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## REGIONAL INEQUALITIES OF ECONOMIC WELLBEING, SPATIAL MOBILITY, AND RESIDENTIAL DIFFERENTIATION IN LITHUANIA

**Abstract.** The paper aims to discuss the major trends in changes of regional differences of economic wellbeing and the resulting spatial mobility of population as well as some regional consequences of these processes. The research is based on an empirical methodology, and visual analysis of mapped data is the main research method. Since the collapse of the Soviet Union, fast decrease of employment in industry and agriculture has damaged, first of all, peripheral regions and, later, resulted in mass emigration, which is still evident in most Lithuanian municipalities. The decrease of the number of jobs in these sectors and its increase in those located in different places meant that most residents of non-metropolitan regions had to find new jobs outside the localities in which they resided. This resulted in growing mobility of the population, expressed by growing foreign emigration, inner migrations, and commuting, which continue to shape the social structure of the country to the present day, as spatial structures change more slowly than modes of production. Differences in wellbeing, which appeared at the end of the 20<sup>th</sup> century, played a role in accelerating emigration processes, which are still damaging local labour supply and economic development in many regions.

**Keywords:** Economic wellbeing, migration, residential differentiation, local and regional development, Lithuania.

## REGIONALNE NIERÓWNOŚCI DOBROBYTU EKONOMICZNEGO, PRZESTRZENNEJ MOBILNOŚCI LUDNOŚCI I ZRÓŻNICOWANIA PRZESTRZENI SPOŁECZNEJ NA LITWIE

**Streszczenie:** Celem artykułu jest przedstawienie dynamiki regionalnych zróżnicowań dobrobytu ekonomicznego i wynikającej z nich przestrzennej mobilności ludności, a także niektórych regionalnych konsekwencji tych procesów. Główną metodą wykorzystywaną w badaniu była analiza wizualna map. Po rozpadzie Związku Radzieckiego szybki spadek zatrudnienia w przemyśle i rolnictwie miał niekorzystny wpływ przede wszystkim na regiony peryferyjne, doprowadzając w konsekwencji do masowej emigracji, której skutki są wciąż widoczne w większości litewskich gmin. Zmiany te oznaczały, że większość mieszkańców regionów pozamiejskich musiała znaleźć nową pracę poza miejscem zamieszkania. Spowodowało to wzrost mobilności ludności skutkujący rosnącą emigracją zagraniczną, migracjami wewnętrznymi i dojazdami do pracy. Ponieważ struktury przestrzenne zmieniają się wolniej niż sposoby produkcji, wymienione zjawiska do dziś kształtują

strukturę społeczną kraju. Różnice w dobrobycie, które pojawiły się pod koniec XX w., przyspieszyły procesy emigracyjne, które nadal mają negatywny wpływ na lokalną podaż pracy i rozwój gospodarczy w wielu regionach.

**Słowa kluczowe:** dobrobyt ekonomiczny, migracja, zróżnicowanie mieszkaniowe, rozwój regionalny i lokalny, Litwa

## Introduction

The trends of development of most Central and Eastern European countries since the collapse of the communist regimes hold many similarities, as their major social and economic transformations were quite similar. The transition from the Soviet regime to a market-led neo-liberal economy resulted in centralization of the economy and the population, which led to the sprawl of metropolitan areas (MAs) (Smętkowski et al. 2011; Boren and Gentile 2007; Hamilton, Andrews and Pichler-Milanovic 2005). At the same time, peripheral parts of these countries have been losing jobs and population through both inner and international migration. Transformations along the core–periphery axis have been the main trend of urban network changes in many states, not only in CEE countries (Ehrlich, Kriszan and Lang 2012; Lang, Henn, Sgibnev and Ehrlich 2015). This transformation is a consequence of structural changes in the economy (both urban and rural), which has led to shrinkage of the number of jobs in previously dominant sectors of agriculture and industry. New jobs, like elsewhere in Europe, tend to concentrate in different places (Hall 1998) and this results in mass migrations towards more prosperous major cities and countries. As migrations are selective, they transform social landscapes. Though the major trends are quite similar, all CEE countries inherited different urban networks, and therefore actual trends and processes differ. Lithuania is an interesting example, as it inherited quite a unique multinodal urban network, without clear dominance of the capital city, which is not common for small (NUTS 1 or NUTS 2 region-sized) countries. Has the multinodal structure of the economy helped to minimize the effects of concentration and peripherization on the country's development? What have the actual changes of regional economic wellbeing really been and what consequences have they had on spatial mobility of the population during the last decades? What socio-spatial structure is forming in the country due to the latest transformations? These are the major questions the authors seek to answer.

This paper attempts to describe the major trends in spatial transformation of economic wellbeing in LAU 1 regions and the related spatial mobility of population in Lithuania after the collapse of the Soviet Union. Though available data is very limited, the authors also try to describe the major changes of the social landscape which appear mostly due to migration flows. The authors do not seek to discuss all aspects of wellbeing, which is simply impossible due to the lack of data. The paper concentrates on the most important data from the point of view of spatial mobility of the population, namely, employment and wage differences. They are the main factors which help to understand the differences of migration flows and the resulting social differentiation of the country. The

importance of the labour market for regional wellbeing has also been indicated in other studies of CEE (Ręklewski and Ryczkowski 2016).

Though differences of wellbeing in the capital city and the rest of the country are widely discussed in Lithuanian media, we expect that the trends of the changes and the objective factors that influence the quality of life would not necessarily be so polarized. The multinodal urban structure of the country has not helped to ensure economic development in the post-Soviet era, but the existence of a few metropolitan centres in the NUTS 2 region-sized country could change migration flows inside it.

This research was funded by a grant (No. GER-005/2017) from the Research Council of Lithuania.

### **Analyzing regional wellbeing in Lithuania – methodological aspects**

This paper discusses the objective indicators of wellbeing, but the very concept of wellbeing is a subjective category. Subjective wellbeing gains more and more attention lately (Diener 2000; Jordan 2008; Schvanen and Atkinson 2015; Ala-Mantila et al. 2018; Morrison and Weckroth 2018) and we must agree that objective and exact measurements of such a subjective thing are impossible. However, many would agree that subjective wellbeing depends on the objective reality and that differences of income or its changes over time and space make a visible impact on personal life satisfaction. The fact that residents of another municipality, region, or state earn more should make at least some people less happy and trigger a wish to change their place of residence.

Although unevenness of economic development is an obvious and well established fact, there is still a lot of discussions whether the state should be concerned about it and its consequences. Should economic evenness or spatial equality of wellbeing be of concern to the state and on what territorial level? Is wellbeing and life quality a regional concern? (Hannell 2018). Many more liberally thinking economists argue that people vote with their feet and in the long run migrations will level out existing differences (Roback 1982). There are examples suggesting that this assumption can hold true in some cases (Rodrigues-Pose and Ketterer 2012); however, there is evidence that differences in wellbeing tend to persist over time even when barriers for free movement are more or less removed (Oswald and Wu 2010). Population movements (migrations) inside a state might look like free movements, but in fact many factors tend to limit them, especially for some groups. From the point of view of wellbeing (or quality of life, which is essentially the same thing) one may easily imagine cases where emigration itself sufficiently damages personal wellbeing of those leaving their homes, especially in case of the elderly. Dwellings, social contacts, place identity, and other place-bound factors cannot be compensated by bigger salaries in a distant metropolis. This example obviously concerns more subjective factors of wellbeing, which are usually less visible over space, as the latter tends to be measured by “objective indicators” since the golden age of spatial quantitative analysis in the 1960s and 1970s.

