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SPATIAL TRANSFORMATION OF THE ECONOMY IN THE POST-COMMUNIST PERIOD: THE CASE OF THE VILNIUS URBAN REGION

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Abstract

Economic transformation has been gaining ground in the former socialist countries of Central and Eastern Europe since the change of system. This descriptive paper explores the locational patterns of enterprise in the Vilnius urban region during the post-communist transition of Lithuania. Cartographical techniques are used to map the changes that took place between 1994 and 2011. The results show a sharp increase in the number of enterprises in the urban core and a very modest increase outside this zone. However, the maps reveal divergent locational patterns for different sectors of the urban economy.

Key words

post-socialist economic development • spatial transformation • Vilnius urban region • Lithuania

Introduction

Major political, economic and social changes have been taking place in the former socialist countries of Central and Eastern Europe (CEE) since the early 1990s (Hamilton et al. 2005; Smith & Timár 2010). The significant impact of these changes has been made possible by the transition from the Soviet command

economy model to a market-led neo-liberal economy. In addition, the rapid technological, economic and social progress that has accompanied the processes of urbanization, globalization and regionalization has further reinforced the on-going transformation. All of these conditions have resulted in large-scale changes in the spatial-economic landscape of the CEE countries during the past

two decades. The economic impacts of the post-socialist¹ period are manifest in the spatial transformation of enterprise in the Vilnius urban region as well.

Given the nature of the communist regime (e.g., the absence of a land market and private property) and the principles of central planning underpinning this regime (controlling the size and hierarchy of cities, restricting suburban growth, giving priority to agricultural development, etc.), it is obvious that the economic changes had to be radical in order to switch from one political system to another. It is also clear that those economic changes initiated spatial changes as well. In the meantime, we expect that the transformation has taken different courses in different spaces. One of the most significant features of the post-socialist period is urban expansion in the form of suburbanization (Kok & Kovács 1999; Nuissl & Rink 2005; Leetmaa & Tammaru 2007; Novak & Sýkora 2007; Ouředníček 2007; Tammaru et al. 2009). The process included residential as well as economic development. Like many other cities, Vilnius did not spread out in empty space: its growth has transformed rural areas into urban ones and introduced “urban economies” into the surrounding rural region (Parysek & Wdowicka 2002; Stanilov 2007; Burneika & Ubarevičienė 2011; Schmidt 2011). Changes also occurred in the inner cities of the post-socialist countries, where they upgraded and enriched an existing urban context. In this paper we expect to find a widening geographical distribution of economic activities and a significant increase in the number of economic subjects in the Vilnius urban region since the early 1990s.

The paper explores the spatial impacts of the change of system on the economy of the Vilnius urban region. This paper is of descriptive character where we do not intend to carry out serious conceptualizations, but to present the case study of Vilnius. The aim of this paper is to describe the variation in its post-socialist

economic development and then show how the distribution of economic sectors has changed over time. Our study expands upon the territorial concept of the ‘urban region’ instead of the administrative notion of the ‘city’ because of the wider perspective it offers on the geographical nature of our topic. The description is focused on trade and traditional services, business services, industry and non-market (non-commercial) services. The analysis concerns primarily how the locational pattern of enterprise developed during the post-socialist transition period. Using data from various sources and applying cartographical techniques, we mapped the changes that took place between 1994 and 2011 in the Vilnius urban region.

Vilnius city-region: Outcome of sprawl

The rise of city-regions is a distinguishing feature of spatial development in post-socialist countries (Borén & Gentile 2007; Sýkora & Ouředníček 2007). A city-region comprises a functionally and spatially integrated system in which the core city is one of the main factors of socio-economic development in the surrounding area and vice versa (Jonas & Ward 2007; Harrison 2010). City-regions have recently become the leading zones of concentration in advanced economies (Scott 2005; Marvin et al. 2006). Nowadays city-regions are widely regarded as being the most important nodes of global and national economic activity (Hanell & Nielsen 2002; Parr 2010).

This evolution is illustrated by the case of Vilnius. Political reforms in the 1990s made it possible for the Vilnius city-region to emerge. During the Soviet period, there was a policy to reduce the dominance of large cities by developing regional centers (Enyedi 1996; Šešelgis 1996; Tammaru 2009). The goal of spatial planning, according to Gentile and colleagues (2012: 292), was to “annihilate social, economic and regional differences and inequalities, effectively pushing for complete social, economic and spatial homogenization over time”. As a result, the

¹ The term ‘post-socialist’ and ‘post-communist’ are used interchangeably in this paper.

territory of Lithuania was more or less evenly developed by the end of the Soviet era. Although the major cities tended to wield economic power, they had little influence on the development of their surrounding areas. For instance, the region surrounding Vilnius had by far the worst economic indicators at the end of the Soviet period and for some time afterwards (Burneika et al. 2013).

