

**ECONOMIC ANALYSIS OF THE CONSTRUCTION INDUSTRY IN THE SLOVAK REPUBLIC:
THE PATH TO SUSTAINABILITY**

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Highlight

The paper deals with the economic analysis of the construction industry in the Slovak Republic, while its results support the modern trend of developed countries to be sustainable.

Abstract

Housing is one of the basic human needs, and we can evaluate and compare the standard of living in the states according to the quality and availability of housing. The housing issue has been addressed in the Slovak Republic for several years with an unsatisfactory result. The paper aims to provide an overview of economic indicators related to the construction industry in the Slovak Republic while demonstrating the interconnectedness to sustainable development. Construction production, the construction industry's share of GDP, number of employees, and labour productivity are analysed and depicted graphically. A comparison of 2020 with previous years is also provided. To conclude, viable solutions for improving the sustainable Slovak construction industry are presented.

Keywords

construction industry; sustainable development; housing; rental housing; recovery plan.

Introduction

The construction of apartments, commercial real estate, and infrastructure projects (roads, bridges, tunnels, railways, airports) for both the private and public sectors is one of the largest industries in the world. The construction industry is so vital that it is generally considered the best indicator of the health of the national economy [1]. The construction industry is diversified. It includes many stakeholders, such as real estate builders, developers, suppliers of materials and the like. Construction brings cost-effective construction solutions where all stakeholders play an active role in the success of the contract. A well-developed infrastructure construction also attracts many investors to business transactions. A well-built infrastructure creates a healthy work environment, thus increasing the productivity and flexibility of the workforce. As shown by previous research [2], construction industry labour productivity in East European countries is one of the highest. The construction industry also plays a crucial role in the country's socio-economic development, as confirmed by

one of the research published in 2020 [3]. Industry activities are essential for achieving national socio-economic development goals of providing infrastructure, refuge, and employment. Construction industry goes hand in hand with retail because companies use a combination of stone stores and online stores which can bring a huge competitive advantage compared to others [4]. In addition, the construction industry generates significant employment and provides growth impetus for other sectors through the interconnectedness of different sectors. Therefore, it is essential for the healthy growth of the economy that this critical activity is supported in all available ways.

Methods

The paper aims to provide an overview of economic indicators related to the construction industry in the Slovak Republic while demonstrating the interconnectedness to sustainable development. The main motivation for this research is that despite the rising importance of the construction industry to the Slovak economy, macroeconomic indicators are not at their best levels which can cause a post-pandemic contraction in the industry.

According to the Statistical Office of the Slovak Republic [5], the following terms regarding the construction industry are analysed:

- data on the total branch of construction (construction enterprises, construction establishments of non-construction enterprises, self-employed persons);
- data presented for enterprises with a registered number of 20 and more employees;
- data on a total branch of construction, i.e., on enterprises with a registered number of 20 and more employees, small enterprises up to 19 employees, construction establishment of non-construction enterprises and an estimate of production of self-employed persons;
- workers carrying out construction works comprise employees who are involved entirely or mainly in the construction activities of an enterprise;
- the amount of the construction production expresses labour productivity carried out by own employees per one employee or worker engaged in construction works.

Results and discussion

Although the right to housing is not enshrined in the Constitution of the Slovak Republic, the Government of the Slovak Republic states in the state concept of housing [6]: "Housing is one of the basic human needs that should be met at a level corresponding to the overall level of socio-economic development of society. The reality of housing and its availability are often perceived as evaluative indicators of society's standard of living." Unfortunately, the financial burden associated with securing housing in the Slovak Republic reduces the living standards of a large number of people and hurts the economy and public finances [7]. The lack of affordable housing significantly hampers the growth of the birth rate, thus contributing to the primary demographic problem of the Slovak Republic, i.e., ageing. The Slovak Republic - our country is ageing at one of the fastest rates in the EU. Also, as many as 74% of young people aged 18 to 34 live in Slovakia with their parents, the highest proportion in the EU. Another problem is that most young people (45.4%) perceive the financial unavailability of their housing as the main reason for postponing the establishment of a family. A lower birth rate naturally harms the pension system's sustainability. At the same time, the Slovak Republic has the fourth-highest share of the population with personal ownership in the EU, namely 90.5%, which significantly reduces the mobility of the labour force [8]. As a result, the departure of many young people from the Slovak Republic due to better conditions for starting a family damages the Slovak economy, its human potential, and the labour market. The common denominator of these problems is the significant lag of the Slovak Republic in the offer of affordable rental apartments. A more developed subsidised rental housing market would also help alleviate potential imbalances caused by high household indebtedness [9]. The Slovak Republic recorded a decline in GDP in 2020 at -4.8%. While in the last two quarters there was a decrease of 2.5% and 2.1%. More significant positive changes began to occur in the first and second quarters of 2021 (Figure 1) when GDP grew by 9.6%. The sharpest acceleration of the economy since 2017 in the second quarter of this year meant the creation of GDP at current prices at the level of almost 24 billion euros. In a year-on-year comparison, this is an 11.8 per cent increase and an approach to pre-pandemic performance. The release of some anti-pandemic measures thus had brought the expected increase in GDP [5].