Still, even if we agree that regional differences of wellbeing are a concern of the state (in which case making evident these differences is its concern as well), one may ask on what level of regions should it be taken into account? Is it vast NUTS 1 or 2 regions or small LAU 2 areas or even neighbourhoods? In other words we should decide on what particular regional level to carry out the analysis. Big NUTS 1 or 2 level regions often cover areas far larger than those a person could traverse to commute to work on a daily basis. Those regions have major premises for self-sustaining economic development such as HEI networks, gateway cities, and governments capable of managing economic development and redistributing benefits of agglomeration economies. We may agree that from the point of view of economic development such a target is a reasonable choice, but such regions often actually cover whole smaller states (for example Lithuania) and have numerous lagging peripheral places, which do not necessarily benefit from the growth of metropolitan regions. In such a case, to analyze residential wellbeing, like in our case, one must deal with smaller regions, within which a person could change a job without changing his or her place of residence and place identity. Usually it means that we must consider areas within commuting distance of an urban centre or, in other words, labour market regions. Finally, if we are concerned with those aspects of personal wellbeing that are related not to income but to direct living environment (both natural and social) and its quality, we must analyze even smaller regions where people actually reside. In this case we actually would have to study socio-spatial segregation within settlements. As our paper deals with economic wellbeing and related spatial mobility, we should concentrate on the areas where actual everyday life takes place (work-leisure-home) or, in other words, on labour market regions. In case of Lithuania it is a municipality, which as a rule is quite a big administrative unit some 40 to 60 km in diameter and with 40-50 thousand inhabitants. There is only one level of municipalities (60 LAU 1 regions) in Lithuania and they are among the biggest in Europe. We should note that labour market regions in Lithuania sometimes stretch beyond administrative borders but it only visibly impacts the biggest cities of Lithuania. Suburban municipalities of metropolitan cities benefit from the labour markets in the centre in the case of Vilnius, Kaunas, and Klaipėda and, to a much lesser extent, in the Šiauliai, Panevėžys, and Alytus district municipalities. As a municipality is formally a local administrative unit, we may say that the analysis should be made on a higher local level (LAU 1), but this of course depends very much on the situation in every particular country.

Having established the spatial level of the analysis, we may now discuss what actually should or could be measured to try to demonstrate the differences of wellbeing at a local level and their consequences. There are currently numerous examples of measurements of various aspects of the quality of life, and many would agree that in every case there are two major problems: either data or their reliability are insufficient, even if we could agree on what should be measured. Quantitative measurements inevitably have these flaws but we may agree that, at least in cases of major spatial differences, some particular data sets could provide a reliable picture of spatial fragmentation of wellbeing, its trends and

some consequences. According to economic logic, the main consequence of these differences should be emigration and a drop in population numbers, especially among the groups which are the most “footloose”. According to the neoclassic economic theory, the decisions to emigrate are mostly influenced by two economic factors – unemployment and wage differences (Abreu 2010; Arango 2000; Stark and Bloom 1985). Authors tend to agree with this logic; however, we expect that this outflow does not result in a sufficient (measurable) increase of wellbeing of those remaining in “losing” places, as it was observed in many cases. The migrations are selective (Ubarevičienė et al. 2016), therefore they can result in even greater differences than before (Boschman 2015; Kanbur and Rapoport 2005). We expect to observe that even extremely numerous outflows from particular Lithuanian municipalities do not result in a substantial wage increase in those areas.

The existing data on places where everyday life takes place (or municipalities in the case of Lithuania) do not make it possible to calculate reliable synthetic indicators of the quality of life. Only some, often interconnected or ambiguous, statistical information is available. There is almost no data on expenditure, price levels, existing property, etc. Survey-based quantitative approaches are very expensive at this level if one needs to cover all municipalities. Such synthetic indicators are used for example by OECD, where each region is measured according to eleven aspects – income, jobs, housing, health, access to services, environment, education, safety, civic engagement and governance, community, and life satisfaction. A score is then calculated for each aspect so that it is possible to compare places within and across countries (OECD 2018). However, even on the NUTS 3 level not all of these indicators are available in Lithuania, and even then only for the 21<sup>st</sup> century. Therefore, for the purposes of this paper, it is logical to use only the two main indices of objective economic wellbeing which are widely perceived as the main factors determining spatial behaviour of population – employment and salaries. Regional differences of change of these indicators should show major trends of change of economic aspects of regional wellbeing, which should then help to explain migration trends.

We will briefly introduce the main trends and destinations of migration flows as the above-mentioned differences of wellbeing are not the only factor generating migration flows in the country. Migration changes not only the number of inhabitants in municipalities (Ubarevičienė et al. 2016), it also results in profound changes of the social landscape in the country. Previous studies indicate changing social structure and growing level of socio-spatial segregation in metropolitan regions. Migration, or spatial mobility, which is the major driver of socio-spatial change in Lithuania, also results in social mobility, as changing one’s place of residence makes it possible. After migrations, people take different jobs and/or get higher education, change their family status etc. During the first decade of the 21<sup>st</sup> century the share of those employed in higher-skill jobs – Managers and Professionals (we use International Standard Classification of Occupations [ISCO] provided by the International Labour Organization: International... 2018) – increased substantially and this increase was especially evident in

metropolitan cities, where the number of such employees grew by more than 50 percent (Burneika et al. 2016). We expect that these processes should be visible also at a national scale outside metropolitan areas. Unfortunately, only data of population censuses of 2001 and 2011 can be used to illustrate spatial segregation trends, so the authors can only show the situation in the first decade of the 21<sup>st</sup> century. It could illustrate trends of post-communist changes, but not the present-day situation. We also understand that spatial segregation (residential differentiation) is an outcome of many processes and migration (not necessary related to spatial differences of wellbeing) is only one of them, therefore we will discuss only briefly the trends in changes of socio-spatial structure (or socio-spatial differentiation) of Lithuanian territory during the first decade of the 21<sup>st</sup> century. We assume that it is changing social structure, and not the number of residents, which could be regarded as the main premise for future development in different regions of Lithuania and in other European countries.

### **Spatial changes of the labour market**

According to statistical data, the employment structure of Lithuania was changing fast until the last economic crisis. Most existing jobs in agriculture and industry were lost and this loss has obviously been very spatially differentiated. Over 0.5 million jobs (or approximately 1/3 of all jobs in Lithuania in 1990) were lost in these two sectors in 1990-2010. This deindustrialization (loss of jobs in industry) damaged the country in the first half of this period, while jobs in agriculture started to disappear fast only in the late 1990s. The growing service sector has partly compensated for this loss (since 2000) but, like in other countries (Hall 1998), these are different jobs in different places. New service-related jobs concentrated in metropolitan centres. We must also keep in mind that there were two major economic crises in the Lithuanian economy during the first period (based on Lietuvos statistikos... 1990, 2001; Statistics Lithuania 2018). Peripheral localities lost over 40 percent of all jobs, while metropolitan areas (MAs) suffered less until the last crisis in 2008-2009 (Fig 1). The post-crisis growth also did not affect areas which are located far from the three major MAs. The fastest growth was evident in suburban and periurban areas of Vilnius, Kaunas, and Klaipėda, which experienced a visible positive impact from the development of central municipalities.

