STRUCTURAL AND SPATIAL-FUNCTIONAL CHANGES IN THE DEVELOPMENT OF ENTERPRISES IN UKRAINE

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Abstract. This article compares the dynamics of changes in the number of enterprises in relation to the working-age population. The division of economic activities into main sectors is used. The main goal of this study is to analyze the growth rates of the number of enterprises and the structure of enterprises in sectors with different functional characteristics, which allows us to obtain information about the transformations that occur in the context of the above-mentioned issues. This also allows us to distinguish the processes of concentration and deconcentration of economic functions in accordance with their relative position in relation to the administrative hierarchy, the main regions of development or other structural and functional units, defined in terms of the specificity and intensity of spatial development. The results of the study indicate a decrease in the spatial dynamics of private enterprises, inertia, spatial polarization and mosaicism. It is extremely difficult to give detailed answers to the questions about the reasons for such a situation, given the current level of knowledge, but two approaches can be proposed. The first approach is confirmed by observations of periodic increases in demand, especially for agricultural land. Studies have shown that there are differences in the development of entrepreneurship depending on the field of activity and functional features of the municipality. Secondly, in the period after the war, the dynamics of the development of service facilities weakened, and the importance of the industrial and construction sectors increased. Municipalities were differentiated according to their geographical location and economic functions. The capital regions benefited the most. The situation on the periphery was more complicated. In more backward regions, remote from the war, the number of enterprises grew dynamically, especially in the industrial and construction sectors. The shortage of jobs in the country could be filled by creating enterprises by people who were previously unemployed or worked in related and non-related industries. Thus, the movement of enterprises and individuals providing construction and installation services will become a kind of hierarchy, when experienced workers will go abroad, and new ones will come to their place. Rapid growth of businesses in non-urban areas is particularly desirable from a regional development perspective.

Keywords*: Enterprise, entrepreneurship, dynamics of enterprise activity, synthetic indicators, socio-economic space.

JEL Classification: G11, G13, G32

1. INTRODUCTION

This article discusses the changes that result from the increase in the number of enterprises. This choice justifies the importance of this factor in the development of the country's economy. At the same time, fluctuations in the number of entities are a good indicator of the general socio-economic situation. Studies of the state of the enterprise in the context of regional development have been the subject of many scientific works (Blahun et al., 2017). Among the factors that influence the development of small

enterprises (microenterprises) according to the criterion of the range of influence, the following conditions are most often mentioned:

a) international – geographical location, openness of borders and customs law;

b) national – economic stability, legislation;

c) regional – location in relation to dynamically developing national centers;

d) local – demographic potential and market absorption capacity, entrepreneurial traditions that support the activities of local governments.

The increase in the number of subjects in a certain field can be considered within the framework of three main groups of thematic and problematic issues related to (Blahun & Blahun, 2020):

1) entrepreneurship development. It is usually believed that starting a business is a reflection of a natural or forced predisposition to economic initiatives, economic risk, market orientation, individual and social ingenuity, etc. In other words, the development or reduction of the number of companies in a given field indirectly indicates an increase or decrease in innovation, expansiveness and flexibility of these fields from a market perspective;

2) economic urbanization. The increase in the number of business entities in a certain territory is a consequence of non-agricultural employment. Therefore, on this basis, conclusions can be drawn about the pace of transformation of rural areas towards changing their role in the socio-economic system, especially in the context of multifunctional development. Therefore, data on the number of enterprises, both legal entities and individuals engaged in entrepreneurial activity, must be indirectly used in the study of economic urbanization;

3) transformations of the socio-economic system and its territorial organization at different spatial scales. Most economic entities are small and generally very mobile in terms of socio-economic stratification, which allows us to observe changes in the socio-spatial and economic-spatial structure in different locations and relationships, and the entities taken into account are good indicators of the changes taking place.

2. THEORETICAL BACKGROUND

The main goal of the study is to study the growth rates of the number and changes in the structure of enterprises in areas with different functional specifics and thus gain knowledge about the transformations taking place in the context of the above-mentioned problem groups [3]. This also allows us to differentiate the processes of concentration and deconcentration of economic functions depending on the administrative hierarchy and location relative to the main development zones or other structural and functional units, distinguished from the point of view of the specificity and intensity of spatial development. In addition, the analysis allows us to answer the question of whether there is a concentration or deconcentration of some economic functions relative to others in the socio-economic space. Thus, the study has not only cognitive significance, but also has direct practical application (Burtnyak & Pshik, 2023).