A new stage of spatial development began right after the collapse of the Soviet Union. A free market economy and a process of privatization liberated the previously constrained growth potential of the large cities. This allowed Vilnius to expand very fast, provoking uncontrolled sprawl whereby residential as well as commercial areas encroached on rural land (Ubarevičienė et al. 2011; Cirtautas 2013). The process of residential suburbanization is illustrated in Figure 1. Eventually, the boundary between urban and rural areas became blurred. By the same token, various functional interdependencies evolved

between the city and its surrounding areas. Accordingly, the spatial system that has taken shape over recent decades constitutes the Vilnius city-region.

The territorial concept of the urban region is very apt to an analysis of social and economic phenomena in a rapidly changing urban context. We apply it here to analyze a territorial unit that functions as a coherent spatial-economic system and resorts under the direct influence of the city of Vilnius.

Vilnius urban region: Delimiting the study area

In order to explore the spatial aspects of the economic transformation in Vilnius we first have to establish the limits of the study area. For our purposes we use a simplified scheme depicting the structure of the Vilnius city-region (Fig. 2), as elaborated by Ubarevičienė, Burneika and Kriauciūnas (2011). The size and zones of the city-region were determined

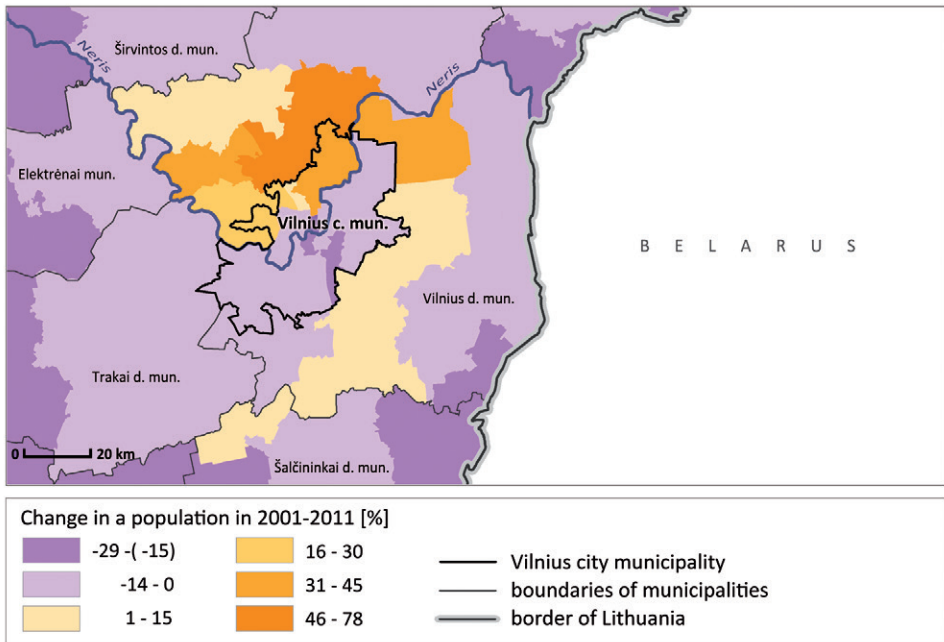


Figure 1. Urban sprawl of Vilnius
Source: based on data from Statistics Lithuania 2011.

using several indicators (intensity of traffic flows, patterns of suburban transportation, land prices, redrawing of city limits) as well as direct observation during field trips. Two spatial concepts are important in this paper. The wider concept of ‘Vilnius city-region’ (otherwise called Vilnius functional region or metropolitan region) is interpreted as a functionally united spatial system with an integrated social, economic and natural environment: in other words, a city and its hinterland. According to Parr (2010), a city-region represents an area that has emerged as a result of continued peripheral urban growth. The narrower one is ‘Vilnius urban region’. We interpret the latter as a territory where residents of the city permanently live and work. The urban region reaches beyond the administrative city limits to coincide roughly with the zone of suburbanization. Although it is not a purely

urban space, urban landscapes, lifestyles and perceptions are evident here. Three structural zones can be distinguished in the Vilnius urban region:

- ‘Core city’, or completely urbanized area, without any objective or subjective features of a rural landscape.
- ‘Middle part’, mostly consisting of an urban landscape where urban lifestyles and perceptions predominate but rural features are still clearly visible.
- ‘Peripheral part’, dominated by a rural landscape, where the influence of the city is gradually increasing, albeit negligibly at the outer edges.

