

CHALLENGES TO CONVERGENT PROCESSES IN THE CONSTRUCTION SECTOR*

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Abstract. The article examines the challenges facing convergent processes in the construction sector of Bulgaria. The goal we set ourselves in it is to emphasize the essential importance of the convergence of this sector for the overall integration of the country in the EU, as well as for improving the activity and its results. What is new in this development is the use of quantitative indicators such as the divergence index and the dissimilarity index to establish the current state of convergence. There are a number of challenges to convergent processes in the sector that are addressed in the development. Knowing them implies taking steps to overcome them. This will increase the competitiveness of the sector and improve its overall performance. The combined effects of this will be felt economically, socially and environmentally.

Keywords: Construction sector; Employees; Gross value added; Convergence.

1. INTRODUCTION

For the proper implementation of the convergence processes in the Construction sector, it is necessary to prepare and transform the sector itself and the processes in it in order to be able to meet the challenges in this area. First of all, it is necessary to modernize and digitize the sector, to ensure sustainability of construction, meet the requirements for circular economy, energy efficiency, sustainable and efficient use of resources, adaptation to demographic change and compliance of education and training in this area with modern requirements, and hence the structural similarity with the EU [1]. All this is necessary in order to bring the sector's performance closer to the EU average and increase its competitiveness [2]. Increasing the competitiveness of the Bulgarian construction sector allows for participation in more European and international projects, improvement of existing knowledge and skills, as well as for increasing the potential for its development.

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The results show that Bulgaria is required to make reforms in the sector in order to achieve convergence in this area and to participate effectively in the single European market. The reforms will increase the competitiveness of the construction sector, improve the business environment and attract more foreign investment. This will boost digitalisation in the sector, an incentive to increase the educational and qualification structure of employees and significantly improve the quality of construction services offered, bringing the sector's performance closer to that of the EU.

2. FEATURES AND CHALLENGES ILLUSTRATING THE CONVERGENCE (DIVERGENCE) OF THE CONSTRUCTION SECTOR

For 2021 in Bulgaria, the construction sector provides jobs to about 196 thousand. added value of more than EUR 5 million. 4.4% of the gross value added in the country. Slightly higher is the relative share of the sector for the EU – 5.6%.

Table 1. Relative share of gross value added in the construction sector in the period 2012–2021 for Bulgaria (Source: Eurostat and author's calculations)

Years	Bulgaria	EU
2012	5,8	5,4
2013	4,8	5,2
2014	4,4	5,1
2015	4,4	5,1
2016	3,9	5,1
2017	4,2	5,1
2018	4,2	5,2
2019	4,5	5,4
2020	4,9	5,6
2021	4,4	5,6

With the help of the Divergence Index and the Difference Index, the differences between Bulgaria and the EU can be highlighted in the indicators examined. Additional information on the development of structural changes is also provided by the indices of relative shares. The presented indicators are widely used to identify structural differences and are calculated according to the following formulas:

$$\text{Divergence index } I_{DIV} = - \sum \frac{(RSE_X - RSE_{EZ})^2}{RSE_{EZ}}, \quad (1)$$

$$\text{Dissimilarity index } I_{DISSIM} = - \sum |RSE_X - RSE_{EZ}|, \quad (2)$$

where: RSE_X is a relative share by an indicator for the country concerned, and RSE_{EZ} is a relative share of the same indicator for the Eurozone.

$$\text{Relative share index } I_{RSE} = \frac{RSE_t}{RSE_0}, \quad (3)$$

where: RSE_t is a relative share on an indicator for the relevant period, and RSE_0 is a relative share of the same indicator for the base period [3].

The divergence and divergence indices take only negative values, the closer they are to zero, the greater the structural similarity of the compared economies, i.e., the greater the convergence in the structure studied. In the case of gross value added, they have similar trends in their development for the period studied, with the divergence index showing greater fluctuations compared to the divergence index.

