“Model of assessment of financial imbalances in regions of Ukraine”

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MODEL OF ASSESSMENT OF FINANCIAL IMBALANCES IN REGIONS OF UKRAINE

Abstract

The article analyzes the model of financial imbalances in the regions, which allows assessing the effects of implementing various options of the financial regional policy aimed at reducing the depth of the crisis in regional systems, smoothing cyclical fluctuations, leveling the levels of socioeconomic development of the territories.

The financial imbalances of regions of Ukraine are estimated on the basis such as indicators of gross regional product, gross regional product per capita, index of physical volume of gross regional product in comparative prices (in the prices of the previous year), economically active population by regions, population incomes, and level of capital investments by region. In the process of assessing the financial imbalances of the regions, a constant study of the structure of the fluctuations of the values of these indicators, was conducted determining the significance of each size in the overall structure and identifying the features of the system development in different ranges.

Based on the assessment of financial imbalances in the development of regions, the causes and consequences of significant imbalances in the economic system were identified, and directions for increasing the efficiency of regional policy were proposed. In turn, the assessment of financial imbalances in the regions makes it possible to consider the influence of factors on the development of regions, because in some cases, the regional socioeconomic system perceives positively, in others – negatively. Therefore, it must have elements that contribute to the transformation of its parameters in the conditions of changing environment and, at the same time, ensuring the maintenance of regional stability.

Keywords

Region, developmental imbalances, model of assessment, estimation of financial imbalances

JEL Classification

C13, R13, R58

INTRODUCTION

Today, the regional economic space of Ukraine is a complex, dynamic, open system, which creates the basis for the processes of inter-region alinteraction, integration and transformation processes.

Regional heterogeneity of sustainable development of the regions of the state is permissible only before a certain limit for which economic security is guaranteed countries and not ineffective interregional the transfer of capital, labor and other factors of production (Vakhovych, Kaminska, & Ropotan, 2015).

However, it should be noted that at the current stage, no international or domestic model for assessing financial imbalances in the region's development has been developed, and there is no consensus and scientific approaches. In literary sources, quantitative and qualitative methods are used to assess the development of regions (Vakhovych et al. 2015; Bilotserkivets & Zavhorodnia, 2009; Pilko & Harda, 2017).
It should be noted that the issue of the development of economic, social and environmental processes in the work of scholars is highlighted, as a rule, at national and regional levels. At the same time, as noted in the paper of Pilko and Harda (2017), the corresponding development at the level of territorial systems of the region and the united territorial communities is practically absent.

The current stage of development of financial imbalances of regions is characterized by significant disproportions, the strengthening of which becomes one of the factors that destabilizes influence on levels of economic growth.

As scientists point out in their writings (Pepa, 2013; Krasnonosova & Yermolenko, 2013; Zheleznyakov & Risin, 2017; Vdovichen & Vdovichen, 2015), the general tendency of the development of regions in modern conditions is the deepening of all types of regional disproportions of the country’s economic space, the growing contradiction between the formed territorial and sectoral structure of the economic complex of the country and its regions, and the needs for the creation of a competitive and highly productive system of social production (Pilko & Harda, 2018).

In Ukraine, the processes of assessing regional development are regulated by the Cabinet of Ministers Resolution "On the introduction of an assessment of the inter-regional and intra-regional differentiation of socio-economic development of regions" (Cabinet of Ministers of Ukraine, 2009). This methodology regulates the evaluation procedure as well as the comparative analysis of the socio-economic situation, the level and quality of life of the population with a view to adopting appropriate management decisions at the state, regional and local levels aimed at solving the problem of interregional and intra-regional asymmetry and the uneven socio-economic development from to prevent the development of processes that lead to a deepening of the differentiation and the formation of depressed territories (Cabinet of Ministers of Ukraine, 2009).

In accordance with this method, it is recommended to do the following:

- firstly, to identify the differences between the most prosperous and most problematic territorial systems and regions;
- secondly, to determine the intervals and nature of deviations of the values of socio-economic indicators of the studied territorial systems and regions from their mean value (Cabinet of Ministers of Ukraine, 2009).

To date, sustainable development of the regions is effective only when not only the theoretical provisions are developed, but also the authorities have put in place appropriate measures of influence on the territory of the regional system. An important aspect is the development of a methodology for assessing financial imbalances in the development of regions. This will enable the implementation of effective measures to enhance the internal capacity of the regions on the basis of a comprehensive analytical study of financial imbalances in the development of regions.