In a comparison of the second quarter of 2020, in 2021, there was an increase of 2 533 mil. EUR (Figure 2). However, this increase is likely to stagnate, mainly due to the global shortage of car parts, especially chips and some minerals. We can already observe the decline and shutdown of several production lines, which is likely

to impact negatively. Growth in this industry will be limited and dependent on the supply of some strategic components. The exception for the construction industry is another decline of 2.8% [10].

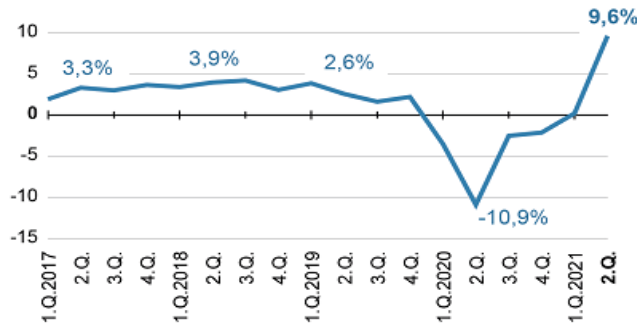


Figure 1. GDP development of the Slovak Republic from 2017 to 2021. *Source:*[5].

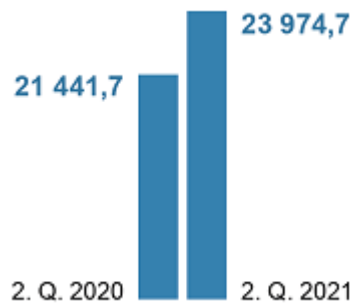


Figure 2. A year-on-year comparison of the GDP of the Slovak Republic (in mil. EUR). *Source:* [10].

The share of construction in the production of GDP in the Slovak Republic has decreased from 7.4% in 2017 to 5.8% in 2020. To express that development in monetary terms, construction production fell from 5 233.90 mil. EUR in 2017 to 5 199.78 mil. EUR in 2020 (Table 1). The rise in construction production in 2018 and 2019 was caused by inflation [6].

Table 1. The construction industry in the Slovak Republic. *Source:* [6].

	2017	2018	2019	2020
GDP	7.4%	7.0%	6.0%	5.8%
Production (in mil. EUR)	5233.90	5685.35	5676.04	5199.78

When comparing the construction production in the Slovak Republic during the 2000s (Figure 3), it is clear that the peak was reached in 2008 [11].

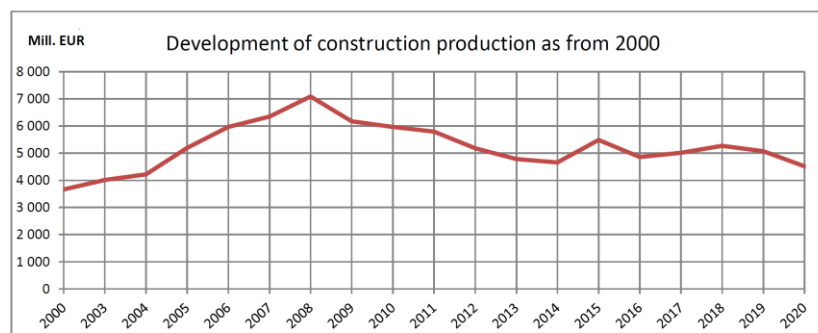


Figure 3. Development of the construction industry in the Slovak Republic during the 2000s. *Source:* [11].

Contractually agreed construction production in the Slovak Republic is divided into inland and abroad production, whilst inland production is divided into [6]:

- new construction (including modernisation and reconstruction),
- repair and maintenance,
- other works.

New construction represents the most significant share of construction production in the Slovak Republic (78.20% in 2020). On the other hand, other works portray just a small portion of 0.22% in 2020 [11]. The average number of employed persons and labour productivity are other important macroeconomic indicators that show the construction industry's economic importance. As can be seen in Figure 4, the most significant number of employees was registered in 2019 (176 914 employed persons). Thus, labour productivity was at its peak in 2018 (34 072 EUR per person) [11].