The distribution of unemployment forms quite a similar spatial pattern, as the lowest average unemployment rate throughout the whole analyzed period was evident in areas close to major MAs, while the highest rate was recorded in the municipalities furthest from the MAs (Fig 2). This trend did not change substantially after the crisis, which suggests that being close to major MAs is one of the most important factors of local development. Residents in these municipalities have little opportunity to commute to work on a daily basis and distant MA markets limit the development of jobs in sectors related to these markets. The mapped data also suggest that migration flows should be directed to the three major cities, but as unemployment levels remain quite high, we must



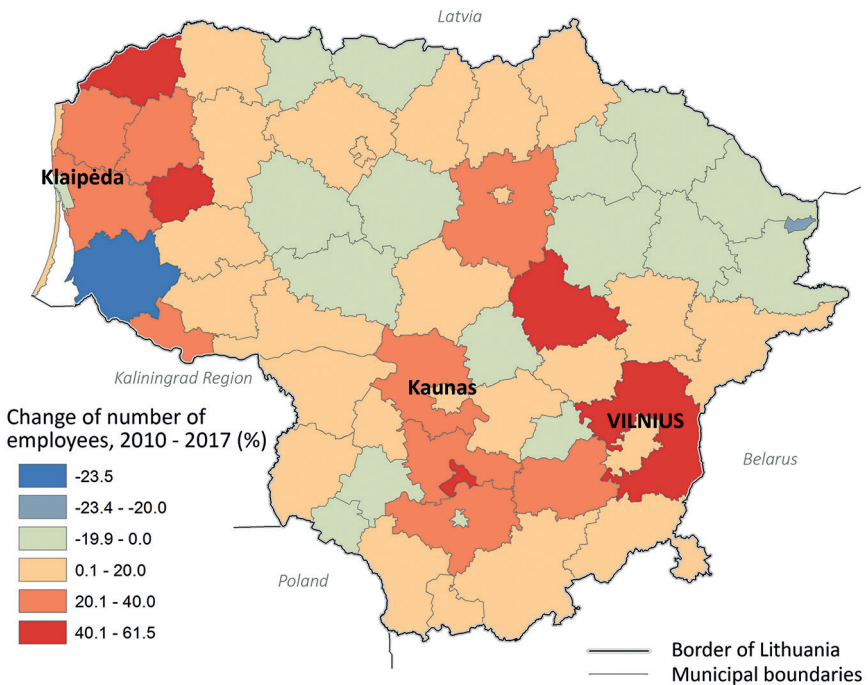
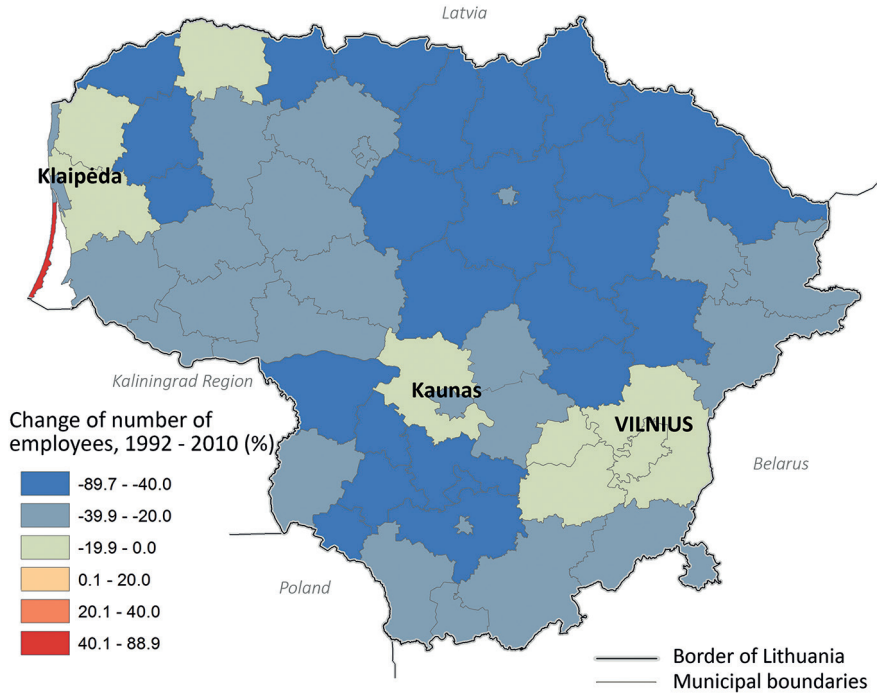


Fig 1. Changes of the number of employed persons in Lithuanian municipalities in 1992–2017 (based on the data of Statistics Lithuania 2018). Authors of the maps: R. Ubarevičienė and D. Burneika.

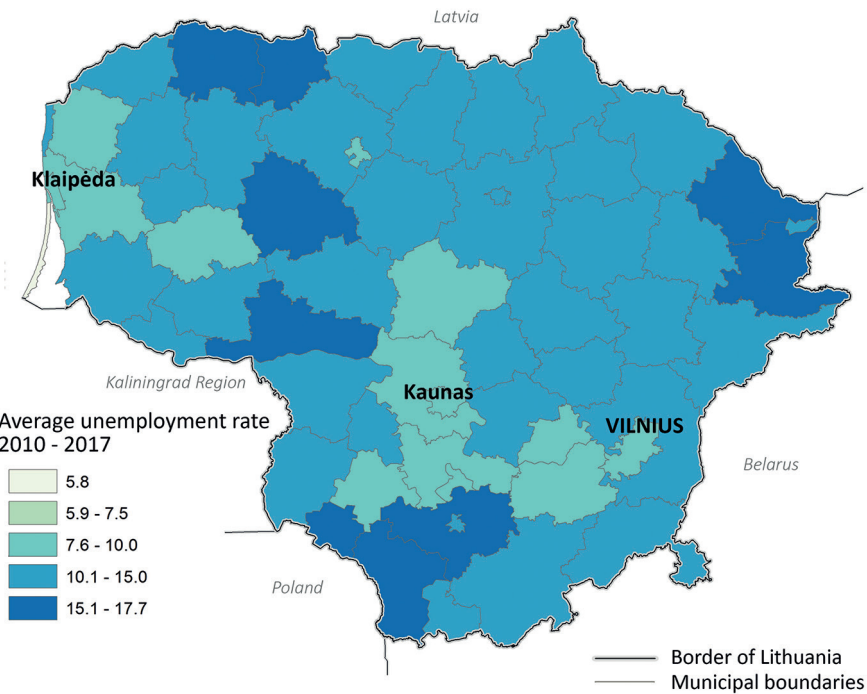
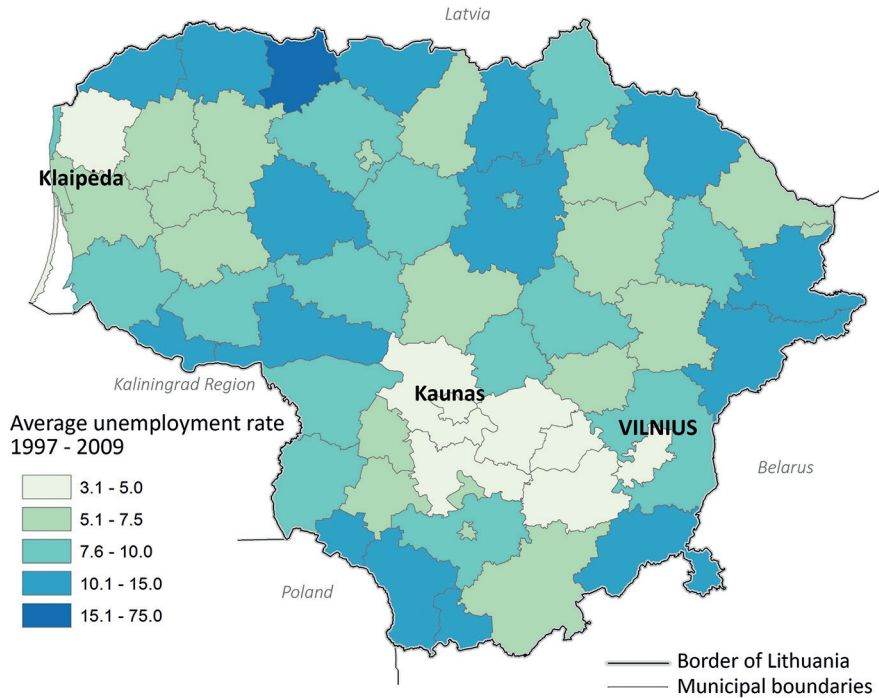


Fig 2. Average unemployment in Lithuanian municipalities in the pre-crisis (2009) and the post-crisis periods (based on the data of Statistics Lithuania 2018). Authors of the maps: R. Ubarevičienė and D. Burneika.



state that migrations do not solve the unemployment problem completely as at least some unemployed persons stay in their municipalities.

