Monofunctional city and export in Ukraine

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ABSTRACT

Monofunctional cities of Ukraine were founded close to the large industrial enterprises. The development of such cities in the neoliberal economy directly depends on the conjuncture of the world commodity markets. In this article, specific forms of such dependence are analyzed. The following groups of monofunctional cities are the centers of the mining industry or heavy industry enterprises, satellite towns of nuclear power plants as well as port cities. The border towns, which have become centers for assembly plants, are mentioned separately. With the exception of satellite cities of nuclear power plants, the rest of them have either population decline or its number is relatively stable. Sharp geopolitical changes affected the development of all cities in Ukraine. This is most pronounced in port cities. Only in 2018 the growth of cargo turnover resumed. Metropolises also acquired the features of monofunctional cities. Therefore, WE raise the question of the advisability of separate closed urban areas in large cities as monofunctional cities. This reveales the need to identify their clear boundaries and criteria. Indicative in this matter is the capital of Ukraine – Kyiv. In the structure of its industrial production, since 2012, the leading activities are the production of electricity, heat, and cooling. However, this does not mean that the largest city in the country has become a center of energy production. Rather, it is a manifestation of the post-industrial stage of the cities development in Ukraine.

KEYWORDS: Ukraine, Monofunctional city, Export, Kryvyi Rih, Yuzhnyi, Varash.

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1.Introduction. Theoretical background of the monofunctional cities included in the question of spatial dimension of industrial development. Very little scientific literature touches the problems of monofunctional cities and theirs types. Ultimate publication is [1]. S. Suwan-achariya analyzed the question of economical-geographical location of the cities in Thailand [2]. This article analyzes reality situation of monofunctional cities in Ukraine. Such cities in Ukraine were founded close to the large industrial enterprises [4]. They mainly are the places where workers of large industrial enterprises and seaports live with their families. The development of such cities in the neoliberal economy directly depends on the conjuncture of the world commodity markets. In this article, specific forms of such dependence are analyzed. The following groups of monofunctional cities are centers of very different types of industry [1].

2.Proposed Techniques and Algorithms. Ukrainian monofunctional cities are included: centers of the extraction industry or heavy industry enterprises, satellite towns of nuclear power plants as well as port cities [3, 4]. The border towns, which have become centers for assembly plants, are mentioned separately. With the exception of satellite cities of nuclear power plants, the rest of the cities have either population decline or its number is relatively stable. Sharp geopolitical changes in Ukraine have left their mark on the development of all cities. This is most pronounced in port cities. Abrupt changes in the volume of cargo transshipment by commercial ports of Ukraine lead to irregularity in the work of ports. Only in 2018 the growth of cargo turnover resumed. Metropolises also acquired the features of monofunctional cities. Therefore, the author raises the question of the advisability of separate closed urban areas in large cities as monofunctional cities.

3.Experimental Results. In the conditions of successful economic development, a monofunctional city is often considered to be ideal industrial city, when in fact the development of the city depends on the state of one large enterprise. Some of these enterprises are huge in terms of investment and output, as well as of number of employees. For example, the largest ferrous metallurgy enterprise in Ukraine, Arcelor Mittal Kryvyi Rih PJSC, holds 3% of the country's GDP and has almost 34,000 employees[1]. By these numbers, a company itself is a small-size city! Its balance includes not only production facilities and sales network, but also residential buildings in two districts of Kryvyi Rih, social infrastructure facilities not only in this city, but also in other regions of Ukraine (sports grounds and resorts, spa-centres, etc.). Arcelor Mittal not only affects the development of this city with a population of over 660,000 inhabitants and ferrous metallurgy of Ukraine (over ¼ of all products). They largely determine the state part in the international labor division, because by the volume of export (almost 1.7 billion USD per year) it is the leading company in the country. At the same time, more than ¾ of the total output of the enterprise was used. We can say that open-hearth ferrous metallurgy is an exception in the world and today such giant enterprises are an exception too. Are there such contemporary cities? Of course, for example,

[1] Official report of the company [5].

satellite cities of nuclear power plants in Ukraine (Enerhodar, Varash, Netishyn and Yuzhnoukrainsk), where life depends on the operation of such enterprises. No power plant – no city with a population of at least 20,000 inhabitants.

