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REGIONAL SOCIO-ECONOMIC CHANGES IN THE FACE OF DEVELOPMENT CONDITIONS IN THE EUROPEAN UNION

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Purpose: To identify economic development trends in the European Union, the extent of which is driven by new dimensions of security and cohesion in the socio-economic development of regions, and to analyse and assess the impact of new crisis phenomena on changes in public expenditure to finance public investment projects in EU regions.
Design/methodology/approach: The method of critical analysis of the literature on the subject, the method of comparative analysis and the method of time series analysis with the use of selected methods of descriptive statistics in the field of empirical and statistical data in the generic and territorial arrangement by selected categories of regional units were used.
Findings: A group of issues was identified that can be regarded as important directions of investment activity, shaping economic processes and introducing changes in social relations and expectations in the EU. The economic differentiation of European regions at the NUTS 2 level was identified, as well as the directions of changes in the spatial disparities of investment potential in regions in Poland, taking into account changes resulting from crisis phenomena.
Research limitations/implications: The presented research results are limited by the availability of empirical data in detailed territorial arrangements. Due to the currently observed factors of socio-economic instability, it is advisable to continuously update the data and further analyses under conditions of ongoing crisis phenomena.
Practical implications: The practical dimension of the analysis refers to its potential use for the preparation of socio-economic development plans at different levels of public administration.
Social implications: The results of the study may provide informative support in the programming processes of public investments for strengthening socio-economic cohesion, reducing social disparities and improving the living conditions of the population.
Originality/value: The presented analytical results address the implications and challenges of crisis phenomena affecting the EU economy by regions and variations in investment capacity. The applied territorial approach provides new knowledge that can be used in research and for investment policy at EU, national and regional levels.
Keywords: regional development, socio-economic development, public investment.
Category of the paper: research paper.

1. Introduction

The crisis phenomena observed in recent years are practically global in scope, but are also characterised by non-economic and unexpected causes. The occurrence of difficult-to-predict factors of a macroeconomic nature can therefore be expected to lead to direct changes in economic development and the possibility of strengthening social and territorial cohesion. Among the repercussions of the instability of socio-economic processes observed from 2020 onwards, one can point to changes on the expenditure side of both private and public sector investors. In addition, the prolonged military conflict and political tension beyond Poland's eastern border appear to have economic and social implications for the European Union (EU) Member States in the clearly longer perspective. As a consequence of the rise in prices of energy sources, materials and resources, as well as construction works, the necessity to verify previous development assumptions in many sectors of the economy is emerging. It can be expected that the above factors will result in the necessity of significant involvement of public sector entities and organisational units in the field of intervention aimed at inducing or sustaining favourable directions of socio-economic transformations.

The purpose of the study presented in this paper was to identify changing trends in economic development in the EU, the extent of which is driven by new dimensions of security and cohesion in the socio-economic development of regions. The objective of the study also included an analysis and assessment of the impact from emerging crisis phenomena and from increased economic instability on changes in public expenditure for financing public investment projects at the level of selected EU regions.

2. Literature review and methodical approach

Undertaking research on public investment, on the one hand, prompts a focus on identifying appropriate financial sources in order to secure funds for the implementation of these investments, while, on the other hand, it should be concerned with the role of investment outlays, considered as a development impulse on the scale of the national economy of a given country, or the regional dimensions of a given economy (Ocolisanu et al., 2022). Following the accession of new members to the European Union, views on development processes have been changing, especially with regard to the concept of regional and local development and inclusion in the concept of European regionalism (Jarosiński, 2001; Kleer 2014; Jarosiński, Opałka, 2021). The regional context of socio-economic transformations is still relevant due to further differences in the level of economic development in relation to average measures in the system of a given Member State or the EU regions as a whole. Research in this area should take into account the selected evaluation indicators and changes in their values in terms of variation from measures recorded in development conditions before the crisis caused by the Covid-19 pandemic and by the conflict in Ukraine. A preliminary assessment indicates increasing difficulties in creating sustainable development.

In view of the instability of socio-economic phenomena that emerged in the years 2018-2023 adopted for the analysis, it can be observed that the established mechanisms for supplementing the budgets of public sector units are insufficient. There is a need to identify development problems and prepare financial support mechanisms usually implemented through appropriate government intervention instruments. In an unstable macroeconomic environment, the impact of the main factors on economic development processes at the regional and local level is determined by mechanisms that evolve outside these units and are external in nature (Zbroińska, 2022). One can point to central bank interest rates, inflation, which relates to wages and investment works, as well as changes in the level of employment. In a situation of economic crisis, there are additionally factors that appear, which are of an interventionist nature and are usually generated by the government administration in order to mitigate the negative effects of the impact of the above-mentioned factors on the budget revenues of local government units (Wójtowicz, 2018).

Despite the long-lasting activity of the state and local governments in the processes of strengthening social and economic cohesion, the spatial disparities observed throughout the EU in terms of socio-economic potential are characterised by a significant degree of consolidation, resulting from the persistence of different rates of economic growth between units in different administrative or functional systems (Strahl, Markowska, 2009). Differences can be examined by urban and rural areas, by administrative unit at local, sub-regional or regional level. The uneven capacity of regions to generate growth and development, as well as historical conditions (Gawlikowska-Hueckel, 2002; Proniewski, 2012), imply the emergence of disparities in spatial development. The development process is a cumulative phenomenon, which means that regions that developed dynamically in the past, at the same time have a greater potential to generate growth in the future. Hence, inequalities and processes appear in socio-economic systems, which, on the one hand, result in the consolidation of spatial development patterns and, on the other hand, with the increase in concentration of economic functions, e.g. in agglomerations, create pressure for convergence of wealth levels in wider areas (Nazarczuk, 2015). Referring to the theory of J. Williamson, it can be expected that the level of inter-regional disparities in GDP per capita will dynamically increase as the wealth of the economy increases, with an initial low level of the above indicator. Subsequently, as the level of national development increases, the rate of regional disparities should slow down so that, once a certain level of GDP per capita of the country is exceeded, regional disparities start to decrease with further development of the national economy (Williamson, 1965; López-Bazo, Monastiriotis, Ramos, 2014).

