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Industrial Performance in the European Union and Croatia: 1990-2016

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Abstract

Over the past decades Europe has experienced a substantial process of deindustrialization. This does not mean that industry is losing its spacious purpose in the economy because it contributes to progress and a sustainable and balanced growth and remains the backbone of the European economy. However, in a global context of increased competition, ageing, climate change, geopolitics and fourth industrial revolution, European industry face enormous challenges. In that context, after the global financial crisis, the importance of industrial policy has been proved by its inclusion between ten European Commission's political priorities. This paper considers the industrial performance of the European Union and of one individual member state – Croatia. The analysis is conducted for the 1990-2016 period through the Competitive Industrial Performance index and its sub-indicators determined within the three significant dimensions that capture several aspects of an economy's industrial competitiveness stage. The purpose of this paper is to provide a better grasp of the changing dynamics of industry and its impact for Croatia, within the current global economic climate.

Keywords: *Competitive Industrial Performance index, Croatia, deindustrialization, European Union, industry*

Track: *Governance*

Word count: *6.156*

1. Introduction

Without industrialization development will not happen (UNIDO, 2015). Namely, inclusive and sustainable industrialization is essential to achieve sustainable development because it unleashes dynamic and competitive economic forces that generate employment and income, facilitate international trade and enable efficient use of resources (UNIDO, 2017).

In that context, over the past decades Europe has experienced a substantial process of deindustrialization. However, it is clear the European economy will lose its competitiveness and will not create new jobs in future markets without a strong and modern industrial base, new knowledge and new technologies, start-ups and new small and medium-sized enterprises as well as a mission-oriented approach to innovation policy (European Commission, 2018d). Although resilient economic growth has returned, Europe will have to step up its efforts in order to ensure higher levels of prosperity (European Commission, 2018b). In that context, boosting Europe's productivity is crucial to achieving robust growth and reducing output gaps with other advanced economies (European Commission, 2018b). Additionally, economic convergence is an important political objective of the European Union (EEAG, 2018). As this

paper shows, however, convergence has not yet been achieved in many areas, most evidently in the case of industry level. Recent years have shown marked disparities between member states, and the gap between the rich and the poor has not been narrowing (European Commission, 2018d). More precisely, between 2000 and 2017, the most striking feature is the dissimilarity between member states: average annual rates of GDP growth varied from 0.4 % to 4.4 %, average rates of unemployment from 4.6 % to 15.5 % and youth unemployment from 8.3 % to 35.7 %; above all, the R&D investment rate differences among member states range from 0.6 % to 3.3 % (European Commission, 2018a). As industry is the largest source of business R&D in advanced economies, has the largest technological and economic multiplier, and is closely linked to knowledge-intensive services (European Commission, 2018a), those differences are extremely significant.

Hence, after the global financial crisis, the importance of industrial policy has been proved by its inclusion in ten European Commission's political priorities. Specifically, a deeper and fairer internal market with a strengthened industrial base is that priority (European Commission, 2018c). In this study, by using Competitive Industrial Performance data provided by UNIDO for the period 1990–2016, we investigate the state of European Union member's industrial competitiveness stage, with special emphasis on Croatia. The purpose of this paper is to provide a better grasp of the changing dynamics of EU-28 industry and its impact for Croatia. Based on the intuition above, the following section presents an institutional background displayed in the form of a list of EU and Croatia strategic documents in the context of industry. The third section describes the long-term trends in industrial performance of European Union, in the context of global competition between EU, China and the United States and various impacts throughout the years. The fourth section presents a descriptive study of industrial performance for EU-28 and Croatia during the twenty-seven-year period based on the Competitive Industrial Performance index which assesses and benchmarks industrial competitiveness. The conclusions discuss the data and point to a specific areas and policy implications.

2. The European Commission policy framework for the EU industry

There was a period when governments were considered inefficient and the markets were the best option for an economy that would ensure efficient outcomes. As of Great recession in 2008 the opposite opinion that markets fail and therefore governments play significant role prevailed, especially in the European Union. This refers to all aspects of economic and political life in the EU, but the importance of industry showed to be the key ingredient to overcome the crisis and to boost economic growth. Europe's industry, as the engine of growth, innovation, productivity, and exports, needed to be more competitive with a strong manufacturing base. The key player in this industrial turnaround is the European Commission, as many documents can prove (see e.g. European Commission, 2010a; European Commission, 2010b; European Commission, 2014a; European Commission, 2017a; European Commission, 2017b).

