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§ 7.1 Introduction

Almost thirty years ago, Lithuania became independent from the communist Soviet regime. This resulted in large social, economic, demographic and political changes. In addition to the substantial benefits that were brought by the restoration of independence and the 'return to Europe' (Kornai, 2006), major macro-level changes also resulted in extreme population decline. The geopolitical and economic position of Lithuania completely changed: from a relatively affluent and prosperous region in the Soviet Union, it became a relatively poor country on the periphery of the European Union. In parallel, from the receiver of large inflows of immigrants from other Soviet Republics, it started to lose its population due to large-scale out-migration to Western European countries. Today, Lithuania has one of the fastest shrinking populations in the world. Since the 2000s, the average annual population decline has been -1.2 percent (Statistics Lithuania, 2017). As this thesis has shown, population decline, where the main factor is out-migration, has been accompanied by changing residential patterns and increasing socio-spatial inequalities throughout the country.

Until now, there has been very little academic research focusing on the processes and consequences of these socio-spatial developments in Lithuania. Moreover, the extent to which the existing literature properly captures the ongoing processes remains an open question. This thesis set out to fill the current knowledge gaps concerning the recent socio-spatial transformation processes and their consequences in Lithuania. The thesis aimed to contribute answers to the following questions:

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— What are the main features and drivers of socio-spatial change in post-socialist Lithuania?
— Why, despite the growing economy and improvements in the standard of living, is Lithuania facing major challenges related to extreme population decline and increasing socio-spatial inequalities?

'Lithuania Disappearing', 'Lithuania does not stop its decline', 'The threat of emigration', 'The forecast is bleak' – such headlines have appeared on the front pages of the Lithuanian media almost daily in recent years. The focus of this thesis was not on the population decline *per se*, but on the social and spatial consequences that are related to this extreme decline. This thesis has highlighted some of the most problematic trends in socio-spatial development. Its main focus was on four interdependent areas of socio-spatial change: population decline, shifting residential patterns, processes of segregation and spatial inequalities. The emphasis was on the spatial dimensions of these processes. The thesis described the trajectories of the recent socio-spatial developments and examined why the scale and impact of the population change is exceptionally high in Lithuania. The thesis also showed how the Soviet-designed socio-spatial structures in Lithuania have adapted to the market economy environment. This study contributes to the existing literature by integrating the key processes of population decline, migration and segregation, which have been taking place in a rapidly changing post-socialist context. While the focus was on Lithuania, the results of this study will also be of value for other CEE countries, many of which have experienced similar trajectories of change during recent decades.

The dissertation included five empirical chapters, with each chapter presenting different aspects of socio-spatial change and addressing specific research questions. Chapters 2 and 3 focused on the country as a whole. These chapters analysed the geographical patterns of population decline and the role of selective migration on population redistribution and growing socio-spatial inequalities. Chapters 4, 5 and 6 focused on areas where the socio-spatial transformations have been the most intense – the metropolitan regions and, in particular, the Vilnius metropolitan region. These chapters contribute to the limited knowledge concerning the processes of ethnic and socioeconomic segregation in Lithuania. These are also the first studies analysing how the levels of segregation have changed over time in Lithuania.

The remainder of this concluding chapter is structured as follows. Firstly, the main findings of the five empirical chapters are summarised. Section 7.3 then presents an overall reflection and discussion of the research findings. In Section 7.4, the limitations of the thesis are discussed and, finally, Section 7.5 sketches some directions for further research.

Chapter 2: Shrinking regions in a shrinking country: The geography of population decline in Lithuania 2001-2011

While in many countries research is focused on specific cities and regions (e.g. Bontje, 2005; Cortese, Haase, Grossmann, & Ticha, 2014; McDonald, 2014; Wolff & Wiechmann, 2017), little is known about the spatial dimension of population decline on a national level and the local factors determining spatially uneven population change. In this chapter, we examined the geography of population decline within Lithuania and how this decline is affected by a combination of regional characteristics.