The scheme in Figure 1 served as a basis for our further research. It shows which areas experienced vigorous or less intense influence of the city during the post-socialist period. In other words, it illustrates the intensity

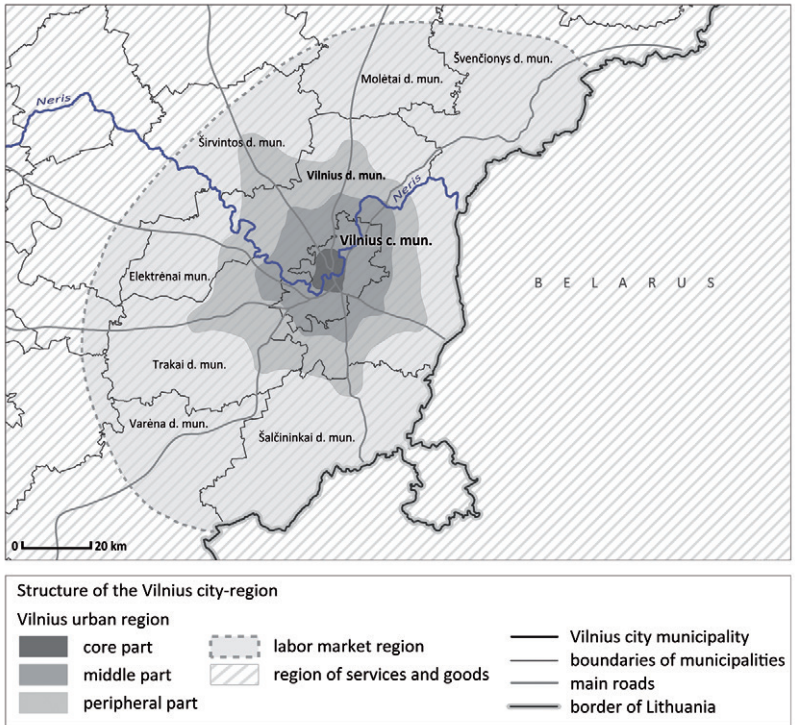


Figure 2. Simplified structure of the Vilnius city-region
Source: elaboration by Ubarevičienė et al. (2011).

of the rural-urban transformation, where the influence of Vilnius city declines with distance. In the empirical part of the paper we will analyze the economic changes that took place in the specified areas.

General trends in the post-communist transformation of the economy

Numerous studies have shown that the post-socialist economic development in the CEE countries favored their capital regions (Stanilov 2007). According to Smith and Timár (2010), "Economic growth has tended to be spatially concentrated in core city regions, most notably the rapidly expanding capital-city regions where the model of capitalist transformation centred on the inflow of Western capital and banking investment was concentrated". Growth in the capital regions has accelerated in recent decades, accounting for disproportionately large shares of their respective countries' economic development (Hanell & Nielsen 2002). The emergence of city-regions and the processes of metropolization in Lithuania resemble the experience of other post-socialist countries (Borén & Gentile 2007; Šykora & Ouředníček 2007; Grigorescu 2012; Jacobs 2013). The spatial, economic and social development was more intense in the Vilnius city-region than in the rest of Lithuania, so this region soon became the core area for the country's economy (Burneika & Kriauciūnas 2005; Ubarevičienė et al. 2014).

Many impulses have propelled economic development in the CEE countries during the past two decades. The transition from a Soviet command economy to a market-led neo-liberal economy had a major impact at the beginning of the transition period (Samonis 1995). Eventually, world-wide trends such as deindustrialization, growth of the tertiary sector, globalization, competition and technological progress played a role. Most Western countries had seen a sharp decline in manufacturing and robust growth in services (especially business services) since the early 1980s. As a consequence, the urban space was transformed,

with the deindustrialization of the central cities being the most prominent change (Hall 1998). Meanwhile, the attractiveness of suburban locations drew growing numbers of people and jobs to the suburbs (Massey 1988). Similar trends were observed in post-communist countries since the early 1990s, as they rid themselves of much of the inefficient socialist industry and developed modern economic sectors such as business services. The capital cities, which serve as the main gateways to the CEE countries, had a higher potential to attract investments, so they became the headquarters of nation-wide companies. The spatial network of many enterprises has become denser, expanding alongside the urban sprawl. The most important locational factors are now efficiency and profitability, which were almost non-existent criteria in the Soviet era. Improvements in transportation and connectivity have also contributed to the spatial transformation of the economy.

There is no doubt that the Vilnius urban region is now the core area of the country's economy. Yet it should be kept in mind that the transition had generated uneven development within the region. In that light, the post-socialist spatial-economic development of the Vilnius urban region may be characterized as the transformation (conversion) of an old urban structure and the spatial expansion of the urban economy through suburbanization. We expected to find that each separate activity had its own rules and patterns of change. Based on our literature study, we assumed that the transformation in the Vilnius urban region is similar to that found in other post-socialist countries (where industrial areas in the inner city are shrinking while the service sector is growing), but we also expected the unique local context to play a role.

Data and methods

The period between 1995 and 2011 was selected for the analysis of the post-socialist economic transformation in the Vilnius urban region. Data for the early 1990s is sparse in Lithuania, as in many other post-socialist

countries. A register of businesses was not generally kept at that time; even if one existed, it is no longer available. Therefore, we used indirect sources such as brochures and maps. The earliest data we could find that would be suitable for our analyses dated from 1994 and 1995. For the sake of consistency, data for 2011 were collected in a similar way – using the online catalogues of the companies, maps and spatial planning documents. We present the results of our study in two formats. First, we give the number of key enterprises in different economic sectors for 1995 and 2011 to gauge the quantitative change in the economy of the Vilnius urban region. Secondly, we present the distribution over time of selected enterprises in the field, which we consider representative, to indicate the spatial shifts in the companies' location during the period studied.

