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COMPARATIVE ANALYSIS OF BUILDING PERMITS ISSUED IN POLAND AND SELECTED EUROPEAN COUNTRIES BETWEEN 2019 AND 2024 IN THE CONTEXT OF ECONOMIC CONDITIONS

Katarzyna Wieczorek[1], Justyna Dzięcioł[2]✉

[1] Faculty of Civil and Environmental Engineering, Warsaw University of Life Sciences – SGGW, Warsaw, Poland
[2] Institute of Civil Engineering, Warsaw University of Life Sciences – SGGW, Warsaw, Poland

ABSTRACT

The article aims to compare the number of building permits issued in Poland and four European countries between 2019 and 2024, with country selection based on GDP per capita in the reference year 2019. The hypothesis assumes that global crises, such as the COVID-19 pandemic and the war in Ukraine, significantly affected investment activity in the construction sector, particularly in less developed economies. The analysis showed that in Poland's central region, the number of building permits decreased from 49,632 in 2019 to 42,271 in 2024. In lower-GDP countries, such as Croatia and Romania (13,898.49 and 11,601.89 EUR per capita in 2019, respectively), greater fluctuations in construction activity were observed, while Romania recorded an increase in non-residential permits, reaching 4,033,925 in 2023. The resilience of the construction sector to economic crises has been empirically confirmed, and research has shown the need to standardise data reporting across EU countries.

Keywords: building permits, global crisis, gross domestic product, GDP, country's economy, construction site, construction cycle

INTRODUCTION

The impact of COVID-19 on the economy

At the end of 2019, a new, highly contagious and dangerous virus from the *Coronaviridae* family began appearing in Wuhan, China (Rothan & Byrareddy, 2020). This virus was named "Coronavirus disease 2019" or COVID-19. It caused significant mortality among vulnerable groups and spread quickly from person to person around the world. Within a few months, it became a major health crisis, and the World Health Organization (WHO) officially declared it a pandemic in March 2020 (World Health Organization. Regional Office for the Eastern Mediterranean [WHO EMRO], 2020). All countries that detected COVID-19 cases put strict health measures in place to stop the virus from spreading, such as widespread testing, tracking who got sick, and limiting people's movements. However, these steps were not enough to stop the infection, so governments had to enforce stay-at-home orders (Sumalla-Cano et al., 2022).

The COVID-19 pandemic has profoundly disrupted the global economy, affecting almost every area of business, society, and economic activity. One of the primary challenges faced by the construction sector was

Katarzyna Wieczorek https://orcid.org/0009-0000-0977-2902; Justyna Dzięcioł https://orcid.org/0000-0002-2436-9748
✉justyna_dzieciol@sggw.edu.pl

supply chain disruptions. Lockdowns and restrictions led to delays in the delivery of materials and equipment, affecting project timelines and increasing costs. Quarantine measures and workforce shortages reduced companies' production capacity, leading to delays and shortages in supply. These difficulties were then amplified by disruptions in transportation and logistics, making it impossible to ensure timely delivery to construction sites. As a result, construction companies faced significant project delays and rising costs. This chain of effects forced many firms into financial distress, which ultimately led to layoffs and reductions in employment. Consequently, the construction sector suffered substantial losses, negatively impacting national economies (Ogunnusi et al., 2020; Biswas et al., 2021; Sumalla-Cano et al., 2022). Looking ahead, the construction sector in Europe faces the task of addressing the long-term impacts of the pandemic. This includes adapting to new health and safety standards, overcoming supply chain vulnerabilities, and ensuring a steady workforce. The lessons learned during this period will be crucial in building a more resilient and sustainable construction sector in the future.

The pandemic and the construction sector in Poland

As in the rest of Europe, Poland faced challenges in the housing market, aggravated by the pandemic and subsequent shocks. The pandemic caused significant changes in cities, negatively affecting areas such as jobs, home sales, new investments, and growing businesses. To stop the virus, governments put many restrictions in place that affected how businesses and people socialised. Many people lost their jobs, which led to a decline in home sales and to more people taking out loans and using credit (Czech, Karpio, Wielechowski & Woźniakowski, 2020; Kaźmierczak, 2021; Łaszek, Olszewski & Augustyniak, 2024; Wieczorek & Dzięcioł, 2025). The COVID-19 pandemic had a significant impact on Poland's credit market for both households and businesses. In the early phase, banks tightened lending policies, especially for businesses, marking the largest restriction since 2009. By 2021, banks eased household credit conditions, particularly for mortgages and consumer loans (Narodowy Bank Polski [NBP], 2021). Government support programmes, including interest subsidies for affected businesses, helped improve liquidity. Despite these measures, the pandemic affected banks' credit portfolios, and the risk of non-performing loans remains a major concern for the financial system (Lusztyna, 2022). Many construction sites faced delays or stopped completely due to an insufficient workforce and materials not arriving on time. This was largely due to COVID-19 restrictions, which limited the number of workers on site and disrupted supply chains.

Additionally, rising material costs and logistical challenges further slowed construction projects. The uncertainty in the labour market and delays in permits also contributed to postponed investments, affecting both residential and commercial projects. As a result, overall construction activity in Poland declined temporarily, but gradually began to recover as restrictions eased and supply chains stabilised (Dutka, Stołecka & Janiak, 2021; Wieczorek & Dzięcioł, 2025).

European Union responses to the economic crisis

In Poland, support programmes for small and large businesses have been implemented, interest rates on loans have been reduced, and even subsidies for loan instalments have been introduced for businesses affected by the pandemic. Similar programmes have been implemented in other European countries. Many countries launched various financial support programmes to mitigate the economic consequences. These monetary measures have been directed at various areas, such as aid for small and medium-sized enterprises (SMEs), direct expenditure related to the fight against the pandemic, benefits for the unemployed, and household payments. The widespread support was intended to help businesses and families, but it often contributed to inflation, short-run stabilisation, and inflationary pressures (Brenninkmeijer, 2020; Fernández, 2020; Pappa, Ramos & Vella, 2024). During the pandemic, countries' support programmes were in place for every enterprise. Their primary purpose was to support business activity and improve the mood of entrepreneurs. Similar dynamics were observed across the EU, especially in the construction sector, which suffered serious disruptions. The financial measures were aimed at stabilising supply chains and their logistics.

Another cause of the global crisis was the energy crisis that began in 2020, when the pandemic brought economies to a halt and energy demand fell, limiting the extraction of raw materials. When economies began to thaw in 2021, demand rebounded faster than supply, causing gas, coal, and oil prices to spike. Europe, heavily dependent on Russian gas, began to experience shortages, and Russia further restricted supplies. After the outbreak of war in Ukraine in 2022, the situation escalated, with gas and energy prices reaching record levels. In Poland, the costs of heating, fuel, and electricity rose sharply, increasing inflation and the burden on households. At the same time, housing construction costs exploded as the production of cement, steel, and the transport of materials became more expensive. Developers had to put some projects on hold, and individual investors felt the pressure of rising bills. The government introduced energy shields and subsidies to mitigate the effects of the crisis. Across Europe, countries took similar protective measures and began to invest heavily in supply diversification, liquefied natural gas terminals, and renewable energy sources (Zhou et al., 2025). This crisis became one of the main factors that drove up the cost of living and construction in 2022–2023 and accelerated the energy transition on the continent.

Logistics and challenges in the European Union construction sector

Logistics is essential due to the numerous actors involved, frequent transportation needs, and the high variability in construction projects (Leifgen & Kujajewski, 2018; Rakhmatullina, Sosunova & Zubtsova, 2022; Fredriksson, Kjellsdotter Ivert & Naz, 2025). Effective logistics can create value through trust and commitment among actors, although challenges such as delayed actor involvement and lack of coordination can arise (Fredriksson et al., 2025). Effective logistics planning requires coordination among all stakeholders, including logistics planners, site managers, and contractors (Said & El-Rayes, 2014; Leifgen & Kujajewski, 2018). The construction sector faces challenges due to varying demand, which impacts logistics performance related to inventory and transportation costs (Vidalakis, Tookey & Sommerville, 2011). Inefficiencies in the construction supply chain are exacerbated by intricate logistics systems, isolated planning across different segments, and fragmented transport functions, leading to macro-level visibility issues and adverse sustainability impacts (Dhawan, Tookey & Poshdar, 2024). The EU construction sector faced several logistical challenges from 2019 to 2024. These challenges are multifaceted and stem from various factors, including infrastructure constraints, waste management, skilled labour shortages, and the need for technological advancements. The increase in freight transport has put significant pressure on EU infrastructure, leading to congestion on roads, rail links, and harbours. This congestion hampers efficient logistics operations and necessitates improvements in transport networks. Establishing an efficient trans-European transport network (TEN-T) remains a high priority, with ongoing revisions to guidelines aimed at improving freight and logistics flows (Tymoshchuk, Suray, Hrebeniuk, Zadoia & Selishchev, 2025). Investments in infrastructure projects and international partnerships are crucial for optimising transport and logistics.

One of the key effects of the pandemic was the implementation of modern technologies in the construction sector. Digital technologies, namely building information modelling and advanced logistics solutions, are essential for transforming construction techniques and reducing costs (Kastiukas & Zhou, 2019; Vasiliev & Bruskin, 2022). However, the overwhelming number of technological solutions can discourage companies from implementing them effectively. Moreover, these innovations involve not only significant financial investments, but also human resource challenges, such as resistance to change, the need for organisational changes, or the need for employees to acquire new digital skills. Such technology is used in modern construction and contributes to faster information transfer between different branches. In addition, during the COVID-19 pandemic, construction inspectors used it to monitor progress and check the quality of implementation. This is a considerable development in the economic sector, which, in the event of future global crises, could facilitate work on many construction sites and reduce employee layoffs (Wieczorek & Dzięcioł, 2025).

Construction prices in the European Union

The construction sector in the EU has experienced significant fluctuations in material prices from 2019 to 2024, influenced by various economic, political, and global factors (Amca, Yorucu & Kırıkkaleli, 2025). The COVID-19 pandemic and the conflict between Ukraine and Russia caused building material prices to soar due to international tensions, supply difficulties, and the shortage of certain products, leading to the contraction of construction activity in the euro area (Hazam & Ouhna, 2024; Sjekavica Klepo, Damić, Milaković, Radaković & Peroš, 2025). Political, economic, and financial risks further increased costs, with empirical studies confirming their significant negative impact on the EU construction cost index (Amca et al., 2025). This has led to delays and even stoppages in construction projects, further driving up costs. Rising interest rates and inflation rates have also contributed to the rising costs of construction materials (Amca et al., 2025). These economic factors have made it more expensive to finance construction projects, adding to the overall cost burden.