In this chapter, we sought to understand why some regions are losing more population than others. We analysed the entire country at a low spatial level (*seniūnija*, corresponding to LAU 2 statistical regions) and investigated a broad set of local factors that potentially determined regional variations in population change, while other studies in Lithuania and elsewhere usually limit the analysis to particular aspects of decline (e.g. emigration) and analyse much larger spatial units. Our study used data from the 2001 and 2011 Lithuanian censuses, aggregated in small regions. We used linear regression to model population change in the regions, including a detailed urban-rural classification and a range of sociodemographic and economic characteristics.

We found great variations in population change across the country. The population decreased almost everywhere, except in the areas around the largest cities, where metropolitan growth is taking place, with some of these areas almost doubling in their population. The sharpest decline in population was in rural areas located further from the cities, many of which have lost close to half their residents between 2001 and 2011. Our results showed that an urban-rural distinction, city size and distance to cities are the most important factors in explaining regional variations in population change. In addition, these variations also depend on the percentage of working-age population, the percentage of high-ranking occupations, and the percentage of university-educated residents in the region. The regions where these percentages are small are shrinking the fastest. An interesting and unexpected finding was that the unemployment levels, as well as the levels of foreign investment, had no significant impact on population change. The results of this study give little hope to those who would like to develop policies to stop the decline outside metropolitan regions. It appears that the geographical location of the regions is a more important factor explaining population change than their demographic or socioeconomic composition.

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Chapter 3: Population decline in Lithuania. Who lives in declining regions and who leaves?

Although many factors (natural population change, internal and out-migration) contribute to population decline and changing population composition, it has been shown that internal migration plays a major role in redistributing population and in growing spatial imbalance (Ambinakudige & Parisi, 2015; Ubarevičienė, 2016). Given a context of extreme population decline and increasing regional inequalities, little is still known about the direction of migration flow within Lithuania, as well as the demographic and socioeconomic composition of such flows. This study was the first to use individual-level geo-coded data from the 2001 and 2011 Lithuanian censuses to analyse internal migration.

The chapter focused on the rapidly declining regions in Lithuania, investigating the characteristics of those who live in these rapidly declining regions, and those who are most likely to leave such regions. Furthermore, the study examined to what extent the historic Soviet-designed settlement system has contributed to the current processes of population redistribution in Lithuania. The results of the regression models showed that low socioeconomic status residents and older residents dominate the population in the rapidly declining regions. Unsurprisingly, younger and single individuals with higher levels of education are the most likely to leave these regions. Among the latter, younger and higher educated individuals are more inclined to move into the metropolitan areas than to non-metropolitan areas. At the same time, however, the most socially disadvantaged groups are more likely to migrate between the rapidly declining regions. Therefore, these regions have been hit in two ways, losing young, educated people, and gaining older, lower educated and unemployed residents. As a result, socio-spatial polarisation continues to grow within the country, with younger people of higher socioeconomic status increasingly overrepresented in the metropolitan areas, and the elderly and residents with a lower socioeconomic status overrepresented in declining rural regions.

Our findings revealed that this double-edged form of selective migration leads to a downward spiral of decline, which becomes a cumulative and self-reinforcing process, leading to further population decline. Although uneven spatial development is typical of many countries, in Lithuania, it is accompanied by extreme rates of population decline. As a result, socio-spatial polarisation is more profound here than in many other countries. Moreover, other social consequences, such as segregation processes, can also be expected to be more profound in Lithuania.