The character of the economic transformation of the Vilnius urban region in relation to the spatial development of the city is analyzed in terms of changes in four key sectors of the urban economy:

- trade and traditional services,
- business services,
- industry,
- non-market services.

As mentioned above, our study expands upon the territorial concept of the urban region, which offers a deeper understanding of economic development associated with a rapidly changing urban context. However, there are some concerns about this conceptual approach, given the insufficient or unavailable statistical information on this area.

Results

Trade and traditional services

Unlike most old capitalist countries, where trade and services gradually evolved in a market economy, the CEE economies had experienced significant and long-term disruption because of the communist regime. The development of this sector was highly constrained under the command economy. The situation started to change on the eve of the political

reforms, and profound economic transformation speeded up right after the collapse of socialism in 1990s. Standl (2003) attributed these changes to three factors: 1) transition of the real estate and land market; 2) transition of ownership structures (privatization); and 3) general economic conditions (internal and external). The transformation was both qualitative and quantitative, which means that the structure, content and territorial distribution of the economic activities had changed (Kostinskiy 2001).

According to a variety of indicators, trade and traditional services is a leading sector in the urban economies of developed countries. Not only does it account for the highest proportion of gross value added but this sector also creates the largest number of workplaces and it has the largest number of enterprises. According to the figures for 2011, traditional services accounted for 37.5% of all companies in the Vilnius city municipality and 41% in the Vilnius district municipality (Statistics Lithuania 2011). In both of these jurisdictions this sector ranked the highest. It has created around 32% of gross value added annually in recent years.

Table 1. Number of enterprises in trade and traditional services in Vilnius in 1995 and 2011

Activity	1994	2011
Supermarkets	24	52
Fuel stations	8	121
Hotels	27*	131
Restaurants and cafes	46*	-700
Pharmacies	24	120

* – data of 1995

Source: own calculations based on data from Information-Advertising Catalogue Vilnius (1995), Vilnius in Figures (1995, 1996, 2002), Stanaitis (2010), Statistics Lithuania (2011).

The changes that occurred in the service sector during the past two decades are evident. Although the most intense transformation happened at the beginning of the post-socialist period, change continues up to the

present day. During the period 1995-2011, the number of enterprises of all types increased substantially (Tab. 1). For example, by 2011 there were nearly five times as many hotels; and by then the number of restaurants and cafes as well as fuel stations was about 15 times higher. Only nine beauty salons and 12 private dental offices were included in the business directory in 1994 but by 2011 there were more than 300 altogether, which means around 30 times more. Such a sudden expansion of business can only be explained by the rapid change in economic conditions and by quick adaptation to a new market environment. However, the external factors conducive to growth in the tertiary sector, such as technological progress and changes in human needs, were also substantial.

Given the abundance of economic units, it would be a challenge to map all the spatial changes that occurred in the trade and traditional services sector during the past decades. Instead, an indicator could be selected to reveal the general trends of the spatial transformation in this sector; one of the best

candidates is the change in the supermarkets' distribution (Fig. 3). Of course, it is not accurate to compare the major shopping centers of Soviet times with modern multifunctional ones, but our intention is simply to discern general trends in the spatial development of the sector. Therefore, we included only the largest of the currently present supermarkets (which, indeed, are still much bigger and offer a much wider variety of goods and services than their Soviet predecessors). We counted 24 supermarkets in Vilnius at the beginning of the post-Soviet period and 52 in 2011 (if only the largest, multifunctional ones are included). During the same period the floor space of the commercial area increased by more than six times.

The rapid pace of urban sprawl could have initiated sprawl in retailing, although our study does not confirm such a trend. The highest concentration of supermarkets today coincides with the core of the city. The same was true for supermarkets existing early in the post-Soviet period. It should be noted that most of these early supermarkets were located