The indices of relative shares show how many times the respective relative shares during the period studied are greater or smaller compared to the base period. For the EU they are very smooth, with minor fluctuations, while for Bulgaria there are more significant deviations during the period under review.

Digitalization in construction is of strategic importance in relation to the costs and quality of the activities carried out in the sector and will bring economic, social and environmental benefits to society. Proof of its need was also the crisis related to COVID-19. With the help of the digitalization, the sector will increase its sustainability and competitiveness, provide additional services and create new jobs. Its implementation will contribute to increasing resource efficiency in the sector and stimulate the process of digitalization in other economic activities, thus reducing the challenges associated with the convergence of the sector. The digitalization of the construction industry should not affect the entire life cycle of the construction process.

Unfortunately, despite all these differences in the digitalization area, Bulgaria's core indicators have not improved enough and are far from the EU-28 average level. At the end of 2019, the Digital Bulgaria 2025 program was introduced, which aims to modernize and widely deploy information technologies in all sectors of the economy, including in the construction sector. The aim is to modernize and put the technologies into use. The sector should also benefit from a number of other opportunities it has to finance reforms related

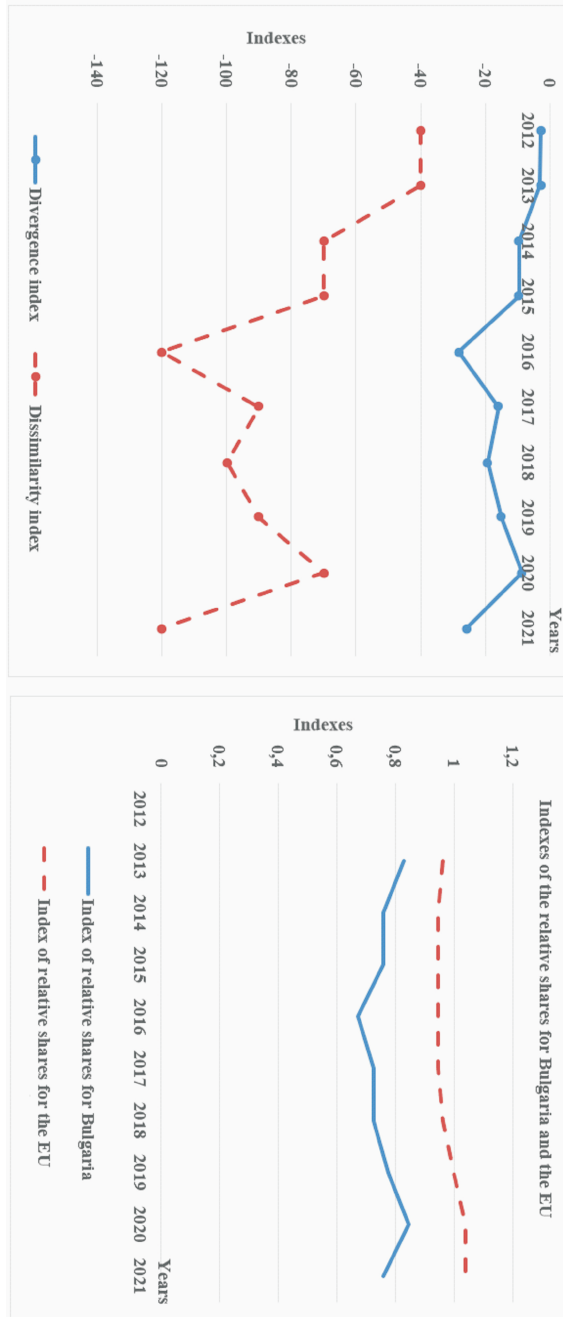


Fig. 1. Divergence index, dissimilarity index and relative shares indexes for gross value added in construction (Source: author's calculations)

to digitalization in construction. In addition, the construction sector is also included in the National Recovery and Resilience Plan 2022–2026, which aims to implement a number of projects in this area. It is clear that the success of these projects and programs will bring direct and indirect benefits to the construction sector, the Bulgarian economy and society as a whole. It is hoped that this way the potential for digitalization of the Bulgarian builder is not a sector and it will increase its competitiveness among its partners in the European Union.