Chapter 4: Ethno-political effects of suburbanisation in the Vilnius urban region: An analysis of voting behaviour

Using the example of the Vilnius urban region this chapter illustrated how recent socio-spatial change has been influenced by the historical and geographical context of Lithuania. Like many other formerly centrally planned cities in Europe, Vilnius is undergoing rapid suburbanisation, a process which started immediately after 1990 (Brade, Herfert, & Wiest, 2009; Cirtautas, 2013; Ubarevičienė, Burneika, & Kriaučiūnas, 2011). Suburbanisation became a significant driver of a change in ethnic composition in the surrounding Vilnius region (Burneika & Ubarevičienė, 2011). This was caused by the flow of ethnic Lithuanians from the city of Vilnius into its surrounding region, which had been dominated by Polish-identity residents. This chapter explored the confrontation of two ethnic groups in the suburbs by studying their voting behaviour.

Numerous studies have noted that ethnic minorities are less likely to vote than the majority population (Bullock & Hood, 2006; Crowley, 2001; Fennema & Tillie, 2001; Togeby, 1999; van Heelsum, 2005). However, if political parties representing the interests of ethnic minorities join the election process, this might mobilise ethnic minority voters to express their political views more actively in order to gain greater socio-political influence (Chandra & Wilkinson, 2008; George, Moser, & Papic, 2010; Wolfinger, 1965). In fact, the vast majority of Polish-identity residents in the region surrounding Vilnius city support the Polish political party, and this region also stands out for the exceptionally high voting turnout.

In this study, we used electoral data from the 1997 and 2011 municipality elections to gain insight into the ethno-political effects of suburbanisation in the Vilnius urban region. The election results showed that the region surrounding the city is dominated by those who vote for the Polish party. However, with the inflow of ethnic Lithuanians, the share of votes for this party is decreasing. At the same time, we observed a stark increase in the absolute number of votes for the Polish party in the zone of suburbanisation. We also found an increase in voter turnout, especially in areas with a higher proportion of Polish-identity residents in the population. These aggregate level findings suggest that Poles are concerned about their representation in the municipal government. We concluded that the Polish-identity residents show increased voter turnout in an attempt to protect their weakening position in local politics. The continuing process of suburbanisation thus appears to pose a threat to the Polish political party's dominant position in the future. Furthermore, the zones of the most intense change in voting behaviour identify areas of potential social tensions between ethnic groups.

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In Chapter 5, we took a closer look at the socioeconomic segregation processes in Vilnius, the capital city of Lithuania, covering two waves of population census in 2001 and 2011. This chapter is a part of a larger comparative study, as reported in a book on socioeconomic segregation in European capital cities (Tammaru, Marcinczak, van Ham, & Musterd, 2016). It is noteworthy that the overall results of the study revealed increasing levels of segregation in all cities except Amsterdam. This is associated with dominant neo-liberal politics and globalisation and therefore increasing social inequalities. The study showed that Vilnius is one of the least segregated European capital cities, while, according to the Gini index, the income gap in Lithuania has constantly been among the highest in the European Union in recent decades (Eurostat, 2017). This contrast attracts special attention to Vilnius.

As an indicator of socioeconomic status, we used the International Standard Classification of Occupations (ISCO) and analysed how the spatial patterns and levels of socioeconomic segregation have changed over time in Vilnius. Several measures of segregation were used to illustrate different trends. The index of segregation, which indicates how evenly occupational groups are distributed across the city, showed a low and stable level of segregation, with a minor trend towards growing inequality in the distribution of the middle and lower occupational groups. The index of dissimilarity, which compares a distribution of two selected groups, showed an increase of spatial distance between lower and higher occupational groups. This trend was further confirmed by the index of isolation, which demonstrated sharply increasing isolation of the higher occupational groups, but decreasing isolation of the other groups. We concluded that this was a result of the residential mobility of more affluent households, which concentrate in the most attractive inner and outer city locations. These findings were further supported by the location quotient maps, which showed the concentration of higher occupational groups in the inner city and the suburban zone.