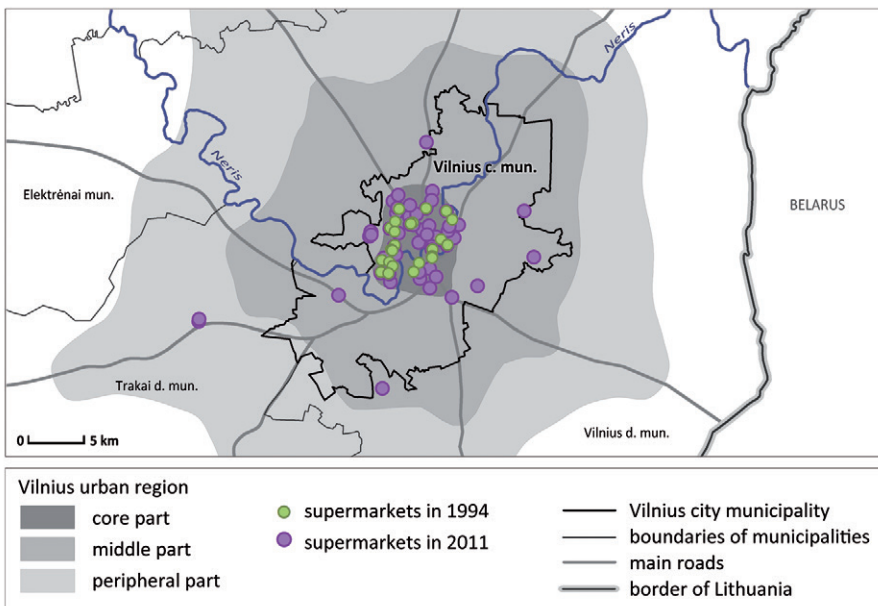


Figure 3. Change in the supermarkets' distribution in the Vilnius urban region in the period 1994-2011
Source: based on data of Vilnius city plans (1991, 1994), Retail centers (2011).

in the densely populated Soviet-built 'micro-rajonės'. Although the network of supermarkets expanded considerably during the period of interest, they remained concentrated in the core area. Most of the sites of the former Soviet-era supermarkets were subsequently occupied by modern new shopping centers. Very few shopping centers were established outside the core of the city or beyond the administrative city limits. In 2011 there were two supermarkets in the peripheral part, seven in the middle and 43 in the core of the Vilnius urban region. It should be noted that the size of the current supermarkets (included into this analysis) do not differ depending on their location. Although we did not map the changes that occurred in the location of the fuel stations, hotels or other kinds of services, to our knowledge, their distribution remained concentrated in the core and middle part of the city. Our field studies confirm that the suburban developments remained highly monofunctional areas with a very weak network of retail services. Kiosk-type shopping points were the most common economic establishments until 2011. Looking at the very recent situation, after the crisis period, we see that various retail services are now emerging in the suburban areas (these recent observations were not included in this analysis).

To sum up, the post-socialist development of trade and traditional services had much more influence on the transformation of the inner city (especially the core part) than on the outer city. The 'suburbanization' of this sector did not take place in the Vilnius region, which amounts to a major difference between Vilnius and most West European cities.

Business services (business-to-business)

Here we consider business services as services provided to companies or organizations but not intended for a final consumer, although many of these facilities are also used to serve individuals. Traditionally, b-to-b is regarded as one of the most important components of the modern economy of metropolitan cities (Hall 1998). This sector comprises a range

of financial services (banking, insurance, accounting and auditing, investment activities), advertising, management consulting, brokerage and, to some extent, communications as well as computer services. Though these are very important services in the present globalized economy, the field was almost entirely new in the early post-Soviet period. Substantial changes in the ownership structure allowed private companies to appear and develop according to Western standards. In recent years, business services have been creating around 22% of the gross value added annually in Vilnius city.

The extent of the development of the business sector in the Vilnius urban region is illustrated by the increase in the number of enterprises (Tab. 2). Business services were rudimentary in the Soviet cities; the change started right after the transition to a free market economy. The number of enterprises engaged in different activities had increased considerably since 1994 (an even greater increase would have shown up if we had figures for 1990). According to our data, the greatest change occurred in accountancy and auditing, where the number of enterprises had increased by more than 50 times. The number of banks and insurance companies had increased by four to five times between 1994 and 2011.

Table 2. Number of enterprises in business services in 1994 and 2011

Activity	1994	2011
Banks and their units	22	77
Insurance companies	16	72
Advertising agencies	47	454
Accountancy and auditing firms	9	482
Economic and business consultancies	103	518
Investment activity	30	402

Source: based on data from Information-Advertising Catalogue Vilnius (1995), Business directory (2011), Lithuanian Yellow Pages (2011), Statistics Lithuania (2011).

In order to trace the general trends in the spatial transformation of business services, we mapped the territorial network of banks and insurance companies for 1994 and 2011 (Fig. 4). We selected these types of enterprise for the analysis because of their importance in modern economies but also because of their relatively small presence in the city, which reduces our expenditure on the cartographic analysis. While 38 banks and insurance companies were present in Vilnius in 1995, this number had increased to 149 by 2011. All of the companies found in 1995 were located within the core of the Vilnius urban region. As Figure 3 shows, their concentration increased considerably in the urban core area during the post-socialist period, so the companies are now spread rather evenly within this zone. Concentration in the downtown area is no longer characteristic of this sector. Its expansion towards the periphery has been limited: 125 enterprises were located in the core and 24 beyond this zone in 2011. In total there were 16 enterprises outside the administrative city limits (half of them in Trakai). Overall, the spatial changes in the business services sector were quite similar to those in the trade and traditional services sector. This is not a surprise, since the business services in general are tended to cluster in the downtown locations all over the world. The fact of the post-socialist transformation has no significant influence on the spatial distribution of these services.