Figure 1 presents values in percent for producer prices and costs in the EU. Based on Figure 1, between 2019 and 2024, an increase was recorded from 90 index points in 2019 to 125 index points in 2024, with 2021 at 100 index points. The largest increase was recorded in the years 2021–2023, where the difference was about 20 index points, from 100 index points in 2021 to 118 index points in 2023. However, in 2024, producer prices were about five index points higher than costs. This growth shows that despite the collapse of the global economy, the EU economy continued to grow slightly due to a number of factors.

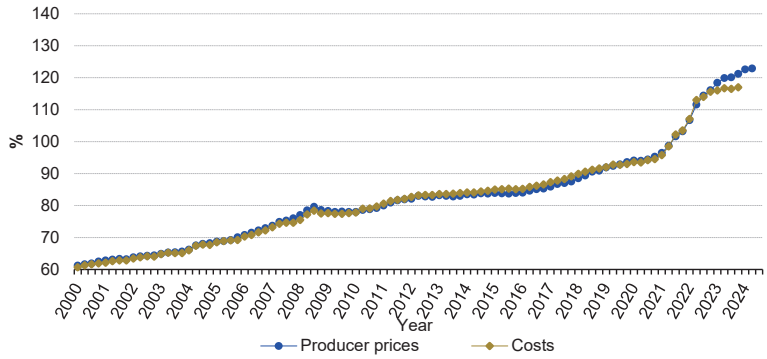


Fig. 1. Construction producer prices and costs in the European Union in 2000–2024, unadjusted quarterly data (2021 = 100)

Source: Eurostat (2025a).

Empirical evaluation of the impacts of political, economic, and financial risks on the cost of construction materials has shown that economic, political, and financial risk indices negatively affect the construction cost index across the EU (Amca et al., 2025). The impact of the global pandemic, supply chain disruptions, and international tensions has led to increases in material prices, affecting the resilience of companies operating in the construction sector (Hazam & Ouhna, 2024). It was found that the construction cost index in the EU area has shown continuous growth over the last two decades, particularly in the period following the COVID-19 pandemic. Stabilisation was evident in slow but steady growth from 2021 to 2024, reaching 117 index points in 2024. The main reason was stability policies, the implementation of new aid, recovery, and subsidy programmes for EU countries, and strong country economies, which, despite the problems caused by the crisis across the EU, did not experience significant declines in 2019–2024.

Gross domestic product dynamics in Europe

The global crisis had a significant impact on the EU, as it did on the rest of Europe. Construction prices in Europe were highly volatile between 2019 and 2024, mainly due to the COVID-19 pandemic and supply chain disruptions. Activity slowed in 2020 because of lockdowns and labour shortages, but demand rebounded in 2021 with resumed projects and stimulus measures. By 2024, price growth had moderated as supply chains recovered, though costs remained above pre-pandemic levels. The period highlights the sector's vulnerability to global shocks and the strong impact of external economic factors (Attinasi, Balatti, Mancini & Metelli, 2025).

Another indicator for determining the quality of a country's economy is gross domestic product (GDP). It is the total monetary value of all goods and services produced within a country's borders during a specific period and is a key indicator of economic performance. In the EU, GDP is used not only to assess overall economic output but also to monitor economic cohesion between member states. Although younger member states have generally experienced faster economic growth since the 2004 enlargement – driven by access to the single market, foreign investment, and EU funds – the convergence process remains uneven. While some regions have caught up quickly, others continue to lag behind due to structural and institutional challenges. As research shows, achieving sustainable and inclusive GDP growth across the EU requires deeper integration, targeted investment, and policies that address both productivity gaps and regional disparities (Mucha-Leszko & Twarowska, 2016; Pietrzykowski, 2019; Cieślik & Turgut, 2021). Contemporary economic development processes in European countries are characterised by significant diversity, which is particularly evident in the years 2019–2024 under the influence of two major crises: the COVID-19 pandemic and the war in Ukraine. GDP per capita remains one of the basic indicators used to compare the level of development of countries, and its volatility during crises allows us to identify the scale of the shock and the ability of a given country to rebuild its economy (Balakrishnan, Rabier, Ebeke, Firat & Malacrino, 2022; Licchetta & Mattozzi, 2023; Wieczorek & Dzięcioł, 2025).

Objective and scope of the analysis

The main objective of this analysis is to examine the dynamics of building permit issuance in selected EU countries between 2019 and 2024 and compare them with the situation in Poland. The analysis examines influencing factors, with a particular focus on trends and disruptions caused by external shocks such as the COVID-19 pandemic. The scope of the study covers selected European countries, allowing for cross-country comparisons and highlighting similarities and differences in the development of the construction sector (Petrova & Sznajder Lee, 2024). However, the main focus is on building permits as an indicator of construction activity. The analysis also considers the role of construction materials and supply chain challenges, which have indirectly affected the speed and scale of new construction projects (Mucha-Leszko & Twarowska, 2016; Cieślik & Turgut, 2021; Dai, Gao & Ma, 2024).

This article aims to analyse the dynamics of GDP per capita for selected countries in the years 2019–2024, taking into account the impact of global crises, such as the COVID-19 pandemic, as well as the context of European economic and environmental policies. The study also shows the correlations between GDP per capita for selected countries and the number of building permits issued in the years described. Data for all selected countries regarding GDP is presented in a uniform manner, where GDP is per capita and industry (including construction) is in percentages of GDP. The currency has been standardised and converted from the average annual exchange rates for each year from 2019 to 2024, from USD to EUR, based on data from the National Bank of Poland (NBP, 2019–2024). Data on building permits contain information for each of the 12 months of the year and are presented in an annual comparison for each country in relation to Poland. The analysis is set in the context of European economic, fiscal, and environmental policies, which

have significantly shaped the conditions for business and investment activity during the period under study. In addition to the macroeconomic perspective, the study focuses on the construction sector as one of the key areas of the economy. This area reflects the overall condition of the country's economy. To this end, the relationships between GDP per capita in selected countries and the number of building permits issued in 2019–2024 are presented. This approach allows for the identification of quantitative trends in construction development and changes in the level of prosperity of societies or the structure of the economy. The observation also concerns the dynamics of infrastructure and housing investments that affect the development of European countries. The analysis includes a comparison of two countries with a lower GDP than Poland and two countries with a higher GDP, which will allow for an assessment of the diversity of economic responses and the identification of factors supporting or limiting economic growth in different conditions. This comparison makes it possible to capture the diversity of economic responses and better understand the factors influencing economic development in different socio-economic conditions. The aim of this comparison is to show the extent to which the level of economic development, the availability of resources, and public policy influenced the issuance of building permits and investment activity in individual countries. The selected countries belong to Europe, but each of them has its own standards for presenting data and making it available. For this reason, for some countries, the data is not specific, but shows the general scale of building permits issued. This article – after analysing four European countries in comparison to Poland – answers questions such as: To what extent does the GDP per capita growth rate in individual EU countries translate into the number of building permits issued? Also, do countries with higher GDP per capita have a more resilient construction sector to economic crises, such as the COVID-19 pandemic, compared to countries with lower GDP per capita?

DATA AND METHODS

Selection of countries and time

According to the European Commission's forecast, the divergence from the pre-pandemic economic growth path is significantly greater than the corresponding divergence during the previous crisis. Analyses relating to the GDP of the EU-27 have been created, predicting a 7.4% decline in 2020, as well as that pre-crisis levels will not return immediately, with the result that many companies will go bankrupt and the number of employees will drop significantly (Brenninkmeijer, 2020).

Based on Eurostat data, the real GDP rate of change in 2019–2024 for the EU is taken into account. In 2019, the change was 2%, but it was observed that for EU countries, there was a decline in 2020 to a value of −5.6% compared with the previous year. This decline was caused by the COVID-19 pandemic. The world was paralysed, people were quarantined, and small and large businesses suspended or closed their operations. However, in 2021, there was a significant increase to 6% compared to the previous year. The following years saw a return to the higher values of before 2019 and an attempt at stabilisation. However, slight downward fluctuations in 2022 were caused by the war in Ukraine, which disrupted the supply chain of raw materials from Ukraine to EU countries. In 2024, the value was about 1.5%, which means that the economies of countries are recovering after the global crisis. The chart shows a comparison of GDP values for European countries in 2019 (Fig. 2).

The values presented in Figure 3 in euros have been converted using the weighted average exchange rate for 2019, where 1 USD = 0.893 EUR, based on historical data from the National Bank of Poland on 17 September 2025 (NBP, 2019–2024). In 2019, GDP per capita, a measure of economic activity, showed substantial differences across the chosen countries. The research methodology is based on the analysis of statistical data obtained from the World Bank for selected countries. The selection of countries for analysis was based on GDP per capita values in comparison to Poland.

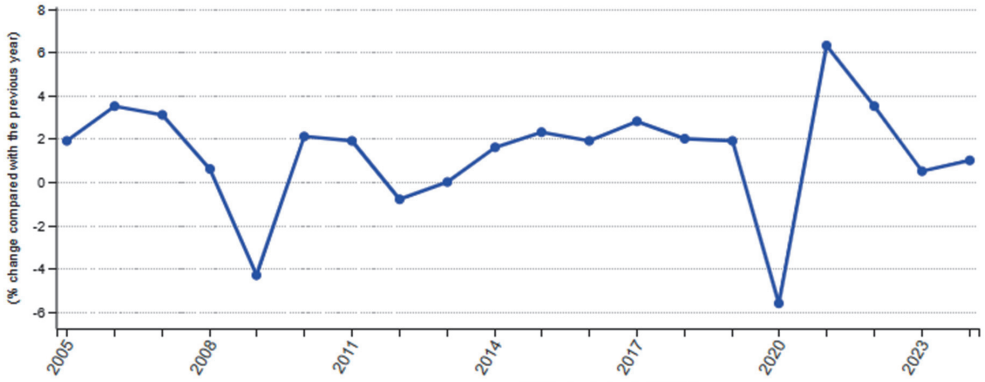


Fig. 2. Real gross domestic product rate of changes in the European Union in 2005–2024

Source: Eurostat (2025d).