Our results showed that the historical divide between the relatively rich north and the poor south of the city is deepening. Socioeconomic segregation in Vilnius occurs when market forces work in conjunction with the weak welfare state and there is a limited supply of high-quality housing. The Soviet-era housing estates have become stagnant and are unattractive to younger or more affluent people. The findings of our research imply that the main factors associated with socio-spatial change in Vilnius are related to an exceptionally high share of housing estates (accommodating 70 percent of the Vilnius population) and the polycentric urban system of Lithuania. Furthermore, the concurrent distribution of ethnic minorities allows us to speculate on the ethnic dimension of socioeconomic segregation (further investigated in Chapter 6).

Chapter 6: Socio-ethnic segregation in the metropolitan areas of Lithuania

Ethnic and socioeconomic segregation are strongly linked in most cities (e.g. Clark & Blue, 2004; Tammaru, Kährik, Mägi, Novák, & Leetmaa, 2016). While most social segregation studies focus on capital cities, much less is known about second-tier cities. This final empirical chapter examined the interrelationships between ethnic and socioeconomic segregation in three metropolitan areas of Lithuania, formed by the cities of Vilnius, Kaunas and Klaipėda. The ethnic landscapes in these metropolitan areas are considerably different to each other and this makes their comparison interesting. These are the only macro-regional centres that still have the potential to retain population in the rapidly shrinking country. They are also the main destination points of internal migration in Lithuania. Moreover, their occupational structure has experienced a major shift during the last decades, with a sharp increase in high-status occupational groups. Therefore, we were interested in the effect of these changes on the patterns of socio-ethnic segregation in the metropolitan areas.

This study used individual-level and census-tract level data from the 2001 and 2011 Lithuanian censuses. It investigated whether different ethnic groups (Lithuanians, Poles and Russians) might be associated with different socioeconomic statuses and how this relationship may have changed over ten years. The results revealed a clear relationship between the socioeconomic and ethnic status of the residents of metropolitan areas and, therefore, suggest that ethnic segregation is strongly linked to the general processes of socioeconomic segregation. The findings showed that the higher the proportion of a certain ethnic minority group in a neighbourhood, the higher the proportion of lower socioeconomic status residents in this group. In addition, ethnic minorities often tend to concentrate in less attractive neighbourhoods. The strength of the relationship between socioeconomic and ethnic status varied between the metropolitan areas. In Vilnius, increasing socioeconomic segregation had a clear ethnic element. In contrast, socio-ethnic segregation is slowly diminishing in the second-tier cities. Although socioeconomic inequalities are increasing in the latter, they were not associated with the ethnic dimension.

While the levels of ethnic and socioeconomic segregation are low in Lithuania in comparison to many other European cities, the increasing segregation is noticeable. It is especially evident in the multi-ethnic and most dynamically changing Vilnius metropolitan area, with ethnic minorities found in increasingly disadvantaged socioeconomic positions. The current trends are likely to continue, and there is thus a high degree of certainty that poverty concentration will occur in the near future. Moreover, increasing segregation is associated with social tension. As Chapter 4 illustrated, it is suburbanisation that is leading to changes in ethnic composition and this is resulting in ethno-political tensions between the residents in the surrounding Vilnius region.

§ 7.3 Reflection on the research findings

The framework of the thesis concerned three realms of macro-level change in Lithuanian society: political and economic system change; urban and regional planning policy change; and economic restructuring. These three realms of macro-level change as well as social-spatial changes that they trigger (population decline, shifting residential patterns, social segregation and regional inequalities) were relevant to each of the empirical chapters and their political, economic and spatial planning contexts (Figure 7.1). After summarising the main results of the empirical chapters, this section will analyse the meaning and significance of the main research findings in a broader context.
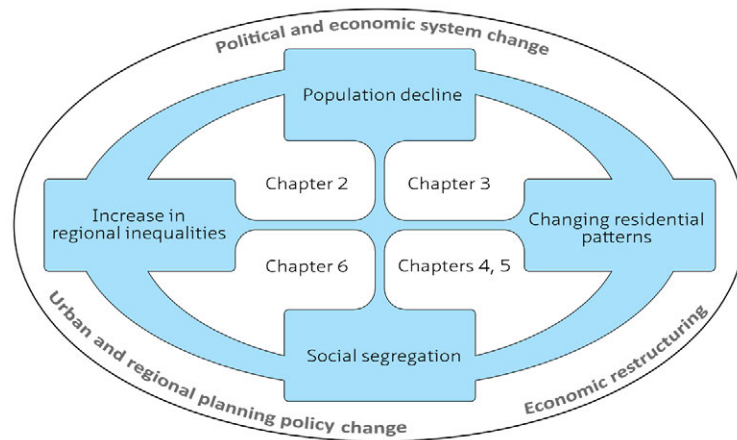