The construction sector, together with the manufacturing industry and trade, is among the activities providing the greatest rate of employment. It is for this reason that structural convergence in this area is an important strand in the implementation of the overall convergence process in the EU.

Here the deviations are much larger compared to the gross value added, which means that it should be approached with even greater attention. Convergence in the sectoral structure of employees is a key indicator in many studies on structural convergence [4]. No less important is the situation of the sector in terms of labor productivity indicator. In the following table the relative labor productivity of the sector is derived, and in Figure 3 also the corresponding indices concerning it.

Table 2. Relative share of employees in the construction sector in the period 2012–2020 for Bulgaria and the EU (Source: Eurostat and author’s calculations)

Years	Bulgaria	EU
2012	5,4	7,7
2013	5,2	7,4
2014	5,2	7,5
2015	5,3	7,3
2016	5,1	7,4
2017	4,9	7,4
2018	5,2	7,7
2019	5,5	8,0
2020	5,6	7,6

The construction sector is very labor intensive, there is a problem of the ageing of the workforce and the reluctance of young people to work in it. At the same time, there are innovations in the sector, digital and a number of new skills are required, which further makes it difficult to find workers in the sector, and this hinders the growth of labor productivity in it. However, so

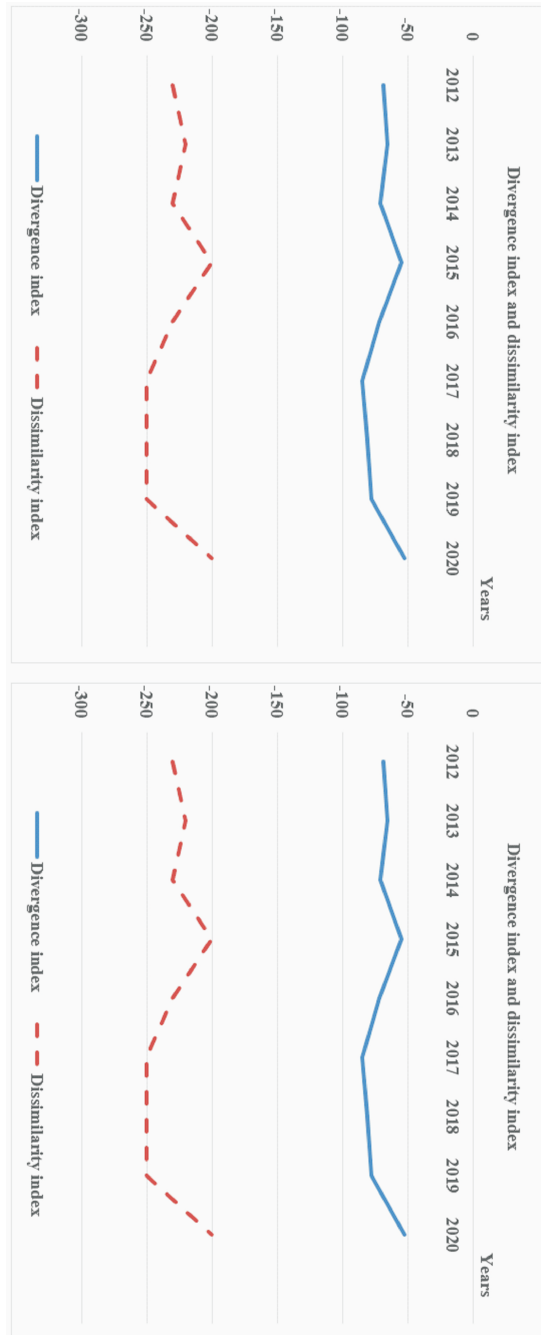


Fig. 2. Divergence index, dissimilarity index and relative share indices for construction employees (Source: author's calculations)