From the point of view of achieving the set goals, the delimitation of the units that are the subject of further analysis is crucial. Given the functional specificity of the socio-economic space, it is unjustified to consider changes in the division into types of territories, for example, into administrative categories for the purposes of research on improving spatial planning related to urban centers and their suburban areas; municipalities with industrial, tourist, communication functions (two categories - intensively and extensively developed), agricultural, environmental, agro-ecological functions and a separate category of other units without clear functional specialization. This is due to the fact that a significant number of entities do not actually carry out any economic activity that is not entered into the register. However, in the case of the analysis conducted, this is not so important, since differences in the number and intensity of the emergence of enterprises were analyzed, which largely leveled the increase in the indicator of inactive entities. Enterprises registered in the public sector were excluded from the analysis. The share of

these entities in relation to their total number was about 5% in Ukraine in 2020. They were located mainly in large cities.

3. RESEARCH OBJECTIVE, METHODOLOGY AND DATA

Data on the number of enterprises was related to the number of working-age residents, which better reflects the essence of entrepreneurship and the general connection between enterprises and the socio-economic system than in the case of the total number of residents. The following synthetic indicators were used:

1) indicators of change in the intensity of business entities:

$$A = \left(\frac{N_{2022}}{Lp_{2022}} - \frac{N_{2020}}{Lp_{2020}}\right) 1000,$$

$$B = \left(\frac{N_{2024}}{Lp_{2024}} - \frac{N_{2022}}{Lp_{2022}}\right) 1000,$$

2) indicator of change in the dynamics of intensity of business entities in 2020–2024:

$$C = \frac{B}{A},$$

where: N – the number of business entities in the private sector at the end of the year; Lp – the number of people of working age at the end of the year. The following values of the intensity indicators of the number of subjects per 1000 people of working age were adopted in the study: low - below 50, medium - 50–70, high - above 70, while the median was the same for all and was: $M_{2020} = 63.2$; $M_{2021} = 62.3$; $M_{2022} = 61.6$; $M_{2023} = 62.8$; $M_{2024} = 63.9$. For the dynamics of intensity, the values of the indicators were as follows: decrease - below 95, stagnation - 95–105, increase - above 105, with the initial state of the period = 100. In the comparative analysis, the division into four main sectors of activity: agriculture, industry and services. The agricultural sector was not analyzed in great detail, since this was done in other works in addition, it is not a very large group of enterprises. (less than 3% of all entities). It should be noted that in some places the division into sectors is approximate (Burtnyak & Pshik, 2023). For example, a certain part of small business entities registered in the industrial processing section are actually engaged in service activities, for example, repair of various equipment. In conclusion of the methodological explanations, it is worth referring to the presented measures and measurement methods. The intensity of the emergence of business entities is best determined in relation to their number to the number of households, which more accurately reflects the real level of entrepreneurship. This was not possible in this analysis. This was partially corrected by using the working-age population. It is often argued that an agricultural holding, especially one that is market-oriented, operates as a small enterprise, and therefore the number of such holdings should be included in entrepreneurship indicators on the same basis as "regular" business entities (Dergachova et al., 2021).

4. RESULTS AND DISCUSSION

In 2020–2024, the number of registered enterprises decreased from 3.6 to 3.3 million, and these indicators in relation to the number of working-age population reached 151 and 144 per 1,000 of this population, respectively. In general, in 2022, there was a change in the trend from growth to a slight decline. At the same time, further differences were identified in the distribution by industry: the dynamics of the decrease in the number of service enterprises slowed down and the number of industrial and agricultural enterprises increased. However, the pace of changes in the category of individuals engaged in entrepreneurial activity slowed down. Already at the beginning, differences in the growth of the number of enterprises are noticeable, which indicates the need for further more detailed comparisons. Changes in the intensity and dynamics of enterprise activity are considered. A well-known typology based on the initial intensity of the indicator and its subsequent changes is used. Three levels of intensity of company emergence, measured in relation to the population, are

distinguished: low, medium and high, and three types of dynamics: growth, stagnation and decline. This indicates a large spatial inertia of the growth of the number of enterprises relative to individual regions.