1. THEORETICAL BASIS

In assessing the sustainability of regional development, taking into account the impact of economic, social, environmental and institutional factors is very important. In addition, the assessment of regional financial imbalances allows us to identify the tools, parts of mechanisms and mechanisms for managing the sustainability of the region’s development, which needs modernization. A comprehensive analysis of the socioeconomic situation in the regions and the assessment of the dynamics of sustainable development is also needed when solving problems of forecasting, planning, and implementation of the strategy of the regions, and comparing the achieved position with the set goals, and taking into account the degree of their achievement.
The model for assessing financial imbalances in the development of regions includes two main blocks (Figure 1).

Thus, the model of financial regulation of the territories allows to carry out various forecast calculations of economic development of regions and the state depending on the adopted policy of state financial regulation (Ponomarenko, Kleybanova, & Kizima, 2011).

The decision to use one or another type of model is based on the Hausman test, which, however, often does not give a final answer to the correct choice (Khomyak, 2017).

Clarke and Linzer (2015), discussing the problem of choosing between fixed and random effects in constructing panel regressions, argue that, despite the fact that the main argument against the use of random effects models is the potential correlation of explanatory variables with latent regional characteristics, this does not mean that the problem is not inherent to fixed-effect models.

Clarke, Crawford, Steele, and Vignoles (2010) argue that fixed-effect models are often used by default, at the same time, how the choice of model should be set for research purposes. Thus, the use of a certain type of model should be due to the specific goals of the researcher.

We propose an assessment of regional financial imbalances using a scorecard model that includes the following steps (Figure 2).
For a more detailed assessment of the financial imbalances of the regions of Ukraine, we will analyze not only the gross regional product, but also the gross regional product per capita, the index of the physical volume of the gross regional product at comparative prices (in the prices of the previous year), economically active population, incomes, capital investment.

2. RESULTS

2.1. Analysis of the gross regional product by region of Ukraine

The most universal indicator of the assessment of financial imbalances in the regions is the gross regional product, which characterizes not only the level of development of the regional economy, but also the peculiarities of its sector structure, the efficiency of the functioning of individual sectors, branches and synthesizes the influence of a number of factors: the amount and availability of available resources, achieved in the region the level of technical development that determines the quality and productivity of the technological base of the economy, accumulated innovative potential, the quality of labor resources, production of ideas and innovation (Melnik, 2012).

The dynamics of the gross regional product of Ukraine and regions for 2013–2017 is shown in Table 1.

### Table 1. Dynamics of the gross regional product of Ukraine and regions for 2013–2017

| Regions                      | 2013   | 2014¹ | 2015¹ | 2016¹ | 2017¹ | Deviation (4, –3), 2017/2013, times |
|-----------------------------|--------|-------|-------|-------|-------|-------------------------------------|
| Amount, UAH million         |        |       |       |       |       | The pace of change, 2017/2013, times |
| Specific weight, %          |        |       |       |       |       |                                     |
| Amount, UAH million         |        |       |       |       |       |                                     |
| Specific weight, %          |        |       |       |       |       |                                     |

### Note:
1. The data are given without taking into account the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol and part of the temporarily occupied territories in the Donetsk and Luhansk regions.
According to Table 1, the largest gross regional product for 2013–2017 was observed in Kyiv, Dnipropetrovsk and Donetsk regions. Thus, this indicator in Kyiv has a tendency to increase from UAH 312,552 million in 2013 to UAH 642,549 million in 2017, that is, by UAH 329,997 million or 2.1 times. In the Donetsk region in 2013–2017, there is also a tendency to increase by 122,912 million UAH or 1.8 times. At the same time, the gross regional product for 2013–2017 in the Donetsk region dropped from 164,926 million UAH in 2013 to UAH 128,775 million in 2017, i.e. by 36,151 or 0.8 times.

The smallest amount of the gross regional product for the analyzed period is observed in Chernivtsi (23,829 million USD in 2017), Ternopil (35,466 million USD in 2017), Rivne (45,361 million USD in 2017), Zakarpattia (36,170 million USD in 2017), Volyn (41,030 million UAH in 2017) regions.

In some regions, there is a tendency towards a decrease in the share of gross regional product in the total volume of the gross regional product of Ukraine (Table 1). For example, in Donetsk region in 2013, the share of the gross regional product was more than in 2017 and amounted to 10.8% of the gross regional product of Ukraine, and in 2017 – 4.8%.

Graphically, the dynamics of the share of regions in the gross regional product of Ukraine for 2013–2017 is shown in Figure 3. As can be seen from the data shown in Figure 3, significant changes in the share of the gross regional product of regions in the total volume of the gross regional product of Ukraine for 2013–2017 are observed in those areas where the contribution was most significant.