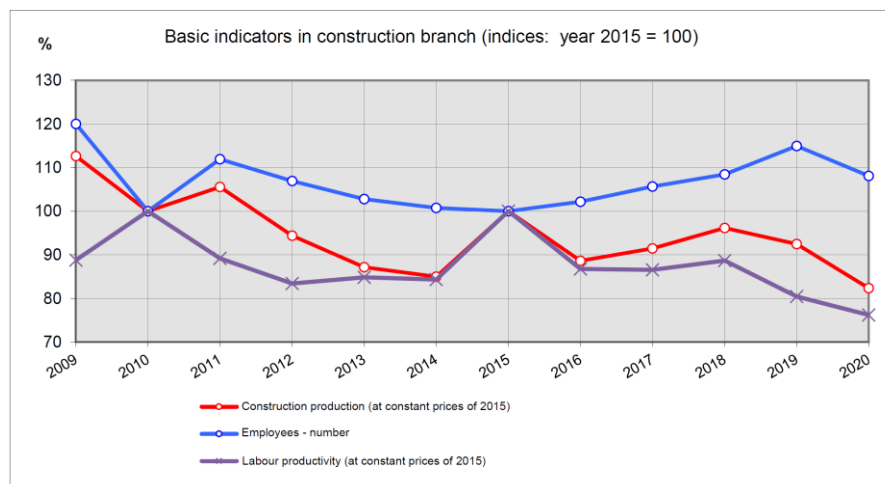


Figure 4. Development of the construction industry in the Slovak Republic during the 2000s. *Source: [11].*

Lastly, in the Slovak Republic, enterprises are divided into four groups, from self-employed persons to small, medium and large enterprises, according to the number of employees. In 2020, medium enterprises contributed the most to construction production, while large enterprises represented a tiny share (Table 2) [11].

Table 2. The construction industry in the Slovak Republic from the legal perspective. *Source: [11].*

	2017	2018	2019	2020
Self-employed	1 476.25	1 510.39	1 483.41	1 061.20
Small enterprises	1 049.91	1 300.61	1 602.41	1 723.35
0 – 9	667.01	846.98	1 102.80	1 355.10
10 – 19	382.90	453.63	499.61	268.26
Medium enterprises	1 527.00	1 801.78	1 913.58	1 757.09
20 – 49	699.04	790.94	823.50	723.98
50 – 99	515.48	494.24	564.29	503.75
100 – 249	312.48	516.59	525.79	529.37
Large enterprises	1 139.01	1 025.41	626.07	616.64
250 – 499	249.96	188.64	159.92	156.85
500 and	889.05	836.77	466.15	459.79
Total	5233.90	5685.35	5676.04	5199.78

The development of the economy for the years 2021 to 2024 envisages a slowdown in the recovery of the Slovak economy in 2021 to 3.3%, which can be attributed to the second wave of the pandemic and related measures. The most important indicator of the contraction of GDP down in 2021 was household consumption. A significant

housing will mean a significant decrease in household consumption. The lifebuoy appears to be exports and the automotive industry. However, the current problems of the automotive industry with a lack of components and unsupported construction production can significantly change these prospects. It is not until 2022 that an accelerated growth rate of 6.3% is expected, thanks to the drawing of funds from the Recovery Plan [12]. There are legitimate reasons for the declared political support for the topic of rental housing. If the Slovak Republic wants to improve the situation with the availability of housing and catch up with the standard of other European countries, state aid will be necessary. The state has a tool by which it can define the challenges and solutions to the housing situation. The answer is the concept of housing, which will better reflect the need to develop rental housing. The new government and the leadership of the Ministry of Transport and Construction of the Slovak Republic have a unique opportunity to create a concept that will be smart and feasible. It should be based on actual needs and real possibilities. We will also need a methodology and prioritisation according to which future rental apartments will be redistributed to applicants [13]. State rental housing does not mean that the state has to do everything and is responsible for everything. It will be a successful project if rental housing becomes a society-wide responsibility and involves other parties. The state must act as a good leader and create suitable conditions for the involvement of experts, private investors, local governments and non-profit or cooperative organisations [13]. It is also necessary to develop comprehensive economic cost calculations. However, the quality of housing should remain a priority, and the economic teams of the new government could be able to recalculate and define a realistic model even in the current post-pandemic situation. Other European countries can inspire it, but the Slovak Republic needs to find resources to finance such projects according to actual needs. Not all resources need to come from the state coffers, and investors and EU funding are also important [13]. If the state decides to invest in rental apartments, they should be architecturally and energetically in the highest quality class. The primary condition should be a cost-optimal energy standard, ensuring the quality of the indoor environment and measures to adapt to climate change. The advantage would be architectural competitions, which allow excelling in the best project. We should not forget that these are decisions for decades to come. For their quality, which we decide today, we will be responsible to future generations under significantly different climatic conditions [13].