Directions of socio-economic change in the EU at regional level reflect global trends, EU policies and the specific challenges and opportunities of individual regions. These directions include sustainable development, digitalisation, innovation, adaptation to changing demographic circumstances, and social inclusion. Cohesion policy 2021-2027 is implemented in all EU Member States and regions. It implements two Treaty objectives: *Investment for jobs and growth* and *European territorial cooperation* (Interreg). The first objective is implemented in NUTS 2 regions, divided into three categories according to the regions' level of economic prosperity (Ministry of Funds and Regional Policy, 2022).

The overall objective of cohesion policy is defined on the basis of Article 174 of the Treaty on the Functioning of the European Union (European Union, 2016). In the 2021-2027 perspective, five additional policy objectives have been identified, which are formulated in a general way to respond to the development needs of Member States and their regions, regardless of their level of socio-economic development. Four objectives have a sectoral character, i.e. *a more competitive and smarter Europe*, *a greener, low carbon transitioning towards a net zero carbon economy*, *a more connected Europe by enhancing mobility*, *a more social and inclusive Europe*, while the objective of a Europe closer to its citizens has a territorial dimension (Regulation EU, 2021). In addition, cohesion policy pursues the specific objective of ‘enabling regions and people to cushion the social, employment, economic and environmental impacts of the transition towards the Union's 2030 energy and climate targets and towards a climate-neutral Union economy by 2050’. This objective is being pursued through the resources of the new Fair Transition Fund (Ministry of Funds and Regional Policy, 2022).

The key planning document guiding the development of the EU Member States is the Strategic Programme 2024-2029, adopted at the European Council on 27 June 2024. The current Strategic Programme can enhance Europe's sovereignty and better prepare it for current and future challenges in the face of changing global realities and increasing instability. The programme identifies three pillars: *A free and democratic Europe*, *A strong and secure Europe*, and *A prosperous and competitive Europe* (European Council, 2024).

Under the first pillar, the priorities of the European Council are primarily to promote and protect the rule of law, to protect free media and civil society, and to counter external interference and attempts at destabilisation. Under the second pillar, the priorities remain to further supporting Ukraine, including its reconstruction and the pursuit of a just peace, enhancing the defence capabilities of EU members and cooperation with NATO and transatlantic partners, pursuing EU enlargement with incentives, proceeding in parallel with the necessary internal reforms, and putting in place effective border management mechanisms to deal with the problem of migration. Under the third pillar, it is planned to deepen the single market in energy, finance and telecommunications, to strengthen joint public and private investment efforts, in cooperation with the European Investment Bank, to work on the development of key technologies of the future, including green and digital transformation.

It is also planned to maintain and strengthen the agricultural sector, develop training and education, promote entrepreneurship and innovation, and maintain health care services at a competitive level.

To achieve the objective of the study, the critical literature analysis method, the comparative analysis method and time series analysis methods using measures and selected methods of descriptive statistics were used. The desk research method was applied with regard to statistical resources, including in particular databases of the Central Statistical Office, Eurostat, OECD and AMECO, as well as studies and data compilations made available in the resources of public sector units at the central and local government levels in Poland. The analysis of empirical data was carried out on the basis of statistical quantities and indicators aggregating data from local government units of different levels. Due to the diversity of the statistical community, i.e. local government units, the study also applied the cartogram method, using spatial distributions on a regional basis to obtain greater cognitive value in terms of the variability of the intensity of the studied features.

3. Results of empirical research and discussion

With reference to the conditions and perspectives presented above, the submitted article identifies and characterises a group of issues that can be considered as important directions of investment activity, shaping not only economic processes, but also bringing about changes in social relations and the expectations of residents to achieve living conditions that will be considered as favourable.

The first group defining important directions for activities is equality and social inclusion, reflecting the ever-present problem of tackling excessive disparities between regions in the EU, which are manifested in large differences in living standards, access to public services and infrastructure. The challenge for regional policy and support for the weaker regions remains to focus on reducing these inequalities through investment in rural, peripheral and eastern areas.

The second group was identified as demographic change and the ageing of populations in the EU, which is particularly noticeable in the southern and eastern regions, forcing the adaptation of social infrastructure, health care, and the labour market to the changing realities. This requires taking into account in the development objectives of the regions the undertaking of investments covering health and social services, including care for the elderly, as well as the activation of seniors in the labour market.

The next group of issues could be the transition towards a circular economy as a response to climate change and increasing environmental demands. The activities of economic entities are becoming increasingly oriented towards sustainable production and consumption, which means promoting recycling, reducing waste, using renewable energy sources and supporting sustainable production and consumption patterns. Regions that adopt such principles will be able to attract investment in environmentally friendly technologies.

Another group of issues is digitalization and technological innovation, including transformations towards *smart cities* and *smart regions*. Investment challenges in the economy at the regional level also include the development of digital competences of residents to meet the requirements of the future labour market.