So, in Kyiv, we see an increase of this indicator from 20.5% in 2013 to 24.1% in 2017; in Dnipropetrovsk region – from 10.0% in 2013 to 10.3% in 2017; in Poltava – from 10.0% in 2013 to 10.3% in 2017; in Odesa – from 4.6% in 2013 to 5.1% in 2017.

2.2. Analysis of gross regional product per capita by regions of Ukraine

An important place in the assessment of financial imbalances in the development of regions of Ukraine is the gross regional product per capita, since this indicator reflects not only the process of production of goods and services, but also the population living in this territory (Table 2).
Analysis of the dynamics of gross regional product per capita by regions of Ukraine is given in Table 1, which shows that in spite of the political crisis in the country, in the period 2013–2017, its size in the majority of Ukraine’s regions tended to increase.

According to Table 2, gross regional product per capita in Ukraine tended to increase by 1.9 times in 2017 compared to 2013. At the same time, we see the highest growth in such regions as: Vinnytsya (2.5 times in 2017 compared to 2013), Zhytomyr (2.2 times in 2017 compared to 2013), Zaporizhzhia (2.3 times in 2017 compared to 2013), Kirovohrad (2.2 times in 2017 compared to 2013), Poltava (2.4 times in 2017 compared to 2013), Khmelnytskyi (2.2 times in 2017 compared to 2013), as well as in Kyiv (2.0 times in 2017 compared to 2013) and other regions.

2.3. Estimation of the index of the gross volume of gross regional product in comparative prices (in prices of the previous year)

An important indicator in assessing financial imbalances in the regions is also the index of the physical volume of the gross regional product in comparative prices (in the prices of the previous year).

The dynamics of the index of the physical volume of the gross regional product in the comparative prices (in the prices of the previous year) for 2013–2017 is shown in Table 3.

According to Table 3, we observe that the index of physical gross regional product in the compara-

Table 2. Dynamics of the gross regional product in the calculation per capita for 2013–2017

| Regions                      | 2013   | 2014¹   | 2015² | 2016³ | 2017⁴ | Deviations (+, –), 2017/2013, times | The pace of change, 2017/2013, times |
|------------------------------|--------|--------|------|------|------|-----------------------------------|------------------------------------|
| Ukraine                      | 33,473 | 36,904 | 46,413| 55,899| 63,578| 30,105                            | 1.9                                |
| Autonomous Republic of Crimea| 23,595 |        |      |      |      |                                   |                                    |
| Vinnytsya                    | 22,303 | 27,249 | 37,270| 46,615| 54,911| 32,608                            | 2.5                                |
| Volyn                        | 19,817 | 23,218 | 30,387| 34,310| 39,375| 19,558                            | 2.0                                |
| Dnipropetrovsk               | 46,333 | 53,749 | 65,897| 75,396| 85,330| 39,997                            | 2.3                                |
| Donets                       | 37,830 | 27,771 | 26,864| 32,318| 30,574| –7,256                            | 0.8                                |
| Zhytomyr                     | 20,286 | 23,678 | 30,699| 38,520| 44,692| 24,406                            | 2.2                                |
| Zakarpatia                   | 17,044 | 19,170 | 22,989| 25,727| 28,714| 11,670                            | 1.7                                |
| Zaporizhzhia                 | 30,326 | 37,251 | 50,609| 59,729| 69,826| 39,300                            | 2.3                                |
| Ivano-Frankivsk              | 24,022 | 27,232 | 33,170| 37,220| 41,773| 17,751                            | 1.7                                |
| Kyiv                         | 39,988 | 46,058 | 60,109| 74,216| 85,890| 45,902                            | 2.1                                |
| Kirovohrad                   | 25,533 | 29,223 | 39,356| 47,469| 55,063| 29,530                            | 2.2                                |
| Luhanske                     | 24,514 | 28,731 | 37,338| 45,319| 52,294| 27,357                            | 2.1                                |
| Mykolaiv                     | 27,355 | 30,357 | 41,501| 50,091| 58,026| 30,671                            | 2.1                                |
| Odesa                        | 29,118 | 31,268 | 41,682| 50,159| 57,513| 28,395                            | 2.0                                |
| Poltava                      | 39,962 | 48,040 | 66,390| 81,145| 95,335| 55,373                            | 2.4                                |
| Rivne                        | 19,003 | 24,762 | 30,350| 33,958| 39,003| 20,000                            | 2.1                                |
| Sumy                         | 23,517 | 26,943 | 37,170| 41,741| 48,231| 24,714                            | 2.1                                |
| Ternopil                     | 16,819 | 20,228 | 24,963| 29,247| 33,449| 16,630                            | 2.0                                |
| Kharkiv                      | 31,128 | 35,328 | 45,816| 57,150| 66,005| 34,877                            | 2.1                                |
| Kherson                      | 19,311 | 21,725 | 30,246| 36,585| 42,619| 23,308                            | 2.2                                |
| Khmelnytskyi                 | 20,165 | 24,662 | 31,660| 37,881| 43,086| 23,731                            | 2.2                                |
| Chernivtsi                   | 15,154 | 16,522 | 20,338| 23,365| 26,207| 11,053                            | 1.7                                |
| Chernihiv                    | 22,603 | 26,330 | 35,196| 41,726| 48,330| 25,727                            | 2.1                                |
| Kyiv (city)                  | 109,402| 124,163| 155,904|191,736| 219,610| 110,208                           | 2.0                                |
| Sevastopol                   | 28,765 | ...    | ...   | ...   | ...   | –28,765                           | ...                                |

