Original scientific paper

SOCIO-ECONOMIC INDICATORS OF THE UKRAINIAN LUTSK CITY DEVELOPMENT: DYNAMICS, TRENDS, AND SOME PARADOXES

Svitlana SALNIKOVA[a], Oleksandr KHANIN[b]

[a] Taras Shevchenko National University of Kyiv, Department of Methodology and Methods of Sociological Research, Associate Professor. Address: 03127, Hlushkova Avenue, 4d, Kyiv, Ukraine. E-mail: sv.salnikova@gmail.com
[b] Lesya Ukrainka Volyn National University, Department of Algebra and Mathematical Analysis, Associate Professor. Address: 43025, Voli Avenue, 13, Lutsk, Ukraine. E-mail: aleks.hanin@gmail.com

Cite this article: Salnikova, S., Khanin, O. (2022). Socio-Economic Indicators of the Ukrainian Lutsk City Development: Dynamics, Trends, and Some Paradoxes. *Deturope,* 14(1), 189-211.

Abstract

The decentralization reform in Ukraine allowed the territorial communities to develop their Strategies of Development. The long-term planning should be based on an analysis of the socio-political state of the community and its socio-economic indicators. For analyze the socio-economic indicators of the city of Lutsk (2008–2018) in the main spheres of its life, which allow the study of various urban systems and control over their development according to management strategy involving citizens in urban planning, the sociological and statistical data for the certain period were used. According to sociological data, residents of Lutsk reoriented themselves from material problems to more important needs of a social, political and professional nature. The statistics demonstrate an improvement in a number of the economic indicators of its development, negative demographic trends and some paradoxes of public services. Sociological data and statistics demonstrate the primacy of resolving some of the issues related to the quality of human capital in the cooperation of scientists, city authorities, business and the public sector.

Keywords: Budget revenues; Education and Health Expenditures; Population Forecasting**;** Urban Development; Ukraine.

INTRODUCTION

One of the successful reforms in Ukraine - the decentralization reform - allowed the local communities to independently manage most of the revenues. When planning the annual budget, the local authorities were faced with the problem that some projects could not be implemented in the time indicated by the budget; therefore, plans for the future should be made. Long-term planning or the so-called Strategy of Development should be based on the indicators of socio-political condition of the community and its economic indicators. At the same time, it is necessary to take into account not so much current indicators as their dynamics over a definite long period of time - forecasting is always based on the trends.

The formation of development strategies for particular cities or territories is not something new for Ukrainian realities, but the efficiency of such strategies is a big question. Many of them are “good intentions” because they do not rely on scientific analysis and do not imply specific indicators to measure the efficiency of its implementation. Thus, it is necessary to study well enough the vital functions of the city before proceeding with the formation of its Strategy of Development. This article is the study to achieve this understanding with the goal of developing a strategic development plan for the city of Lutsk (Salnikova, 2018; Salnikova, & Khanin, 2021).

The study of the local case is also significant for another reason. Rapid urbanization and technology-driven development strengthen the role of the city; in particular, the city becomes the key actor in a globalized world (Nordström, & Schlingmann, 2014). Thus, both the city in particular and the network of cities in general are the subject of research in other conceptualizations (Farias, Bender, 2011; Gere, 2018), and comparable knowledge about each city will be extremely necessary.

So, «New European Union’s policy seeks to cultivate complete urban policies», because «Urban regions are the driving forces of Europe’s economic development, they are centers of creativity and innovation and also, they are the factor of the achievement of “Europe 2020” strategy» (European Commission, 2018).

The significance of the cities is also evidenced by the Intercultural cities program from the Council of Europe, whose participants are more than 140 cities in the world since 2008. Lutsk is also a participant in this program, within it is possible to compare not only the state of the urban environment of the participating cities, but also the features of their development, borrow interesting experience, coordinate development goals, etc. (Kuznetsova, 2016; Council of Europe). The Lutsk case study is one of many studies of urban centers that have recently been conducted at an international level more and more intensively (Delitheou, & Georgakopoulou, 2019; Deng et al., 2018).

THEORETICAL BACKGROUND

The conception of smart city development, which is also being implemented in Lutsk (Fedoniuk, & Fedoniuk, 2018), requires a holistic strategy of urban development, as smart city ideas despite its great potential for development are based on individual innovation (Czupich, Kucherenko, & Riznyk, 2020). D. Balashov links strategic development with city branding through the “unite efforts of the city government, residents and entrepreneurs” and demonstrates the success of such an institution on the example of cities London and Lviv

(Balashov, 2019, p. 149). Other scholars consider the conception of marketing city to be the best alternative to the traditional approach to urban development (Seisdedos, 2004; Dril, Galkin, & Bibik, 2016). The conception of sustainable urban development is more comprehensive one (Tsenkova, 1999; Haughton and Hunter, 2005). According to the sustainable development conception, environmental (named as urban metabolism conception in (Gonzalez-Garcia, Manteiga, Moreira, & Feijoo, 2018)), social, and economic indicators (Salnikova, Khanin, 2021) must be integrated into urban planning processes at different levels (Pavlikha, Voichuk, 2019, p.12).

This research was conducted in framework of two urban research directions: (1) the study of various urban systems (transport infrastructure, healthcare, education, ecology, urban economics, human capital, etc.) with (2) the involvement of citizens in the urban planning process. Alas, classical theories do not have sufficient explanatory potential; the concept of the city as a space of breaking traditional social ties (mainly the European approach, G. Simmel (Simmel, 1903), M. Weber (Weber, 1958), et al.) is not applicable to small cities with a traditional way of life (there are many such cities in Europe, and Lutsk among others); the concept of the city as an interconnection of social communities (the American approach, in particular the Chicago school – R. Park and E. Burgess (Park, & Burgess, 1925), L. Wirth (Wirth, 1938), et al.) leaves out the research space the physical space interconnected with social space is much stronger than it seems. A city ~~is~~ does not mean separately people, buildings, transport, landscapes, schools, etc., it is their relationships and resources, and communities located in the physical space, and everyday practices ordered in a certain way, etc. Even ordinary food consumption as a powerful social institution, according to a study by C. Steel (Steel, 2009), can tell us a lot about the city and its inhabitants. But there are not so many research cases of "understanding" of the city (e.g. Laing, 2016; Jacobs, 1961; Gehl, 2010; Owen, 2010).

The study of the urban environment in order to make a long-term development program for the city of Lutsk is not a new research direction for the authors of the article. Previously, attempts were made to form such a document; the authors of this article were also involved in the process. But long-time managerial and political instability did not contribute to long-term planning, and attempts were unsuccessful, but they left some groundwork (Salnikova, 2018; Salnikova, & Khanin, 2021) and launched the topic of strategic planning into public discourse. "Involvement of residents in the urban planning process" (see above (2)) requires knowledge of the social space of the city and an understanding of "how" and "what" the inhabitants of the city live, such knowledge we receive as a result of sociological research.

Although the first indicators of the city's readiness for changes were recorded back in 2010, their clear focus was formed in 2014–2016 (Salnikova, 2017). And while Ukrainian society under conditions of total anomy (Salnikova, 2014) was changing very slowly, the Russian-Ukrainian war in Eastern Ukraine exposed the problems and accelerated the "recovery" process. The conclusions obtained on the basis of the data of monitoring the social well-being of the townspeople more than predispose that the urgent, sometimes radical, changes in the city be launched. The methodology for studying the social well-being is interesting in that it determines those social benefits that are most in demand; at the same time, the methodology demonstrates the situation in different social spheres (Golovakha, & Panina, 1997). We also use this approach in the analysis of socio-economic indicators of the development of the city. It is important that the concept of social well-being is key for J. Stiglitz in the study of competitiveness in urban development planning; somewhat later, he also concludes that the focus should be on "attributes and freedoms that people value" and "the importance of a number of features that go beyond command over resources" (Stiglitz, Sen, & Fitoussi, 2009, p. 42).