An important group of issues can be the growing importance of innovative economic ecosystems, which are based on the activities of startups and small companies. Such entities need support in the form of technology clusters, business incubators, or enabling cooperation between universities and companies. Regional policies must therefore create favourable conditions for startups, especially in the sectors of advanced technologies, green energy and biotechnology. The development of the high-value-added services sector, such as research and development, financial services, higher education or digital services, should be treated as a key factor driving growth, especially in the more developed regions of the EU.

Sustainable development and tourism were also included as an important group of issues, which entail requirements for EU regions to adapt their tourism strategies in terms of promoting sustainable tourism, which minimises the negative impact on the environment and local communities.

An important group are cross-border and interregional cooperation issues, relating to the possibility of undertaking international cooperation initiatives. In a situation of political instability and introduced restrictions on free movement, it becomes necessary to improve or introduce new forms of support in the border regions of the EU, developing cooperation with neighbouring countries outside the EU in the field of economic exchange, innovation, environmental protection or crisis management. Interregional and cross-border cooperation also requires investment outlays and the construction of infrastructure solutions in the context of global challenges, such as climate change leading to cataclysms, or increasing migration.

The above-mentioned groups of issues therefore define challenges, in terms of which limiting both the causes and consequences of negative economic phenomena in the territorial dimension remains an important element of public administration activities at various levels. The manifestation of the activity of public sector entities will be, on the one hand, the development and implementation of support programs for areas subject to marginalization processes, and on the other hand, also programs aimed at maintaining the growth dynamics of economically strong areas. In accordance with the approach developed within the EU, planning and supporting development at the regional level is of particular importance. It is emphasized in the literature on the subject (Nazarczuk, 2013) that the effects obtained depend to a limited extent on public intervention in terms of investment outlays, while the sustainability of economic development in the regions is conditioned by the investment activity of all economic entities operating in the national economy, although it should also be pointed out that there is spatial disparities in the distribution of private sector entities.

Considering the challenges to the direction of regional development in the European Union, attention should be paid in particular to the NUTS 2 territorial units. At EU level, 242 such units have been identified, which constitute the reference scope of the Union's regional policy as a whole (GUS, 2024). NUTS 2 units are also the main focus of EU public authorities when it comes to allocating cohesion policy support. The categories of regions are similar to those in the 2014-2020 perspective, where as less developed regions, units in which GDP per capita is lower than 75% of the average value of the examined indicator in the whole Union are assumed. Transition regions include those where GDP per capita is between 75% and 100% of the average value, while more developed regions are considered units where GDP per capita is higher than 100% of the average. The difference as compared to 2014-2020 is the increased limit separating the category of transition regions from the category of more developed regions, set at 100% of the Union average, against the level of 90% adopted in the previous perspective (Ministry of Funds and Regional Policy, 2022).

For the purpose of this study, 242 of NUTS 2 units were covered by the research and examined in terms of various macroeconomic indicators. Taking into account the purpose of dynamic presentation of the occurring phenomena, the study involved the division of the analysed community according to selected characteristics, the determination of value ranges of a given characteristic and the determination of the number of NUTS 2 units included in particular groups. It was considered reasonable to detail the research for the years 2018 and 2022, and to present the results obtained.

In the first instance, the regions were examined in terms of the development of per capita GDP. Still, the level of wealth and the economic and social situation determines the extent of a Member State's participation in cohesion policy. The level of GDP per capita at national or regional level determines the size of the national envelope, the category of regions or the support from the Cohesion Fund. This indicator is also crucial in determining the thematic concentration of support and the level of EU funding (Ministry of Funds and Regional Policy, 2022).

Due to the limitations arising from the format of this study, it was not possible to present detailed results of the research concerning all units, however, a comparison of these units in 6 groups was made, which allowed for the identification of specificities, characterising the obtained values of GDP per capita and internal differentiation in the entire community. Table 1 presents the values of the ranges according to which the regions were classified to the groups.

Table 1.
GDP per capita by groups of indicator values

Specification	Lower value of group range	Upper value of the group range
Group 1	70 000	120 300
Group 2	50 000	69 999
Group 3	30 300	49 999
Group 4	25 000	30 299
Group 5	15 000	24 999
Group 6	5 300	14 999

Source: own study based on Eurostat data, retrieved from: https://ec.europa.eu/eurostat/databrowser/view/nama_10r_2gdp/default/table?lang=en&category=reg.reg_eco10.reg_eco10gdp, 6.11.2024.

The value of the examined indicator in 2022 was at a higher level than in 2018. As can be seen from the information presented in Figure 1, this phenomenon was widespread and should be interpreted as an actual increase in the level of wealth of the European Union Member States, including an increase in economic potential in individual regions. However, it should be pointed out that 2018 was characterised by large disparities in terms of the development of the indicator in question. In the first group, above EUR 70.0 thous. per capita, there were 3 regions with incomes at least at this level or higher. On the other hand, 14 regions were classified in the lower group of indicator values, between EUR 50.0 thous. and EUR 69.9 thous. per capita.