Note: ¹ The data are given without taking into account the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol and part of the temporarily occupied territories in the Donets and Luhans regions.
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Table 3. Dynamics of the index of physical volume of gross regional product in comparative prices (in prices of the previous year) for 2013–2017

| Regions                  | 2013  | 2014  | 2015  | 2016  | 2017  | Deviations (+, –), 2017/2013, times | The pace of change, 2017/2013, times |
|--------------------------|-------|-------|-------|-------|-------|-----------------------------------|-----------------------------------|
| Ukraine                  | 100.0 | 93.4  | 90.2  | 102.4 | 102.5 | 2.5                               | 1.0                               |
| Autonomous Republic of Crimea | 101.0 | ...   | ...   | ...   | ...   | ...                               | ...                               |
| Vinnytsia                | 104.8 | 104.6 | 97.1  | 106.5 | 101.2 | –3.6                              | 1.0                               |
| Volyn                    | 99.3  | 101.1 | 95.3  | 108.2 | 103.3 | 4                                 | 1.0                               |
| Dnipropetrovsk           | 99.3  | 95.1  | 90.3  | 98.4  | 103.1 | 3.8                               | 1.0                               |
| Donetsk                  | 94.7  | 67.1  | 61.3  | 99.1  | 92.5  | –2.2                              | 1.0                               |
| Zhytomyr                 | 101.9 | 103.6 | 98.1  | 105.2 | 102.7 | 0.8                               | 1.0                               |
| Zakarpattia              | 100.6 | 102.8 | 93.5  | 97.3  | 99.4  | –1.2                              | 1.0                               |
| Zaporizhzhia             | 99.3  | 100.4 | 94.7  | 99.7  | 104.7 | 5.4                               | 1.1                               |
| Ivano-Frankivsk          | 97.7  | 97.6  | 92.0  | 99.0  | 106.3 | 8.6                               | 1.1                               |
| Kyiv                     | 93.4  | 99.4  | 94.0  | 105.7 | 105.2 | 11.8                              | 1.1                               |
| Kirovohrad               | 109.5 | 100.6 | 91.7  | 105.0 | 95.2  | –14.3                             | 0.9                               |
| Luhansk                  | 92.2  | 61.0  | 47.7  | 118.0 | 86.4  | –5.8                              | 0.9                               |
| Lviv                     | 98.8  | 100.9 | 95.2  | 99.3  | 101.5 | 2.7                               | 1.0                               |
| Mykolai                 | 104.4 | 98.4  | 95.3  | 105.6 | 98.6  | –5.8                              | 0.9                               |
| Odesa                    | 105.7 | 98.3  | 95.8  | 104.2 | 106.6 | 0.9                               | 1.0                               |
| Poltava                  | 94.4  | 96.0  | 93.8  | 97.9  | 95.8  | 1.4                               | 1.0                               |
| Rivne                    | 96.9  | 102.6 | 93.4  | 100.3 | 100.5 | 3.6                               | 1.0                               |
| Sumy                     | 102.7 | 100.4 | 96.7  | 96.6  | 103.7 | 1                                 | 1.0                               |
| Ternopil                 | 96.6  | 108.0 | 93.7  | 98.5  | 103.6 | 7                                 | 1.1                               |
| Kharkiv                  | 98.8  | 97.9  | 90.9  | 102.1 | 99.8  | 1                                 | 1.0                               |
| Kherson                  | 101.1 | 99.7  | 98.7  | 102.8 | 100.5 | –0.6                              | 1.0                               |
| Khmelnytskyi             | 96.9  | 102.3 | 92.2  | 104.7 | 109.0 | 12.1                              | 1.1                               |
| Cherkasy                 | 100.7 | 98.9  | 95.0  | 101.8 | 98.0  | –2.7                              | 1.0                               |
| Chernivtsi               | 101.5 | 98.3  | 94.7  | 99.4  | 100.3 | –1.2                              | 1.0                               |
| Chernihiv                | 95.8  | 100.5 | 93.4  | 100.6 | 99.7  | 3.9                               | 1.0                               |
| Kyiv (city)              | 106.4 | 96.1  | 93.3  | 105.5 | 107.4 | 1                                 | 1.0                               |
| Sevastopol               | 106.0 | ...   | ...   | ...   | ...   | ...                               | ...                               |