The results of the monitoring "Social well-being of Lutsk Residents" (2008–2018) show that before the war, the townspeople were interested in the benefits of basic necessities: proper nutrition, employment, health, vacation, etc. But in the period 2014–2016 they reoriented to individual benefits – initiative, self-dependence, decisiveness, ability, knowledge, etc. In addition, the most demanded benefits in recent years are stability in the state and society, confidence in improving the situation in the country, managers capable of governing the state, the state protection from lower living standards, etc. (Salnikova, 2017, p. 105). Thus, the poor social well-being of residents of the city of Lutsk is associated with problems of the state, not local, level; the townspeople need specific individual qualities to refine their well-being. But the most important indicator of the demanded changes is the appearance in 2016 among the most insufficient benefits of the following one - the norms and values that unite people in the state and society. This is the realization by Lutsk inhabitants that double institutionalization, double morality and norms do not allow the state to develop, and that such a double burden on interpersonal relations does not contribute to the progress of trusting relationships, which means interaction, openness, and innovation. Only general and agreed rules / norms / values can be the basis of those interpersonal and social relations that will allow society to get out of the "anomy peak" and develop. And when the society is ready, and until it has received a new political disappointment, as it usually happens a year after each election, it is worth reflecting the changes.

The sociological survey "Main Directions and Prospects of Development of the Lutsk City" (2016) is also one of the important aspects of the social diagnosis of the urban environment (Salnikova, 2018). This study exposed the demographic problem associated with the outflow of youth and the need for special social inclusion of people of mature age.

In addition to sociological research data, statistical data are also necessary; in particular, the city authorities are interested in the making of a Strategy of Development with a scientific basis for its main directions. Here, researchers turned to the definition of approaches to creating a strategy and found that there are many directions and traditions. For example, Mintzberg, Ahlstrand, & Lampel (2005) distinguish two groups of strategies, each consisting of several research areas or schools.

Management strategies: The Design school: strategy as an attempt to meet internal and external capabilities (based on SWOT analysis); The Planning school: formation strategy as a formal process based on quantitative presentation of goals (Ansoff, 2007); The Positioning school: developing key strategies based on competitive advantage (Porter, 1998).

Descriptive strategies: The Entrepreneurial school: formation a strategy based on foresight, intuition; The Cognitive school: formation strategy as a mental process of cognition; The Learning school: formation strategy as an informal learning process for solving partial problems; The Power school: formation a strategy based on the use of influence, including political; The Cultural school of: formation a strategy based on organizational culture; The Environmental school: formation a strategy in response to the external environment; The Configuration school: formation a strategy as an organization transformation, moving from one sustainable state to another one.

If the formation of a Strategy of Development is in the focus of research and practical interest, then "Strategy and Strategists" by Cunningham, & Harney, (2012) will be most useful.

Formation a strategy that would formulate measurable goals and a time frame for their achievement was a fundamental task from the city authorities. Therefore, *management strategies* were the basis for a Strategy of Development. Such strategies involve processing a large array of quantitative indicators, identifying on their basis certain trends, relations, positive and negative factors of development, etc. Here we cannot refer to the variety of sources used, except for the Main Department of Statistics in the Volyn region (State Statistics Service…, 2019) and internal documents of the Lutsk City Council[20].

[20] https://www.lutskrada.gov.ua/

DATA AND METHODS

Data sources

Sociological and statistical data used in this study as its empirical base.

Reforming any sphere means changes, as a rule, decisive and cardinal. The population can react differently to changes; its reaction often depends on the degree of readiness of society itself to change. Therefore, the measurement of socio-political indicators by sociological means is very important. For this purpose, we used the secondary data from the urban monitoring "Social well-being of Lutsk Residents" (2009–2018) and the sociological study "Main Directions and Prospects of Development of the Lutsk City" (2016), conducted by the Sociological Research Laboratory (SRL) of Lesya Ukrainka Eastern European National University[21] (Lesya Ukrainka EENU).

Data analysis

Indicators of economic activity of the city are also important. For the purpose of their analysis, data as separate documents on the main spheres of life of the city of Lutsk (2008–2018) were provided to the researchers by the different departments of Lutsk City Council, based on the analysis of documents, the authors identified relevant indicators and formed data arrays in the .xlsx format; some free access data were obtained from State Statistics Service of Ukraine (2019). The results of data analysis were discussed at scientific and public events. In particular, a round table and a conference at the university and some meetings at the city council, and local television broadcasts, etc. were held on the topic of this project.

The **purpose** of the article is to analyze the socio-economic indicators of the city of Lutsk for the period 2008–2018 in the main spheres of its life, which allow the study of various urban systems and control over their development according to management strategy involving citizens in urban planning.

We suppose that the residents of the city are aware of the key problems of the city, and the importance and necessity of solving them. It is not only about the expected threats, but about the problems that have already been reflected in the indicators of the socio-economic activity of the city.

We also demonstrate the effectiveness of combining local statistical and sociological data in the formation of a management strategy in the absence of reliable statistics (the last census in Ukraine was conducted in 2001).

[21] Renamed Lesya Ukrainka Volyn National University in 2020.

This study is an exploratory one. If the data of sociological studies were partially published in various scientific and popular sources, then statistical analysis will be presented for the first time in this article.

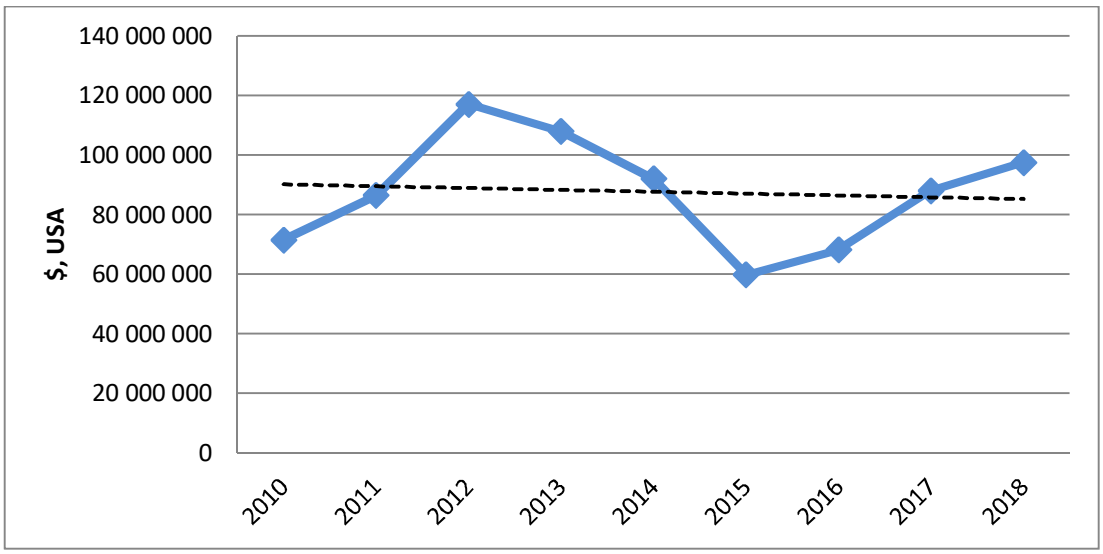
RESULTS AND DISCUSSION

To analyze the socio-economic indicators of the development of the city of Lutsk we used the approach of primary identification of the spheres of life (Golovakha, & Panina, 1997), according to which we will provide the following empirical results. But not all spheres and indicators are provided in this article.