Table 3. Relative labour productivity in the construction sector in the period 2012-2020 for Bulgaria and the EU (Source: author's calculations)

Years	Relative labour productivity for Bulgaria	Relative labour productivity for the EU
2012	107,4	70,1
2013	92,3	70,3
2014	84,6	68,0
2015	83,0	69,9
2016	76,5	68,9
2017	85,7	68,9
2018	80,8	67,5
2019	81,8	67,5
2020	87,5	73,7

far the relative productivity of the sector does not deviate significantly from that of the EU, but on the contrary is even higher than it.

All actions to align the performance of the construction sector with the EU average are necessary in order for Bulgaria to participate effectively in the single European market, where the listed challenges are a particularly pressing issue. Reforms in this area will enable better construction, greater energy efficiency, faster growth rates, greater environmental protection, and hence a higher quality of life.

However, there are several major problems that hinder the sustainable development of the Bulgarian construction sector. The first of them is the growing number of bankruptcies of construction companies. For this period, annually more than 4,000 companies in the sector go bankrupt and leave the market, involving an average of over 5,800 employees who lose their jobs.

Next, there is a shortage of qualified workforce in the construction sector, and this problem will be exacerbated by a decrease in the working-age population in Bulgaria. In addition, according to NSI data, 17.5% of the working-age population is low-skilled and for this reason the issues of continuing training, upskilling and retraining, the availability of digital skills, etc. are again on the agenda and are a significant challenge, especially in the context of recovery from COVID-19.

In connection with the convergence of the sector, another problem is important, namely waste management and recycling in Bulgaria and in particular the construction sector, which is a major source of such with its activities.

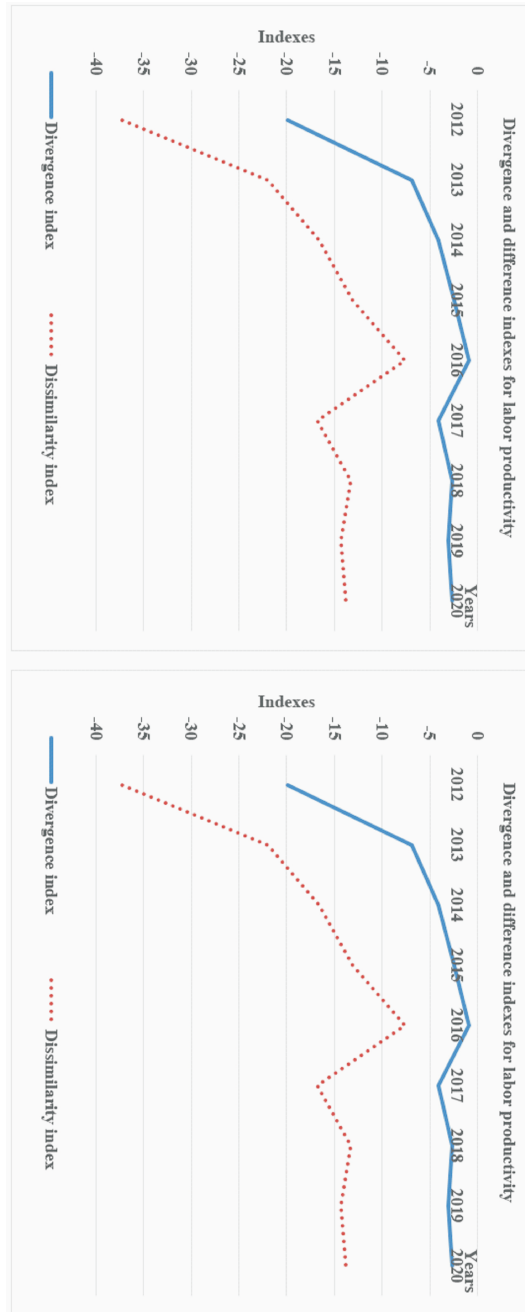


Fig. 3. Divergence index, divergence index and relative share indices on construction labour productivity (Source: author's calculations)