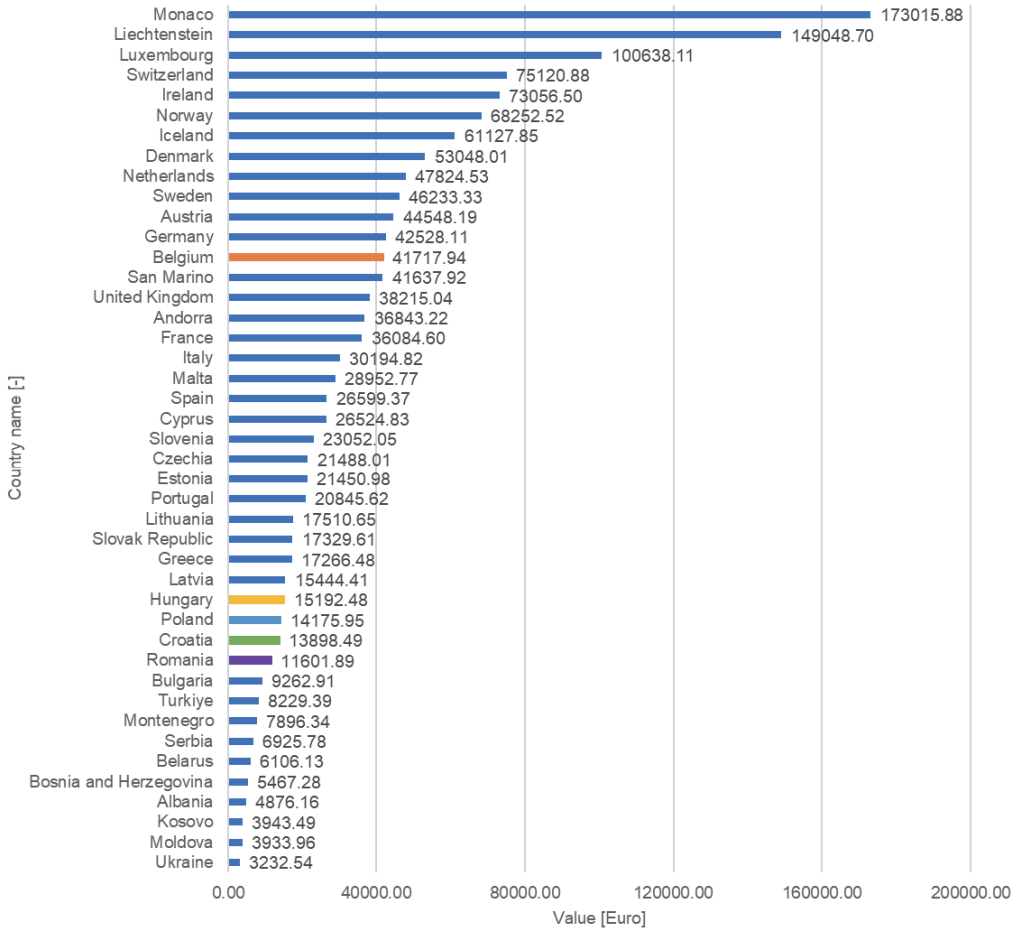


Fig. 3. Volume of gross domestic product per capita in 2019 for European countries

Source: own work based on World Bank [WB] (2025).

The GDP indicator for Poland, based on Figure 3, is 14,175.95 EUR. Two countries with a lower GDP than Poland were selected: Croatia at 13,898.49 EUR and Romania at 11,601.89 EUR. Furthermore, two more countries with a higher GDP than Poland were also selected for analysis: Belgium at 41,717.94 EUR and Hungary at 15,192.48 EUR. All countries have statistical data available from Eurostat or the World Bank, which facilitates comparison. Access to data for these countries was also free of charge and could be obtained from the central national statistical services' websites for individual countries. In addition, each of the selected countries is located in Europe, which makes it easier to compare them in terms of regulations and trade. Data such as GDP, inflation, and trade are also compared because the countries belong to similar economic regions in Europe. The selection of these countries allows us to show the differences and similarities in economic development, industrial structure, and standard of living, as well as how they cope with global conflicts. The analysis concerns the number of building permits issued in 2019–2024. These years were selected for comparison because they are the years before, during, and after the global pandemic crisis and the war in Ukraine, which created a lot of financial problems, logistics, and supply chain issues.

The comparison will be carried out using Excel in tabular form for individual countries against Poland. As part of the comparative analysis, data on GDP per capita for selected countries were collected. The comparison aims to determine Poland's position in relation to countries with higher and lower GDP levels. The reference year for the countries for analysis was 2019. This year was chosen because it was the year before global crises such as the coronavirus pandemic and the war in Ukraine. Moreover, the economies of these countries were stable, which allowed for a reliable assessment of the share of sectors such as construction in GDP per capita. Based on data from that year, the countries analysed were selected in relation to Poland's GDP value. The analysis also covered the percentage share of the industry sector in GDP. The comparison of economic factors will be presented in bar and line charts. Countries with a lower GDP will be listed on one chart together with Poland, and countries with a higher GDP than Poland will be listed on another chart together with Poland. This approach allows for a better understanding of differences in economic development and potential factors influencing the economy of a given country. The analysis also covered GDP per capita and industry (including construction) values for each country, as shown in the summary charts, together with a comparison to Poland. This data will be presented in charts. In addition, a comparison table will be created for Poland showing each type of building in 2019 and 2024, and the percentage changes. For each chart and table, an analysis was performed comparing the country to Poland and the number of permits issued in 2019–2024. The reference year is 2019.

Limitations

The collected data comes mainly from the websites of statistical offices of selected countries, as well as from Eurostat and national statistical offices for each chosen country: Poland – Statistics Poland (GUS), Croatia – Croatian Bureau of Statistics (DZS), Romania – National Institute of Statistics (INS), Hungary – Hungarian Central Statistical Office (KSH) and Belgium – Statistics Belgium (Statbel). Data aggregators such as Statista and the World Bank were also used.

Eurostat data is available free of charge, but there is a lack of completeness of data for the countries selected for analysis; therefore, statistical offices of selected countries were used. Eurostat divides types of construction into building and civil engineering works. Eurostat uses a data nomenclature in which a building is defined as a structure with a roof, built for permanent purposes and capable of being used by people. It does not need to have walls, but it must have a roof, and there must be a boundary that defines the individual character of the building intended for separate use. Buildings are divided into residential and non-residential buildings. A residential building is a building for which at least half is used for residential purposes. A non-residential building is a building that is used or intended mainly for non-residential purposes (Eurostat, 2025b). A civil engineering work is a construction not classified under buildings, for example, railways, roads, bridges, highways, airport runways, and dams (Eurostat, 2025c). In addition, data aggregators were used to combine all available and easily

accessible data for detailed analysis. Furthermore, despite applying the same rules to all selected European countries, statistical offices do not standardise data and have different ways of making data available. Poland presents the full data for each type of building for 2019 and 2024, and by the region of the country. The chart will present values for total building permits in selected years. For Croatia, the chart will show total building permits and residential buildings compared to Poland. According to Eurostat data, these types of buildings are community buildings. In Poland, transport infrastructure facilities will be shown on a chart, including roads, tram tracks, railway tracks, ports, waterways, and airports. In Romania, the national statistical services do not specify whether buildings are residential or non-residential. However, based on Eurostat data, non-residential buildings are defined as buildings that are mainly used or intended for non-residential purposes.

For Belgium, the only information obtained is the totals for residential buildings in the years 2019–2024. Finally, for Hungary, the data obtained for comparison are values for issued dwelling construction permits and construction in 2019–2024. The term 'dwelling construction' is the same as 'residential building' in Eurostat terminology. Croatia and Romania did not have data for 2019, which makes a full comparison difficult. Therefore, the comparison was made for the years 2020–2024.

National statistics services in each country differ in the way they present the quantity and descriptions of data. Often, these are general data compiled for specific years. However, such data has been analysed in a way that best reflects the potential and economic growth of individual countries. Based on the data obtained, our own figures were created and analysed based on data received for selected countries.

RESULTS AND DISCUSSION

The construction sector in Poland

The construction sector in Poland includes not only multi-family buildings and industrial facilities, but also roads, industrial and warehouse buildings, transport infrastructure facilities, and water structures. In Poland, an average of 105,000–110,000 building permits for residential buildings were issued annually between 2019 and 2024 (Główny Urząd Nadzoru Budowlanego [GUNB], 2025). The total number of building permits issued for all types of buildings is shown in Figure 4. The economy is mainly based on industry, construction, and raw materials, but this article shows the country's economic situation based on the number of building permits issued between 2019 and 2024.

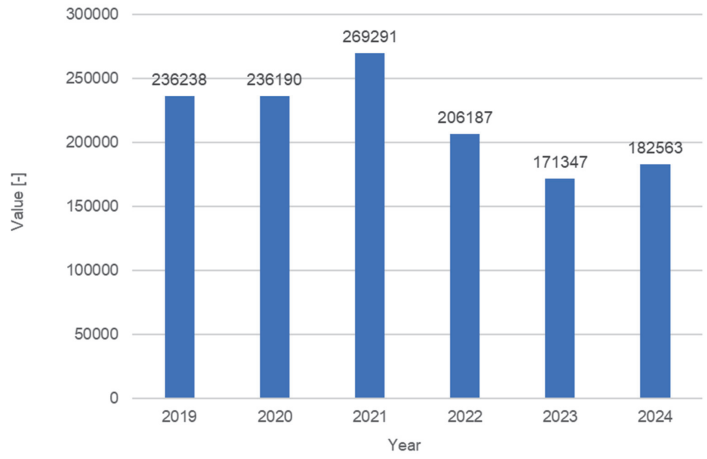


Fig. 4. Total building permits in Poland in 2019–2024

Source: own work based on GUNB (2025).

Between 2019 and 2024, Poland's economic situation was unstable, which had a direct impact on the construction sector. An analysis of the number of building permits issued during this period shows clear volatility, which can be linked to global and regional crisis events, such as the COVID-19 pandemic and the armed conflict in Ukraine that has been ongoing since 2022.

In 2019, amid macroeconomic stabilisation and a growing economy, 236,280 building permits were issued in Poland. This was a sign of a developing investment market and strong interest in the real estate sector. Despite the outbreak of the pandemic, 2020 did not bring a drastic decline. The construction sector showed great flexibility and adaptability to new realities, such as sanitary restrictions and changes in work organisation. The number of permits issued remained at a similar level to the previous year (Rachwał & Dominiak, 2022). The total number of permits in 2020 was 236,190. In 2021, there was a significant increase in construction activity, with 269,291 permits issued, which represented a 14% increase compared to 2019. This phenomenon can be explained by the accumulated investment demand after a period of pandemic-related decision-making suspensions, improved lending conditions, and active investment support policies on the part of the government and European institutions. Unfortunately, the positive trend did not last long (Kraska & Kot, 2024). The year 2022 brought a significant decline – the number of building permits decreased to 206,187, which represented a 12.7% decrease compared to 2019. The year 2023 proved to be the most difficult period for the Polish construction sector in the analysed time frame. Only 171,347 building permits were issued. Factors contributing to this situation include the ongoing war in Ukraine, a deepening labour shortage, limited availability of materials, and high inflation. The increase in investment financing costs and economic uncertainty discouraged many investors from starting new projects. In 2024, the first signs of stabilisation and recovery in the construction sector appeared. The number of permits issued increased to 182,563, an increase of 6.6% over the previous year and a decrease of 22.7% from 2019. The main factors shaping demand for housing in 2023–2024 were financial conditions in the country, such as high interest rates in 2022, subsequent cuts and easing of credit criteria, and government programmes for mortgagors.