The budget of the city of Lutsk and the economic activity of its enterprises

The basis of long-term planning is the state of the city budget. The last three years demonstrate the average annual growth rate of total budget revenues ($, USA) at the level of 17.7%. This certainly characterizes the positive development trend of the city's economy, especially given the significant fall the national currency in 2014. However, as can be seen in the (Fig. 1), the budget increase in the period 2015–2018 has not yet reached the mark of 2012.

Figure 1 Dynamics of budget revenues of the city of Lutsk



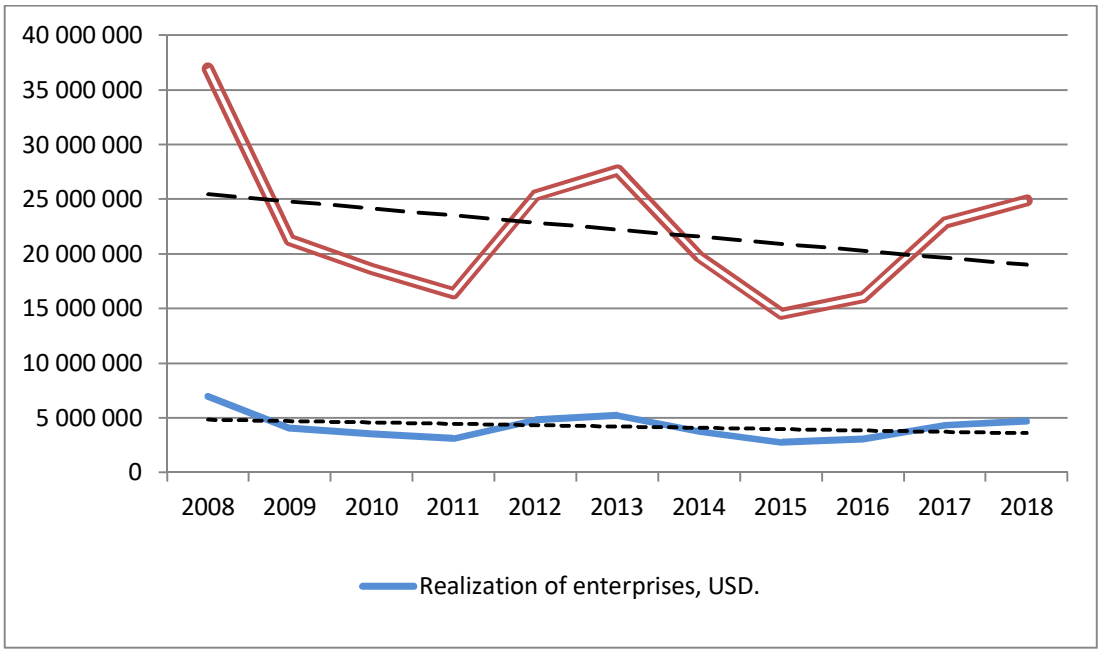
Source: own work

Budget revenues are associated with the economic activities of city enterprises. It is important to note that many large enterprises are officially located outside the city, but in fact they are part of it and use its resources, in particular infrastructure. Thus, the profit of

these enterprises does not affect the economic activity of the city. Nevertheless, the indicators of the last three years (2015–2018) demonstrate a positive dynamics of the city's economic activity: the average annual growth rate of sales of one enterprise ($, USA) is 17.1%, and it is an outstripping indicator in comparison with the growth rate in the Volyn Region (State Statistics Service of Ukraine, 2019a), as well as in Ukraine as a whole (State Statistics Service of Ukraine, 2019b). This indicates better conditions for enterprises in the city of Lutsk than in the country as a whole.

The correlation coefficient between the revenues to the budget and the volume of realization of the city enterprises ($, USA) is 0.88.

Figure 2 Volume of realization by the enterprises of the city of Lutsk



Source: own work

Lutsk enterprises are starting to increase their turnover from 2015. This fact is also evidenced by an increase in the total number of employees. By the way, the number of unemployed has been reduced (from 7.6% in 2013 to 5.1% in 2018). The number of small enterprises is increasing, but this does not particularly affect the share of workers employed in such enterprises. The distributions associated with the number of medium-sized enterprises and the workers employed in them are the most interesting: they have opposite directions; there is a feeling that such enterprises are gradually emerging from the shadows. The fact that the medium-sized enterprises are more often shadowy is evidenced by the correlation coefficient between the city budget revenues ($, USA) and the number of employed workers in medium-sized enterprises: it is negative (-0.81). Moreover, the correlation coefficients for the case of large and small enterprises are positive (0.97 and 0.96, respectively).

Table 1 Employees by type of enterprise, Lutsk

Year	Number of enterprises			Number of employees				Distributions of employees, %		
	Big	Middle	Small	Big	Middle	Small	Total	Big	Middle	Small
2012	6	151	2 318	17 600	23 823	14 204	55 627	32	43	26
2013	6	129	2 496	17 810	21 923	14 519	54 252	33	40	27
2014	6	124	2 496	9 660	23 054	13 542	46 256	21	50	29
2015	5	125	2 539	6 038	28 948	13 042	48 028	13	60	27
2016	4	135	2 331	**6 038**	**28 948**	12 987	**47 973**	13	60	27
2017	6	130	2 609	10 936	25 563	13 391	49 890	22	51	27
2018	7	130	2 712	12 801	27 631	13 565	53 997	24	51	25

Source: own work

There are three components of the shadow economy: (1) Underreporting of business income, (2) Underreporting of real number of employees, (3) Underreporting of real value of paid wages, or «Envelope wages». According to the Kyiv International Institute of Sociology, the first component as a key reason for the shadow economy is decreasing (60.2% and 56.7% in 2017 and 2018, respectively), the second important reason remains unchanged (21.4% and 21, 9% in 2017 and 2018, respectively), the third reason is increasing (18.3% and 21.4% in 2017 and 2018, respectively). Due to the increase of the shadow economy in West of Ukraine, there is no illusion that the situation in Lutsk is radically different (Shadow Economies in Ukraine, 2019).

The main problem of the shadow economy is that the budget does not receive tax revenues from income, which means that financing of infrastructure and social services is problematic. We are talking only about registered enterprises and their employees, therefore, an increase in the number of employees may be related to their official registration. The Lutsk City Council took into account both local and national data, it decided to implement primarily those projects that allow minimizing the share of enterprises in the shadow economy. One of these projects was the project on electronic passenger service in public transport, owned by the municipality and private entrepreneurs. Entrepreneurs were strongly opposed at first; some even provided a business plan for one city bus (Yavorska, 2019), so they publicly admitted that it was not profitable for them to pay net salaries to drivers (only «Envelope wages»). Thus, entrepreneurs involved in urban transport service have publicly admitted that they work in the shadow economy sector.