Table 4. Number of bankrupt companies and employees in the construction sector in the period 2014–2019 (Source: NSI and author’s calculations)

Years	Number of firms	Growth rate relative to initial year, in %	Employed	Growth rate relative to initial year, in %
2014	2810	–	5167	–
2015	3508	24,8	7599	47,1
2016	3661	30,3	6025	16,6
2017	3420	21,7	5815	12,5
2018	5478	94,9	4982	–3,6
2019	5574	98,4	5214	0,9

The focus here is on reducing waste and promoting circular economy and sustainable consumption processes in the sector.

Next is the issue of energy efficiency, in terms of which our country needs to at least double its annual energy saving obligations, one of the aspects in this area is to create a highly energy-efficient building stock and a stable environment for investment in this direction. The construction sector is one of the key energy saving factors for the building stock. This is due to the fact that new buildings are better insulated and therefore consume less energy than old buildings.

Other challenges to the convergence processes in the construction sector in Bulgaria are: the large number of procedures it is necessary for one to go through in order to obtain a building permit – an average of 18 in Bulgaria, compared to less than 13 in the member countries of the Organization for Economic Co-operation and Development (OECD) [5]; higher than the average for OECD countries costs of obtaining a building permit – in Bulgaria they are 3.5% of the cost of the construction, compared to 1.5% in the OECD; Difficulties in doing business in Bulgaria – Bulgaria for two consecutive years 2020 and 2021 is ranked 43rd out of 190 countries in the World Bank’s report on doing business; low level of eco-innovation – for 2021 the eco-innovation index of Bulgaria is 50, compared to an average of 121 for the EU-27. Bulgaria ranks last in the Digital Economy and Society Index (DESI) with a score of 36.4 for 2020, compared to an average of 52.6 for the EU-28, which further hinders the digitalization of the sector and its convergence.

3. CONCLUSION

The construction sector is like a crossroads for all economic activities and the presented in the article and data show that in order to become more efficient, competitive and sustainable sector it must include in its agenda goals of increasing innovation and competitiveness, climate action, improving the qualification of employees in the sector, setting process circularity and appropriate digitalization.

Reality shows that the sector needs to be reformed. The reforms should modernize the conservative construction sector, attract young people to it, increase their skills, qualifications, productivity and competitiveness, promote high-tech innovation in the sector, sustainable construction, reduce the negative impact environment and create favorable conditions for international investment. These measures will contribute to the economic recovery of its position among EU countries and will benefit the development of the construction sector. However, the implementation of all these measures has many challenges such as reluctance to change, lack of experienced and qualified staff, difficulties faced by contracting authorities in project management and public procurement, lack of cooperation between the parties in this process, controversial legal issues, etc.

Tackling all these problems and challenges will lead to a lasting stabilization in the development of the construction sector, meeting new employment challenges and improving the skills and qualifications of its employees, subsequent deepening of convergence processes, as well as increasing convergence and achieving real and structural convergence with other EU countries.

Both in our country and in the world economy, the importance of construction in modern conditions is great, but traditionally the construction sector has a number of disadvantages. Nowadays, challenges facing the construction industry are the following: traditionally low labor productivity [6], lack of innovations or their introduction too slowly [7], a large number of failed projects [8], problems with organizing and conducting tender procedures, most parties involved in the construction process have opposing interests, leading to a high degree of fragmentation of the sector, business in this sector is characterized by high cyclicity and operates in a complex environment. In this sense, it is necessary to increase the competitiveness and innovativeness of the sector [9], and for this purpose, future publications such as this one, which outline the state and problems facing the sector and propose measures to solve them, will help. This will be key to all these processes, both converging and improving the competitiveness of the sector in the future.

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