The groups of regions with the highest level of the indicator included basically the same NUTS 2 territorial units, both in 2018 (in order from the highest level of the indicator: Luxembourg, Eastern and Midland (Ireland), Southern (Ireland), Région de Bruxelles-Capitale/Brussels Hoofdstedelijk Gewest and Hovedstaden) and later in 2022 (in order from the highest level of the indicator: Southern (Ireland), Luxembourg, Eastern and Midland (Ireland), Hovedstaden and Région de Bruxelles-Capitale/Brussels Hoofdstedelijk Gewestzatem). This should be interpreted as maintaining the stable economic position of this group of regions both in 2018 and in the entire period of 2018-2022. The majority of NUTS 2 units were below the average value of the indicator, which amounted to EUR 30.3 thous. in 2018. Moreover, a characteristic feature of the distribution of the GDP per capita value in 2018 was the grouping of a large number of regions directly above the average value, i.e. in the range from EUR 30.3 thous. to EUR 49.9 thous., where there were 88 regions at the NUTS 2 level.

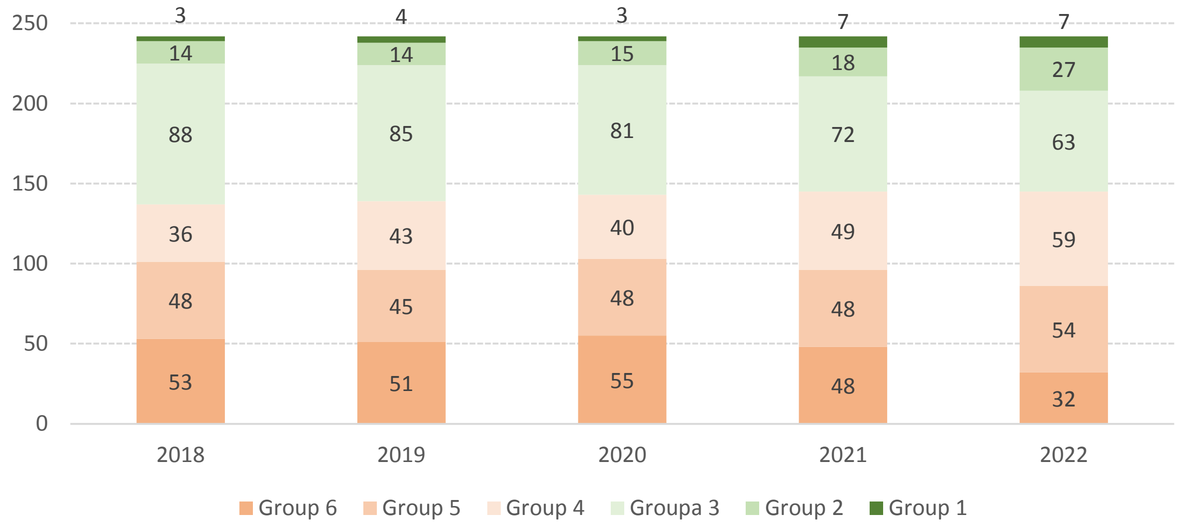

Figure 1. Number of NUTS 2 regions by GDP per capita index value groups in 2018-2022.

Source: own study based on Eurostat data, retrieved from: https://ec.europa.eu/eurostat/databrowser/view/nama_10r_2gdp/default/table?lang=en&category=reg.reg_eco10.reg_eco10gdp, 6.11.2024.

When comparing the data collected for the entire 2018-2022 period, however, it is apparent that the values of the indicator for individual regions were clearly increasing, as well as the average value of the indicator. In Figure 1, the red colour indicates the groups of regions where the values of this indicator were below the EU average value. The green colour indicates groups where the regions showed higher values than the EU average. In terms of the adopted breakdown, a decrease in the number of regions included in the group defined by the lowest value of the ranges in terms of the examined indicator was visible. In 2021 and 2022, the number of regions in the group directly above the average decreased, while the number of regions in the group directly below the EU average increased significantly.

Figure 2 summarises graphically the data obtained during the research, concerning GDP per capita at the level of NUTS 2 regions, and presents it in the form of a series of decreasing values and compares it to the average value of the indicator at the level of the surveyed regions, which amounted to EUR 35.4 thous. in 2022. The figure additionally illustrates the situation in terms of GDP, which is also characteristic of the above year, where, on the one hand, a small set of regions with a high indicator was observed, and, on the other hand, a much larger group of regions with a GDP per capita value below the average for all regions in the European Union.

In the level of socio-economic development of the regions, a clear differentiation was still observed, defined by the value of GDP per capita. In 2022, the dominant value was an indicator expressed in terms of an amount between EUR 35.4 thous. and EUR 49.9 thous. The distribution of GDP per capita values by region revealed that there is a right-sided skewness, so on the one hand, a group of regions at NUTS 2 level characterised by particularly high incomes and GDP per capita is formed, while on the other hand, a much more numerous group characterised by relatively low values of the indicator in question can be distinguished. The measure of skewness calculated for 2018 took on a positive value, but lower than that calculated for 2022, indicating that during the period under study, there was an increase in the number of regions where GDP per capita values were lower than the EU average. The results can be seen as symptomatic of the cohesion policy that has been in place for several decades, with the aim of reducing disparities and targeting economic territorial and social cohesion. The data prove that this process is still not complete. Figure 2 shows a flattening of the values of the indicator, but if the results obtained for the economically weakest regions are analysed and compared with the results recorded in the rich regions, differences of several or even more than a dozen times emerge.