Industry

A major sector of the urban economy in most cities under the communist regime was industry. It occupied a significant part of the urban space, even in the old town. While West European countries embarked on intensive deindustrialization around 1970, industrial development was still a high priority in the CEE countries at that time. Technological development and intensive growth of the service sector were the main factors underlying the structural and spatial transformations of industry in the capitalist countries. However, these

transformations were delayed in the CEE countries – they started 20 years later, when radical political and economic reforms were introduced (Kiss 2004). The industrial sector of the CEE countries eventually began to develop along the same lines as in the old capitalist countries. Nonetheless, according to Kiss (2007: 147), “the transformation has been condensed in time, resulting in a much more profound and dynamic restructuring of the CEE cities compared to their Western neighbors”. The collapse of the Soviet system had affected the industrial sector in a variety of ways; in the present discussion, however, we are only interested in the territorial impacts.

All of the post-socialist cities, including Vilnius, inherited an industrial plant dating from a period when location (in the inner city) was almost irrelevant as an economic parameter (Kostinskiy 2001). During socialist times there was no incentive to increase the efficiency of production or to allocate central locations to other kinds of activities (even to a service sector establishment, for which a central location is essential). Extensive land use, poor production quality, energy inefficiency, increasing market competition and other challenges created unfavorable conditions for many industrial enterprises. It was hard for companies to survive, especially in the central parts of the cities, after the political reforms of the early 1990s.

In general, the trends in the transformation of industry in the Vilnius urban region were similar to those in other post-socialist cities. There, the main feature was a decline in industry’s relative importance in the urban economy (Potrykowska 1995; Ernst et al. 1996). The decline in Vilnius is clear from general statistical figures: industry is now creating around 15% of GVA in Vilnius county, while it constituted approximately one-third of its economy right before the 1990s (Statistics Lithuania 2011). There were also significant changes in the number of employees in industry; more than half of the jobs disappeared.

Figure 5 depicts the spatial changes in the industrial sector between 1994 and 2010. Industrial zones covered almost 2000 ha in Vilnius

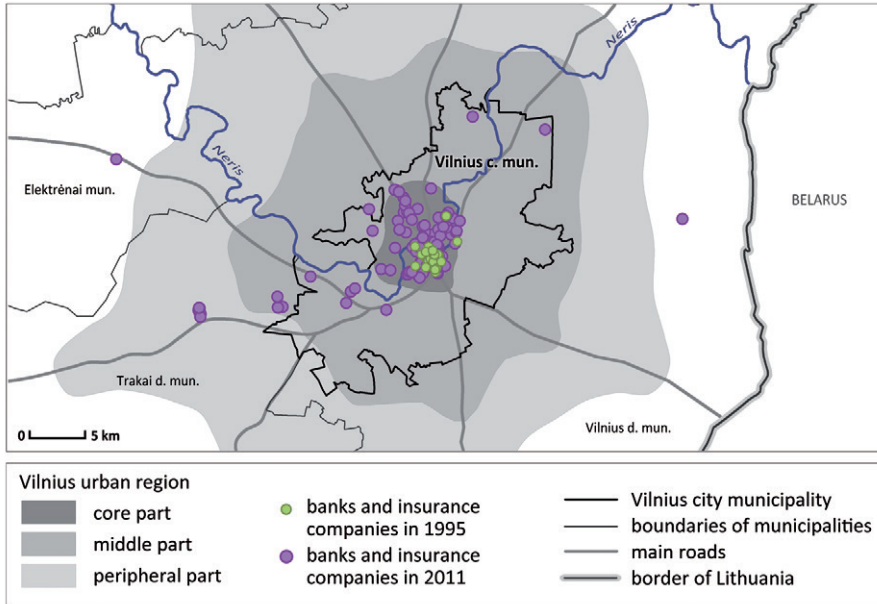


Figure 4. Change in the banks' and insurance companies' distribution in the Vilnius urban region in 1995-2011

Source: based on data of Information-Advertising Catalogue Vilnius (1995), Lithuanian Yellow Pages (2011), Business directory (2011).

city in 1994; by 2010 they occupied around 1600 ha or 12% of the built-up area. There are plans to transform another 570 ha of the industrial zones to other uses by 2025. Deindustrialization of the core part of the urban region was the most characteristic feature of urban transformation in Vilnius. As Figure 4 reveals, almost all former industrial sites vanished from the central part of the city between 1994 and 2010 or were under conversion at the end of the research period. A very few exceptions could be seen at the edges of this zone (Fig. 4, bottom). Deindustrialization did not affect the southern industrial part of the city where the transport infrastructure is concentrated (Fig. 4, top). Industrial function even increased there and new industrial zones were under development. Though a detailed analysis of deindustrialization processes was not among the tasks of this paper, we must state that both the bankruptcy of the former Soviet manufacturing enterprises (machinery, first of all) as well as the relocation of the former

factories (food processing, furniture manufacturing) were driving those changes. Traditional manufacturing became less profitable in the central locations comparing to other economic activities, and was overshadowed by them. Some former industrial areas in the core part were substituted by the housing establishments, but the majority of them were commercialized and service sector enterprises dominate there at the present. Even though industry was located in relatively small pockets there, it used to represent a significant part of the urban structure. Industrial restructuring in the central part of Vilnius remains a focal point of the city planners.