Note: 1 The data are given without taking into account the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol and part of the temporarily occupied territories in the Donetsk and Luhansk regions.

Along with this, we observe the growth of this indicator for the period under study in the following regions: Volyn (by 4% or 1.0 times), Dnipropetrovsk (by 3.8% or 1.0 times), Zhytomyr (by 0.8 % or 1.0 times), Zaporizhzhia (5.4% or 1.1 times), Ivano-Frankivsk (by 8.6% or 1.1 times), Kyiv (by 11.8% or by 1, 1 times), Lviv (by 2.7% or 1.0 times), Odesa (by 0.9% or 1.0 times), Poltava (by 1.4% or 1.0 times), Rivne (by 3.6% or 1.0 times), Sumy (by 1% or 1.0 times), Ternopil (by 7% or by 1.1 times), Kharkiv (by 1% or by 1.0 times), Khmelnytskyi (12.1% or 1.1 times), Chernihiv (3.9% or 1.0 times). At the same time, there was a decrease in this indicator in the following regions: Vinnytsia, Donetsk, Zakarpattia, Kirovohrad, Luhansk, Mykolai, Kherson, Cherkasy, Chernivtsi.

2.4. Analysis of economically active population by regions of Ukraine

Analyzing the indicators of financial imbalances in the development of regions, one can notice that the financial imbalances in the regional economy have a positive effect on the socioeconomic development of the regions, but the number of economically active population can make the opposite conclusion. The dynamics of the economically active population by region for 2013–2017 is given in Table 4.
According to Table 4, we observe a decrease in the economically active population in 2013–2017 in Ukraine by 4,964.1 thousand people, that is, from 21,980.6 thousand people in 2013 to 17,016.5 thousand people in 2017 or 0.77 times. Along with this, we see a reduction in all regions of Ukraine. The largest decrease in the economically active population for 2013–2017 affected the following regions: Dnipropetrovsk (by 118.6 thousand people or 0.93 times), Donetsk (by 1,750.2 thousand people or 0.18 times), Luhansk (1,002 thousand people or 0.07 times), Zaporizhzhia (84.2 thousand people or 0.90 times). The main trend in this situation is the development of financial innovation. As for the incomes of the population by regions of Ukraine in 2013–2017, then from Table 6 it is clear that the imbalance in the profitability of economic districts and the development of financial imbalances in the regions of Ukraine are the important factors in the growth of incomes.