These phenomena had already been observed earlier, e.g. in Smętkowski's research on Central and Eastern European regions, where it was indicated that the rate of regional divergence after accession to the EU in 2004 or 2007 in most countries decreased or at least lowered its dynamics. This can be seen as a sign of ongoing processes of diffusion of economic development, which also extended to non-capital regions. A decrease in investment risk as a result of EU membership and increasing interest in the less developed regions of individual countries on the part of foreign investors have been pointed to as the likely economic background to this phenomenon. Undoubtedly, the use of EU funds within the framework of the cohesion policy and the Common Agricultural Policy, which, as a rule, were greater in regions with a lower level of development, could also have been significant in shaping the above phenomena (Smętkowski, 2015). Conclusions relating to the above European countries indicated that the level of regional disparities is clearly linked to the level of wealth of national economies. Thus, efforts to eliminate or significantly reduce the level of regional disparities in the medium or even long term may be difficult to achieve for many countries. Poland is also pointed out as an example of a country where there has been a further increase in regional disparities in the medium term, especially in view of the development policy applied for many years based on a polarisation-diffusion model supporting the development of territorially selected areas (Nazarczuk, 2015).

Searching for a solution to the problem related to the directions of socio-economic changes at the regional level in the European Union, it should be emphasised that despite the consistent cohesion policy, the basic measure of cohesion, i.e. GDP per capita, still clearly differentiates the socio-economic situation in the regions. According to the results of the research carried out on the basis of all territorial breakdown units at the NUTS 2 level, an increase in average values observed in all EU regions should be indicated for the period 2018-2022. At the same time, the persistence of disparities in the level of the indicator in question between the regions considered as prosperous and those characterised by relatively low economic development indicators was observed. In 2018, the situation could be considered as quite favourable, when 137 regions below the average value of the indicator were recorded. As the study showed, in 2022, the number of regions that were below the average for the EU increased to 145. This occurred in line with an overall increase in the level of the indicator value, also in the least developed regions, and therefore there was a situation of increasing incomes with an increase in the stratification of these incomes between the different regions at NUTS 2 level.

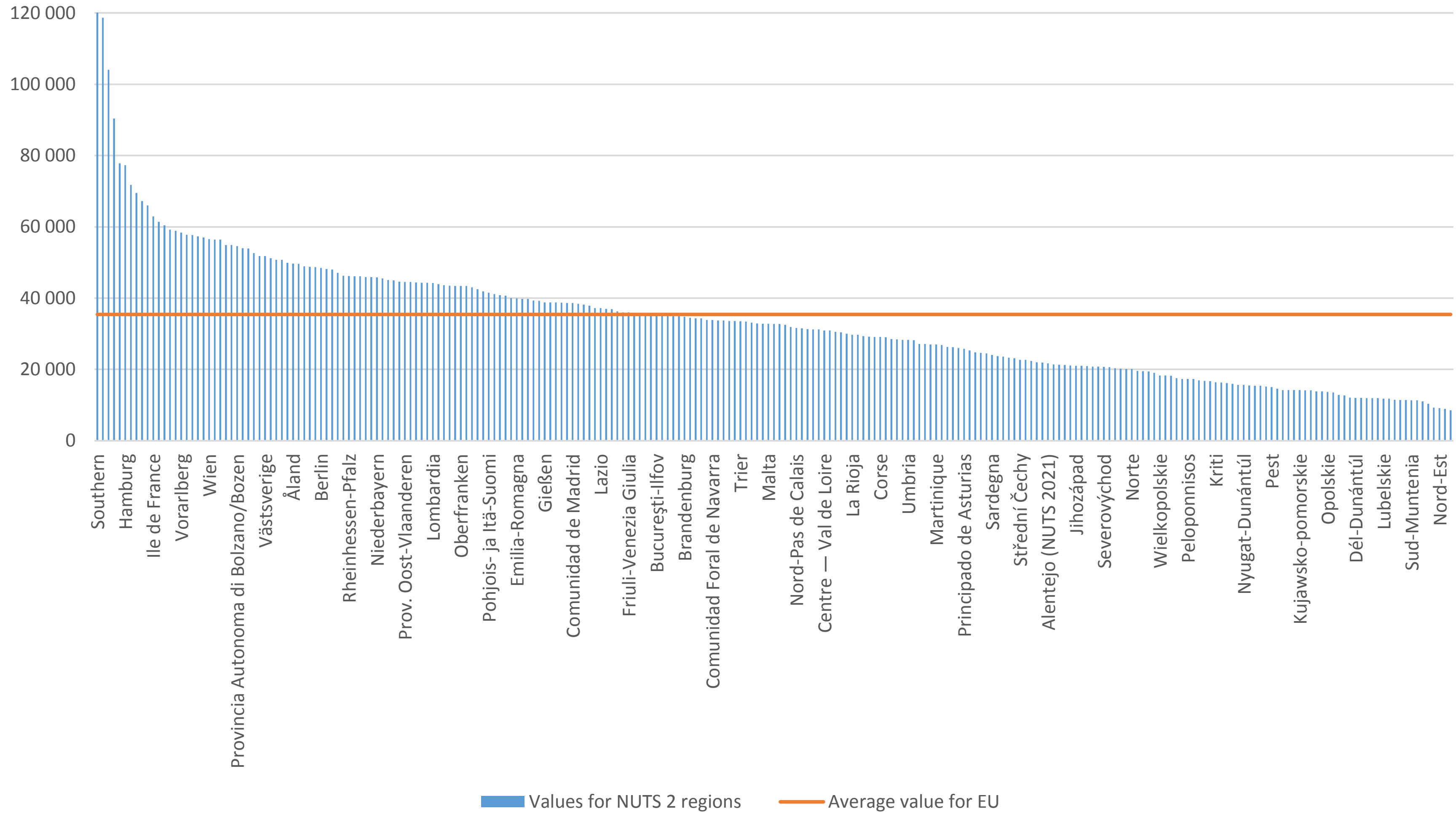

Figure 2. GDP per capita in NUTS 2 regions of EU in 2022 (in EUR thous.)