The key factors were rising prices of construction materials, difficulties with their transport, and the outflow of workers from Ukraine. As a result of the war, many Ukrainian workers employed on construction sites returned to their country to take part in their country's defence. Developers and individual investors faced record construction costs, which halted some projects and limited the future supply of housing (Sochacki, 2024; Wieczorek & Dzięcioł, 2025).

Based on Figure 4, which shows the situation in the construction sector in 2019–2024 in terms of building permits issued for Poland, Table 1 shows the breakdown by specific types of buildings. For the period 2019

Table 1. Number of building permits issued for specific types of buildings in Poland in 2019–2024

Year	TB	CA	SB	MB	RB	PB	FB	IWB	TF	WS	PP	OF
2019	236 238	949	113 641	10 903	1 931	10 595	14 028	6 184	3 872	422	28 325	46 787
2020	236 190	1 037	121 366	11 557	1 878	9 699	12 208	5 626	3 739	493	22 825	46 802
2021	269 291	1 961	150 087	17 661	2 692	10 752	12 853	6 673	3 750	288	19 666	44 869
2022	206 187	908	113 803	15 619	2 590	10 631	10 508	6 003	3 436	329	15 331	27 937
2023	171 347	1 049	88 259	13 289	2 748	9 449	10 094	5 885	3 379	359	12 184	25 701
2024	182 563	582	99 282	16 247	2 022	9 851	9 696	5 346	3 383	302	9 052	27 382

TB – total number of buildings, CA – including those in closed areas, SB – single-family buildings, MB – multi-family buildings, RB – collective residential buildings, hotels, and accommodation buildings, PB – public utility buildings, FB – farm buildings and livestock buildings, IWB – industrial and warehouse buildings, TF – transport infrastructure facilities, WS – water structures, PP – pipelines, telecommunications and power lines, OF – other facilities.

Source: own work based on GUNB (2025).

to 2024, the lowest number of total buildings (TB) was in 2023. However, between 2019 and 2021, the number of building permits issued showed an upward trend for TB, including those in closed areas. An increase was recorded until 2021. From 2021, there was a marked decline, which reached its lowest point in 2023 for TB. This decline was a consequence of external macroeconomic factors: the COVID-19 pandemic, the war in Ukraine, the monetary policy, and improved credit conditions. These factors contributed to a reduction in the availability of workers, an increase in the prices of building materials and a weakening of investment. In 2024, a slow growth was expected, which means the reconstruction of the country's economy, an increase in the importance of construction, and an increase in the number of building permits issued.

Single-family buildings, multi-family buildings, collective residential buildings, hotels, and accommodation buildings showed positive growth in 2019–2021, followed by a decline until 2023, with a rebound for SB and MB in 2024. Multi-family buildings stood out in 2024, with their number increasing by 49% compared to 2019, which can be linked to the growing demand for multi-family housing in cities. No trend was observed in types such as public utility buildings, farm buildings and livestock buildings, industrial and warehouse buildings, transport infrastructure facilities, and water structures. However, most non-residential segments are expected to see a decline in 2019–2024: PB by 7%, FB by 31%, and IWB by 14%, with a temporary peak in 2021. This is not a regular occurrence due to the temporary nature of investments. Investments in water structures, which include dams, weirs, and retention reservoirs, or transport infrastructure facilities, depend on public funds and have long implementation cycles. Due to the long-term nature of use and the lack of urgent hydrotechnical needs, the number of permits in this category remains low. The highest number was in 2020 for 493 WS permits. In the area of transmission networks, pipelines, telecommunications, and power lines, there is a clear downward trend, from 28,325 permits in 2019 to 9,052 in 2024 - a difference of 68%. This may be the result of the completion of earlier infrastructure projects and financial and regulatory constraints. A similar downward trend has been observed for other facilities, from 46,787 in 2019 to 27,382 in 2024 - a difference of 41.5%. For other facilities, other types of buildings have been understood as not included in the various types of buildings listed. However, data from the last year indicate a possible stabilisation. Table 1 shows the differences between building permits issued for Poland in terms of various types of structures, from residential buildings to roads, telecommunications, and water structures. Based on data in Table 1, downward trends were observed in 2021–2023, when Poland was affected by the global economic crisis. However, the values for 2024 show an increase, which means the reconstruction of the country's economy and a desire to return to pre-crisis values.

Table 2 shows a similar summary as Table 1, but divided into regions of Poland in 2019 and 2024, and the reference year is 2019. Based on data in Table 2 in 2019, the lowest number of permits in the total number of buildings category was recorded in south-west Poland, which was also the case in 2024. The highest values in both years were recorded in the central region. The percent change for 2024 compared to 2019 for the central region is 14.8% for total buildings. This phenomenon can be linked to the concentration of capital, the higher rate of urbanisation, and the presence of Warsaw, the largest construction market in Poland. However, the percent change for the north-west region is the highest value, at 31%. It shows the decrease in values, but it means the country is rebuilding after the global crisis. In the case of CA, the values remain low in both years, which is due to the limited number of investments carried out in closed areas. The highest values in this category were recorded in eastern Poland, which may be related to the larger number of military facilities and border infrastructure.

In central Poland, a decrease of 72.5% was recorded compared to 2019, while in southern Poland, there is only a 12.8% decline. The lowest values in both years were recorded in the south-western region for single-family buildings. Central Poland saw an increase of 3%, and the highest decline for the north-west of Poland was 23.6%. For multi-family buildings in 2024, the highest number was recorded in central Poland, but it increased for the whole of Poland. The smallest values were observed for the north-west of Poland,

and the percentage change was 14.2%. This increase can be linked to the intensification of residential investment in the Warsaw agglomeration and other large cities in central Poland. In the case of collective residential buildings, hotels, and accommodation buildings, the lowest value in 2019 was recorded in the south-west, with 103 permits. In 2024, the central region recorded only 62 permits. However, the largest percentage increase in 2024, compared to 2019, was recorded in the south-west of Poland, at 139.8%. The rise in the central region can be explained by the highest concentration of tourist facilities compared to coastal and mountain regions.

Table 2. Number of building permits issued for specific types of buildings in Poland in 2019 and 2024 by region and percentage rate

Region	TB	CA	SB	MB	RB	PB	FB	IWB	TF	WS	PP	OF
Year 2019												
Central	49 632	138	23 596	1 805	200	1 566	4 115	1 220	745	25	5 477	10 883
South	44 897	117	23 131	2 016	221	2 152	1 575	900	541	51	4 775	9 985
East	44 761	240	19 953	656	325	1 875	4 203	1 063	593	72	5 827	10 194
South-west	18 695	90	10 653	1 419	103	946	494	552	395	43	2 336	1 754
North-west	44 350	194	20 204	2 830	761	2 639	2 192	1 508	1 005	159	6 020	7 032
North	33 903	170	16 104	2 177	321	1 417	1 449	941	593	72	3 890	6 939
Year 2024												
Central	42 271	38	24 312	3 691	62	1 718	2 606	1117	525	19	1 632	6 589
South	35 057	102	20 055	2 675	353	2 005	1 405	963	674	35	1 405	5 487
East	32 845	199	17 074	1 626	279	1 719	2 772	843	619	63	1 497	6 353
South-west	15 965	63	8 925	2 401	247	951	442	518	232	27	1 308	914
North-west	30 587	96	15 428	3 233	536	2 092	1 428	1 045	873	89	1 702	4 161
North	25 838	84	13 488	2 621	545	1 366	1 043	860	460	69	1 508	3 878
Rate [%]												
Central	−14.8	−72.5	3.0	104.5	−69.0	9.7	−36.7	−8.4	−29.5	−24.0	−70.2	−39.5
South	−21.9	−12.8	−13.3	32.7	59.7	−6.8	−10.8	7.0	24.6	−31.4	−70.6	−45.0
East	−26.6	−17.1	−14.4	147.9	−14.2	−8.3	−34.0	−20.7	4.4	−12.5	−74.3	−37.7
South-west	−14.6	−30.0	−16.2	69.2	139.8	0.5	−10.5	−6.2	−41.3	−37.2	−44.0	−47.9
North-west	−31.0	−50.5	−23.6	14.2	−29.6	−20.7	−34.9	−30.7	−13.1	−44.0	−71.7	−40.8
North	−23.8	−50.6	−16.2	20.4	69.8	−3.6	−28.0	−8.6	−22.4	−4.2	−61.2	−44.1

TB – total number of buildings, CA – including those in closed areas, SB – single-family buildings, MB – multi-family buildings, RB – collective residential buildings, hotels, and accommodation buildings, PB – public utility buildings, FB – farm buildings and livestock buildings, IWB – industrial and warehouse buildings, TF – transport infrastructure facilities, WS – water structures, PP – pipelines, telecommunications and power lines, OF – other facilities.

Central: Łódzkie voivodeship, Mazowieckie voivodeship; South: Małopolskie voivodeship, Śląskie voivodeship; East: Lubelskie voivodeship, Podkarpackie voivodeship, Świętokrzyskie voivodeship, Podlaskie voivodeship; South-West: Dolnośląskie voivodeship, Opolskie voivodeship; North-West: Wielkopolskie voivodeship, Zachodniopomorskie voivodeship, Lubuskie voivodeship; North: Kujawsko-Pomorskie voivodeship, Warmińsko-Mazurskie voivodeship, Pomorskie voivodeship.

Source: own work based on GUNB (2025).

Furthermore, public utility buildings for the central and south-west regions of Poland recorded an increase, but other parts of Poland recorded a decrease. The highest number was 2,092 permits for the north-west in 2024. Few farm buildings were constructed in Poland from 2019 to 2024, and the decline in 2024 was 36.7% for the central region. Significant decreases were also recorded in the east and north-west of the country, at 34% and 34.9%, respectively. For industrial and warehouse buildings, the highest value of 1,508 permits was recorded in the north-west of Poland in 2019, while in 2024 it was recorded in the central part of the country, at 1,117 permits. The percentage change for the central region was 8.4% and for the north-west of Poland it was 30.7%. For water structures, due to the low level of implementation of this type of investment in Poland, the values remained low – in 2019 they ranged from 25 to 159 permits, and in 2024 from 19 to 89. In both years, the highest results were achieved by the north-west region. For this region, the highest decline was recorded, at 44%.