### Table 4. The dynamics of economically active population by region for 2013–2017

| Regions               | 2013  | 2014 | 2015 | 2016 | 2017 | Deviations (+, −), 2017/2013, times | The pace of change, 2017/2013, times |
|-----------------------|-------|------|------|------|------|-----------------------------------|-----------------------------------|
| Ukraine               | 21,980.6 | 19,920.9 | 18,097.9 | 17,955.1 | 17,016.5 | −4,964.1 | 0.77 |
| Autonomous Republic of Crimea | 966.2 | ... | ... | ... | ... | −966.2 | ... |
| Vinnitsia             | 769.0 | 739.2 | 741.2 | 729.8 | 718.2 | −50.8 | 0.93 |
| Volyn                 | 483.6 | 455.4 | 440.4 | 431.8 | 414.8 | −68.8 | 0.86 |
| Dnipropetrovsk        | 1,637.8 | 1,601.7 | 1,594.9 | 1,547.1 | 1,519.2 | −118.6 | 0.93 |
| Donetsk               | 2,133.7 | 1,968.8 | 1,877.7 | 1,871.3 | 1,835.3 | −1,750.2 | 0.18 |
| Zhytomyr              | 609.1 | 581.4 | 577.2 | 571.3 | 558.9 | −50.2 | 0.92 |
| Zakarpattia           | 586.8 | 574.5 | 571.8 | 561.8 | 554.0 | −32.8 | 0.94 |
| Zaporizhzhia          | 879.6 | 844.8 | 825.5 | 816.3 | 795.4 | −84.2 | 0.90 |
| Ivano-Frankivsk       | 606.5 | 595.9 | 609.5 | 610.4 | 612.9 | 6.4 | 1.01 |
| Kyiv                  | 807.8 | 786.9 | 790.6 | 789.8 | 784.8 | −23 | 0.97 |
| Kirovohrad            | 471.0 | 440.3 | 436.6 | 428.8 | 415.8 | −55.2 | 0.88 |
| Luhansk               | 1,078.0 | 990.3 | 362.7 | 355.5 | 76.0 | −1,002.3 | 0.07 |
| Lviv                  | 1,189.0 | 1,135.4 | 1,134.7 | 1,134.9 | 1,118.6 | −70.4 | 0.94 |
| Mykolaiv              | 577.1 | 551.6 | 558.2 | 551.4 | 544.4 | −32.7 | 0.94 |
| Odesa                 | 1,124.0 | 1,081.9 | 1,086.3 | 1,073.1 | 1,058.3 | −56.7 | 0.94 |
| Poltava               | 706.0 | 681.2 | 664.3 | 653.0 | 635.4 | −70.6 | 0.90 |
| Rivne                 | 546.3 | 532.7 | 541.4 | 530.5 | 526.6 | −19.7 | 0.96 |
| Sumy                  | 558.7 | 532.0 | 523.3 | 527.3 | 517.0 | −41.7 | 0.93 |
| Ternopil              | 489.1 | 469.1 | 460.3 | 460.4 | 450.9 | −38.2 | 0.92 |
| Kharkiv               | 1,370.6 | 1,328.8 | 1,324.2 | 1,321.2 | 1,305.9 | −64.7 | 0.95 |
| Kherson               | 524.6 | 499.8 | 496.6 | 496.9 | 488.3 | −36.3 | 0.93 |
| Khmelnytskyi          | 623.6 | 575.9 | 557.1 | 563.1 | 543.1 | −80.5 | 0.87 |
| Cherkasy              | 617.3 | 584.3 | 580.2 | 577.3 | 564.9 | −52.4 | 0.92 |
| Chernivtsi            | 423.0 | 407.4 | 404.9 | 411.8 | 399.9 | 89.6 | 1.21 |
| Chernihiv             | 521.8 | 494.8 | 483.9 | 478.7 | 464.7 | −57.1 | 0.89 |
| Kyiv (city)           | 1,490.6 | 1,466.8 | 1,460.4 | 1,461.6 | 1,452.3 | −38.3 | 0.97 |
| Sevastopol            | 189.8 | ... | ... | ... | ... | −189.8 | ... |

Note: 1 The data are given without taking into account the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol and part of the temporarily occupied territories in the Donetsk and Luhansk regions.
2.5. Estimation of living standards by regions of Ukraine

The main indicators of the standard of living of the population are household incomes, available income, disposable income per capita, real disposable income, in % to the corresponding period of the previous year, which leads to significant imbalances in the social subsystems of the regions. The dynamics of these indicators for 2013–2017 is given in Table 5.

According to Table 5, we observe that in the years 2013–2017, there has been an increase in these indicators in most regions of Ukraine.

At the same time, the main problem of financial imbalances in the regions of Ukraine is seen in the aggravation of corporate governance, the essence of which is that managers managing assets are trying to obtain a profit, in addition, because of the cost of corporations in the financial markets, they reduce their own funds, which leads to increased risk and uncertainty, which in turn leads to a reduction in investment in the real economy (Krippner, 2005).

2.6. Capital investment analysis by region

Investment activity is one of the key indicators of the economic development of the regions. The higher the investment activity of the business and the public sector, the better the prospects of economic growth, job creation, higher incomes, and increased demand for goods and services. Investment activity in the regions of Ukraine is very unbalanced and especially emphasizes the gap in the potential of regions to attract investors – national or international.

It should be noted that all regions have more or less the same need for capital investments, as the degree of wear and tear of fixed assets in Ukraine is catastrophically high and is constantly increasing.

The dynamics of capital investments by region for 2010–2017 is shown in Table 6.