It is worthwhile to separately analyze the sphere of public transport in Lutsk. A significant increase in the fleet of city buses was only in 2018, while the length of routes since 2013 increased by 13%. Demand for transportation services is growing; however, the age of city

buses is also growing. In fact, the number of city buses increased, not their quality. Perhaps the increase in the number of transport units is due to the fact that not all of them can go on the route and require more frequent and / or lengthy repairs. Thus, there is a problem of the quality of the services provided, in particular the safety of passengers.

Also in 2018, the number of trolleybuses and their age increased, and the number of trolleybus routes decreased.

Table 2 Public transport in Lutsk

	2013	**2014**	**2015**	**2016**	**2017**	**2018**	**Av. growth, %**
Buses routes (BR)							
Total number BR	32	30	30	31	32	34	-
Total length BR, km	843.10	817.00	826.60	888.90	874.4	954.8	-
Total number of city buses on	249	235	236	238	223	240	-0.9
Average age of city buses,	6	7	8	7	8	9	-
Trolleybus routes (TR)							
Total number TR	12	14	14	14	15	13	-
Total length TR, km	256.75	277.55	277.55	277.55	-	-	-
Total number of trolleybuses	39	44	41	41	41	43	2.5
Average age of trolleybuses,	22	22	22	23	24	25	-
Population of the city							
Total	212 993	214 020	214 367	213 950	213 422	213 804	0.1
per unit of public transport	740	767	774	767	808	755	0.5
60+	32 870	33 866	34 919	35 983	37 253	38 458	4.0
60+ per unit of trolleybuses	1494	1539	1587	1579	1552	1538	0.7

Source: own work

It is interesting that the number of the population of the city in general, and of retirement age in particular, is growing faster than the trolleybus fleet, the main provider of preferential services. Knowing the real passenger flow in the temporal dimension today is necessary to avoid the transport collapse in the near future, as well as to remove from the shadows private businesses in the sphere of urban public transport.

Some housing and communal services

An important part of the housing and communal services of the city is road repair. The tendency to reduce overhaul of roads and increase the ongoing road repairs is noticeable.

Table 3 Dynamics of road repairs, Lutsk

Year	Overhaul of roads		Ongoing road repairs	
	Length, km	Road repairs, %	Length, km	Road repairs, %
2008	12.5	89.9	1.4	10.1
2009	6.5	80.1	1.6	19.9
2010	3.3	50.3	3.3	49.7
2011	2.2	81.0	0.5	19.0
2012	8.9	84.4	1.6	15.6
2013	10.8	51.6	10.1	48.4
2014	9.5	47.5	10.5	52.5
2015	9.4	63.9	5.3	36.1
2016	11.3	57.9	8.2	42.1
2017	11.8	45.7	14.1	54.3
2018	8.8	47.9	9.6	52.1

Source: own work

No less important is the service of garbage collection - in recent years it has become especially relevant for some million-plus cities of Ukraine. The culture of consumption is now not only a problem of an economic nature, but also a no less costly environmental one.

Here the paradox of garbage collection was revealed. It consists in a significant increase in garbage taken out with a slight increase of the population of the city and its economic activity. An increase in the volume of garbage taken out is observed at an average level of 5% per year. So, in 2018, the volume of garbage collected increased by 63% compared to 2008. At the same time, volumes of products realization by city enterprises ($, USA) decreased by 33%.

Table 4 The paradox of garbage collection, Lutsk

Year	Garbage collection, thousand m^3	Realization by city enterprises, $ USA	Year	Estimated garbage collection, thousand m^3
2008	404.5	7 014 531	2019	**660.3**
2009	416.7	4 039 943	2020	**682.9**
2010	447.2	3 540 752	2021	**705.6**
2011	491.2	3 114 136	2022	**728.2**
2012	532.0	4 816 445	2023	**750.9**
2013	549.6	5 256 496	-	-
2014	560.4	3 750 416	-	-
2015	538.5	2 757 830	-	-
2016	570.1	3 048 471	-	-
2017	598.7	4 353 396	-	-
2018	658.9	4 732 040	-	-
Coefficient of liner correlation		**-0.22**	-	-

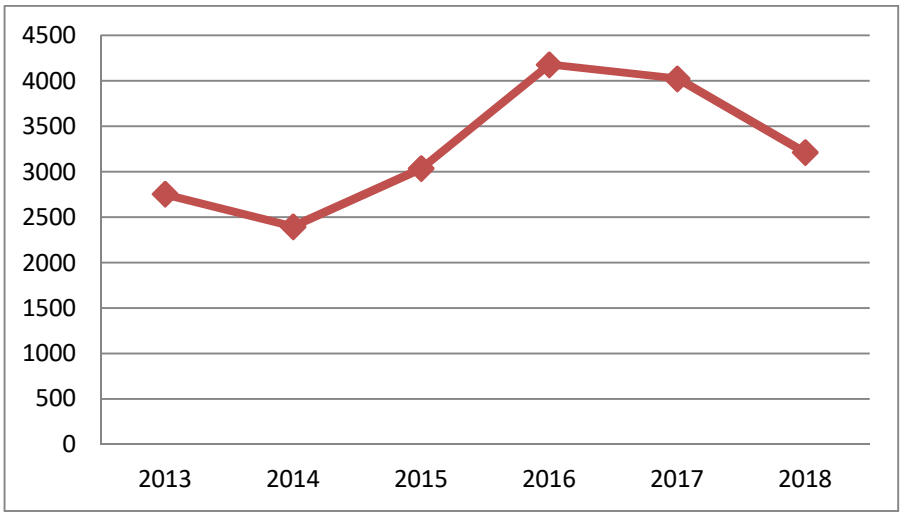
Source: own work

The explanation for this paradox remains open for researchers. There is no simple, linear solution. Many factors are the reasons for it. It can be assumed that Lutsk, as the center of urbanization of Volyn, is characterized by significantly higher rates of population increase (that is, the number of permanent and actual population is too much differing in absolute terms). Another assumption is that the territorial limitations of the city allow residents of nearby territories to use its infrastructure; in particular, they can simplify the problem of waste disposal. In the joke with the "tossing of Lviv garbage" there is a share of truth: the majority of workers in Lutsk live outside it, but every day either by public or private transport they go to work in the city. One possible explanation may also be an increase in the share of the shadow sector of the city's economy, meaning that real economic activity is much higher.

Well-being of residents of Lutsk

The number of crimes increased significantly in 2014–2016; in the period of revolutionary and / or war activities, crime is always intensified in country, which we see on the (Fig. 3). Both the stability of the social order and the well-being of society are important. The high negative correlation between retail turnover ($, USA) and crime rate (-0.72) indicates the importance of real well-being of citizens.

Figure 3 Dynamics of crime, Lutsk



Source: own work

The question arises: can retail turnover be considered an indicator of the well-being of the population? The idea is that the more a person earns, the more he spends, and he must pay all utilities on time. But, the increase of the average salary in Lutsk did not increase retail

turnover and did not improve the level of payment for utilities. If the retail turnover per inhabitant in Lutsk is significantly higher than in Ukraine as a whole, and the average salary is lower (State Statistics Service of Ukraine, 2019c), then it cannot be argued that a person's salary is an indicator of his well-being. In sociology, the financial condition of a family has long been measured by indicators of what the family can afford, that is, by spending. By the way, payment of utilities is also a spending, and it is mandatory. Therefore, in this case, the retail trade represents the welfare of the city's inhabitants - and it is getting worse.