The importance of industry in the European Union can be seen in these facts: the EU is a world leader in many industrial sectors; 32 million people have a job in European industry; over 1.5 million new jobs have been created in industry since 2013; about 17 % of total value added in the EU comes from manufacturing; 1 job in manufacturing creates up to 2.5 other jobs across the value-chain (European Commission, 2017c); industry accounts for 80 % of the EU's exports and private innovations (European Commission, 2019a); etc. But, in a changing world, to remain on the top, EU industry must modernise, embrace digitisation and

technological change, integrate products and services, develop less polluting and less energy-intensive technologies, reduce waste and invest in a workforce with the right skills (European Commission, 2017c). European Commission is aware of this need especially in times when some industrial initiatives can be viewed as mercantilist practices (e.g. America First, Made in China 2025 etc.). Therefore, innovation and competitiveness are at the heart of the Commission's agenda and Commission is committed to supporting the transformation of EU industry on the brink of a new industrial revolution (European Commission, 2019a). The proof is the new EU Industrial Policy Strategy brought in 2017 (European Commission, 2017b).

The goal of this renewed industrial policy is investing in EU industry for a modern, clean and fair economy. The Commission approach to industrial policy is to promote industrial competitiveness across sectors and policies through major initiatives of which the key ones are the creation of jobs and growth through innovation and investment (The Investment Plan for Europe), revitalization of regions through the development of clusters and the Smart Specialisation Platform; also initiatives as the Single Market Strategy, the Capital Markets Union, the Digital Single Market Strategy, Key Enabling Technologies, the Circular Economy Action Plan etc. The importance of each initiative is explained below.

As EU has been suffering from low levels of investment since the crisis in 2008, The Investment Plan for Europe known as the "Juncker Plan" represents infrastructure investment programme designed to boost investment. Announced in November 2014, its aim was to reverse downward trend in investment and put Europe on the path of economic recovery. Three objectives were set: to remove obstacles to investment; to provide visibility and technical assistance to investment projects; and to make smarter use of financial resources (European Commission, 2019a). Interestingly, countries whose total investment set to be triggered by the EFSI (the European Fund for Strategic Investments) as a proportion of GDP (as of November 2018) were the highest in Greece, Estonia, Portugal and Spain (European Commission, 2019a). In Euros, countries in which ESFI triggered the highest investment are France and Italy.

The Smart Specialisation Platform for industrial modernisation (S3P-Industry) aims to support and coordinate the efforts of all EU regions committed to generate a pipeline of industrial investment projects in smart specialisation areas through interregional cooperation, cluster participation and industry involvement. The S3P-Industry ensures an active participation of industry and related business organisations such as clusters, as well as research institutions, academia and civil society (European Commission, 2019c).

The Single Market Strategy is the European Commission's plan to unlock the full potential of the Single Market. It is at the heart of the European project and the strongest tool to reap benefits of globalisation. It enables people, services, goods, capital and data to move more freely, offering great opportunities for European businesses as well as better choice and lower prices for consumers. Also, it enables citizens to travel, live, work or study wherever they wish. The benefits of Single Market do not materialise because Single Market rules are not known or implemented, or they are undermined by other barriers (European Commission, 2019a). Similarly, The Capital Markets Union is an EU initiative which aims to deepen and further integrate the capital markets of the 28 EU member states (European Council, 2019) while The Digital Single Market (DSM) aims to ensure access to online activities under conditions of fair competition, consumer and data protection, removing geo-blocking

(irrespective of nationality or place of residence) and copyright issues (European Commission, 2019a).

A group of six technologies: micro and nanoelectronics, nanotechnology, industrial biotechnology, advanced materials, photonics, and advanced manufacturing technologies are called Key Enabling Technologies (KETs). They provide the basis for innovation in a wide range of industries and product applications such as developing low carbon energy technologies, improving energy and resource efficiency, and creating new medical products. Their potential to boost industry as well as economic growth and provide jobs is huge. Therefore, KETs are set as priority for European industrial policy (European Commission, 2019a).