In the case of pipelines, telecommunications, and power lines, there was a marked decline: in 2019, the highest value was recorded in the northern region, with 6,020 permits, and in 2024, there were 1,702 permits. This decline is related to the end of the intensive development phase of fibre optic networks and telecommunications infrastructure, which took place in 2019.

In 2019, for other facilities, the highest number was 10,883 permits for central Poland, and the lowest was for the south-west of Poland, with 1,754 permits. In 2024, central Poland maintained its leading position with 6,589 permits, while the lowest result was recorded in the south-west, with 914 permits. For the whole of Poland, compared 2019 to 2024, a decrease was observed for other facilities. In summary, in terms of TB and CA, central Poland continues to have a clear investment advantage, while the south-west consistently records the lowest values. Regional differences are mainly due to population density, availability of development land, economic specifics of regions, and proximity to large urban regions.

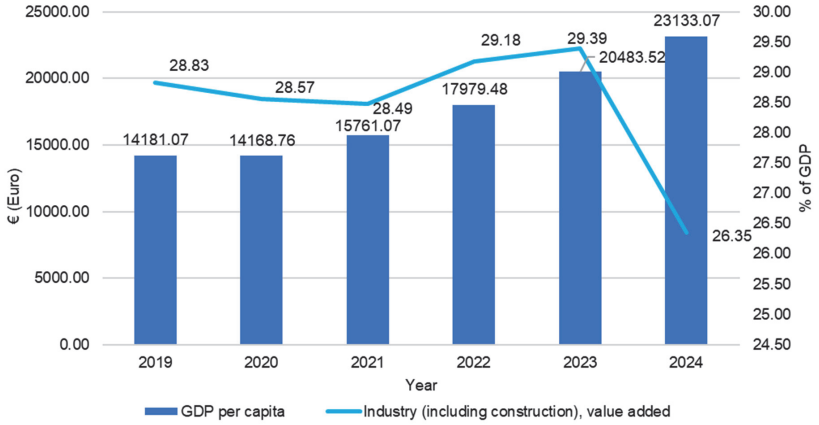
Poland, as the reference country, was subjected to a detailed analysis based on data obtained from the statistical office on building permits issued in 2019–2024. Another analysis compares Poland and four selected countries in macroeconomic terms in terms of the percentage share of the construction sector in GDP and GDP per capita for all selected countries.

Macroeconomic characteristics of selected countries

This chapter presents the macroeconomic values of selected European countries based on GDP per capita, with Poland serving as the basis for selecting countries with lower and higher GDP than Poland. The data selection was made based on 2019, which serves as the reference year for further analysis. The analysis focuses on GDP at current market prices and the value added of the industrial sector in 2019–2024. These two indicators provide insight into the overall economic condition and the role of industry in national economies, which are essential for understanding the conditions affecting the construction sector. The first analysis is for Poland from 2019 to 2024, and the values for this period are shown in Figure 5.

Between 2019 and 2024, Poland significantly increased its GDP per capita from 14,181.07 EUR in 2019 to 23,133.07 EUR in 2024. The decline in 2022 was due to several global events that occurred in the years selected for analysis: the lingering effects of the COVID-19 pandemic, supply problems, a sharp rise in energy prices following Russia's aggression against Ukraine, as well as high inflation, which exceeded 14% in 2022. The share of industry (including construction) in GDP remained relatively stable between 2019 and 2023, at 28.8% and 29.4% respectively. This means that the industrial sector maintained its position in the economy despite global crises. In 2024, however, there was a sharp decline to 26.4%. This was due to, among other things, a reduction in exports due to the slowdown, a decrease in production in energy-intensive industries due to high energy costs, increases in interest rates on loans, and labour shortages in construction and industry, partly due to the return of Ukrainian citizens to their country. Despite these problems, the record GDP per capita in 2024 shows that Poland wants to develop and achieve even better results in the future. However,

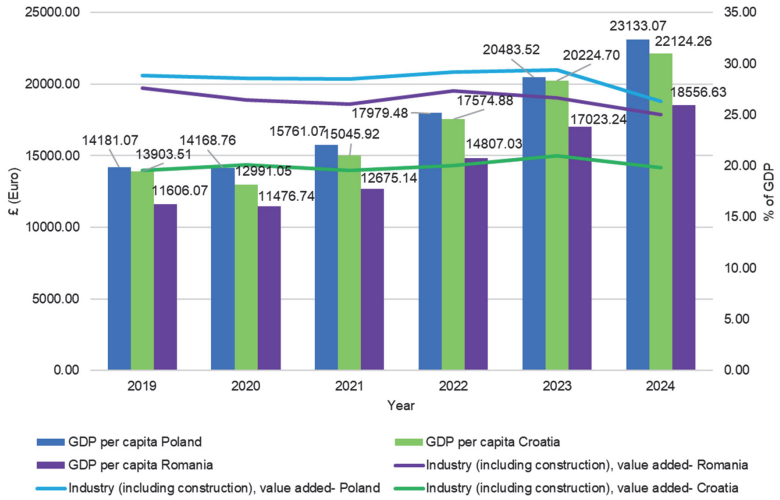
the structure of the economy is changing, and the share of industry is declining. Croatia and Romania are other countries chosen for analysis. Figure 6 shows a comparison of GDP per capita for Poland, Croatia, and Romania in 2019–2024 and the share of industry in their GDP.



The values presented in Figure 5 in euros have been converted using the weighted average exchange rate for each year separately: 2019: 1 USD = = 0.893 EUR; 2020: 1 USD = 0.877 EUR; 2021: 1 USD = 0.846 EUR; 2022: 1 USD = 0.952 EUR; 2023: 1 USD = 0.925 EUR; 2024: 1 USD = = 0.924 EUR. The conversion is based on historical data from the National Bank of Poland on 17 September 2025 (NBP, 2019–2024).

Fig. 5. Comparison of gross domestic product per capita and industry (including construction) values for Poland in 2019–2024

Source: own work based on WB (2025).



The values presented in Figure 6 in euros have been converted using the weighted average exchange rate for each year separately: 2019: 1 USD = = 0.893 EUR; 2020: 1 USD = 0.877 EUR; 2021: 1 USD = 0.846 EUR; 2022: 1 USD = 0.952 EUR; 2023: 1 USD = 0.925 EUR; 2024: 1 USD = = 0.924 EUR. The conversion is based on historical data from the National Bank of Poland on 17 September 2025 (NBP, 2019–2024).

Fig. 6. Comparison of gross domestic product per capita and industry (including construction) values for Poland, Croatia, and Romania in 2019–2024

Source: own work based on WB (2025).

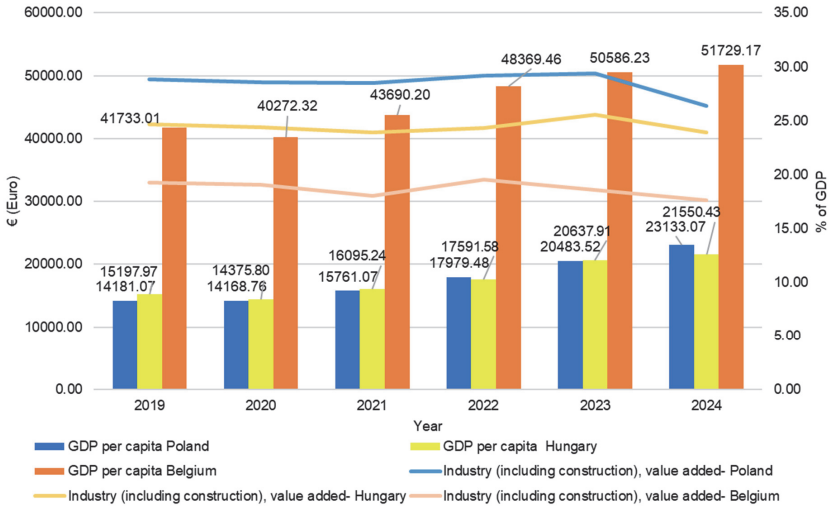
Figure 6 presents a comparison of countries such as Poland, Croatia, and Romania. Between 2019 and 2024, Poland's GDP values showed an upward trend with low growth in 2020 of about 1% compared to 2019. However, it can be seen that the other two countries, Croatia and Romania, recorded lower values than Poland, but also showed an upward trend.

In the case of Croatia's GDP, the only decline was recorded in 2020 to 12,991.05 EUR. The decline was caused by the COVID-19 pandemic, which led to lockdowns across almost all of Europe and the world. This resulted in, among other things, travel restrictions, limited workplaces, and a large number of cases and deaths at that time. In 2021, when the restrictions were lifted and tourist traffic was unblocked, Croatia's GDP rebounded to 15,045.92 EUR. This result was even higher than the pre-pandemic values. In addition, Croatia, as a member of the EU, received a lot of funding at that time, and the number of new investments increased, and external consumption improved. Furthermore, in 2023, Croatia joined the eurozone, which increased its financial stability (Barbić, 2024). The situation in Romania was similar to that in Croatia, but the lowest value recorded for 2019 was 11,606.07 EUR. Although Romania is not as dependent on tourism as Croatia, the COVID-19 pandemic affected the industrial, transport, and service sectors, slowing down the economy, and GDP per capita growth in 2021 was not significant, amounting to less than 1% compared to 2020. The following years saw a significant upward trend to 14,807.03 EUR. Romania restarted every economic sector and rebuilt its economy after years of COVID-19, disrupted supply chains, and lockdowns (Moridian et al., 2025).

The contribution of industry (including construction) to GDP varied significantly between countries, but all three countries saw a decline between 2019 and 2021, followed by an upward trend. For Poland, the highest value was achieved in 2023, when the country recovered from the COVID-19 pandemic and the war in Ukraine. This year was also a year of recovery after the interest rate cuts in 2022 and the highest construction costs in 2022–2023. In Croatia, the highest value was recorded in 2023. Tourism returned to its original track after the pandemic, and other global conflicts had no impact. In Romania, growth was already evident in 2022. The country rebuilt its industry and transport sectors, which allowed it to rebound after the pandemic decline. However, after significant growth for each country, declines to pre-pandemic values were already recorded in 2024. It can be concluded that each country's economy is returning to normal after years of struggling with the global pandemic. The figure also shows the share of industry (including construction) in the country's GDP. As can be seen, each of them is at a high level. For Poland, the average values are 30%. For Romania, the value is lower, but it amounts to 26%, with a significant increase to 29% in 2023. In the case of Croatia, the values are significantly lower than those of Poland and Romania. The average value is 18% with an increase to 20% in 2023. The same comparison was made for Poland, Hungary, and Romania, as shown in Figure 7.