FIGURE 7.1 Structural overview of the thesis

In addition to the different structural layers of analysis illustrated in Figure 7.1, the empirical chapters focused on different spatial scales. Thus, spatial scale was another organising principle of this thesis. Population decline and migration were studied within the country as a whole (Chapters 2 and 3), suburbanisation was studied at the city-region level (Chapter 4) and segregation was studied at the level of neighbourhoods (Chapters 5 and 6). Processes analysed on the various scales illustrated the various effects of socio-spatial change on different spaces and groups in society. An important general finding is that each chapter demonstrated increasing socio-spatial inequalities in Lithuania, regardless of the scale of the analysis.

In Lithuania (Cirtautas, 2013; Krupickaitė, 2003; Vanagas, Krišjane, Noorkoiv, & Staniūnas, 2002), as in other CEE countries (Borén & Gentile, 2007; Lang, Henn, Sgibnev, & Ehrlich, 2015; Schmidt, Fina, & Siedentop, 2015), there is a strong trend towards metropolisation and peripheralisation. However, in Lithuania, increasing spatial inequalities are accompanied by extreme rates of population decline and, therefore, the socio-spatial consequences are more profound compared to many other countries. This can be illustrated by the following example. Three decades ago the network of public amenities was designed for a population of 4 million people and it was fairly evenly distributed across the country. The current population, however, is below 3 million and increasingly concentrated in the largest cities, especially in Vilnius. This process not only involves the spatial redistribution of population, but also significant changes in the composition of the population, in both the population 'winning' and population 'losing' regions. Both types of regions are faced with major challenges and their residents are experiencing adverse, although different, consequences. For example, many schools are being closed in rural areas throughout Lithuania, while there is a shortage of day care services and kindergartens in Vilnius, especially in the suburbs. The residents in the declining regions are also challenged by a decreasing supply of the most basic services, such as grocery stores, post offices, banks and medical services. At the same time, a concentration of population and economic activity is resulting in rising costs of living and increasing real estate prices in the metropolitan regions, especially in Vilnius.

Thus, it is evident that socio-spatially unbalanced development in Lithuania requires significant policy interventions. It is important to ensure that standards of living are sufficiently high and affordable for all residents of the country. However, to date, there is no effective policy response to address the challenges related to increasing regional inequalities in Lithuania. The question thus arises: Is population decline and its consequences being ignored, or do policymakers simply not know how to cope with decline?

The empirical research presented in this thesis confirmed the theoretical proposition that recent socio-spatial developments in Lithuania are still to a large extent determined by the legacy of Soviet planning policies, particularly those related to decentralised development strategies. Therefore, the current trend towards centralisation can be interpreted as an ongoing adaptation of a Soviet-constructed socio-spatial structure to one that is better suited to a capitalist system and a market-led economy. This explains why population decline in Lithuania is tightly linked to changing residential patterns, leading to increasing spatial inequalities. This process is occurring hand in hand with economic restructuring, being both the reason and the consequence of population decline and increasing inequalities.