Source: own study based on Eurostat data, retrieved from: https://ec.europa.eu/eurostat/databrowser/view/nama_10r_2gdp/default/table?lang=en&category=reg.reg_eco10.reg_eco10gdp, 6.11.2024.

Reducing both the causes and consequences of negative social and economic phenomena in the territorial dimension remains an important element in the activities of public administration at various levels. A manifestation of this activity is, on the one hand, the development and implementation of programmes to support areas subject to marginalisation processes and, on the other hand, also programmes aimed at sustaining the growth dynamics of economically strong areas. In line with the approach developed within the EU, planning and supporting development at regional level is of particular importance.

Regardless of the autonomous development conditions of the regions, the financing of investments takes the first position. The primary source of investment financing for public sector units is usually own funds collected and spent within the budgets of the appropriate units (Gubernat-Ulatowski, 2016; Dworakowska, 2015). The study of the budgets of public sector units is adopted as an important instrument for identifying the factors shaping investment opportunities, due to the direct dependence of the sources of budget revenues on the state of the economy in different territorial approaches, on previously shaped development processes, often having a regional or even local dimension, as well as on the possibility of obtaining external funding under programmes financed or co-financed by EU funds.

Based on previous research, it can be concluded that there has been a persistent shortage of budget funds in Poland that could be spent by public sector units to finance development tasks (Kostecki, 2020; Cenkier, 2016; Opałka, 2023). Based on the analyses of investment needs and the streams of budget funds allocated for investment by the above units, it can be concluded that the public sector units at both national and regional levels encounter numerous difficulties in financing and implementing their statutory own tasks.

During the period under review, investment expenditures in the public sector were at a relatively high level in Poland, with the share of these expenditures in total investment expenditures in the national economy in Poland gradually decreasing. In 2018-2020, the analysed indicator of the share of public sector investment expenditures began to increase compared to the situation in earlier years. The highest share in the last years of the analysed period was reached in 2020. (36.9%), and the following years saw a decrease and a return to 33.5% in 2022.

The volume of investment expenditures in the public sector, including the government and local government sub-sectors, in individual regions, districts and municipalities depends on diverse factors. These factors may not be easily quantified due to the large variation in the parameters shaping investment processes, as well as the wide range of investment financing paths available to public sector entities and organisational units. It is a characteristic phenomenon that, under conditions of crisis in the public sector, differential changes concerning investment financing occur, while the effects of the occurrence of crisis factors reveal themselves in investment budgets with a certain delay, which may be related to the necessity of completing already started investments even under crisis conditions.

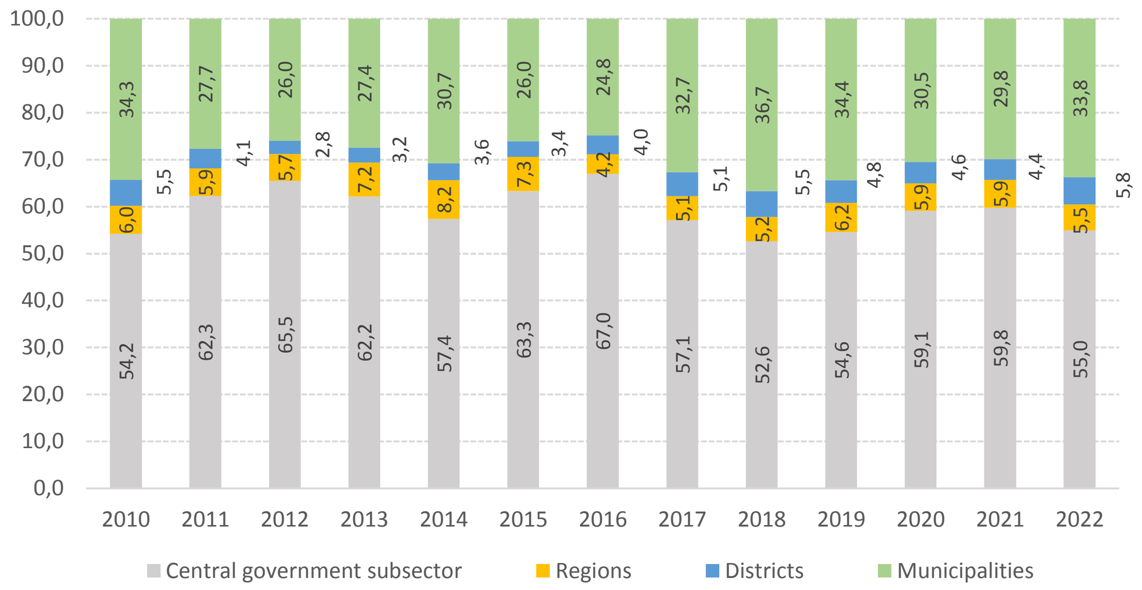

Figure 3. Structure of investment expenditure in the public sector in Poland in 2010-2022 (in %).

Source: own study based on data from the Local Data Bank, retrieved from https://bdl.stat.gov.pl/bdl/dane/podgrup/temat, 12.11.2024 and the Macroeconomic Data Bank, retrieved from https://bdm.stat.gov.pl/, 12.11.2024.