Figure 7 shows a comparison of Poland, Hungary, and Belgium in terms of GDP per capita and the contribution of industry (including construction) to GDP as a percentage. Poland, as the country with the lowest GDP among the selected countries, recorded an upward trend in the analysed years. However, the increase in 2019–2020 was only 1%.

In the case of Hungary, there is no clear downward or upward trend. In 2020, the value was 15,197.97 EUR, but this was higher than in 2019 and 2021. The decline was caused by the COVID-19 pandemic, which introduced many restrictions, contributing to the slowdown of the automotive industry, which is one of the pillars of the country's economy. The following years saw a decline in 2022 to a value of 17,591.58 EUR and growth in 2023 to a value of 20,637.91 EUR. Such fluctuations show that Hungary is rebuilding its economy through domestic consumption and exports of automotive parts and cars. However, the energy crisis in Europe in 2023 and weakening foreign demand slowed down the country's economy. In 2024, the situation begins to stabilise, and the values are higher than in 2019 (Petrova & Sznajder Lee, 2024).



The values presented in Figure 7 in euros have been converted using the weighted average exchange rate for each year separately: 2019: 1 USD = = 0.893 EUR; 2020: 1 USD = 0.877 EUR; 2021: 1 USD = 0.846 EUR; 2022: 1 USD = 0.952 EUR; 2023: 1 USD = 0.925 EUR; 2024: 1 USD = = 0.924 EUR. The conversion is based on historical data from the National Bank of Poland on 17 September 2025 (NBP, 2019–2024).

Fig. 7. Comparison of gross domestic product per capita and industry (including construction) values for Poland, Hungary, and Belgium in 2019–2024

Source: own work based on WB (2025).

Belgium, the country with the highest GDP per capita in the period 2019–2024 from the chosen countries, also recorded declines. The first was in 2020, to a level of 40,272.32 EUR, caused by the COVID-19 pandemic. The decline was due to restrictions in the industrial sector, factory shutdowns, and reduced activity in international trade. The year 2021 saw a renewed increase to 43,690.20 EUR. The following years, to 2024, showed an increase. The increase was due to the economic recovery after the pandemic, particularly in exports, and financial support from the EU. The year 2022 saw an energy crisis and high inflation in the country, which contributed to a decline in GDP per capita. Despite the unfavourable economic conditions, 2024 saw a significant increase in value to the highest figure in the analysed years, which was 51,729.17 EUR. The increase is due to the service sector and growing investments in digital technologies and green energy (Minne, Piton, Coppens & Warisse, 2021).

Taking into account the contribution of industry (including construction) in GDP in 2019–2024, Belgium recorded the largest increases and decreases in 2020. The lowest value was recorded in 2021, when the country was recovering from the pandemic. In the same year, a decline was recorded for Poland, which was influenced not only by the pandemic but also by the conflict in Ukraine. For Hungary, it can also be noted that 2021 is a year of return to pre-pandemic levels and even higher. Each of the countries owes a significant share of GDP per capita to the industrial sector, which means that the values are inconclusive and do not show specific upward or downward trends resulting from global crises. The figure also shows the share of industry (including construction) in the country's GDP. As can be seen, each of them is at a high level. For Poland, the average values are 30%. For Hungary, the value is lower, but it amounts to 22%, with a significant increase to 25% in 2023. In the case of Belgium, the values are significantly lower than those of Poland or Hungary. The average value is 17% with an increase to 20% in 2023 and a decrease in 2021 to 15%.

Comparative analysis of Poland versus selected countries based on the construction sector

Croatia

The first country analysed with a GDP similar to Poland's is Croatia. Figure 8 shows a comparison of the number of building permits issued in Poland and Croatia in 2019–2024.

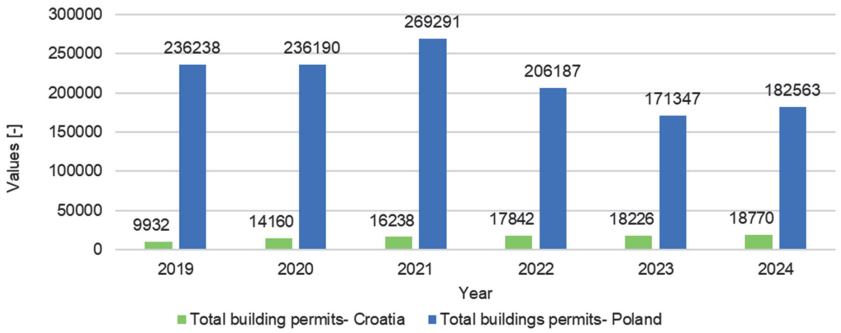


Fig. 8. Total building permits in Poland and Croatia in 2019–2024

Source: own work based on the Croatian Bureau of Statistics [DZS] (2025).

Total building permits include the total number of building permits issued for residential buildings and civil engineering work in 2019–2024. Data analysis shows that during the period under review, the total number of building permits issued in Poland was significantly higher than in Croatia, but was characterised by greater volatility. In Poland, there was no clear trend: values grew in subsequent years, only to decline thereafter. In 2019, the number was 236,238 permits, but in 2020, it was lower at 236,190 building permits. The highest result was achieved in 2021, with 269,291 building permits, which coincided with the initial period of the COVID-19 pandemic in Europe. The following years brought significant declines: in 2022 to 206,187, and in 2023 to 171,347, which represents a 27.5% decrease compared to 2019. It was not until 2024 that a rebound was recorded, which is related to both the post-pandemic recovery process and the adjustment of the economy to the effects of the war in Ukraine, which began in February 2022. The value for 2024 was 182,563 building permits. The construction market was affected by, among other things, staff shortages caused by the emigration of workers from Ukraine, disruptions in material supply chains, and high inflation limiting access to financing (Wieczorek & Dzięcioł, 2025).

In Croatia, the dynamics were different. An upward trend was observed in the years analysed, from 9,932 building permits in 2019 to 18,770 in 2024, representing an increase of 89% compared to the base year. From 2019 to 2024, the number of building permits increased each year: 14,160 in 2020, 16,238 in 2021, 17,842 in 2022, and 18,226 in 2023. The construction sector in Croatia showed greater stability despite global economic shocks. The COVID-19 pandemic in 2020 caused a decline in tourist activity, especially in the Adriatic region, but thanks to effective macroeconomic policies, including wage subsidies, liquidity lines, and job protection, the economy recovered quickly. Already in 2021, Croatia had public and private investment in construction that was supported by EU funds and the actions of the Croatian Bank for Reconstruction and Development. Exchange rate stability and inflation control further strengthened the position of investors (Bank for Reconstruction and Development [HBOR], 2021).

Comparing the two countries, it can be concluded that Poland, despite the larger scale of investment, showed greater vulnerability of the construction sector to crisis factors, in particular, supply disruptions and labour outflows. Croatia, on the other hand, thanks to its smaller market size, strong state support, and rapid implementation of stabilisation programmes, maintained a consistent upward trend in the number of building permits issued.

Poland, as a Central European country, is not as dependent on tourism as Croatia, especially its Adriatic coast, which is one of the most important tourist destinations in Europe. The following analysis regards residential buildings. An analysis of the data in Figure 9 shows significant differences in the number of building permits issued only for residential buildings.

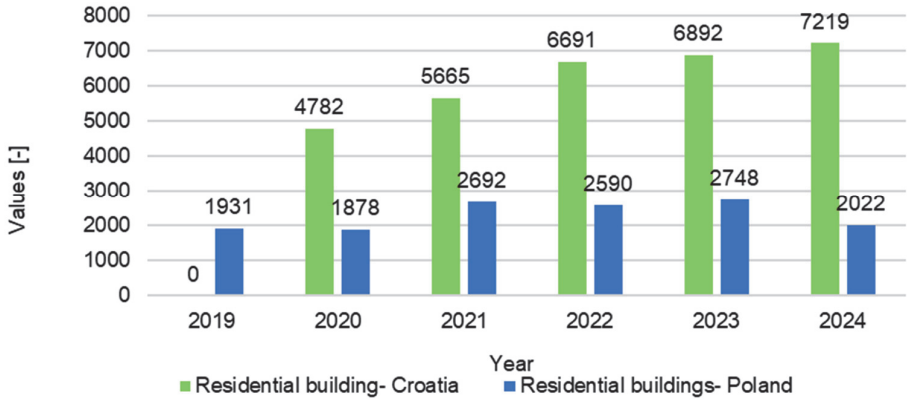


Fig. 9. Residential building permits in Poland and Croatia in 2019–2024

Source: own work based on DZS (2025).

For Poland, residential buildings include collective residential buildings, hotels, and accommodation facilities. For Croatia, however, there is no available information on what this category comprises, but there are many types of residential buildings with a roof, based on data from Eurostat. Moreover, no data is provided for 2019. This fact results from the statistical system and the possibility of presenting results by country. Despite uniform European standards, each country provides data with its own specific characteristics and access to it. Between 2019 and 2024, Croatia saw a clear upward trend, with the number of building permits rising from 4,782 in 2020 to 7,219 in 2024. This increase is a consequence of growing tourist demand and investments in accommodation infrastructure, supported by EU funds and national tourism development programmes. Croatia has been consistently developing its accommodation base since 2019, and during the COVID-19 pandemic, it introduced a number of protective measures, including wage subsidies and financial liquidity support for businesses. This made it possible to avoid a sharp decline in investment in the hotel sector and maintain the pace of growth in subsequent years (Mikulić, Kečeк & Žajdela Hrustek, 2023).

In Poland, no such significant changes were observed in the residential buildings category during the period analysed. There was an upward trend in 2019–2021 from 1,931 to 2,692 building permits, but 2022 brought a decline to 2,590, followed by an increase to 2,748 in 2023, and in 2024, there was another decline to a level similar to that of 2022. The limited demand for new investments in this segment in Poland results from the lower importance of tourism in the economy and the large number of existing facilities of this type.

In addition, in 2020–2021, due to the pandemic, travel restrictions were introduced, many tourist facilities were closed, and the demand for accommodation fell sharply. As a result, many projects to build new hotels or resorts have been suspended or postponed to subsequent years (Pazdzior, Sokol & Styk, 2021). The following analysis was made based on Figure 10, which shows a significant difference in the scale of investment in transport infrastructure facilities between Poland and Croatia. In Poland, the number of building permits issued in the analysed period was counted in thousands, while in Croatia, in hundreds.