Tab. 1

Changes in entrepreneurship indicators in Ukraine in 2020–2024

Category	The value of the indicator per 1000 inhabitants			Change in indicator		Value $C = \frac{B}{A}$
Private sector entities	2020	2022	2024	A (2020-2022)	B (2022-2024)	
	151	146	144	106.1	102.4	0.97
Agriculture	4.3	4.3	4.7	100.8	100.2	0.99
Industry	30.9	30.5	30.1	100.2	100.2	1
Service sector	70.9	70.1	69.4	107.3	106.4	0.99
Individuals conducting business activities	109.1	108.7	108.2	101.3	99.8	0.98

Source: formed by the author based on (Zagorodnyuk et al., 2023)

The second observed pattern consists of characteristic spatial patterns associated with the combination of the initial intensity of the number of enterprises and their subsequent changes. This may indicate that socio-economic development should not be limited by the factor of great distance from voivodeship centers and the lack of transfer of development incentives to greater distances. Another explanation, however, may be a very low initial state of entrepreneurship development and, as a result, a rapid increase in the number of entities and leveling off the level of business development. Further detailing of the analyses consisted in comparing the dynamics in regions belonging to different functional categories (Tab. 2). In general, there was an increase in the number of registered business entities by all types, and in percentage terms for most categories it was more than 5%.

Tab. 2

Dynamics of the intensity of the number of business entities in the private sector

Category	The value of the indicator per 1000 inhabitants	Change in indicator		Value $C = \frac{B}{A}$
		A (2020-2022)	B (2022-2024)	
Total	100	104.1	101.1	0.97
DR	145	107.3	103.4	0.96
DP	110	108.8	106.2	0.98
GR	113	102.2	97.9	0.96
GP	82	104.5	102.3	0.98
M	98	107.7	102.1	0.95
MK	106	107.8	98.2	0.91
MT	115	106.6	102.3	0.96
K1	79	106	102.6	0.97
K2	63	106.4	102.8	0.97
P	69	105.2	102.5	0.97
TP	80	106.1	103.3	0.97
T	83	105.4	103.1	0.98
R	57	104.8	102.9	0.98
RE	55	103.1	101.9	0.99
E	64	107.1	103.8	0.97

| I | 65 | 105.6 | 104.3 | 0.99 |

Source: formed by the author

Designation: DR – cores of megacities (so-called MEGA's); DP – outer zones of megacities; GR – cores of other district cities; GP – outer zones of other district and city centers; M – district cities without clear functional specialization, as a rule, with developed industrial functions, sometimes with natural and agricultural ones; MK – district cities with developed communication function; MT – district cities with developed tourist function; K1 – transport corridors with intensive use (industry, tourism); K2 – transport corridors with extensive use (including agriculture and nature protection); P – communes with developed industrial function, which are not county capitals; T – territorial communities with developed tourist function; TP – territorial communities with developed industrial and tourist functions; R – territorial communities with developed agricultural function; RE – territorial communities with a developed agricultural function together with valuable natural areas; E – territorial communities with valuable natural areas; I – other municipalities.

The highest relative growth was observed in smaller cities located on important communication routes, followed by suburban areas of the largest cities and cities with significant tourist functions. On the other hand, the lowest indicators were especially characteristic of the nuclei of medium-sized urban centers and agricultural regions, including those with valuable natural resources (Fred, 2007). However, there is a noticeable tendency to maintain relatively higher growth in urbanized areas. Higher rates were maintained especially in suburban areas of the largest cities. Moreover, a greater increase was recorded in territories with valuable natural objects and with developed tourist and industrial functions.

The industrial sector stood out among others in terms of the dynamics of the number of enterprises. This was due to the fact that, unlike lower and higher-level services, in the period after accession there was a clear increase in the number of registered activities (Tab. 3).