It is important to mention Europe 2020 strategy which is the EU's agenda for growth and jobs for the current decade (its predecessor was the Lisbon Strategy which preceded all strategies, action plans and communications related to industrial policy). Europe 2020 agenda strives to create smart (based on knowledge and innovation), sustainable (resource efficient, greener) and inclusive (with high-employment) growth to overcome the structural weaknesses in Europe's economy. The EU economy intends to reach high levels of employment, improve its competitiveness and productivity and social cohesion (European Commission, 2010a). Important parts of Europe 2020 Strategy are The Resource Efficiency Roadmap (European Commission, 2011a) and The Low-Carbon Roadmap (European Commission, 2011b). This implies that the Commission aims to ensure coherence between industrial, environmental, climate and energy policy to create an optimal business environment for sustainable growth, job creation and innovation. Thus, the Commission supports European industry in the move to a low-carbon economy and improves the energy efficiency of products through eco-design legislation (European Commission, 2019a).

Previously mentioned Roadmaps are the base for the later turn to the circular economy, as the Commission has established in 2014 an ambitious agenda to transform EU economy into a circular one (European Commission, 2014b). Due to the reduction in available material and energy resources and environmental degradation as well as climate change The Action Plan towards the Circular Economy was adopted (European Commission, 2015). Circular economy is closed, regenerative system where the value of products and materials is maintained for as long as possible. In such an economy everything is designed to be repaired, reused, reproduced and recycled as to minimize the resource use and its environment impact (waste).

In line with this, the 2030 Agenda for Sustainable Development and its 17 Sustainable Development Goals (SDG) were adopted in 2015 and 2016 (United Nations, 2019). These Goals are the blueprint to achieve a better and more sustainable future for all. They address the global challenges one of which is „industry, innovation and infrastructure“ (Goal 9). The EU has responded to the Agenda 2030 by Communication regarding sustainable European future (European Commission, 2016). In the Communication Annex, the Agenda 2030 goals are linked to the EU's political framework and the Commission's priorities: for each sustainable development goal an overview of EU actions and policies serving the same goal is given.

European union documents, commissions and action plans brought by European Commission are a reference framework for activities at national and regional level. Europe 2020 strategy brings EU targets, but national targets are set by their governments which report on them as part of their annual national reform programmes. Croatia reached the EU targets set in Europe

2020 agenda in greenhouse gas emissions and share of renewable energy but failed to reach the target in employment rate, gross domestic expenditure on research and development and tertiary education attainment (European Commission, 2019b). Considering all initiatives and action plans, EU member states must follow the key decisions/directives enacted in European Parliament, but on the other hand the specific actions are being negotiated domestically.

To support policy development and encourage increase of competitiveness in EU member states, the Commission monitors the competitiveness performance of EU countries and EU industries. Before, this was mostly done through the Report on Single Market integration and competitiveness in the EU, the EU industrial structure report, the European competitiveness report, the member states' competitiveness report and the Short-term industrial outlook (European Commission, 2019a). This was also a way of sharing best practices through the exchange of good practice reports.

Nowadays, the key term in following Commission guidelines given in its documents and action plans is European Semester. During the Semester the clear timetable is set; first the member states receive EU-level advice (so called guidance); next, they submit their policy plans (those are national reform programmes and stability or convergence programmes) which are evaluated at the EU level; based on these evaluations member states receive individual (country-specific) recommendations for their national policies. Member states are expected to consider EU advice when they define their budgetary and other reform (tax, industry, education etc.) policies. Also, recommendations to correct macroeconomic imbalances are given if it is necessary (European Council, 2019).

It can be concluded that many documents, strategies and action plans regarding industrial policy were adopted since 2008. It is the best indicator of a new direction in the European Commission policy. As an EU member state, Croatia must follow that direction, at least when it comes to documents. Therefore, Croatia has started to adopt national strategies more intensively in 2014, and has adopted many since then (see complete list on <http://europski-fondovi.eu/strateski-dokumenti-republike-hrvatske-2014-2020>). Some of those important for industrial performance are: Entrepreneurship Development Strategy 2013-2020; Cluster Development Strategy 2011-2020; Transport Strategy 2014-2030; Innovation Incentive Strategy 2014-2020; Smart Specialisation Strategy 2016-2020; Energy Development Strategy by 2020; Research and Innovation Infrastructure Development Plan; Waste Management Plan 2017-2022; National Action Plan for Renewable Energy by 2020 and the Industrial Strategy 2014-2020. Also, Croatia adopted all major EU strategies and plans without special national goals e.g. Europe 2020, Digital agenda for Europe, Single Market Strategy etc.