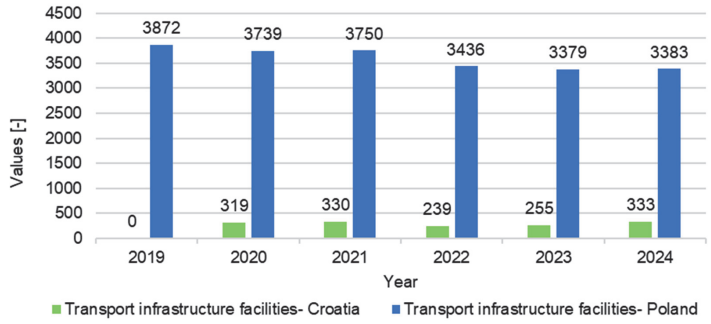


Fig. 10. Transport infrastructure facility permits in Poland and Croatia in 2019–2024

Source: own work based on DZS (2025).

For Poland, transport infrastructure facilities include roads, bridges, viaducts, waterways, and even airports. For Croatia, based on Eurostat data, these are other civil engineering works intended for the movement of vehicles, ships, aircraft, people, or animals. Furthermore, for Croatia, open access has only been available for the last 5 years, so for 2019, we have no data. This fact results from the statistical system and the possibility of presenting results by country. Despite uniform European standards, each country provides data with its own specific characteristics and access to it. Between 2019 and 2024, Poland saw a decline in the number of building permits from 3,872 to 3,383, with 2021 being an exception, when the number of building permits rose to 3,750. The lowest was for 2023, with 3,379 building permits. The development of transport infrastructure in Poland during this period was linked to the implementation of several large projects, such as the commissioning of 163 km of the S17 expressway, the expansion of connections with smaller towns to the S12 route, and the modernisation and expansion of the tram network in Warsaw. In addition, the construction of the Central Communication Port, scheduled to open in 2032, was planned. The high scale of investment is due, among other things, to access to EU funds, including funds from infrastructure programmes and the Cohesion Fund.

In Croatia, no uniform trend emerged during the same period. An increase was recorded in 2021, with 330 building permits, followed by a decline to 239 building permits in 2022, a consequence of the economic slowdown related to the COVID-19 pandemic, and another increase to 333 building permits in 2024. The lowest value recorded for 2022 was 239 building permits. The development of the transport infrastructure in Croatia is based on the implementation of the Transport Development Strategy 2017–2030, which aims to modernise the neglected road and rail network and build new connections to improve the country's transport cohesion. In addition, as part of the Green Infrastructure programme, financed in part by the European Investment Bank (EIB), Croatia is implementing projects supporting green mobility, the digital transformation of the transport sector, and the reduction of greenhouse gas emissions (Ministry of Maritime Affairs, Transport and Infrastructure of Croatia [MMPI RH], 2025).

In summary, Poland has significantly greater financial resources and a broader portfolio of infrastructure projects, which allows it to maintain a high level of investment. Croatia, although operating on a smaller scale, has consistently increased its spending on transport development in recent years, and the increase in the number of building permits in 2024 may signal a further acceleration in the implementation of road and rail projects.

Romania

Romania is the second country with a GDP lower than that of Poland selected for analysis. In Poland, however, residential buildings comprise a sum of single-family buildings, multi-family buildings, collective residential buildings, hotels and accommodation facilities, public utility buildings, farm and livestock buildings, as well as industrial and warehouse buildings. For Romania, however, there is no available information on what this category comprises. Still, based on data from Eurostat, there are buildings inhabited by people. Despite uniform European standards, each country offers data with specific characteristics and access. For Romania, no data is available for 2019. This fact results from the statistical system and the possibility of presenting results by country. The data obtained is not as detailed as in the case of Poland. Still, it is sufficient to perform a macroeconomic analysis of the construction sector based on building permits issued (Fig. 11).

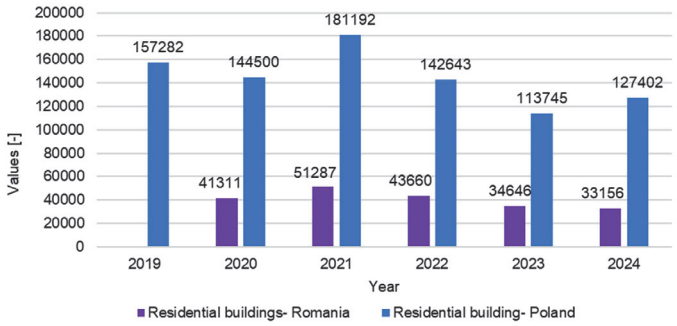


Fig. 11. Residential building permits in Poland and Romania in 2019–2024

Source: own work based on the National Institute of Statistics – Romania [INSSE] (2025).

In Romania, the values in the category of residential buildings are significantly lower than in Poland. The highest level was recorded in 2021, with 51,287 building permits. Two clear trends can be distinguished in the analysed period: an increase in 2020–2021 from 41,311 to 51,287 building permits, followed by a decline in 2022–2024 from 43,660 to 33,156 building permits. Romania's economic development in the years preceding the COVID-19 pandemic was hampered by sanitary restrictions and limitations on economic activity, which significantly affected the construction sector. Despite the government's implementation of financial support programmes for households and businesses, the economic recovery process has been gradual, which is reflected in the downward trend after 2021 (Radulescu et al., 2020). In Poland, the number of building permits issued in the same category was at its highest level in 2021. There were 181,192 building permits, which represents an increase of 23,910 compared to 2019. Unlike Romania, there is no uniform downward or upward trend in Poland. After a dynamic growth in 2021 to a value of 181,192 building permits, there was a sharp decline to 113,745 building permits in 2023, but 2024 showed an increase to 127,402 building permits. However, Poland is characterised by a much larger investment scale than Romania. The difference is particularly in multi-family housing, farm buildings, industrial buildings, and public facilities. This is due to both a larger population and a higher level of urbanisation and access to more significant investment funds (Fig. 11).

For Poland, however, non-residential buildings comprise transport infrastructure facilities, water structures, pipelines, telecommunications, and power lines, as well as other facilities. For Romania, non-residential buildings are all types of civil engineering works that are not for the permanent residence of people. Despite uniform European standards, each country provides data with its own specific characteristics and access to it. For Romania, no data is available for 2019. This fact results from the statistical system and the possibility of presenting results by country. The data obtained is not as detailed as in the case of Poland, but it is sufficient to perform a macroeconomic analysis of the construction sector based on building permits issued (Fig. 12).

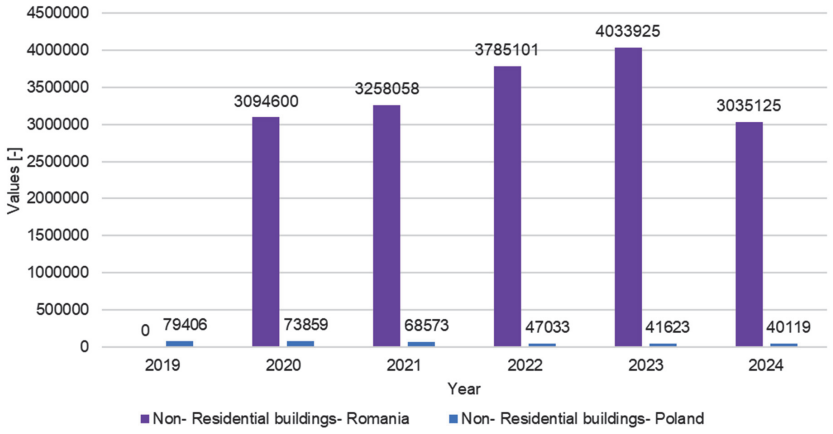


Fig. 12. Non-residential building permits in Poland and Romania in 2019–2024

Source: own work based on INSSE (2025).

Data analysis shows that in Romania, the number of building permits issued in non-residential buildings significantly exceeds the figures recorded in Poland. Between 2020 and 2023, a clear upward trend was observed from 3,094,600 building permits in 2020 to the highest level reached in 2023, with 4,033,925 building permits. However, in 2024, there was a sharp decline to 3,035,125 building permits from the previous year. Despite maintaining growth during the COVID-19 pandemic, the decline in 2024 may result from the slowdown in significant public investments and budgetary and investment policy changes. During the crisis, Romania maintained a similar level of non-residential construction. The country's economic policy influenced this, with fewer restrictions during the crisis, as well as by the income needs of residents. No upward trend was observed in Poland. The highest value was recorded in 2019, at 79,406. The following years coincided with the most significant wave of COVID-19 infections, with building permits declining to 73,859. In 2022, there was a decline to 47,033 building permits. The lowest result in the analysed period was reached in 2024 with 40,119 building permits. At that time, the Polish economy was strongly affected by the COVID-19 pandemic and the effects of the war in Ukraine, which slowed down the pace of investment. The reconstruction of the construction sector is still ongoing, and a return to the level of 2019 depends on the stabilisation of the country's macroeconomic situation (Fig. 12).

Hungary

The first country selected for analysis with a GDP higher than that of Poland is Hungary. Figure 13 compares the number of building permits issued for residential buildings in Poland and Hungary between 2019 and 2024.

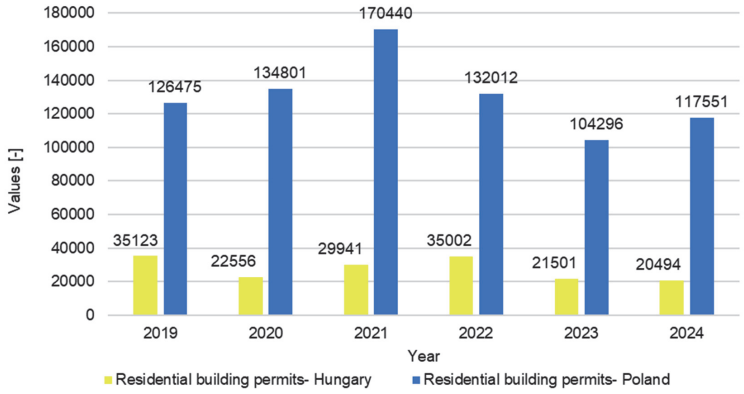


Fig. 13. Permits for residential buildings in Poland and Hungary in 2019–2024

Source: own work based on the Hungarian Central Statistical Office [KSH] (2025).