The results of this thesis suggest there is little hope that current trends in socio-spatial development will soon be set in reverse. The empirical chapters revealed some of the most problematic trends in this socio-spatial development. The results are in accordance with existing theories of regional economic divergence (Capello, 2009; Dawkins, 2003). For example, in line with cumulative causation theory, in Lithuania, many peripheral regions are facing a downward spiral of decline, which has become a cumulative and self-reinforcing process leading to further population decline (Hudson, 2015; Myrdal, 1957). Metropolisation processes in Lithuania, in contrast, can to a large extent be explained by growth poles theory (Perroux, 1955) and agglomeration economies (Puga, 2010; Quigley, 2013).

Our results showed that the most rapidly declining areas are being hit in two ways, as they are both losing young educated people and increasingly accommodating older, lower educated and unemployed newcomers. In the context of extreme depopulation, the metropolitan regions are facing different challenges. They are the only areas that still have the potential to grow, although a decline in the population is evident in the cities' central areas. In this thesis, particular attention was paid to the processes of socioeconomic and ethnic segregation in the metropolitan regions. In Vilnius, increasing socioeconomic segregation has a clear ethnic dimension. It is likely that the current trends will continue, leading to further segregation between the affluent and the poor within the Vilnius metropolitan region. In addition, an example of the resulting ethno-political tensions in the surrounding Vilnius region was analysed in Chapter 4. The continuing processes of suburbanisation, gentrification and professionalisation of the workforce lead us to expect that levels of segregation will continue to increase. Certain policies should be implemented in order to ensure social stability and prevent poverty concentration in the future.

Emigration, which is the main reason for population decline, requires additional attention. Reflecting on the results of this thesis, we can state that high levels of emigration can partly be explained by the Soviet-constructed polycentric urban system and its continuing impact on the urban geography of Lithuania. Such an urban system has resulted in relatively weak social relations between the capital city and the rest of the country. Today, with the trend towards centralisation well underway and people facing the necessity to leave shrinking regions, migration to the capital city or abroad have become equally likely alternatives. For many, emigration to the west of Europe has become a more attractive solution than staying in Lithuania.

Since 2004, when Lithuania joined the EU, the main destination for migration has been Western European countries; in particular, the UK, Ireland, Germany and Norway. Many Lithuanians now have friends and relatives in these countries and, thus, for many, it is becoming easier and easier to make a decision to follow this path. In other

words, an increasingly important role in migration decisions is being played by social networks (explained by social capital theory, see e.g. Coleman, 1990). Although many Lithuanians who live abroad still have links with their homeland, these links are becoming weaker over time. At the same time, their social networks are expanding abroad. Under such circumstances, it is difficult to expect that many emigrants will return.

Emigration has thus very high inertia and is 'out of control' in Lithuania. Migration has become a behaviour of the masses, perhaps even fashionable. Furthermore, emigration has significantly distorted the age structure of the population in Lithuania. Since those who emigrate are mostly young people, emigration also has a significant effect on fertility rates, which are falling (Civinskas, Genys, Kuzmickaitė, & Tretjakova, 2011). As a result, population decline in Lithuania is being followed by an aging of the population. While, until now, the negative impact of population decline and aging has been minimal on the economy, this situation is very likely to change in the near future. A shortage of labour has already started to manifest itself in some sectors of the economy.

Although awareness of adverse socio-spatial development is increasing in both the public and political domains, there are no well-developed plans or strategies to adapt to population decline and increasing socio-spatial inequalities. Most regional planning in Lithuania is still growth oriented. Local politicians and planners do not seem to accept that population decline might be an unavoidable process. It is likely that a relatively stable labour market and overall economic growth are used as an excuse by the government to not take any steps to manage the structural process of demographic change and spatially unbalanced development, leading to increasing regional and social inequalities.