The results of the visual analysis of spatial changes in the labour market goes in line with the major trends observed in most CEE and Western countries; however, we must note that spatial concentration of the Lithuanian labour market (agglomeration of jobs) is multi-central in character. There are no obvious signs that jobs are extremely concentrated in the capital, Vilnius, which was probably the case during the first five years of post-communist development, when the city gained the status of the capital of the independent state (and jobs followed). We can also indicate that since then the municipalities that surround the major cities have become the most successful in terms of job creation, which clearly shows suburbanization trends both among residents and industries.

From the point of view of regional wellbeing we may state that the main losers of the post-industrial and post-kolkhoz development are the most peripheral areas, which have lost most jobs in their major economic sectors and were not able to benefit from the growing service economy in the MAs. The distribution of unemployment clearly shows that many residents were not able either to find alternative job or to move out of those municipalities, probably due to their age or stronger attachment (association) to their living places.

The changes of employment rates should also be reflected in spatial differences of average wages in the country. We do not have reliable data on changes in the labour market during the first years of independence, but the situation in 1995 clearly shows that they were crucial in determining the spatial differentiation of earnings (and obviously employment) in Lithuania (Fig 3). All the biggest cities had higher earnings levels, as did the few municipalities which had not lost their soviet industrial legacy, like the oil refinery in Mazeikiai, the fertilizer manufacture in Jonava, or the nuclear power plant in the Ignalina district (Visaginas town). The urban-rural division in wellbeing was clearly visible at this time. The later trends clearly illustrate the three-polar metropolization of the country. In fact, all other "peaks" in earnings have almost disappeared, and the better paid jobs concentrate in just the three MAs. One distinctive example is Klaipeda, which does not seem to have a visible impact on earnings in its surrounding region. It can be explained by the economic specialization of the city, which is closely related to sea port activities. Suburbanization of residents in this case does not lead to a sprawl of jobs, which tend to take advantage of locations that are close to a sea port, which are in this case within city *limits*.

From the situation illustrated in Fig 3, we may conclude that absence of local differences suggests that general structural factors (like changes in economy, technology etc.) were most important in defining trends in the whole country, while personal, individual factors (like effective leadership) or place-bound factors (such as local resources or existing production) were of lesser importance for the development of peripheral municipalities. The Lithuanian society during the last period has almost lost the inherited differentiation on the urban-rural axis, as the differences gain a centre-periphery character even though there is more than one centre.

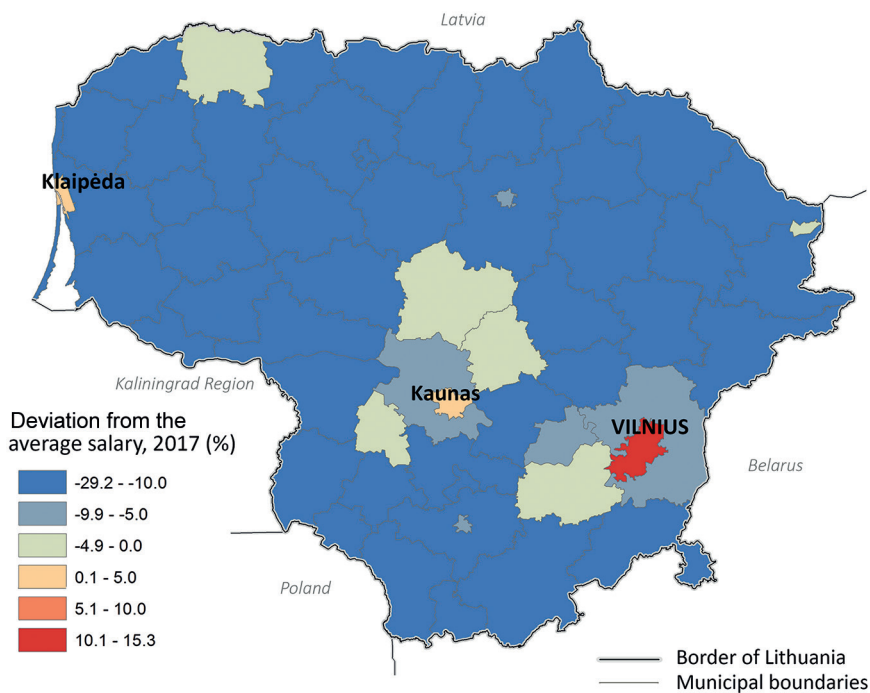
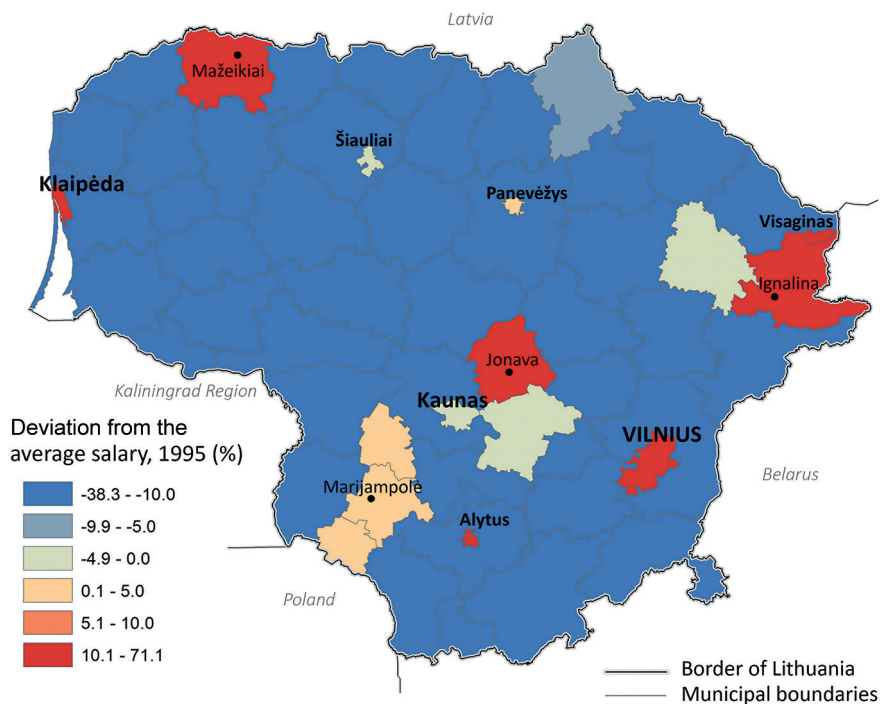


Fig 3. Regional differences of average monthly wages in Lithuanian municipalities in 1995 and 2017 (based on data of Statistics Lithuania 2018). Authors of the maps: R. Ubarevičienė and D. Burneika.