All satellite cities of nuclear power plants in Ukraine are among the leaders in terms of population growth in the country against the background of long-term depopulation. For example, in Varash (satellite city of Rivnenska NPP) the population in the period between 1989 and 2012 has more than doubled and now is 41,300 people [6]. This is mainly due to high wages and well-developed social sphere (by Ukrainian standards). Also, these monofunctional small towns due to their "youth" have more favorable age structure of the population than in the country as a whole. All of them were founded in the 1970's and 1980's within the framework of the Soviet program for the development of nuclear energy. One of the reasons for building nuclear power plants in Ukraine was the intention to sell electricity to a number of European countries, which continues today. The youngest of these cities – Slavutych (1986) – in the conditions of independent Ukraine took advantage of the special economic zone (1999-2004) for its fast development. This has allowed it to attract significant foreign investment and create a number of new, non-nuclear, export-oriented industries. 30.6 million USD foreign investments were attracted to create new jobs in the city.

Mining cities remain a classic example of a monofunctional city spread all over the world. They exist as long as the extraction of the corresponding mineral continues. And so today, for most developed countries, these cities are places of concentration of the main socio-economic problems, such as reconstruction of old industrial regions. At the same time, industrial specialization is not always determines the emergence of a monofunctional city. For example, on iron ore deposits mines were built for its extraction in Kryvyi Rih, to which ferrous metallurgy enterprises were eventually added, which process it. To ensure the employment of the female part of the population in this city, food and light industry enterprises were opened, later specialized machine-building enterprises, creating machines and equipment for the mining and metallurgical industries. Accordingly, the service enterprises of the social sphere also developed. Thus, the employment structure of the city was gradually diversified. At the same time, population growth led to the need to create separate enterprises of other industries necessary for the functioning of medium and later large cities.

The location of the city also contributes to multifunctionality. Exit to the sea allows to create the manufacturing industry on imported raw materials, and it causes development of specialized port-industrial complexes (for example, the Dnieper-Bug seaport in Mykolaiv is a component of such complex on processing of bauxite to aluminium at the largest such enterprise in Europe). Initially, the port industry was dominated by industries for processing exotic overseas products (for example, tea-packing factory in Odesa) and enterprises that worked directly to service maritime shipping (shipbuilding enterprises of Mykolaiv). Over time, there have been complexes for processing imported mass cargo (for example, the metallurgical complex 'Italcider IV' in Taranto), which are not necessarily imported by sea, but are supplied from the hinterland to the seaport for export. This is clearly seen in the example of Europe's largest port-industrial export-specialized chemical production on the Odessa port plant, which laid the world's longest ammonia pipeline Tolyatti-Horlivka-Odesa in the 1970's under a trade agreement for

the supply to the United States of its main products – ammonia and urea. The emergence of a new large enterprise changes the building and social structure of the city due to an increase in the share of workers.

Changes in cargo transportation have significant impact on the development of the port city. It is one thing to unload a supertanker, and different to unload a fishing flotilla. The increase in the volume of bulk cargo transportation by vessels and the transition to containerized cargo transportation by container vessels led to radical changes in the structure of the port, the number of employment in the port economy and determined radically new requirements for port location and seabed depth to access it. This has significant impact on the structure of employment and, consequently, on the functions of the city. New requirements for port infrastructure and cargo space have led to the increase in the number of mono-specialized port cities (for example, the city of Yuzhne next to the trade port Pivdennyi). In the largest port cities of the world the need for separate specialized harbors and port points/terminals has emerged, around which the relevant industrial enterprises are formed, working on imported raw materials (port-industrial complex). At the same time, there is a transfer of the main trading port from the old place to the new one, which is located on the outskirts or at a significant distance from the city. This is largely due to the fact that in the city itself there are no free areas in the urban area adjacent to the old port, necessary for its proper functioning.

Different goods require different storage conditions, unloading the ships and loading/transfer by land vehicles, and this directly affects the development of the harbour part of the city, the development and operation of production and transport infrastructure and causes changes in the employment structure. Thus, the diversification of the commodity structure of transportation through the sea trade port leads to an increase in the area and population of the city, the emergence of clearly localized distinct planning parts. As the population grows, so does the number of functions performed by the city.

In most cases, the largest cities have the most complex functional structure. Big city means great opportunities. The concentration of population in them creates the effects of agglomeration and multiplication, which lead to the development of several types of industrial production. They also operate, under the influence of guaranteed significant demand, enterprises of the jewelry, tobacco and alcohol industries, producing the most popular types of relevant products. For example, companies in all these industries operate in Kyiv, but they do not produce exclusive products in the relevant industry. One of the features of this type of industrial cities is fairly significant share of those employed in the machine-building and metalworking industries, as well as the presence of a fairly developed printing, light and food industries.

