important direction for further research is the measurement of differences in living and housing costs across the regions and assessment of their impact on interregional migration in Ukraine.

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