We did not map the data on spatial changes of salaries in Lithuanian municipalities over time, but based on the data of the Lithuanian statistical office (Statistics Lithuania 2018), the fastest growth of salaries in the 1994–2009 period was seen in municipalities surrounding the three major cities, within commuting distance, where earnings were quite low at the beginning of the period. However, the closest suburban municipalities of Vilnius and Kaunas had the lowest rates of wage increases in the post-crisis period. These areas probably suffered the most from the crisis when real estate markets collapsed in the metropolitan centres. The wages grew more slowly also in agrarian middle Lithuania, though the available data do not count wages in individual farms, so the discussed data concerning wage changes can be less accurate in municipalities where agriculture is of higher importance.

Summarising the analysis of spatial changes of wage differences, we must state that there is no clear evidence that wages have been growing much faster in the metropolitan cities (and especially in the capital) in the last two decades. The growth has been different in different places and in different periods, though the least successful municipalities have been the most peripheral ones. The recent changes, however, have not been able to compensate for the differences which already existed in the mid-90s. Although the wages in the most successful municipalities are only 10–15 percent higher than the country average, the fact that they employ the majority of the labour force means that the earnings in most non-metropolitan municipalities are up to two times smaller than in cities. In a sense, residents of the absolute majority of municipalities are in a disadvantaged position when it comes to income, and we may therefore expect to find quite evident flows from the peripheral places which lose jobs and suffer from lower incomes. We may expect that lower living costs could make up for some income inequalities but there is no reliable data on price differences at a local level. Of course, real estate prices are much lower in non-metropolitan areas and this could make a visible impact on economic wellbeing in many places, especially for young families.

### **Spatial mobility – the inevitable result of the changing Lithuanian labour market**

The results of the analysis of employment change shows that many residents of non-metropolitan areas did not have many chances of finding a job (or a new job) in the place they used to live, at least until the recent years. There are only a few possible behavioural decisions in such circumstances and most of them trigger population movements. For those unable to find a job close enough for commuting on a daily basis and not wishing to remain unemployed at home, all decisions amount to more or less permanent emigration. In the borderless EU and with the existing wage differences between its countries, one can expect that many decisions will be in favour of more distant outmigration. We may also expect that the existing wage differences will make another Lithuanian city or metropolitan region not attractive. We also have to have in mind that the dense network of

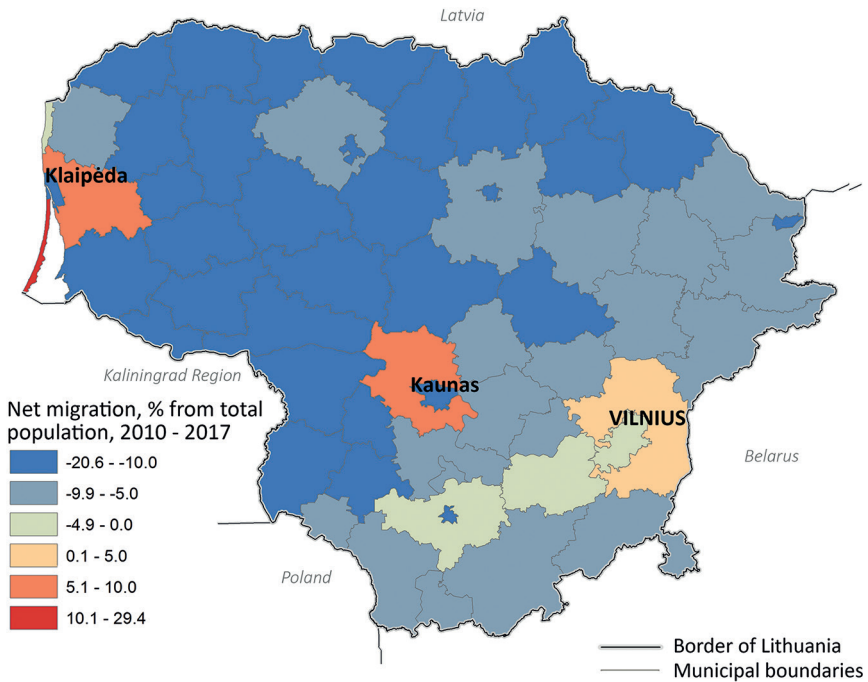
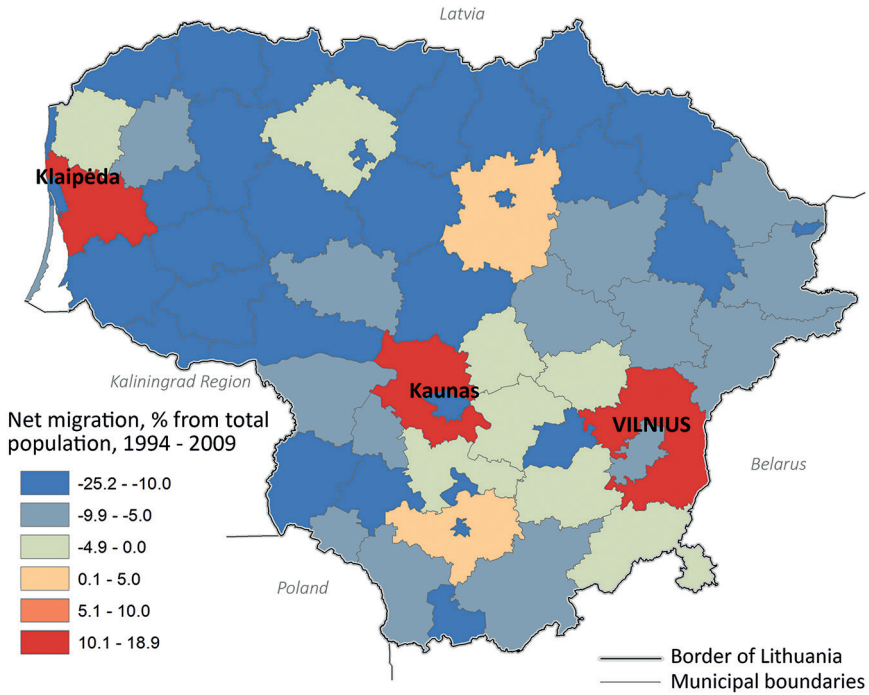


Fig 4. Net migration from Lithuanian municipalities in the pre-crisis (2009) and the post-crisis period (based on data of Statistics Lithuania 2018). Authors of the maps: R. Ubarevičienė and D. Burneika.

medium-sized cities developed during the Soviet era mitigated nationwide inner migrations, and social relations with distant metropolises were weak in many peripheral places. In such a situation, we may expect that locational factors should play an important role in regulating migration flows, as the fastest growing labour markets of metropolitan cities (and especially Vilnius) will have different impacts on migrations in different municipalities.

Fig 4, unsurprisingly, shows that the spatial pattern of net migration basically corresponds to the employment shrinkage map (Fig 1). Most western municipalities lost more than 10 percent of their population during both monitored periods. Suburbs of the three cities were the only areas which were constantly gaining new populations due to migration flows. Pearson's correlation coefficient between the proportion of lost jobs and the emigration rates in municipalities in 2001-2016 reached 0.58. The correlation is not perfect as other factors (like different age structure) influence outmigration as well. The more intense emigration in the western part of Lithuania is due to the higher proportion of younger population there. In non-metropolitan municipalities of Lithuania, higher birth rates in a similar situation on the labour market impacted the number of migrants but not the number of inhabitants. The lowest migration rates in the pre-crisis period were recorded in municipalities located at a commuting distance from Vilnius and Kaunas cities. The most recent situation shows that, apart from the suburban zone, there are no big spatial differences in emigration intensity in relation to the distance of municipalities to metropolitan cities. Less intensive emigration was monitored in the eastern part of the country, where the proportion of younger population was lower, but it was basically the same in all municipalities notwithstanding their actual distance to the capital city.