Analysis of the data given in Table 6 allows us to conclude that the distribution of capital investments in the regional system is asymmetric. Thus, it should be noted the growth of capi-
Table 5. Revenues by regions of Ukraine for 2013–2017

| Regions                           | 2013 Revenues, mln. UAH | 2013 Available income, mln. UAH | 2013 Available income per capita, UAH | 2013 Real disposable income, in % to the corresponding period of the previous year |
|-----------------------------------|-------------------------|---------------------------------|--------------------------------------|-----------------------------------------------------------------------------|
| Ukraine                           | 1,548,733               | 1,316,768                       | 1,772,016                            | 2,051,331                                                                   |
| Autonomous Republic of Crimea     | 57,324                  |                                 | 44,816                               |                                                                             |
| Vinnytsia                         | 46,157                  |                                 |                                     |                                                                             |
| Volyn                             | 26,907                  |                                 |                                     |                                                                             |
| Dnipropetrovsk                    | 124,594                 |                                 |                                     |                                                                             |
| Donetsk                           | 166,366                 |                                 |                                     |                                                                             |
| Zhytomyr                         | 34,947                  |                                 |                                     |                                                                             |
| Zakarpattia                       | 29,102                  |                                 |                                     |                                                                             |
| Zaporizhzhia                      | 62,671                  |                                 |                                     |                                                                             |
| Ivano-Frankivsk                   | 37,310                  |                                 |                                     |                                                                             |
| Kyiv                              | 58,894                  |                                 |                                     |                                                                             |
| Kiev                              | 27,695                  |                                 |                                     |                                                                             |
| Luhansk                           | 71,485                  |                                 |                                     |                                                                             |
| Lviv                              | 75,762                  |                                 |                                     |                                                                             |
| Mykolaiv                          | 35,125                  |                                 |                                     |                                                                             |
| Odesa                             | 78,285                  |                                 |                                     |                                                                             |
| Poltava                           | 46,984                  |                                 |                                     |                                                                             |
| Rivne                             | 31,811                  |                                 |                                     |                                                                             |
| Sumy                              | 33,469                  |                                 |                                     |                                                                             |
| Ternopil                          | 26,345                  |                                 |                                     |                                                                             |
| Kharkiv                           | 91,333                  |                                 |                                     |                                                                             |
| Kherson                           | 29,489                  |                                 |                                     |                                                                             |
| Khmelnitskyi                      | 36,770                  |                                 |                                     |                                                                             |
| Cherkasy                          | 35,024                  |                                 |                                     |                                                                             |
| Chernivtsi                        | 22,408                  |                                 |                                     |                                                                             |
| Chernihiv                         | 30,393                  |                                 |                                     |                                                                             |
| Kyiv (city)                       | 218,747                 |                                 |                                     |                                                                             |
| Sevastopol                        | 13,136                  |                                 |                                     |                                                                             |

Note: 1 The data are given without taking into account the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol and part of the temporarily occupied territories in the Donetsk and Luhansk regions.
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Table 6. Dynamics of capital investments by regions for 2010–2017