Tab. 3

Dynamics of the intensity of private business entities registered in industry

Category	The value of the indicator per 1000 inhabitants	Change in indicator		Value $C = \dfrac{B}{A}$
		A (2020-2022)	B (2022-2024)	
Total	100	100.5	102.2	0.97
DR	124	99.1	102.3	1.03
DP	134	99.2	104.9	1.06
GR	96	97.7	102.4	1.05
GP	94	99.6	99.1	0.99
M	93	101.8	105.3	1.03
MK	102	103.4	102.2	0.99
MT	106	102.1	104.8	1.03
K1	90	101.3	104.9	1.04
K2	75	103.8	109.3	1.05
P	89	106.9	107.3	1.00
TP	104	101.5	109.2	1.08
T	89	102.7	110.9	1.08
R	63	101.4	105.3	1.04
RE	71	98.1	106.8	1.09
E	77	101.7	107.2	1.05
I	79	101.1	109.7	1.09

Source: formed by the author

If in 2020 -2022 the growth rate of the number of enterprises in the country as a whole reached only 0.2%, then in a later period (2022-2024) this figure increased to 3.6%. At the same time, there were very large differences in individual functional categories. The weakest dynamics, and in some places a decline, were observed in urbanized areas. Despite this, the number of entities increased in almost all "urban" categories. Interestingly, there was a dominant trend towards an increase in the indicator, the stronger the smaller the urban center. However, the largest positive changes in dynamics are observed in areas located outside large cities. The increase in areas with a developed tourist function was 12.2%, and in agricultural areas located within transport corridors - 10.9%. This phenomenon means the flourishing of small-scale industrial activity, stimulated by the development of other activities and favorable location (Hu et al., 2018).

Since construction companies constitute a significant part of the industrial sector, it can be concluded that there is a boom in these services. Although this is not the result of the self-employment phenomenon mentioned at the beginning, it is probably caused by the improvement in the economic situation and investment activity. The sources of this improvement are probably the transfer of financial resources from people working abroad. In turn, studies have shown a short-term increase in demand for agricultural land, no patterns were observed caused by changes in the dynamics of the number of enterprises between the periods before and after the full-scale invasion. Initially, this may indicate a differentiation of the set of municipalities (Kasych, 2014). With an average value of the C index of 1.03, its other values in individual functional categories ranged from 0.99 (smaller cities located on transport corridors) to 1.10 (tourist and agricultural regions with valuable natural areas).

In the case of the services sector, which was mainly based on trade-related activities, an average growth of 4.6% was observed. The highest rate was recorded in smaller cities located on transport corridors and in the suburban areas of the largest cities.

At the other end were the cores of large and medium-sized urban centers, where the growth value was within the statistical error. In the remaining categories, the percentages were generally quite balanced and fluctuated between 4 and 6%. During the war, there was not only a slowdown in the dynamics of enterprise creation, but even an absolute decrease in their number (Kelly & Yudovina, 2015). This was partly due to the work carried out by statistical services to check databases, but this is not the only explanation for the changes taking place. It is worth noting that the category that recorded the largest decline, reaching 96.1% of the pre-war period, is the smaller cities located on transport corridors, i.e., those that had the greatest growth. At the same time, in the suburban areas of these centers, the decline was not so significant (at the end of 2024 it was 98.7%). However, only in one functional category - the cores of the largest cities - a slight increase was recorded. The results of changes in the dynamics of business creation in the lower-level service sector for the two comparable periods also cannot be linked in a way that would allow for an accurate explanation. It can only be noted that the spread of indicator values is much smaller than in the case of enterprises in the industrial sector. This means a clear increase in the advantage of megacities in terms of service concentration. An even greater decline was observed in smaller cities located on transport corridors. If we single out Warsaw in the study, which is at the highest level in the settlement hierarchy, it turns out that the pace of change in the higher-order service sector was particularly characteristic here. In both analyzed periods, a very high increase in intensity indicators was recorded (Kritchanchai & Hoeur, 2018). Most intriguingly, although a clear slowdown in the dynamics of private company creation in the service sector relative to the working-age population was observed across the country and in all functional categories, the situation in Kyiv was the highest (Kyzym, 2007). This clearly confirms the findings about socio-economic polarization. Interestingly, in the largest cities of Ukraine, the growth rates slowed down significantly (Tab. 4-5).

Of the 17 largest cities, only five saw an increase in the number of service sector entities in the period after the war than in the period before the war (Li et al., 2016).