Although emigration weakens the demographical situation in municipalities to a similar extent irrespective of their location in relation to major cities (apart from the suburban zone), the destination of emigrants is strongly influenced by their location (Fig 5). Previous studies have shown that inner migrations actually have a three-centred character, though Vilnius is the dominant destination for migrants from almost half of Lithuanian municipalities (Shor and Burneika 2017). The eastern municipalities, historically having the closest relations with the capital city, have much lower foreign emigration. The most recent trends show the main problem the country is facing – the municipalities which are losing population due to emigration the fastest have also the highest share of foreign emigrants (except, of course, major cities). Less than a quarter of all emigrants go abroad from eastern Lithuania, and up to 40 percent from the western part of the country. The newest trends also indicate that foreign outmigration continues to intensify in many of the most peripheral municipalities, while the residents of the Vilnius–Kaunas–Klaipėda zone favour inner destinations. We have observed quite a sharp decrease of foreign emigration even in the metropolitan areas, which suggests that departures to non-metropolitan areas of Lithuania are becoming more important and some deurbanization processes may have increased.

Previous studies based on population census data showed that migrations were highly selective. The young, employed in a good job, go to the three metro-regions,



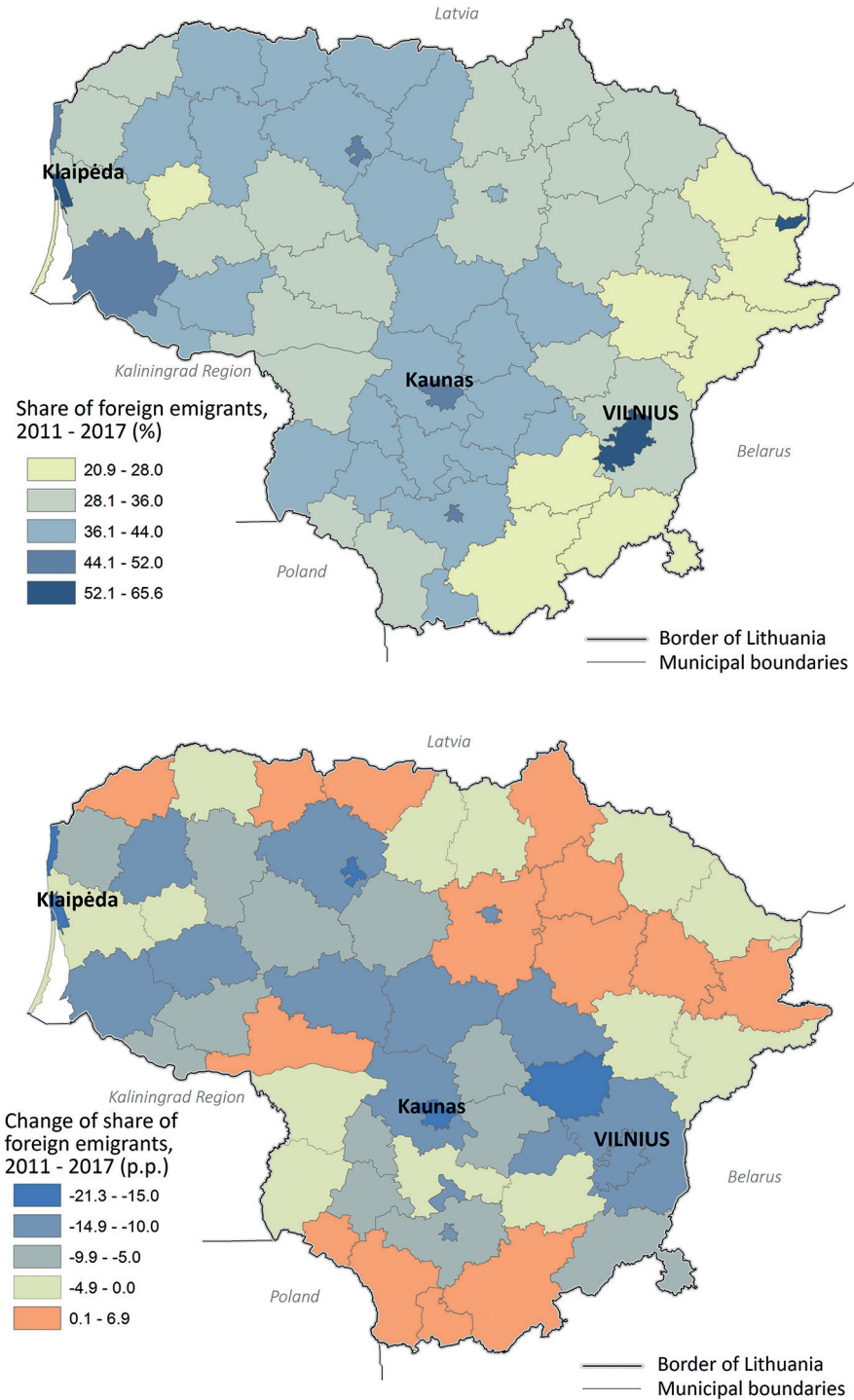


Fig 5. The proportion of foreign migration in emigration flows from Lithuanian municipalities (based on data of Statistics Lithuania 2018). Authors of the maps: R. Ubarevičienė and D. Burneika.



while the older and jobless tend to go to the periphery (Ubareviciene and van Ham 2016). This inevitably results in growing differentiation of the social landscape, which will be discussed in the next chapter of the paper. We may conclude that emigration from non-metropolitan municipalities was the inevitable result of deindustrialization of urban settlements and dekolhozation of agriculture in rural areas. It played a positive role in redistributing the population according to labour market needs; however, as this **adoption** took place inside the relatively borderless space of the EU, many economic benefits of this change could not be redistributed from winning places located abroad to losing ones inside Lithuania (EU cohesion policy could not compensate for this as it did not seek to solve problems at a local level). The economic benefits of inner migration could be redistributed to less favoured regions but such redistribution is dependent on policy and the will of politicians. Not the NUMBER of residents but the changing structure of the population is the main problem of peripheral areas, as – if the migration flows preserve their current structure – the wellbeing of their less mobile residents will depend more and more on the state's ability to redistribute resources from metropolitan areas to the periphery. The outflow of population from peripheral municipalities has basically been the same during the last few decades; however, immigration to peripheral places was substantially reduced. We assume that not the attractive metropolitan cities but the “unattractive” peripheries should be regarded as the main factor in the shrinking population number and its negative structural change.

### **Redistribution of population and changing socio-spatial structure of the country**

The shrinking the number of jobs, smaller salaries and some other objective and subjective factors generating substantial emigration from peripheral municipalities has also made two major impacts on the socio-spatial structure of the country. The settlement structure of the country as well as the social structure of regions and localities is changing fast. Since the collapse of the Soviet Union, the Lithuanian urban system, which had been reshaped during the post-war period by Soviet urban planners, has experienced huge transformations. The country's even network of middle-sized settlements without strong dominance of any single urban centre is under transformation into a new one, more common for small-sized European countries. The three biggest cities, which expanded into metropolitan regions through weakly controlled suburbanization, have become the dominant frame of Lithuanian urban system, and the Vilnius metropolitan region is playing a more and more important role as the dominant centre of migrations (Shor and Burneika 2017). This results in its faster growth in terms of population and economy. However, though the transformations along the centre–periphery axis are obvious (Fig 6), the polarization of the country still preserves its three-polar character, as both Kaunas and Klaipeda play their roles of interregional centres attracting immigrants from areas distant from these cities. Other major regional centres have lost their relative importance. At present, there