| Regions         | 2013       | 2014¹     | 2015²     | 2016³     | 2017⁴     | Deviations (+, –), 2017/2013, times | The pace of change, 2017/2013, times |
|-----------------|------------|-----------|-----------|-----------|-----------|-----------------------------------|-------------------------------------|
| Ukraine         | 249,873.4  | 219,419.9 | 273,116.4 | 359,216.1 | 448,461.5 | 198,588.1 1.8 |                                    |
| Vinnytsia       | 6,109.5    | 5,674.6   | 7,373.0   | 8,301.9   | 11,744.1  | 5,634.6  1.9 |                                    |
| Volyn           | 3,327.1    | 3,389.7   | 6,166.8   | 6,384.2   | 7,041.9   | 3,714.8  2.1 |                                    |
| Dnipropetrovsk  | 21,290.1   | 20,356.5  | 25,919.9  | 33,169.0  | 42,908.5  | 21,618.4  2.0 |                                    |
| Donetsk         | 27,912.4   | 13,155.32 | 8,304.3   | 11,902.2  | 17,268.9  | –10,643.5 0.6 |                                    |
| Zhytomyr        | 3,005.4    | 2,904.9   | 4,044.4   | 5,573.5   | 7,722.0   | 4,716.6  2.6 |                                    |
| Zakarpattia     | 2,645.8    | 2,638.7   | 3,778.4   | 4,663.0   | 5,623.7   | 2,977.9  2.1 |                                    |
| Zhytomyr        | 6,838.8    | 7,034.5   | 7,794.3   | 11,039.7  | 15,879.7  | 9,040.9  2.3 |                                    |
| Ivano-Frankivsk | 4,797.2    | 6,837.5   | 9,609.3   | 7,947.6   | 9,707.8   | 4,910.6  2.0 |                                    |
| Kyiv            | 20,696.6   | 19,653.5  | 24,359.1  | 33,411.4  | 34,494.5  | 13,797.9 1.7 |                                    |
| Kirovohrad      | 3,224.0    | 3,122.4   | 4,057.1   | 6,355.3   | 7,320.9   | 4,096.9  2.3 |                                    |
| Luhansk         | 11,369.3   | 5,222.62  | 2,060.1   | 4,122.2   | 3,329.8   | –8,039.5 0.3 |                                    |
| Lviv            | 9,816.7    | 9,555.0   | 13,386.5  | 18,605.2  | 24,105.9  | 14,289.2 2.5 |                                    |
| Mykolaiv        | 5,008.7    | 3,771.4   | 5,989.9   | 9,730.2   | 11,178.0  | 6,169.3  2.2 |                                    |
| Odesa           | 11,872.2   | 9,361.3   | 9,983.5   | 16,728.7  | 22,979.7  | 10,427.5 1.9 |                                    |
| Poltava         | 9,536.3    | 8,827.8   | 8,337.9   | 15,265.1  | 15,855.6  | 6,319.3  1.7 |                                    |
| Rivne           | 2,837.3    | 2,804.6   | 4,334.2   | 4,324.1   | 6,126.8   | 3,895.5  2.2 |                                    |
| Sumy            | 2,721.3    | 2,781.7   | 3,663.0   | 5,762.6   | 6,947.1   | 4,225.8  2.6 |                                    |
| Ternopil        | 2,976.2    | 2,590.0   | 3,827.5   | 4,888.2   | 7,150.6   | 4,174.4  2.4 |                                    |
| Kharkiv         | 9,292.6    | 8,032.3   | 11,264.7  | 16,545.9  | 19,361.7  | 10,069.1 2.1 |                                    |
| Kherson         | 2,124.8    | 2,281.8   | 3,107.4   | 4,591.3   | 7,362.2   | 5,237.4  3.5 |                                    |
| Khmelnytskyi    | 3,637.6    | 4,078.3   | 6,809.3   | 9,123.3   | 10,499.9  | 6,862.3  2.9 |                                    |
| Cherkasy        | 3,413.3    | 3,261.2   | 4,485.8   | 6,498.7   | 8,144.2   | 4,730.9  2.4 |                                    |
| Chernivtsi      | 2,257.4    | 1,686.9   | 2,789.2   | 2,668.8   | 2,992.1   | 734.7  1.3 |                                    |
| Chernihiv       | 2,842.0    | 2,621.2   | 3,550.2   | 5,318.5   | 7,351.1   | 4,509.1  2.6 |                                    |
| Kyiv (city)     | 70,320.6   | 67,832.6  | 88,138.6  | 106,295.5 | 136,044.8 | 65,724.2 1.9 |                                    |

Note: ¹ Data are given without taking into account the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol, and from 2014–2017, without part of the temporarily occupied territories in the Donetsk and Luhansk regions.

The separate regional indicators were influenced by the construction of infrastructure objects for Euro 2012 (Lviv, Donetsk region, Kyiv). At the same time, according to the calculations of investment support of the regions of Ukraine capital investments, there is a difference of 1.5 times. The given statistics allow asserting that a number of regions have the lowest comparative rating of volumes of capital investments in enterprises of the region.
In general, Ukraine’s regions with very high needs for investment resources, due to the deterioration of fixed assets, have very different levels of availability of investment and scientific potential, which is necessary to bring the economy to a new level of quality, to radically increase the added value of products and services, and productivity. Peripheral regions of the central, northern and western parts of Ukraine suffer from a lack of investment and are in a certain closed circle when the lack of internal resources pushes potential investors away, and without additional financial investments, achieving a qualitatively new level of development is impossible. It is obvious that DRP should offer radical new approaches to stimulating the disclosure of these regions’ potential through the use of unorthodox tools based on the unique features and capabilities of these regions (SURDP, n.d.).

Consequently, we have carried out an assessment of the financial imbalances of the regions based on the scorecard model, which allows us to characterize certain key indicators that are important for the development of each region of Ukraine.

The analyzed indicators make it possible to determine the need for radical transformations in the development and formation of financial imbalances in the development of regions of Ukraine to strengthen the trends of stagnation processes in regional development, to deepen the differentiation of regions, to assess the degree of interregional differentiation, to identify imbalances in the development of territories, to identify sources of structural imbalances and on this basis to make timely decisions on the study of fiscal policy, which includes the tax policy (management processes of transformation tax legislation and tax administration, collection and redistribution of taxes between the budgets areas) and fiscal policy (expenditure budget management, grants, budgetary investments).

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