Tab. 4

Dynamics of the intensity of the number of private business entities registered in the services sector in 2020–2022

Category	The value of the indicator per 1000 inhabitants	Change in indicator A (2020-2022)	B (2022-2024)	Value $C = \frac{B}{A}$
Total	100	112.1	107.8	0.97
DR	180	114.5	111.3	0.97
DP	95	120.1	110.8	0.92
GR	130	106.4	102.4	0.96
GP	62	112.8	107.8	0.96
M	97	115.4	104.4	0.90
MK	102	111.7	102.2	0.91
MT	110	116.3	104.1	0.90
K1	57	121.3	104.9	0.86
K2	40	119.2	102.8	0.86
P	48	115.3	104.7	0.91
TP	51	114.6	102.8	0.90
T	56	119.1	105.6	0.89
R	33	115.9	104.1	0.90
RE	31	117.4	98.9	0.84
E	29	118.2	110.1	0.93
I	42	121.7	105.6	0.87

Source: formed by the author

Tab. 5

Dynamics of changes in the intensity of the number of business entities in the private sector relative to the working-age population

City	Pre-war period		War period	
	Together	Service sector	Together	Service sector
Vinnytsia	90.5	98.3	89.9	98.6
Dnipro	105.9	117.1	107.2	117.9
Zhytomyr	103.1	107.3	98.2	106.1
Zaporizhzhia	96.1	101.5	95.3	102.4
Ivano-Frankivsk	106.8	114.3	107.9	118.2
Kyiv	107.9	118.2	106.3	120.1
Lviv	106.3	115.4	105.9	118.1
Lutsk	98.1	101.3	98.1	102.4
Mykolaiv	98.5	102.4	98.9	101.3
Odesa	104.3	108.2	103.5	108.9
Rivne	98.6	102.3	97.5	103.6
Sumy	98.1	101.2	97.8	102.4
Ternopil	101.4	104.3	100.8	105.7
Kharkiv	106.3	116.1	103.8	118.4
Khmelnytskyi	105.1	109.8	104.6	110.5
Chernivtsi	104.8	108.7	103.1	109.9
Chernihiv	98.5	104.3	97.5	103.6

Source: formed by the author

The arrival of companies and the general concentration of service sector activity were observed earlier in Kharkiv and Dnipro. However, if in the first period of transformation the rapidly growing advantage of Kyiv was indeed noticeable, then later more complex fluctuations occurred, contradicting the thesis about the process of concentration and polarization of capital (Zagorodnyuk et al., 2023). The years 2020–2022 were especially characteristic, when the level of concentration of enterprises in Kyiv and Kyiv region decreased in relation to the whole country.

5. CONCLUSIONS

The main objective of the work was to investigate whether the moment of the beginning of the war with the Russian Federation was a significant turning point in the dynamics of the creation and changes in the structure of private enterprises. The analysis conducted provides a positive answer to this question. Until 2022, an increase in the number of enterprises was observed in relation to the working population, and after this period a generally reverse trend is observed. A detailed answer to the question of the reasons for this state of affairs is extremely difficult given the current level of knowledge, but two categories of explanations can be offered that are strongly opposed to each other. Given the current state of knowledge, the first group of explanations looks more likely. This is especially confirmed by observations of processes of episodic growth in demand for agricultural land. Studies have shown differences in the development of entrepreneurship depending on the sectors of activity and the functional specificity of municipalities. Firstly, in the period after the accession, the dynamics of service facilities weakened, and the importance of the industrial and construction sectors increased. Secondly, municipalities were differentiated depending on their geographical location and economic functions. Megacities benefited the most. The situation on the periphery was more complicated. It turned out that in some backward parts of the country, but which were far from the fighting, there was a dynamic growth in the number of enterprises, especially in industry and construction. The mechanism here seems to be more complex, and one of the reasons may be the emigration of domestic specialists abroad, caused by the opening of labor markets in some EU countries, as well as more frequent illegal employment. The employment deficit in the country can be filled by creating companies by people who were previously unemployed or worked in other, related or unrelated, industries. Thus, we would be dealing with a kind of hierarchy of movement of enterprises and people providing construction and installation services: workers with more experience would go abroad, and their place would be taken by new personnel. The rapid growth of the number of enterprises in non-urbanized areas is particularly desirable from the point of view of regional development. Despite these positive processes, the growing socio-economic polarization is a cause for concern. The capital region has a higher rate of enterprise creation and the intensity of entrepreneurship compared to the population living in them. Among the most developed centers is Kyiv. Thus, we are dealing with polarization processes at different hierarchical levels. Large cities are ahead of smaller ones, smaller ones are ahead of peripheral areas, and the capital is ahead of all. A mosaic spatial structure is being created, but with certain hierarchical features. Interestingly, the view on the mosaic spatial structure of civil society has recently been supported. It has been shown that endogenous factors such as the level of education, a stable economic situation, and a low unemployment rate were of the greatest importance in the process of its formation. Clear patterns or references to known models of regional development, especially the center-periphery model, have not been identified, which creates the need to search for new interpretations and new theoretical concepts. For example, it turns out that despite the hierarchical nature of the settlement system and the sometimes-established division into development centers and their hinterland, there are territories that do not correspond to this scheme. Undoubtedly, this is partly the result of the reorganization of socio-economic systems, which consists in the increasing loss of intra-regional ties and the rupture of hierarchical vertical ones, but it is not obvious to what extent this affects all the current changes. Against this background, the situation with urban centers of the second and third levels, as