Table 5 The relationship between retail turnover (RT) and average salary, and utility bills

	Average salary, UAH	**RT, millions UAH**	**RT, millions USD USA**	**Utility bills, %**	**RT per 1 person, Lutsk, thousand USD USA**	**RT per 1 person, Ukraine, thousand USD USA**
2013	2531	9 451	1182	98	5.6	2.4
2014	2618	10 774	906	99	4.2	1.8
2015	3291	11 624	532	89	2.5	1.1
2016	4047	11 986	469	94	2.2	1.1
2017	5849	9 556	359	91	1.7	0.7
2018	7324	10 295	379	-	1.8	0.8
Correl. Coeff.	**-0.22**		**0,82**		-	

Sources: own work; State Statistics Service of Ukraine (2019c)

Another paradox that requires additional research and discussion: retail turnover are decreasing, and volume of realization by city enterprises are increasing. In addition to the already mentioned shadow sector of the economy, it can be assumed that the polarization of the population is growing by income. But this assumption on the example of the city of Lutsk requires additional research.

Table 6 The relationship between retail turnover and volume of realization by city enterprises

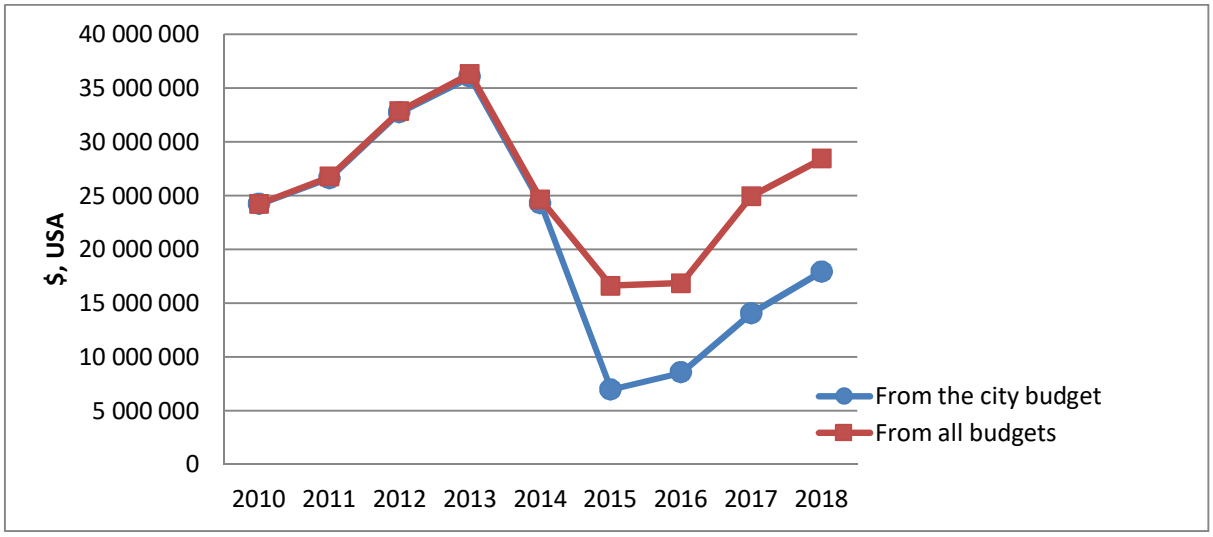
	Retail turnover, millions USD USA	**Realization, millions USD USA**	**Budget revenues (General Fund), millions USD USA**
2014	906	3 750	42
2015	532	2 758	22
2016	469	3 048	29
2017	359	4 353	37
2018	379	4 732	45
Correl. Coeffi.	**-0.28**		

Sources: own work; State Statistics Service of Ukraine (2019b)

Sphears of education and health care in Lutsk

The education sphere is not particularly "interesting": a decrease in funding (Fig. 4), a decrease in the number of children enrolled in preschool educational institutions (from 909 children in 2008 to 1,593 children in 2012 and 600 children in 2018), while the number of children in groups increases (from 23 in 2008 until 27 in 2018), only one residential quarter was built with the appropriate social infrastructure (kindergarten, school), two private schools and several kindergartens were opened. State institutions dominate in the educational sphere of Lutsk.

Figure 4 Dynamics of education spending, Lutsk



Source: own work

The curve for total health care costs coincides with the curve for education costs, but the share of financing from the state budget decreases (from 99% in 2013 to 76% in 2018), and from the city budget, accordingly, increases (from 0% in 2013 to 19% in 2018), the rest is the share of capital expenditures from the development budget.

It is worth paying attention to the fact that the frequency of visits to the hospital is more or less stable, but the frequency of visits to clinics decreases. This occurs with an increase of the population of the city, as well as the proportion of elderly people (from 14% in 2008 to 19% in 2018) (Tab. 7). Indeed, the number of visits to the hospital have a positive correlation with the total population (0.64), while the number of visits to clinics have a negative correlation with the total population (-0.49). "Perhaps something is wrong with the outpatient treatment of residents of Lutsk?" – one of the authors asks. Perhaps... But there is

another explanation. In Lutsk, as in any other city in Ukraine, there is a sufficient number of private medical institutions working on the principle of outpatient treatment. Therefore, there is an alternative to polyclinics with their constant waiting queues, doctors without inpatient practice, etc. Medical reform allows patient to sign a contract with private doctor. Most likely, this paradox is a consequence of the availability of alternative medical institutions and the specifics of medical reform. The increase in demand for private health services explains the decline in demand for public health services.

Table 7 Medical attendance rates

Year	Inpatients, total	Polyclinic visits, thousand	Population, total	Population 60+	Hospital visits, per 1 person	Polyclinic visits, per 1 person
2008	30 033	2 100.7	206 202	28 574	0.15	10.2
2009	29 448	2 089.0	207 692	29 659	0.14	10.1
2010	29 289	2 101.9	208 700	30 615	0.14	10.1
2011	29 304	2 114.7	209 980	31 818	0.14	10.1
2012	30 602	2 044.1	211 644	32 870	0.14	9.7
2013	30 830	2 066.3	212 993	33 866	0.14	9.7
2014	30 920	2 092.8	214 020	34 919	0.14	9.8
2015	30 397	2 048.5	214 367	35 983	0.14	9.6
2016	30 528	2 009.3	213 950	37 253	0.14	9.4
2017	30 118	1 913.3	213 422	38 458	0.14	9.0
2018	29 912	1 734.5	213 804	39 870	0.14	8.1

Source: own work

Demographic situation

The demographic situation is especially acute for residents of the city. Among the top problems in 2016 were the following: the outflow of young people to large cities and abroad (30.8%), the lack of gerontological institutions for serving the elderly people (Salnikova, 2018, p. 49-50). The main reason for the first problem is the impossibility of professional realization in the city, residents of the city of working age (up to 41 years old) with a higher education and good financial condition speak about this; they are characterized by a high level of mobility. Higher education encourages relocation in the event of a polar financial condition of the family.

Thus, the lack of opportunities for professionals will contribute to the fact that they will consider Lutsk as a place to obtain a good education, as a transit settlement (Salnikova, 2018, p. 47, p. 51). Contrary to the expectations of researchers, the main reason for leaving the city

was not educational mobility, but professional one. Professionalism should be associated with a high economic status, but, unfortunately, low salaries and an appropriate standard of living are characteristic of Lutsk. Representatives of professional employment are not worked, as a rule, in the shadow sector, therefore, the average official salary is 7324 UAH in 2018 can not be considered as a high one (see Tab. 5). “If talented individuals cannot gain access to education, employment and successful careers, for any reason but certainly because of discrimination, then the entire economy is less competitive” (Kresl, et al., 2020). Only access to the city's educational institutions can be considered non-discriminatory.