The graphical interpretation of the results of the research on the volume and structure of investment expenditure in the public sector, presented in Figure 3, shows the variability of individual groups of expenditure by groups of entities distinguished in the public sector. When the overall volume of public investment expenditure was decreasing, as was the case in 2019-2021, the share of government subsector expenditure was increasing at the same time. The maximum share of investment expenditure by the government subsector occurred in 2016, when the overall volume of public investment took on the smallest value during the period under review. In 2020, in view of the already noticeable symptoms of the crisis, a renewed increase in the share of investment expenditures realised by the government sub-sector could be observed and this phenomenon continued in 2021, while already in 2022 the share of investments financed within the budgets of mainly municipalities increased significantly.

Investment expenditures related to the financing of the tasks of the government sub-sector are of a specific nature and are associated with the implementation of functions that are aimed at the provision of public services managed at the state level, and thus may be expenditures of a public purpose, relating to internal security, external security, health care, social policy, or other purposes, the implementation of which takes place in individual regions and is financed at the government level. In the period 2010-2022, the government sub-sector was undertaking differentiated investment activity in particular regions. The changes recorded between 2010 and 2022 in the level of investment expenditures within government funds are illustrated in figure 1, where the results of calculations covering investment expenditures in 2020 and 2022 are presented. The graphical illustration indicates changes in the directions of investment funding at the government level in the territorial distribution mentioned and one can see a clear increase in investment expenditures in regions with high dynamics of economic development, such as Małopolskie, Dolnośląskie and Pomorskie. It is worth noting that in 2022 a noticeable increase in the examined category was recorded in Zachodniopomorskie region. The dominant position in terms of the level of government sub-sector expenditures was invariably held by the Mazowieckie and Śląskie regions.

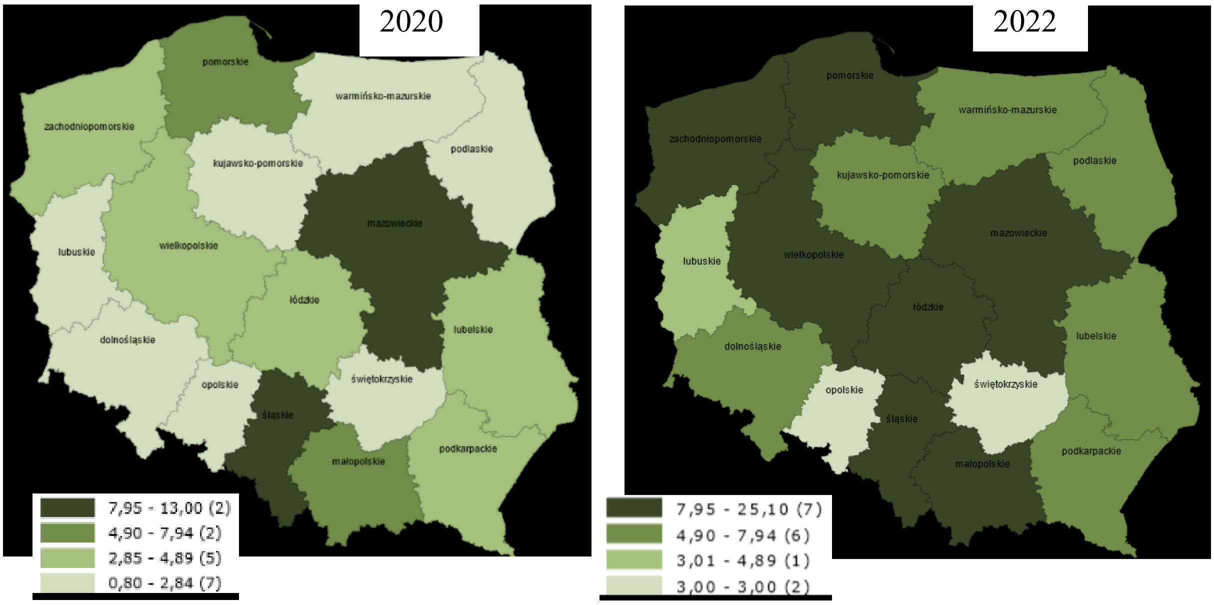

Figure 1. Total investment expenditure in the government subsector by regions in 2020 and 2022 (in PLN billion).

Source: own study based on data from the Local Data Bank, retrieved from https://bdl.stat.gov.pl/bdl/dane/podgrup/temat, 20.11.2024.

The largest amount of funds was spent in the Mazowieckie region, where in 2010-2022 the level of expenditure varied between PLN 8.0 billion and PLN 25.1 billion. The volume of investment expenditures of the government subsector in Mazowieckie was significantly shaped by financing investments in road and rail transport, which to a large extent related to the spatial functions of the capital city of Warsaw and resulted from the geographical location of the Warsaw agglomeration and transport accessibility in relation to the diverse economic and administrative tasks performed by the capital city in the context of the needs of the entire country.

Due to the previously indicated developmental diversity, it was important to examine investment expenditure in the economy in a relativised form, per capita, by regions. The partial results of the research are illustrated graphically in figure 2 for the selected years.