they are observed after 2022, the low dynamics of the growth of the number of enterprises persisted, and sometimes even weakened. This not only indicates the differentiation of structural and functional changes, but may also be an indicator of the leaching of economic functions by larger, more competitive centers. The shadow of Kyiv was noticeable in the case of the leaching of human capital as a result of the migration of entrepreneurs. Studies also indicate stronger processes of economic urbanization in western Ukraine. In this context, the development of metropolitan and higher functions is especially desirable, although they are limited to the largest urban centers. Ultimately, conclusions can be drawn about the instability of the development of the spatial structure of the country - however, they inspire hope for regional development and overcoming barriers caused by history, civilization and culture.

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У цій статті проведено порівняння динаміки зміни кількості підприємств по відношенню до населення працездатного віку. Використано поділ видів економічної діяльності на основні сектори. Основною метою цього дослідження є аналіз темпів зростання кількості підприємств та структури підприємств у секторах з різними функціональними характеристиками, що дозволяє отримати інформацію про трансформації, які відбуваються в контексті вищезазначених питань. Це також дозволяє виокремити процеси концентрації та деконцентрації економічних функцій відповідно до їх відносного положення щодо адміністративної ієрархії, основних регіонів розвитку або інших структурно-функціональних одиниць, визначених з точки зору специфіки та інтенсивності просторового розвитку. Результати дослідження свідчать про зниження просторової динаміки приватних підприємств, інерційність, просторову поляризацію та мозаїчність. Дати розгорнуті відповіді на питання про причини такої ситуації, враховуючи поточний рівень знань, надзвичайно складно, але можна запропонувати два підходи. Перший підхід підтверджується спостереженнями за періодичним зростанням попиту, особливо на землі сільськогосподарського призначення. *Дослідження показали, що існують відмінності у розвитку підприємництва залежно від сфери діяльності та функціональних особливостей муніципалітету.* По-друге, у період після початку війни динаміка розвитку об'єктів сфери послуг послабилася, а значення промислового та будівельного секторів зросло. Муніципалітети були диференційовані відповідно до їхнього географічного розташування та економічних функцій. Найбільше виграли столичні райони. Ситуація на периферії була складнішою. У більш відсталих регіонах, віддалених від війни, кількість підприємств динамічно зростала, особливо в промисловому та будівельному секторах. Дефіцит робочих місць у країні міг бути заповнений за рахунок створення підприємств людьми, які раніше були безробітними або працювали в суміжних і не суміжних галузях. Таким чином, рух підприємств та фізичних осіб, що надають будівельно-монтажні послуги, стане своєрідною ієрархією, коли досвідчені працівники виїжджатимуть за кордон, а на їхнє місце приходитимуть нові. Швидке зростання підприємств у неміських районах є особливо бажаним з точки зору регіонального розвитку.

Ключові слова: підприємство, підприємництво, динаміка діяльності підприємств, синтетичні показники, соціально-економічний простір.