The second problem is partially related to the first: the decrease in the category of working people automatically increases the category of people of retirement age. But this situation is much more complicated than it seems at first glance.

Decrease in birth rate and decrease in mortality, increase of population in age 60+, downward trend of natural and migratory population growth are characteristic of the city (see Tab. 8). If such main demographic trends of Ukraine as population aging due to a decrease in the working-age population, population decline due to depopulation, the dominance of labor migrations flows over permanent migrations are also characteristic of Lutsk, then this is natural. It is surprising that Lutsk as a center of urbanization of Volyn has a low migration inflow. the demographic situation in the region is similar to the situation in Ukraine as a whole (Fig. 4). But the Volyn region has always been a major donor of human resources for Lutsk. Today, only three northern districts of the region – Kamin-Kashyrskyi district, Manevytskyi district, and Ratnivskyi districts – show a general population growth.

Table 8 Demographic indicators

Population, person	**Average annual growth rate, %**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	***2020***	***2021***	***2022***	***2023***	***2024***	***2025***	***2026***	***2027***	***2028***	***2029***	***2030***
Total	**0.4**	206 202	207 692	208 700	209 980	211 644	212 993	214 020	214 367	213 950	213 422	213 804	*216 316*	*217 114*	*217 913*	*218 711*	*219 509*	*220 308*	*221 106*	*221 905*	*222 703*	*223 502*	*224 300*
Newborn	**-2.6 (-7,0*)**	2 719	2 869	2 647	2 589	2 644	2 631	2 677	2 533	2 447	2 170	2 100	*2 189*	*2 130*	*2 070*	*2 010*	*1 951*	*1 891*	*1 831*	*1 771*	*1 712*	*1 652*	*1 592*
The dead	**-2,8 (-2,0*)**	-	-	-	-	2469	2450	2498	2575	2497	2217	2080	-	-	-	-	-	-	-	-	-	-	-
Natural growth	-	-	-	-	-	175	181	179	-42	-50	-47	20	-	-	-	-	-	-	-	-	-	-	-
Migration growth	-	678	356	424	166	609	253	120	-119	-244	-266	260	-	-	-	-	-	-	-	-	-	-	-
3 years (kindergarten)	-	2 520	2 555	2 687	2 857	2 619	2 592	2 640	2 621	2 638	2 530	2 447	*2 170*	*2 100*	*1 892*	*1 719*	*1 545*	*1 372*	*1 198*	*1 025*	*851*	*678*	*504*
6 years (school)	-	2 033	2 232	2 316	2 528	2 573	2 684	2 875	2 624	2 598	2 651	2 624	*2 664*	*2 530*	*2 447*	*2 170*	*2 100*	*2 004*	*1 884*	*1 765*	*1 645*	*1 526*	*1 406*
Up to 24	**-1.4**	67 273	65 774	64 906	63 731	63 089	62 074	61 324	60 606	59 609	58 838	58 644	-	-	-	-	-	-	-	-	-	-	-
25-59	**0.4**	110 355	112 259	113 179	114 431	115 685	117 053	117 777	117 778	117 088	116 126	115 290	-	-	-	-	-	-	-	-	-	-	-
60+	**3.4**	28 574	29 659	30 615	31 818	32 870	33 866	34 919	35 983	37 253	38 458	39 870	-	-	-	-	-	-	-	-	-	-	-
Avg. age	**0.6**	**36**	**36**	**37**	**37**	**37**	**37**	**37**	**38**	**38**	**38**	**38**	***39***	***39***	***39***	***39***	***39***	***40***	***40***	***40***	***40***	***41***	***41***
%																							
Up to 25	-	32	31	30	30	30	29	29	28	28	28	27	*27*	*26*	*26*	*25*	*25*	*25*	*24*	*24*	*23*	*23*	*22*
25-59	-	54	54	54	55	55	55	55	55	55	54	54	*55*	*55*	*55*	*55*	*55*	*55*	*55*	*55*	*55*	*55*	*55*
60+	-	14	15	15	16	16	16	16	17	17	18	19	*19*	*19*	*19*	*20*	*20*	*21*	*21*	*22*	*22*	*22*	*23*
Intensity of structural shifts, % with as of 2009	-		**0.26**	**0.45**	**0.64**	**0.79**	**0.99**	**1.19**	**1.31**	**1.45**	**1.54**	**1.64**	-	-	-	-	-	-	-	-	-	-	-

* Ukraine. Source: State Statistics Service of Ukraine (2019d)
Source: own work

It is possible not to take into account the Lutsk district and part of the Kivertsivskyi district, they will become part of Lutsk as a result of decentralization reform - the process has already started. Thus, for Lutsk there is a very important number of districts, which will be allocated as new administrative units due to decentralization. If there is a fourth district centered in Kamin-Kashyrsk, Lutsk will remain the urbanization center of Volyn; if not, the city of Kovel will face serious competition to Lutsk in getting the human capital. Other cities of the region do not have such opportunities.

Table 9 Population growth / decline

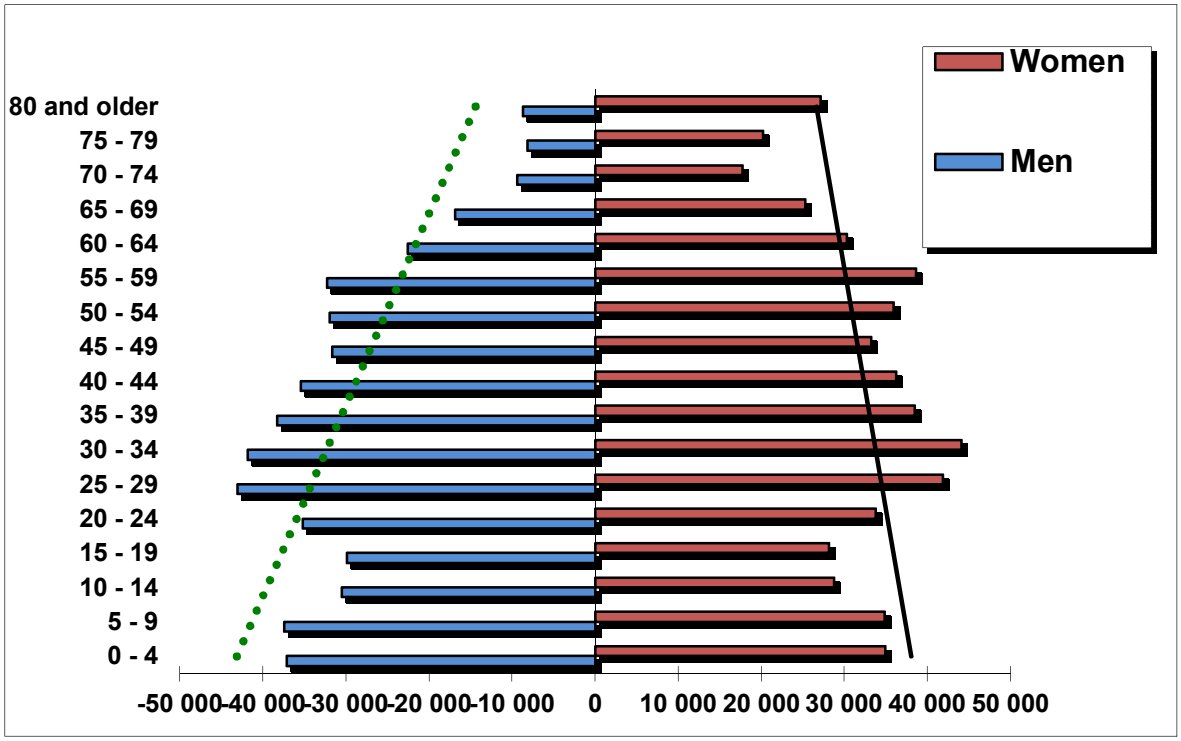
№	District / city	Total	including		Population as of Jan 1, 2016	Population as of Jan 1, 2017	%
			natural	migration			
1	Kamin-Kashyrskyi	299	238	61	63903	64202	100,5
2	Lutskyi	192	80	112	63664	63856	100,3
3	Manevytskyi	66	53	13	54451	54517	100,1
4	Ratnivskyi	36	80	–44	52183	52219	100,1
5	Kovel city	59	92	–33	69235	69294	100,1
6	Kivertsivskyi	–94	8	–102	63945	63851	99,9
7	Lyubeshivskyi	–54	27	–81	36041	35987	99,9
8	Rozhyshchenskyi	–30	–101	71	39288	39258	99,9
9	Lutsk city	–417	462	–879	217450	217033	99,8
10	Horokhivskyi	–104	–315	211	51710	51606	99,8
11	Kovelskyi	–97	–56	–41	40449	40352	99,8
12	Volodymyr-Volynskyi city	–165	–91	–74	39306	39141	99,6
13	Lyubomlskyi	–157	–169	12	39552	39395	99,6
14	Shatskyi	–71	–53	–18	16955	16884	99,6
15	Lokachynskyi	–120	–60	–60	22357	22237	99,5
16	Starovyzhivskyi	–141	–68	–73	30518	30377	99,5
17	Novovolynsk city	–358	–173	–185	57742	57384	99,4
18	Ivanychivskyi	–194	–145	–49	32155	31961	99,4
19	Volodymyr-Volynskyi	–159	–99	–60	25457	25298	99,4
20	Turiyskyi	–205	–169	–36	26307	26102	99,2
	Volyn	**–1714**	**–459**	**–1255**	**1042668**	**1040954**	**99,8**