Impact

The necessity of analysing the economic situation of the construction industry is nowadays highlighted by the rising inflation rate, as well as the unaffordable prices of real estate. It is also necessary to realise that such analysis is crucial for the Slovak Republic and any other country within the EU and another developed part of the world. As stated in this paper, cost-optimal energy standards could help a country's construction industry and economy. At the same time, it goes hand in hand with the development of the business sector by constructing entrepreneurs and good economic results regarding production and GDP. The EU Recovery and Resilience plan represent the primary tool to support the development of the EU member states. That is why the results of economic analysis can sometimes be surprising, and one must see them from new perspectives. To conclude, it is more than clear that all the above-mentioned lead to sustainability, which is the path every developed country should follow.

Conclusions

The paper aimed to provide an overview of economic indicators related to the construction industry in the Slovak Republic while demonstrating the interconnectedness to sustainable development. We also present workable solutions for improving the Slovak construction industry to fulfil the aim. The pandemic negatively affected almost all industries, with the construction industry being no exception. The decline in production, the sharp rise in material prices, the lack of labour and the chaotic management of the pandemic by the Slovak government have caused uncertainty, which is reflected in the stagnation of the construction production growth. The real estate market in the Slovak Republic is crucial. This is because everyone needs to address the issue of housing at every stage of their lives. The Slovak real estate market is currently characterised by ever-increasing real estate prices and high demand from people. The absence of affordable rental housing is also a problem. This fact causes people to have to deal with the need for housing through mortgages, and this is one of the reasons why the Slovak Republic is one of the most indebted countries in the EU. According to the Statistical Office of the Slovak Republic, in 2022, sales should increase by 1.4%, and the utilisation in the first half of the year should be at the level of 84% [12].

Pavol Kovacik, President of the Association of Construction Entrepreneurs of the Slovak Republic, pointed out that the Slovak construction industry recorded the most significant decline in the entire EU in 2020's. He also stated: "Our pessimistic forecasts are being fulfilled. Unlike other industries, the recovery in construction is not

occurring, mainly because the state has not helped entrepreneurs in the construction industry apart from universal support. Despite these alarming results, the Government of the Slovak Republic is also keen to address the effects of unpredictable price developments in public buildings" [10]. However, the direction of construction in the future will not depend only on the domestic economy and market conditions. On 14 July 2021, the European Commission adopted a package of Fit for 55 proposals aimed at preparing drastic EU policies on climate, energy, land use, transport, and taxation to reduce net greenhouse gas emissions by at least 55% by 2030 compared to 1990. This reduction in emissions over the next decade should be crucial for Europe to become the world's first climate-neutral continent by 2050 and fulfil the Europe Green Agreement. In its proposals, the European Commission presented legislative instruments to achieve the objectives agreed upon in European climate law and to transform the economy and society fundamentally. These proposals are a combination of extending emissions trading to new industries, including construction, tightening up the current EU emissions trading scheme, increasing the use of renewable energy, increasing energy efficiency, speeding up the deployment of low-emission transport and infrastructure and fuels to support them [14]. This can be considered as a starting point of the sustainable development path. The Fit for 55 package includes legislative proposals and policy initiatives: a revision of the EU Emissions Trading Scheme, including its extension to shipping, a modification of the rules on aviation emissions, and creating a separate emissions trading scheme for road transport and buildings. Increasing the prices of emission allowances through administrative interventions of the EU will result in rising raw material prices. It is necessary to consider the increase in energy prices, and thus energy-intensive products used in construction, such as steel, glass, or cement, will also become more expensive. The emissions trading system will be extended to transport and housing in 2026, which will be associated with higher expenditure on heat and transport. It can be expected that these measures will lead to a gradual reconstruction of older houses and flats, but at a rising price of building materials, including wood [14].

However, according to Stefancova [15], to support sustainable development, the Recovery and Resilience Plan specifically approved measures to improve the energy efficiency of family houses, where almost 530 million EUR are set aside, which should be enough to renovate nearly 30 000 properties, which could help the Slovak construction industry. Thanks to subsidies, citizens will be able to obtain funding for comprehensive renovation, such as insulation, window replacement and renewable energy sources. The applicant will be able to receive a subsidy of 50% of the total eligible costs, while the maximum limit should be set at 16 600 EUR.

Conflict of interest

There are no conflicts to declare.

Acknowledgments

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