At least some of the existing problems in Lithuania could be solved by means of more effective regional planning. The results of this PhD thesis suggest that more planning is needed on all levels: the country, regions and neighbourhoods. Spatial planning policies – which are currently lacking – could play a major role in dealing with population decline and increasing socio-spatial inequalities. In contrast to popular belief, this thesis argues that population shrinkage is inevitable in Lithuania. It is very difficult to reverse this process and to prevent further out-migration. The challenge lies in maintaining a good balance between the needs of the residents and the financial capacity of the state. In each case, it might make most sense to plan for further population concentration in Lithuanian cities. In declining areas, the most efficient strategy would be to accept decline and concentrate services in accessible regional centres. Greater involvement of communities and citizen participation could also contribute to better living conditions for all. Since residents know their daily

environment and its shortcomings best, this local knowledge could be better exploited and shared with policymakers. The engagement of local communities in decision-making, problem-solving processes or simply in maintaining the environment can lead to a greater resident's place attachment, trust, more social cohesion and better quality of life.

§ 7.4 Limitations of this thesis

Data-related challenges

In this thesis, the emphasis was on the spatial dimension of post-socialist transformation. Until recently, it was a major challenge to do socio-spatial research on Lithuania, due to very limited data availability. When this PhD project started, it was only possible to use cross-sectional data aggregated on municipality level (~50 000 residents in 2011) or LAU 2 regions (~2500 residents in rural areas and 20 000 residents in urban areas in 2011). As this thesis progressed, access was obtained to more detailed census-tract level data (~600 residents in 2011) and, eventually, after a year of lobbying with the help of international support, to individual-level geo-coded Lithuanian census data. This access to individual-level data is one of the major achievements of this PhD project. This thesis is the first to use individual-level geo-coded Lithuanian census data for the whole population.

Although it is the most reliable source of data, census data typically has some shortcomings. These shortcomings limited the scope of the thesis to some extent. Most of the data limitations were encountered in the study on migration (Chapter 3). They can be summarised as follows:

— *Geography.* Although each chapter of this thesis was focused on the smallest possible geographical scale, ideally this scale could have been more detailed. Some important spatial (geographical) information is lacking in relation to mobility studies. Census data in Lithuania does not provide information on intra-urban or intra-rural migration; only those moves involving the crossing of a boundary of a city municipality or ward (LAU 2 region) are recorded.
— *Time-varying characteristics.* Information on individual characteristics is only available for the census date. When we analyse migration behaviour of individuals, we only know their characteristics after they have moved but not before. Therefore, the effects of

time-varying variables such as education, occupation and household status should be interpreted with caution.

— *Motives for migration.* Census data does not contain information on the reasons or motives for migration within the country (although the reasons for international migration are provided). In our study (Chapter 3), we could only interpret migration motives based on contextual characteristics, such as levels of unemployment or labour-market structure in the region. However, personal motives related to education, career development or partnership are no less important than the regional push/pull factors.

— *Income data.* Income level is considered to be the best indicator of social segregation. However, income data was not available at a low geographical or individual level in Lithuania. Occupational data were therefore used as a proxy for socioeconomic status, although the relationship between income level and occupational status is imperfect in Lithuania.

— *Longitudinal overview.* The data for the 2001 and 2011 censuses are currently not linked at the individual level in Lithuania. Therefore, we cannot follow people over time and investigate how their lives change after they move. Ideally, one would have access to longitudinal geo-coded individual-level data to study patterns of socio-spatial change.

— *Census-linked data.* In addition to a longitudinal perspective, more research possibilities would open up if census data could be linked with other registered data, the latter containing mortality and birth records, as well as more precise data on residence and movement. This would be a major addition to the study in Chapter 2, as it would allow us to distinguish between population decline caused by migration and that due to natural changes. Although it has already been demonstrated (Klüsener, Stankūnienė, Grigoriev, & Jasilionis, 2015) that such data linkage is possible in Lithuania, this currently requires quite substantial additional resources.

Data limitations did not allow us to explore more specific research questions that can be addressed in countries with much more developed, advanced and open databases (e.g. the Netherlands, Sweden, Finland and the United Kingdom). As a result, we had fewer opportunities to develop innovative methodologies or theories which need to be tested using, for example, extensive longitudinal databases. This is a limitation not only in Lithuania, but in the wider region encompassing the post-socialist CEE countries. Indeed, researchers studying CEE countries have been accused of not being innovative or contributing to theory formation (Jauhiainen, 2009; Wiest, 2012). This is at least to a large extent related to data limitations.