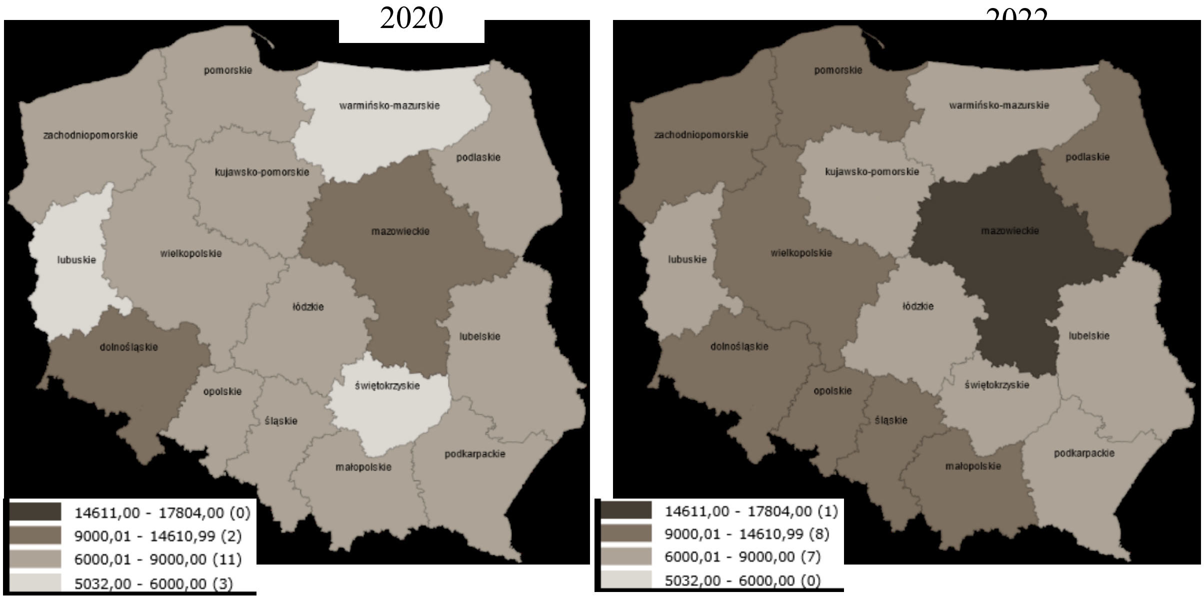

Figure 2. Investment expenditure in the national economy per capita by regions in Poland in 2020 and 2022 (in PLN).

Source: own study based on data from the Local Data Bank, retrieved from https://bdl.stat.gov.pl/bdl/dane/podgrup/temat, 20.11.2024.

The highest level of total investment expenditure per capita both in 2020 and 2022 was recorded in the Mazowieckie region, with PLN 13.0 thous. and PLN 17.8 thous. respectively. The results of the Mazowieckie are related to the administrative system used in the analysis, in which including the capital city of Warsaw significantly increases the discussed expenditure indicator. The leading economic function of the main urban or metropolitan centre can be observed in most regions (Tarkowski, 2015), but not as strong as in the case of Warsaw's position. In breakdown of the years presented in the figure, an increase in the level of the indicator can be seen in the western and southern regions, where the level of the indicator exceeded the value of PLN 9.0 thous. in 2022. The Lubelskie, Podkarpackie, Kujawsko-Pomorskie and Łódzkie regions remain relatively weakest in terms of GDP per capita growth rate.

The results of the study indicate that in the areas of the studied regions, although with variable intensity, activities were carried out to support economic development and reduce development barriers in changing economic conditions. Investment outlays on public tasks should be assessed as a result of planning activities and investment programmes initiated beforehand, as well as the developing adaptability to changes in the external environment and exploiting endogenous development potential. The conditions of the modern market economy create the expectation that, despite changing macroeconomic conditions, public investments should meet a defined range of availability and an accepted level of quality. The commitment to meet social needs has a permanent character, even during economic crises. That requires the adaptation of management methods in the public sector at the state level as well as in the regional and local economy, including the search for solutions to improve the efficiency of the even more limited investment resources.

4. Summary

With regard to the existing differences in the level of GDP per capita, it seems that the economic conditions resulting from crisis phenomena, as well as political instability in the global system, may cause the necessity of launching new development impulses, which would accelerate economic development and, simultaneously, meet the conditions of striving to reduce differences in the level of socio-economic development of countries and regions. The proper identification of key development threats and challenges is important here, but equally important seems to be the necessity to monitor the possibilities of their implementation, including particularly the ability to finance investments in an unstable political and economic situation, and the ability to adjust development plans in order to provide security and stability of socio-economic development.

On a regional basis, the survey indicated differences in the pace of economic change and the level of investment in the public sector. The number of NUTS 2 regions with GDP per capita levels below the Union average was increasing. While around 56% of regions were ranked below the EU average in 2018, by 2022 the number of regions remaining beneath the EU average had already reached almost 60% of the total number.

In Poland, in provinces with a higher level of development, the investment outlays financed with public resources were at a relatively high level. However, they were characterised by a significantly lower growth rate in the period 2019-2021. Significantly higher growth rates were only recorded in all regions in 2022. An important role in the financing of public tasks was played by funds from the state budget. This mechanism of financing tasks from government funds can be considered an element of cohesion policy. Between 2020 and 2022, public spending had a significant role in terms of maintaining the stability of the economy in the face of the economic downturn.

Public expenditure may continue to maintain a relatively high growth rate in the following years, which is due not only to the need to stabilise the economy, but also to Poland's socio-economic position and the need to undertake further public investments related to the clearly noticeable development gap. There is a continuing need to consider the threats and new development challenges in the EU Member States, on a significant scale requiring consistent further financing of the components of the socio-economic infrastructure, which in the longer term may contribute to ensuring stable economic growth, although there are already visible future limits to the possibility of increasing the level of public expenditure.

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