The urban economy of a large city requires a significant amount of technical means, used in all spheres from water supply to public transport. This certainly necessitates not only the presence of a significant number of repair and service enterprises of machine-building profile, but also the concentration of relevant manufacturers.

Significant concentration of the population forces the city authorities to create an extensive network of technical infrastructure for water supply and sewerage, fuel and electricity supply system for

domestic use. This leads to the emergence of quite large energy companies in the big city and raises the question of what is primary – the need of the population or industry for the relevant goods, i.e. whether the relevant industries are city-determining or city-serving? Can energy be considered a branch of

specialization of Kyiv, which has the most powerful Cogeneration heat and power (CHP) plant #5 in Ukraine (700 MW [7]) and the third largest in the country CHP plant #6 (500 MW [8])? The presence of a significant number of industrial enterprises determines their spatial differentiation, which is caused by the requirements of public safety, production specialization and cooperation (agglomeration effect), and determines the formation of separated industrial zones.

Large cities are characterized by the presence of not one industrial and working area, but several. Instead of a simple sectoral model, specific to monofunctional cities, a large city is not so easy to divide into districts by social classes. Even a business center in such a city may not be the only one and it is not necessarily coincide with the administrative center. In fact, the larger the city is, the more likely it is to have not one but several business centers that form the socio-functional structure of the city around themselves, which can be divided into different parts.

In a large city, there may be different forms of spatial organization in different parts of it. For example, around the Darnytsia Carriage Repair Factory (DVRZ) in the 1930's a separate settlement of Darnytske depot (later DVRZ) was built for its employees, which, before the mass housing construction of the left bank of Kyiv, was actually a separate monofunctional city. Only from the administrative point of view it was a part of the capital of Ukraine, because the connection with the rest of the city was only by one tram line, opened in 1936 [9]. The relevant functional-territorial units in Donetsk, which was created on the basis of former working-class settlements at coal mines and various factories, stand out even more clearly. The situation in this city is complicated by the fact that it is located in the middle of the urbanized district of Central Donbass and is part of the bicentrical Donetsk-Makiivka agglomeration. The continuous urban development is divided into parts by heaps, railway lines, small riparian forests, ravine and beam system, as well as local water bodies. Such complexity in the development of a large city in an urban agglomeration, formed under the direct influence of industrialization, determines the manifestation of center-periphery relations at different levels of geographical analysis.

Aside is the type of industrial city, where employment at an industrial enterprise is seasonal. Such cities mainly arise in the region, where they produce a surplus of relevant agricultural products, which are processed at the enterprises of this city (for example, the formation of cities on the basis of sugar factories). Here the peasants are only a certain period, while free from work in the field, are the workers and therefore there is no need to create a separate working quarter. For them, working in such a plant is an additional part-time job when there is little or no agricultural work.

The city base is different and largely due to the location of minerals, economic and geographical location of the city, its place in the current settlements system, the country's participation in international trade relations. It is clear that over time, the functions of the city change and are significantly influenced by foreign and domestic political processes in the country, its economic development and ties close with the outside world. Some cities use these changes, others do not, and therefore the heyday of different cities is different and it is associated with different functions.

4.Discussion and Conclusion. Ukraine is open to the outer world and has the most developed border and coastal areas through which contacts with other countries take place. For example, the need for foreign trade has led to the creation of a network of port cities in southern Ukraine (e.g. Odesa), which

have much higher level of economic development than cities in the deep steppe regions (for exemple, Voznesensk). These cities changed their function in the country largely under the influence of the needs of foreign markets and relevant public policies. This is most pronounced in port cities. Abrupt changes in the volume of cargo transshipment by commercial ports of Ukraine lead to irregularity in the work of ports. Only in 2018 the growth of cargo turnover resumed. Metropolises also acquired the features of monofunctional cities. Therefore, the author raises the question of the advisability of separate closed urban areas in large cities as monofunctional cities. This reveales the issues of identifying their boundaries and criteria. Indicative in this matter is the capital of Ukraine – Kyiv. In the structure of its industrial production, since 2012, the leading activity is the production of electricity, heat, and cooling. However, this does not mean that the largest city in the country has become a center of energy production. Rather, it is a manifestation of the post-industrial stage of the city's development.

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