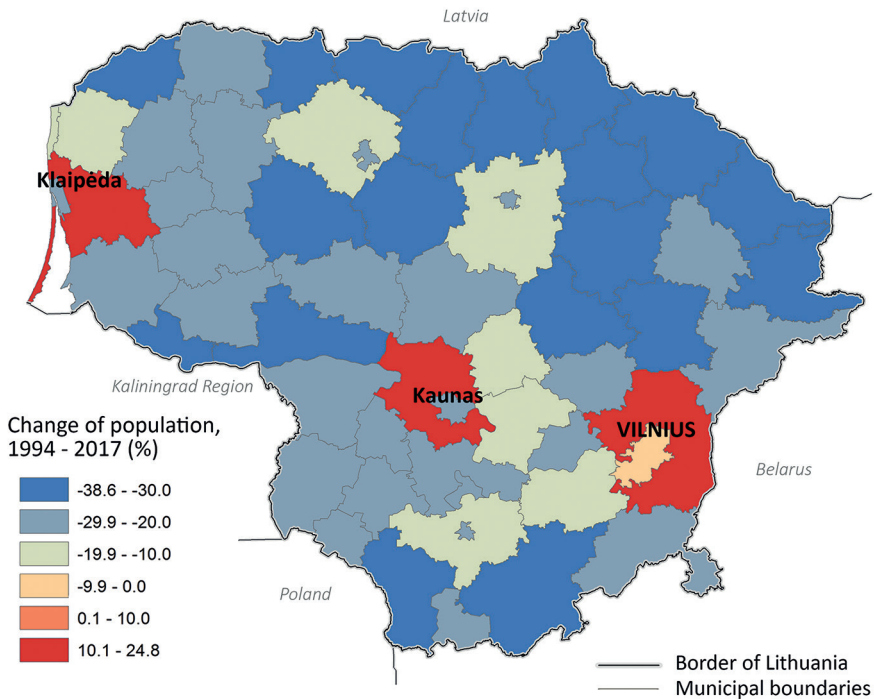


Fig 6. Changes in the number of residents in Lithuanian municipalities in 1994–2017 (based on data of Statistics Lithuania 2018). Authors of the maps: R. Ubarevičienė and D. Burneika.

is no evidence that Kaunas and Klaipėda will lose their positions and it seems that the Lithuanian urban network will remain one of the most even ones among the small nations of Europe.

Keeping in mind the quantity of migration flows, we must conclude that spatial mobility had to cause much more important consequences on the socio-spatial structure of the country than social mobility, which could have played only a secondary role. As migrations in Lithuania were selective (Ubarevičienė and van Ham 2016), one of the consequences of changing the distribution of population should be related to changing residential differentiation. So far, it has been established that profound changes (polarization) of the social structure of the metropolitan areas has been the result of concentration of the economy and population in the metropolitan centres (Valatka et al. 2016). There was an increase of high status groups up to 25-50 percent, and of unskilled workers by approx. 5 percent during the first decade of the new millennium, while the proportion of the middle class was stable. This resulted in a sprawl of higher–middle class suburbs and an increase of socio-spatial segregation of residents inside metropolitan regions and especially in Vilnius, where the index of dissimilarity, representing differences of distribution of managers and unskilled workers in the suburban zone, exceeded 0.40 in 2011 (Burneika et al. 2016). We expected that residential

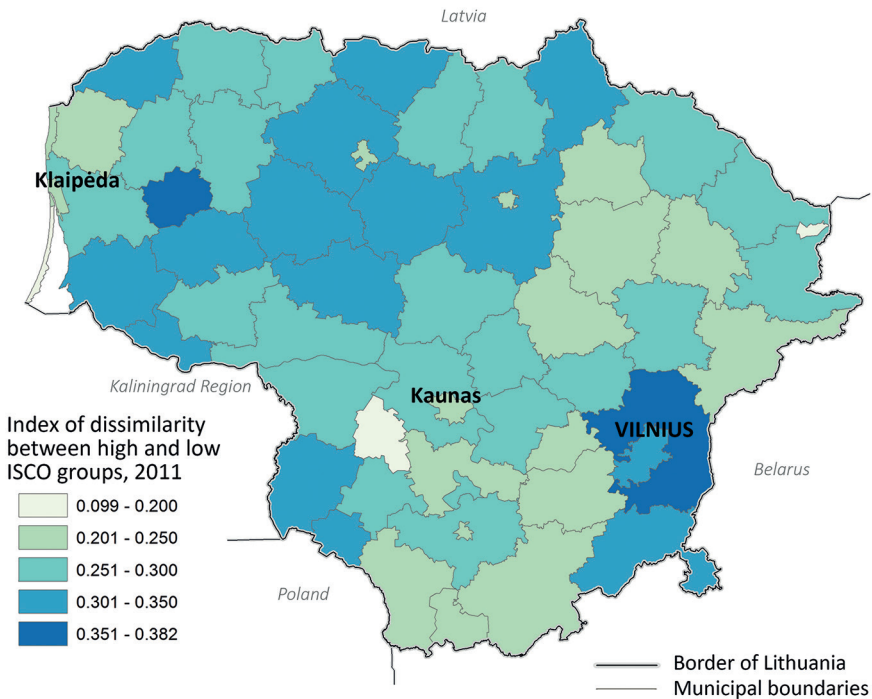


Fig 7. Index of dissimilarity between high and low ISCO occupation groups in Lithuanian municipalities in 2011 (based on data of population census of 2011, Lithuanian statistics... 2018). Author of the map: R. Ubarevičienė.

differentiation in non-metropolitan municipalities could also have risen, but measured indexes were quite low and stable in 2001–2011 (Fig 7). This situation could be the result of the methodology used, i.e. analyzing differences in census tracts which usually involve whole settlements in rural areas, and therefore small-scale differentiation is not visible. The only exception is the Vilnius district municipality, where city suburbs expanded to include its previously economically poor region and it created huge differences in the social structure of census tracts and even LAU 2 regions in different parts of the municipality (its inner and outer rings). The index of dissimilarity in this case exceeded 0.35. We did not analyze the situation more deeply, but spatial differentiation of these social groups is higher in the western part of the country than in the eastern one (except the Vilnius area). Our hypothesis is that this could be related to the differences of the labour market, as in aging eastern municipalities public sector is the main job provider.

The analysis of the change of social structure in different localities of Lithuanian municipalities confirms previous findings (Fig 8). The mapped data of the population censuses of 2001 and 2011 show differences in the changes of social structure of employed population in LAU 2 regions. As it has been stated earlier, we use the ISCO occupation status as proxy for social status, though the link between them is imperfect. Metropolitan areas, and especially their close