While the industrial zones are gradually shrinking in the core, the opposite is happening in the middle and, especially, peripheral parts of the urban region. It is interesting that most of the new industrial zones were established within the territory of the Vilnius city municipality, while they were not planned outside it. Meanwhile, the majority of individual

industrial enterprises appeared outside the city limits, where the land supply was much greater. In some places they are already forming vast industrial agglomerations. A peripheralization of industry was most likely a result of two different processes. First and less important one is the relocation of previously centrally located enterprises, which remained profitable. A very few cases of such relocation could be found (food processing and furniture

manufacturing can be mentioned among those). An establishment of new factories and various industry related facilities (e.g., warehouses or logistic parks) was much more important factor. It is mostly foreign capital enterprises or industries associated with existing R&D facilities. The individual enterprises have spread throughout the region, with the highest concentration lying on the outskirts of the city, particularly to the north.

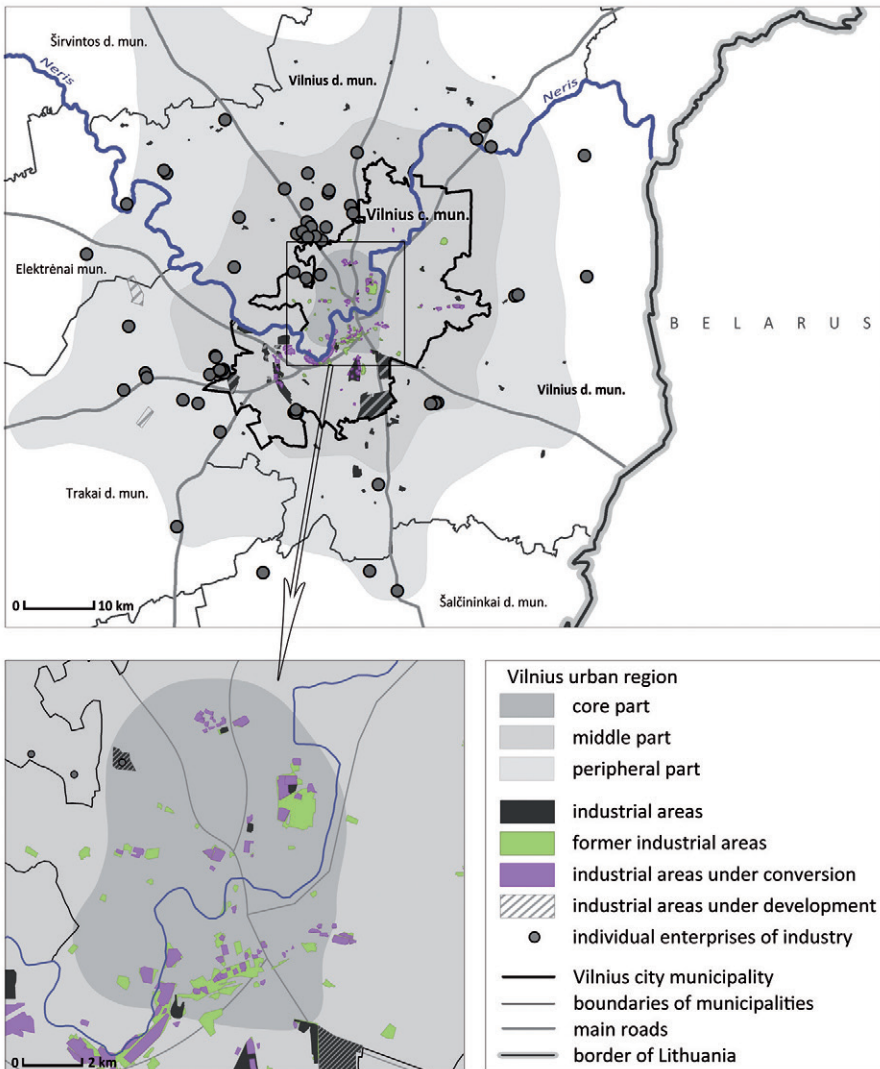


Figure 5. Change in the distribution of industrial areas in the Vilnius urban region 1991-2011
 Source: based on data of Vilnius city plan 1991, 1994; VGTU 2008; SIVP 2007; UAB 2007.

Our findings suggest that the industrial sector was able to successfully adapt to a dramatically changed situation. The conversion of the old industrial areas (especially in the city center) and the sprawl of industrial enterprises in areas outside the city were the main features of the post-socialist transition. These are trends that transitional economies have in common with West European capitalist countries. We may summarize that changes of the city's urban structure were driven both by the reforms that were specific for the CEE countries and by the process of deindustrialization, which was delayed here. Although the changes that occurred in the Vilnius urban region over the past two decades are significant, some sites are resistant to redevelopment. Economic reasons, poor planning and other causes prevent implementation of effective industrial conversion in many places. Indeed, the inner city still has many derelict or partially transformed industrial sites.