Source: own work (Main Department of Statistics in Volyn oblast)

The Fig. 5 shows that in 10 years the problem of the labor resources deficiency will be more serious than today. The problem of aging from its economic aspect was well studied by economists of the Czech Republic, their forecasts are quite applicable to Ukrainian realities (Arltova et al., 2016). Therefore, the city authorities and all those who manage human resources in the city should already deal with the problem of human capital as the most valuable resource for the successful development of the city, and not just maintain its territory for the sake of simple existence. “Substantial rural-to-urban migration of people with few skills, little

education, and no savings" (Kresl, et al.b 2020) requires the creation of comfortable conditions for professionals.

Figure 5 Sex and age structure of the population, Volyn region, as of January 1, 2017



Source: own work (Main Department of Statistics in Volyn oblast)

CONCLUSIONS

Conceptions of city development are in the focus of interest of many scientists; all of them consider that the conceptions of the smart city, the city branding, the marketing city, the urban metabolism, the sustainable development, etc. need a more comprehensive in content and time framework document based on socio-economic indicators of the city, and aimed at solving not only development but also current issues.

An analysis of the socio-economic indicators of the city of Lutsk for the period 2008–2018 in the main spheres of its life was done at the request of the Lutsk City Council to form the Strategy of City Development, which should be based on measurable goals and a time frame for their achievement. Management strategies respond to such a request.

To form measurable goals, we recommend using the approach of primary identification of spheres of life (Golovakha, Panina, 1997), as well as sociological and statistical data for their measurement. To study various urban systems, it is necessary to involve citizens in the process of urban planning, in particular professionals from certain spheres, scientists, urbanists, etc.

The data of sociological studies of the Sociological Research Laboratory of Lesya Ukrainka Eastern European National University indicates that the residents of Lutsk reoriented themselves from material problems to more important social, political and professional needs. At the same time, the demographic problem has become especially noticeable for city residents, consisting in the outflow of young people from the city and the need for social inclusion of the elderly. The demographic situation in the city is aggravated by the problems of population aging, increased professional migration, low migration inflows, etc. Negative demographic trends and territorial limitation of the city depend on the result of the decentralization reform in Volyn region.

The statistics of the socio-economic activity of the city show an improvement in a number of economic indicators: the city budget ($, USA) and the average annual growth rate of sales of one enterprise ($, USA), the number of enterprises and employees employed there in (respectively, the number of unemployed people is decreasing), etc. The public transport sphere needs updating. The indices show the presence of the shadow economy. Here the paradox is revealed: retail turnover is decreasing, and sales volumes by enterprises are increasing.

The garbage collection paradox has been identified in the housing and communal services. It consists in a significant increase in garbage taken out with a slight increase in the population of the city and its economic activity.

The negative dynamics of retail turnover, the level of payment for utilities, crime rates, etc., does not allow us to testify to the improvement of the well-being of city residents.

The spheres of education and health care in Lutsk are determined by insufficient funding, the first sphere is mainly state, the second sphere is characterized by the demand for private medical services (with an increase in the number of population, the demand for services in polyclinics decreases).

Sociological and statistical data demonstrate the primacy of resolving some of the issues related to the quality of human capital in the cooperation of scientists, city authorities, business and the public sector. The practical recommendations are as follows. The starting point of any decision is the expansion of the city limits, which is made possible by the reform of decentralization with the subsequent mandatory planning of social infrastructure. Social infrastructure should be developed in a competitive environment of public and private enterprises (in particular, preschools, out-of-school institutions, and schools, rehabilitation centers, geriatric institutions, etc.). The city authorities must demonstrate economic attractiveness for the activities of enterprises in order to register them in the city and support non-shadow activities, and planning taking into account not only the city limits but also

demographic trends, including the number and quality of transport units, etc. Educational, cultural and scientific programs initiated by the city authorities should be a priority for Lutsk to be a powerful cultural center.

Acknowledgment

This research was commissioned by Lutsk City Council within the framework of the bilateral Cooperation Agreement (№ 25-У from June 08, 2017) but it was done on a not-for-profit basis.

REFERENCES

Ansoff, I. H. (2007). *Strategic Management Classic Edition*, Palgrave Macmillan.

Arltová, M., Smrčka, L., Vrabcová, J., & Schönfeld, J. (2016). The Ageing of the Population in Developed Countries – the Economic Consequences in the Czech Republic, Economics *and Sociology*, 9(2): 197-219. DOI: 10.14254/2071-789X.2016/9-2/14

Balashov, D. (2019). *City brand and city development: interconnection and current situation in Ukraine*. DOI: http://dx.doi.org/10.30525/978-9934-571-89-3_51.

Council of Europe. *Intercultural cities programme*. Retrieved March 18, 2018 from https://www.coe.int/en/web/interculturalcities/

Cunningham, J., & Harney, B. (2012). *Strategy and Strategists*, Oxford University Press, 720 p.

Czupich, M., Kucherenko, S., & Riznyk, V. (2020). Contemporary Challenges to the Development of Cities –The Experience of Poland and Ukraine. *Studia Miejskie*, *38*, 23-38. DOI: http://dx.doi.org/10.25167/sm.2176.