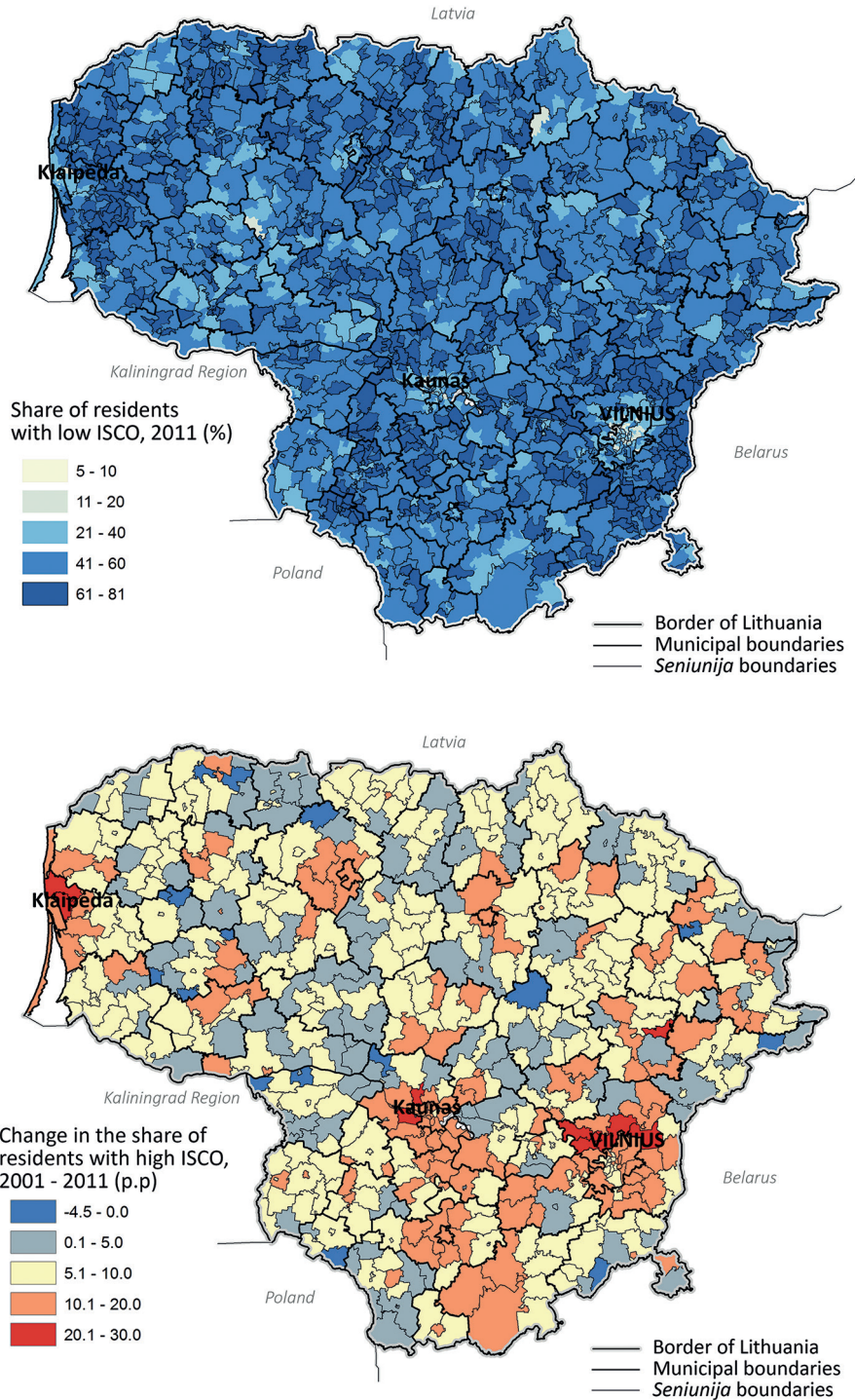


Fig 8. Occupational structure and its changes in Lithuanian LAU 2 regions in 2001–2011 (based on data of the population censuses of 2001 and 2011, Lithuanian statistics... 2018). Author of the maps: R. Ubarevičienė.



suburbs, are concentrations of higher-class residents, while their proportion diminishes in more peripheral localities. The map illustrating the first outcomes of the analyzed processes (situation in 2011; Fig 9, left picture), shows clear differences of distribution of lower-status occupational groups (unskilled and low-skilled workers). Though the index of dissimilarity of higher and lower social groups is quite average across all of Lithuania (Fig 7), the actual situation in different regions is very polarized, especially in the Vilnius and Klaipeda regions. This analysis was carried out at the census tract level. We can clearly identify some periurban areas of MAs which concentrate lower-skilled employees. These areas stretch directly outside suburban rings and concentrate low-skilled occupation groups. Low-qualified workers constitute up to 4/5 of the employed population there. There is less than 10 percent of such workers in centrally located neighbourhoods and suburbs of MAs that are close to the city centre. The situation with high-status occupation groups is the opposite. Differences across Lithuania are also visible, as areas distant from MAs have less prosperous and decreasing social structure (Fig 8). Though the proportion of low-skilled population in some peripheral areas is not very high, it can be easily explained by the fact that most jobs in many peripheral places are related to the public sector. Anyway, even in such areas the decrease of high-skilled professionals is evident, especially in the areas which have the highest emigration rates. The relative decrease in these areas is even higher, as the proportion of higher-status groups has increased in all of Lithuania. This confirms our previous findings about the selective structure of migrations and the impact of this phenomenon on the social structure of peripheral areas. This also goes in line with the findings stressing the negative impact of emigration on human resources in peripheral regions (Boschman 2015; Kanbur & Rapoport 2005), which could damage future perspectives of these areas.

In summary, the impact of emigration on the social structure of the Lithuanian territory is very uneven. The greatest polarization can be observed around metropolitan regions, while most peripheral regions are losing higher-status workers. Such a situation cannot make no impact on future perspectives of regional development of the country. At the moment, we may say that the polarization along the centre–periphery axis will grow, but it will not be the only centre process. Along with Vilnius, also Kaunas and Klaipeda have the potential to grow.

## Conclusions

Migrations, triggered and facilitated by spatial differences of economic wellbeing and other factors, are causing fast changes in the socio-spatial structure of the country. The polarization of the social landscape around metropolitan areas and the decrease of human resources in peripheral regions are the most evident results of these changes. The socio-economic differentiation along the urban–rural axis has lost its importance and the differentiation along the central–peripheral one has become the dominant spatial feature of Lithuanian society. This differentiation however is not developing around a single centre but has a multipolar character

in this small country. This character is probably also due to the fact that the secondary cities of Kaunas and Klaipėda can take advantage of their location as transportation hubs and as service economy centres of middle and western Lithuania. The current trends form the premise for a future development which seems to be the least fortunate for the most peripheral Lithuanian municipalities.

The processes in the labour market and the resulting migrations change the hierarchical structure of the Lithuanian settlement system, which is losing features designed by Soviet-era planners. Three metropolitan areas have started to play the main role and other regional centres have been losing their relative importance very fast. Rising emigration has helped to spatially balance supply and demand of the labour force but has not eliminated any existing differences of economic wellbeing. Recent trends show the existing differences are not increasing, and it is probably migrations that are the major factor of this stability. The main winners of the processes taking place in Lithuania during the last two decades are not the major cities but, on the contrary, their surroundings. The most important consequence of this is however probably related to the future perspective of more peripheral municipalities, as migrations damage human resources and therefore the economic potential and territorial capital of these areas.

As the location of a municipality is one of the most important factors determining the trends of changes of indicators of economic wellbeing in it, we assume that improving communication links with the metropolitan areas should be regarded as one of the main goals of regional development and that it would have a positive impact on business development conditions, the quality of life and attractiveness of municipalities to newcomers. There are no decisive measures which could redirect trends of development of the most distant rural areas, because farms become increasingly concentrated, while alternative jobs in most of these areas can hardly solve this problem, especially having in mind the areas' decreasing human potential.

From our point of view, the most urgent problem related to emigration flows is very high share of foreign emigration from the municipalities which have the most intensive emigration flows. Most of them are located in mid-western Lithuania and have historically weak links with major metropolitan centres (especially Vilnius), which are already facing serious problems with labour supply. There is little sense in fighting emigration from peripheral municipalities altogether, which is a major issue on the political agenda in Lithuania at the moment. Strategies meant to redirect these flows towards Lithuanian metropolitan centres would be much more economically sound. The benefits of concentration of the economy could be used to improve the quality of life in peripheral places, which can potentially become the premise for growth of immigration flows from the metropolitan areas towards a periphery that would have a different social structure.

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