Non-market (non-commercial) services

Economic activity of a fundamentally different nature falls under non-market services, which are designed to support social needs rather than generate income. The non-commercial sector creates around 17% of the gross value added in Vilnius city nowadays. It includes social services such as education, healthcare, culture, public administration, law and order and defense. Development in this sector is determined by the government's capacity to plan effectively and adapt to the changing socio-economic situation. It is hardly affected by the forces of a free market. The social infrastructure has to respond and adjust to the needs of society in order for the city to be effective. This is particularly important in countries undergoing rapid change in their demographic, economic or social structure. In this case, we could expect those customer-oriented services to adapt their spatial structure in line with the radical shifts in residential patterns around the Vilnius urban region.

Over the past two decades, this sector has experienced minor changes compared to other

economic sectors in Vilnius. There are several reasons. First of all, the network of the social infrastructure was already well developed during the Soviet years. Secondly, the development of non-market services entails additional costs (which are usually lacking in the public sector) while it does not guarantee additional income for its organizers, which reduces the motivation to take any action. Moreover, this sector lacks any real competition, an impetus that could encourage development or progress. Therefore, most of the inherited social infrastructure has remained in operation and has been adapted to meet the new needs. Although the structural changes have been substantial, the political reforms had no significant effect on spatial changes in the social infrastructure. In some cases (e.g., public healthcare system), networks have even been shrinking as facilities in the most central and most expensive locations are closed. Almost no dispersal of public services took place outside the urban core zone. It should be emphasized that there were significant changes in the demographic and social structure in the Vilnius urban region, which means that the network of the social infrastructure eventually ceased to coincide with the needs of society. Very few new kindergartens and only one new elementary school were opened in suburban areas; their scarcity contributes to the increase of commuting flows towards the city center. The growing bureaucratic sector remains, unsurprisingly, concentrated in the downtown area. Development of most public services has stagnated, and together with the rapid urban sprawl this has resulted in a weak integration between the new urban territories and the city.

Conclusions and discussion

The combined effects of major political, economic and social transitions and general inter-regional and global development factors have resulted in a large-scale transformation of the economy and caused the spatial-economic landscape of the Vilnius urban region to change rapidly and radically. Though similar driving forces created quite similar spatial

conditions in all post-communist countries, local development factors inevitably play their role, and every city is unique, at least to some extent.

The aim of this study was to gain insight into the spatial aspects of the post-socialist transformation of the economic landscape in the Vilnius urban region. To our knowledge it is the first attempt to analyze the post-socialist transformation of different economic sectors in relation to the spatial development of the city-region. For this purpose, we employed the concept of the urban region, which can be used as a conceptual framework for research on various urban, economic and social phenomena. It can also help to analyze processes in different sectors and to forecast trends in their development in the near future. Different trends in spatial development in such mutually dependent sectors as housing and retailing, or housing and public services, might indicate certain problems with economic development or weaknesses in planning and regional policy. Such spatial trends could also point to locations where investments should be encouraged and new jobs created.

According to our findings, the economic transformation in the Vilnius urban region showed great spatial variation. At the same time, different sectors of the urban economy had different trends in spatial change. The service sector tended to transform an existing urban space and to increase the network of the enterprises in the urban core; it barely spread to the middle and peripheral parts of the region. Meanwhile, the former industrial areas were disappearing from the city center, whereas new industrial zones and manufacturing companies emerged in the middle and peripheral part of the urban region. We found that individual industrial enterprises represented the only economic activity that accompanied the sprawl of residential areas, while other economic sectors remained concentrated in the core zone. An insignificant spatial and structural change, or even decline, was found to have occurred in non-market services, which suffered from the strict, often conservative and badly financed policy of planning.

From a geographical point of view, our results showed that the pace of urban sprawl was much more rapid demographically than economically. It is also clear that the economic sectors managed by a free market economy are more capable of adapting to the changing situation than those sectors that are operated by political structures. On the other hand, the poorly planned, chaotic and very rapid demographic sprawl of Vilnius has resulted in a relatively low residential density in most of the suburban zone. Moreover, retailing has not found a place in the peripheral parts of the urban region. This study has charted developments up to the year 2011. However, some new trends only began to emerge since then. Notably, the sprawl of business has intensified in the peripheral part of the Vilnius urban region, while some of the 'empty' spaces in the inner city are finally being put to use for various business activities.

Although this study has some limitations and lacks a deeper consideration of the factors that influence certain processes of change, it does shed light on the main trends in the transformation of the economic landscape in the Vilnius urban region. The results of this research could contribute to efforts toward sustainable urban planning (especially the regulation of urban sprawl) and to further development of the spatial economic system. This study has also demonstrated the importance of analyzing the development of inter-municipal areas, particularly urban regions with a weak system of planning and regulation.

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Unless otherwise stated, the sources of tables and figures are the authors' on the basis of their own research.

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