However, the fact that the statistical database infrastructure is relatively poor in CEE countries can also be turned into some benefits. For example, many aspects of these rapidly changing societies are still unexplored, and thus the demand for research is expected to grow. There is an evident division between East and West Europe in terms

of population decline, wage levels, pensions and social spending (Aidukaitė, 2011; Eurostat, 2017). More balanced spatial and economic development, as well as the prevention of social exclusion, are important goals for the EU. Thus, a good knowledge of various societal and spatial processes is important when addressing issues related to better EU integration.

Vision for the future – 'data dream'

A major challenge for the future will be to overcome the data limitations presented above. This thesis found that internal migration is leading to increasing spatial inequalities and residential differentiation throughout Lithuania. To gain more insight into the underlying mechanisms, the priority must be to obtain longitudinal geo-coded data for Lithuania. Such data will allow us to address more specific research questions, especially those related to residential mobility, thus enabling the investigation of the mobility trajectories of people. Longitudinal data would allow us to examine the formation mechanisms and patterns of residential differentiation in much more detail. In addition, the census questionnaire should be complemented with information on intra-urban mobility. Such an improvement would give us more insight into the processes of segregation within the cities. Another challenge would be to link census and register-based data. The fulfilment of such a 'data dream' would lead to new and better knowledge that could be used for (spatial) policy formation, aiming to reduce the negative social and economic consequences of population decline and spatially unbalanced territorial development. In order to achieve this, the first step should be a strengthening of communication between researchers and policymakers. This 'data dream' must become a mutual concern of both researchers and policymakers.

§ 7.5 Directions for further research

This thesis contributed to the expansion of a previously very limited knowledge about the socio-spatial developments taking place in Lithuania. The thesis highlighted the most problematic trends and enhanced our understanding of some of the more general processes. On this basis, this final section will sketch some directions for further research.

The results of this thesis showed that it is important to put more emphasis on socio-spatially unbalanced development of Lithuania. Socio-spatial inequalities are widening

on different spatial scales: in the country as a whole, between and within the regions, and between and within cities. The processes of residential differentiation and segregation and their effects on different spaces and groups in society need further investigation. It is important to gain more knowledge of these processes in order to implement spatial planning policies that aim at reducing the adverse consequences of population decline and spatially unbalanced territorial development.

More attention needs to be paid to both the declining regions and the metropolitan areas. There is increasing concern about the erosion of human and economic resources in the declining regions. Population decline is being followed by a decline in service provision and employment opportunities and thus worsening conditions for people who remain in these regions. Of the country's area, 41 percent has lost more than 20 percent of the population between 2001 and 2011, and it is a major challenge to ensure the standard of living in these regions remains sufficiently high, but at the same time affordable. Further (qualitative) research should be directed to these areas to investigate the living conditions and needs of the residents. Although the results of this thesis have already provided insights into selective migration, questions such as why people move to declining areas and who they are need further research. At the same time, metropolitan areas are faced with different challenges – high levels of social inequality and increasing levels of segregation. Although our results show that the current levels of segregation are relatively low, there is a serious risk of segregation increasing in the near future, especially in Vilnius. Further research and policy interventions are needed to prevent increasing social tensions.

Finally, comparative international studies should focus on the Baltic States, which share a similar historical and geographical context. Greater cooperation between the Baltic States in creating regional policies, in particular those related to their shrinking cities and regions, is anticipated. Moreover, it can be expected that extreme population decline in Lithuania should trigger international interest in the country. It is rather phenomenal that while the economy of the country is steadily growing and the standard of living is improving, the population is declining and this trend seems to be accelerating. Due to the unusual scale of the socio-spatial change taking place in Lithuania, research in this country could benefit knowledge and expertise on population shrinkage in other regions and countries.

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