Delitheou, V., & Georgakopoulou, S. (2019). Integrated Territorial Investments as a Tool for Susstainable Urban Development. The Case of Piraeus Municipality, *Theoretical and Empirical Researches in Urban Management*. 14(3): 22-40.

Deng, X., Gong, L., Gao, Y., Cui, X., & Xu, K. (2018). Internal Differentiation within the Rural Migrant Population from the Sustainable Urban Development Perspective: Evidence from China, *Sustainability Journal*, 10 (12): 1-15.

Dril, N., Galkin, A., & Bibik, N. (2016). Applying city marketing as a tool to support sustainable development in small cities: case study in Ukraine. *Transportation Research Procedia*, *16*, 46-53. DOI: https://doi.org/10.1016/j.trpro.2016.11.006.

European Commission (2018). *Urban development.* European Commission Retrieved March 18, 2018 from http://ec.europa.eu/regional_policy/el/policy/themes/ urban-development/

Farias, I., & Bender, T. (2011). *Urban Assemblages: How Actor-Network Theory Changes Urban Studies*. London: Routledge.

Fedoniuk, A., Fedoniuk, Yu. (2018). Safety Aspects of the System Information and Technology Project «Smart City of Lutsk». *Sociological Studios*, 1(12), 52–56. DOI: https://doi.org/10.29038/2306-3971-2018-01-52-56.

Gehl, J. (2010). *Cities for People*. Island Press.

Gere, L. (2018). An Introduction and Critical Assessment of Smart City Developments. *Deturope*, 10(3), 33-52.

Golovakha, Y., & Panina, N. (1997). *Integral Index of Social Well-Being: the Construction and Application of Sociological Test in Mass Surveys*, Kyiv: Institute of Sociology, NAS of Ukraine.

Gonzalez-Garcia, S., Manteiga, R., Moreira, M. T., & Feijoo, G. (2018). Assessing the sustainability of Spanish cities considering environmental and socio-economic indicators.

Journal of Cleaner Production, *178*, 599-610. DOI: https://doi.org/10.1016/j.jclepro.2018.01.056.

Haughton, G., Hunter, C. (2005). *Sustainable Cities*. London and New York: Routledge, Taylor & Francis Group. Retrieved June 12, 2022 from http://www.stellenboschheritage.co.za/wp-content/uploads/Sustainable-Cities.pdf.

Jacobs, J. (1961). *The Death and Life of Great American Cities*. New York: Random House.

Kresl, P. K., et al. (2020). *Urban Competitiveness in Developing Economies*. Abingdon, Oxon; New York, NY: Routledge. Retrieved June 12, 2022 from https://ebrary.net/230203/business_finance/urban_competitiveness_in_developing_economies.

Kuznetsova, A. (2016). The Empirical Representation of the Embodiment of Intercultural Policy on the Example of a Network of European Cities, *Sociological Studious*. 2(9): 47-51. DOI: https://doi.org/10.29038/2306-3971-2016-02-47-51.

Laing, O. (2016). *The Lonely City: Adventures in the Art of Being Alone*. New York: Picador.

Main Department of Statistics in Volyn oblast (2019). *State Statistics Service of Ukraine*, Retrieved June 6, 2019 from http://www.lutsk.ukrstat.gov.ua/

Mintzberg, H., Ahlstrand, B., & Lampel, J. (2005). *Strategy Safari: A Guided Tour Through The Wilds of Strategic Management*. New York: Simon and Schuster.

Nordström, K. A., & Schlingmann, P. (2014). Urbun Express**:** *15 Urban Rules to Help You Navigate the New World That's Being Shaped by Women and Cities*. Förlag: Bokförlaget Forum.

Owen, D. (2010). *Green Metropolis: Why Living Smaller, Living Closer, and Driving Less Are the Keys to Sustainability*. New York: Riverhead Books.

Park, R. E., & Burgess, E. W. (1925). *The City*. Chicago, IL: University of Chicago Press.

Pavlikha, N., Voichuk, M. (2019). *Organizational and economic principles of sustainable development management of the city*: Lutsk: Vezha-Druk.

Porter, M. E. (1998). *Competitive Strategy: Tecniques for Analyzing Industries and Competitors*, The Free Press.

Salnikova, S. (2014). Ukrainian Society under Conditions of Total Anomy, *Economics & Sociology*, 7(2): 183-198. DOI: 10.14254/2071-789X.2014/7-2/15

Salnikova, S. (2017). Social Well-Being the Residents of Lutsk: About What Monitoring Data Say, *Sociology: Theory, Methods, Marketing*, 2: 105–118.

Salnikova, S. (2018). The Social Diagnostic of Lutsk City in the Framework of Creation of the Strategic Plan of its Development, *Sociological Studios*, 1(12): 42-51. DOI: https://doi.org/10.29038/2306-3971-2018-01-42-51.

Salnikova, S., & Khanin, O. (2021). Sustainable development of the border city in the context of European integration processes and decentralization in Ukraine (on the example of Lutsk, 2008-2020), *Conference Proceedings Determinants of Regional Development*, 2: 157-172. DOI: https://doi.org/10.14595/CP/02/009.

Seisdedos, H. (2004). City marketing: El Camino Hacia la Ciudad Emprendedora. *Revista de Empresa*, 8, 54-64.

Shadow Economies in Ukraine. Results of the 2019 Survey (2019). *Kyiv International Institute of Sociology*, Retrieved December 01, 2019 from https://www.kiis.com.ua/?lang=eng&cat=reports&id=897&page=1

Simmel, G. (1903). *Die Grosstädte und das Geistesleben*. Dresden : Petermann.

State Statistics Service of Ukraine (2019a). *Volume of sales of products (goods, services) by economic entities by cities and district (2010-2018)*, Retrieved August 14, 2019 from http://www.lutsk.ukrstat.gov.ua/

State Statistics Service of Ukraine (2019b). *Volume of sales of products (goods, services) by economic entities by types of economic activity (2010-2018)*, Retrieved August 14, 2019 from http://ukrstat.gov.ua/

State Statistics Service of Ukraine (2019c). *Main indicators of retail trade (2013-2018), Dynamics of average monthly wages by types of economic activity in 2010-2018*, Retrieved August 14, 2019 from http://ukrstat.gov.ua/

State Statistics Service of Ukraine (2019d). *Natural population movement (2008-2018)*, Retrieved August 16, 2019 from http://ukrstat.gov.ua/

Steel, C. (2009). *Hungry City: How Food Shapes Our Lives*. Random House UK.

Stiglitz, J., Sen, F., & Fitoussi, J.-P. (2009). *Report by the Commission on the Measurement of Economic Performance and Social Progress.* Paris: CMEPSP. Retrieved June 12, 2022 from https://ec.europa.eu/eurostat/documents/8131721/8131772/Stiglitz-Sen-Fitoussi-Commission-report.pdf.

Tsenkova, S. (1999). Sustainable Urban Development in Europe: Mith of Reality. *International Jornal of Urbun and Regional Research*, 23(2), 361-364.

Weber, M. (1958). *The City*. Chicago: Free Press.

Wirth, L. (1938). Urbanism As A Way of Life, *American Journal of Sociology*, 44: 1-14.

Yavorska, L. (2019). «Minibus Revolution» in Lutsk: a third of the minibuses may remain, and the tariff may increase, *First. Social news channel*, Retrieved December 11, 2019 from https://pershyj.com/p-do-chogo-mozhe-privesti-elektronna-oplata-proyidu-v-transporti-lutska-istoriya-komentari-tsifri-40413))