In Poland, residential buildings comprise a sum of single-family buildings, multi-family buildings, collective residential buildings, hotels, and accommodation facilities. For Hungary, however, there is no available information on what this category comprises, but there are many types of residential buildings with a roof, based on data from Eurostat. This fact results from the statistical system and the possibility of presenting results by country. Despite uniform European standards, each country provides data with its own specific characteristics and access to it. This fact results from the statistical system and the possibility of presenting results by country. The data obtained is not as detailed as in the case of Poland, but it is sufficient to perform a macroeconomic analysis of the construction sector based on building permits issued. The total number of building permits in Poland in the analysed period was significantly higher than in Hungary. Between 2019 and 2021, there was an increase from 126,475 to 170,440 building permits, and then a decline to the lowest value of 104,296 in 2023. This decline was due to restrictions related to the COVID-19 pandemic, which affected both office and manual workers, and the consequences of the war in Ukraine, which caused an outflow of some construction workers who had previously come to Poland for economic reasons. In 2024, there was an increase to 117,551 building permits, which can be interpreted as the beginning of the Polish construction sector's return to pre-pandemic levels.

In Hungary, there was an increase in the number of building permits between 2020 and 2021, from 22,556 to 29,941, indicating a significant investment revival during this period. Then, there was an increase to 35,002 in 2022 and a decrease to 21,501 building permits in 2023. The value for 2024 was 20,494 building permits. However, in 2019, the number was the highest, with 35,123 building permits. However, when analysing the chart, it can be seen that Poland, as a country with a lower GDP per capita, has a significantly higher share of building permits issued than Hungary because the Polish economy is based on construction. Hungary is a country with an economy focused on tourism, trade, and industry. Residential construction dominates, but most new investments are public investments.

Belgium

The last country selected for analysis is Belgium, whose GDP is significantly higher than Poland's. Figure 14 shows a comparison of the number of building permits issued for residential buildings in Poland and Belgium between 2019 and 2024. In Poland, residential buildings comprise a sum of single-family buildings, multi-family buildings, collective residential buildings, hotels and accommodation facilities, public utility buildings,

farm and livestock buildings, as well as industrial and warehouse buildings. For Belgium, there is no available information on what this category comprises, but there are many types of buildings inhabited by people, based on data from Eurostat. Despite uniform European standards, each country provides data with its own specific characteristics and access to it. This fact results from the statistical system and the possibility of presenting results by country. The data obtained is not as detailed as in the case of Poland, but it is sufficient to perform a macroeconomic analysis of the construction sector based on building permits issued.

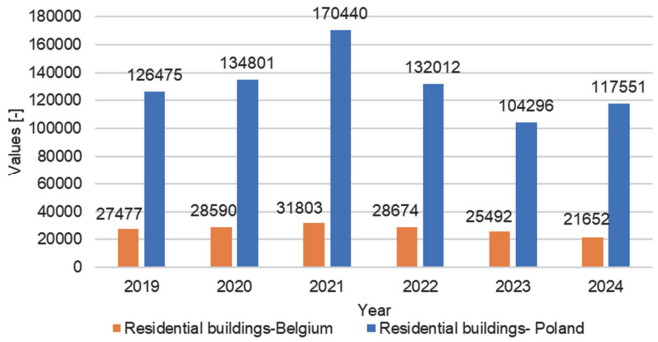


Fig. 14. Residential building permits in Poland and Belgium in 2019–2024

Source: own work based on Statistics Belgium [Statbel] (2025).

In Poland, the number of building permits issued increased between 2019 and 2021 to 170,440, and then declined, reaching its lowest point in 2023 to 104,296. The year 2024 marks a rebound after the pandemic, lockdown, and normalisation of relations in Ukraine, as shown by the increase in the figure to 117,551 building permits. In the case of Belgium, there is also a significant upward trend in 2019–2021, from 27,477 to 31,803 building permits. The following years registered a decline to the lowest value achieved in 2024, to 21,652 building permits. The COVID-19 pandemic significantly disrupted the construction sector, leading to worker shortages, delays in material supplies, and economic instability. This contributed to a noticeable decline in issued building permits for dwellings during the 2021–2023 period (Minne et al., 2021). Comparing the two countries, Poland maintained a significantly higher level of building permits issued for residential buildings than Belgium during the period analysed. Despite this, the impact of the COVID-19 pandemic and subsequent external and internal factors in both countries after 2021 is evident in both cases. Belgium is a country focused on services such as trade, finance, logistics, and international administration. Therefore, its strong industries are chemicals, pharmaceuticals, food, and information technology. Despite the high demand for residential buildings, the construction of public utility buildings, administration, industry, and logistics plays an important role.

Between 2019 and 2024, Poland maintained a high number of building permits issued compared to the other countries analysed. Despite the COVID-19 pandemic and the war in Ukraine, which caused declines after 2021, each country began to rebuild, and these changes are visible in 2024. Croatia, heavily dependent on tourism, quickly rebuilt its construction sector thanks to state financial support. Romania maintained high permit values until 2023, but in 2024, there was a marked decline despite public investment. In Hungary, the number of building permits grew between 2020 and 2022, but their values were significantly lower than in Poland. Hungary focused on tourism, trade, and industry, but in Poland, the main sector of the economy is the construction sector. Belgium, as the country with the highest GDP, also recorded growth until 2021, followed by a decline of more than 21% compared to 2019, without detailed data on the types of buildings. The country is focused on industry and services, with construction accounting for a large share of its GDP.

CONCLUSIONS

This article focuses on the construction sector in four selected countries compared to Poland. The countries were selected based on an analysis of GDP per capita in 2019, namely the reference year. Romania and Croatia were chosen as two countries with a lower GDP per capita than that of Poland, while Hungary and Belgium were chosen as countries with a higher GDP per capita than that of Poland. The analysis was carried out for all selected countries, using Poland as the reference point, and covered the number of building permits issued for residential buildings, non-residential buildings, transport infrastructure facility permits, and total building permits. The main indicator analysed in the article was the number of building permits issued between 2019 and 2024. These years were marked by global crises such as the COVID-19 pandemic and the war in Ukraine. These are likely factors influencing the number of building permits issued and the macroeconomic situation of the countries selected for analysis.

In Poland, the total number of building permits increased between 2019 and 2021, with the highest number recorded at 269,291 building permits. Then, in 2022 and 2023, there was a sharp decline. In 2024, there was a rebound, but the results remained lower than in 2021.

In Croatia, the trend for the total number of buildings was more stable. From 2019 to 2024, there was an increase to the highest number of 18,770 permits in 2024. Moreover, the trend for residential buildings was the same, with the highest number recorded in 2024. The highest number for transport infrastructure facilities was in 2021, with 330 building permits. This means a significant decline in the subsequent years due to the coronavirus pandemic, lockdowns, and restrictions on movement.

In Romania, the number of non-residential building permits was high between 2020 and 2023, with the highest value being 4,033,925 building permits. However, for residential buildings, the values were significantly lower, with the highest number recorded in 2021, at 181,192 building permits.

In Hungary and Belgium, the changes were smoother. Belgium had a more stable construction sector than Poland. The highest number was 170,440 building permits in 2021. For Hungary, the highest number was the same as in Belgium in 2021. In addition, the analysis showed how the economies of selected European countries developed between 2019 and 2024, highlighting downward and upward trends. It also showed how each of the selected countries coped with global crises such as the COVID-19 pandemic.

The data contained on the websites of statistical offices or Eurostat did not show the same level of detail as for Poland; therefore, data aggregators were used to obtain more data for analysis. In addition, data for Croatia and Romania for 2019 were not made available by the statistical offices. Despite the lack of detailed data from national statistical offices, Eurostat data and its building type dictionary were used as a basis. Based on information from Eurostat, residential buildings are structures that have a roof, but not necessarily walls, and are intended for permanent human habitation, while non-residential buildings are all types of buildings that are not intended for permanent human habitation. Additionally, there are other civil engineering works designed for the movement of vehicles, ships, aircraft, people, or animals. Total building permits include the total number of building permits issued for residential buildings and civil engineering work.

Another problem was the lack of currency standardisation for GDP per capita for selected countries. The values were determined using average annual exchange rates for each year from 2019 to 2024, based on rates provided by the National Bank of Poland. The data was converted from USD to EUR based on the designated average annual exchange rates. This conversion allowed for the standardisation of the collected values and the performance of detailed analyses.

Despite the problems encountered, a macroeconomic analysis of European countries was carried out to show how each of them fared before, during, and after the global crisis, based on the construction sector and building permits issued. The analysis leaves space for its continuation for European countries in terms of the construction sector. If the data were harmonised to European standards, it could then be collected and used to create models and forecast economic changes in countries based on changes in the construction sector.

Authors' contributions

Conceptualisation: K.W. and J.D.; methodology: K.W.; formal analysis: K.W. and J.D.; investigation: K.W.; resources: K.W.; data curation: K.W.; writing – original draft preparation: K.W.; writing – review and editing: K.W.; visualisation: K.W.; supervision: J.D.

All authors have read and agreed to the published version of the manuscript.

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ANALIZA PORÓWNAWCZA LICZBY WYDANYCH POZWOLEŃ NA BUDOWĘ W POLSCE I WYBRANYCH KRAJACH EUROPEJSKICH W LATACH 2019–2024 W KONTEKŚCIE UWARUNKOWAŃ GOSPODARCZYCH

STRESZCZENIE

Celem artykułu jest porównanie liczby wydanych pozwoleń na budowę w Polsce i czterech krajach europejskich w latach 2019–2024, przy czym kryterium wyboru kraju był poziom PKB per capita w roku referencyjnym 2019. Postawiono hipotezę, że kryzysy globalne – pandemia COVID-19 i wojna w Ukrainie – istotnie wpłynęły na aktywność inwestycyjną w sektorze budowlanym, zwłaszcza w krajach o niższym poziomie rozwoju gospodarczego. Analiza wykazała, że w Polsce liczba pozwoleń w regionie centralnym spadła z 49 632 w 2019 r. do 42 271 w 2024 r. W krajach o niższym poziomie PKB, takich jak Chorwacja i Rumunia (odpowiednio 13 898,49 i 11 601,89 euro per capita w 2019 r.), zaobserwowano większe wahania aktywności budowlanej, przy czym Rumunia odnotowała wzrost liczby pozwoleń na obiekty niemieszkalne do 4 033 925 w 2023 r. Zależność odporności sektora budowlanego od kryzysów gospodarczych potwierdzono empirycznie i w toku badań okazało się, że istnieje potrzeba ujednolicenia raportowania danych w krajach UE.

Słowa kluczowe: pozwolenia na budowę, kryzys globalny, produkt krajowy brutto, PKB, gospodarka kraju, plac budowy, cykl budowlany