But, regarding Croatia in the context of industry, industrial policy and national strategies, the picture is not clear. Blur is most contributed by the fact that national documents / strategies are being adopted but the implementation still fails. Often the adoption of strategy in Croatia is considered end of the path rather than the beginning, so strategic documents mostly serve themselves as a purpose. Or, in words of the European Commission: “There is however a need for more determined policy implementation, notably in Croatia” (European Commission, 2018e:7).

3. Long - turn trends in industrial performance in the EU

Since 2000, Europe has experienced a significant deindustrialization. For instance, the contribution of manufacturing to European GDP decreased from 18.5 % in 2000 to 15 % in

2012, and 3.8 million jobs were lost between 2008 and 2012 in this sector (European Commission, 2018a). According to the data in Figure 1, the EU-28 recorded a continued drop in manufacturing value added (% of GDP) in the observed period from 19% in 1990 to 14% in 2017. The situation is similar in the United States, which in 2016 records an even lower rate of 11%. China on the other hand, has a slight decline, but the manufacturing value added in 2017 is twice as high as in the EU-28, i.e. 29%. However, this does not mean that industry is going in the same direction as agriculture about a century ago, with a slow but continuous reduction in its overall role in the economy (European Commission, 2018a).

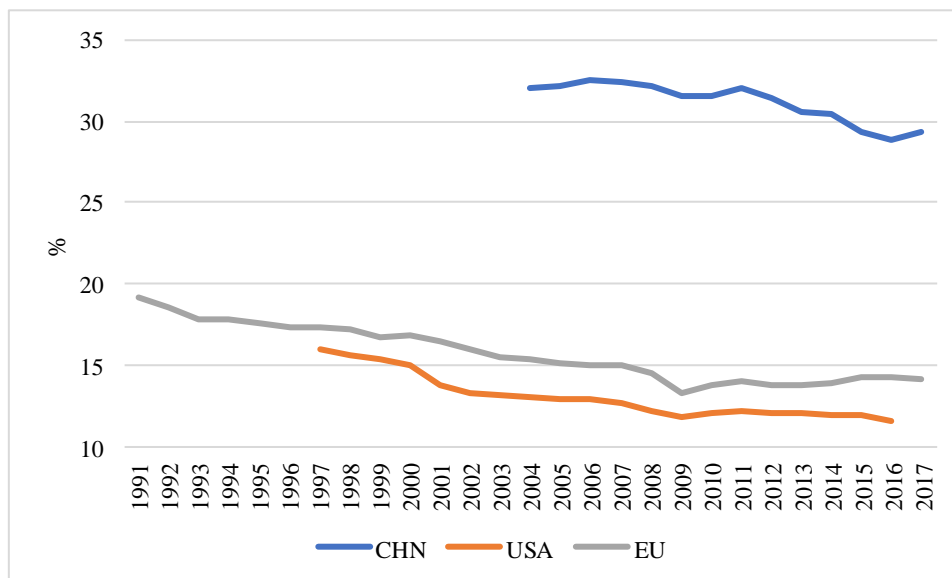


Figure 1: Manufacturing, value added (% of GDP), 1991-2017

Source: World Development Indicators

Further, industry contributes to Europeans' prosperity through business in global and local value chains and provides one out of five jobs in Europe. With a share of approximately 16 % of total value added, manufacturing is responsible for 64 % of private sector R&D expenditure and for 49 % of innovation expenditure, every new job in manufacturing creates between 0.5 and 2 jobs in other sectors and more than 80 % of EU exports are generated by industry (European Commission, 2018a). Along with that, data show that economies with strong industrial base e.g. Germany, Ireland and Italy recovered faster and easier after the economic crisis. In addition, recent years decreasing trends in industry in these countries has been reversed. In EU-28 industry share in total value added increased by 4.7 %, manufacturing value added has grown by 23% and its share as a proportion of the economy has increased from 14.7% to 16.1% between 2009 and 2016. Since 2013, over 1.5 million new jobs have been created in industry, particularly in manufacturing, predominantly in higher-paid engineering, professional and management jobs (Figures 2 and 3).

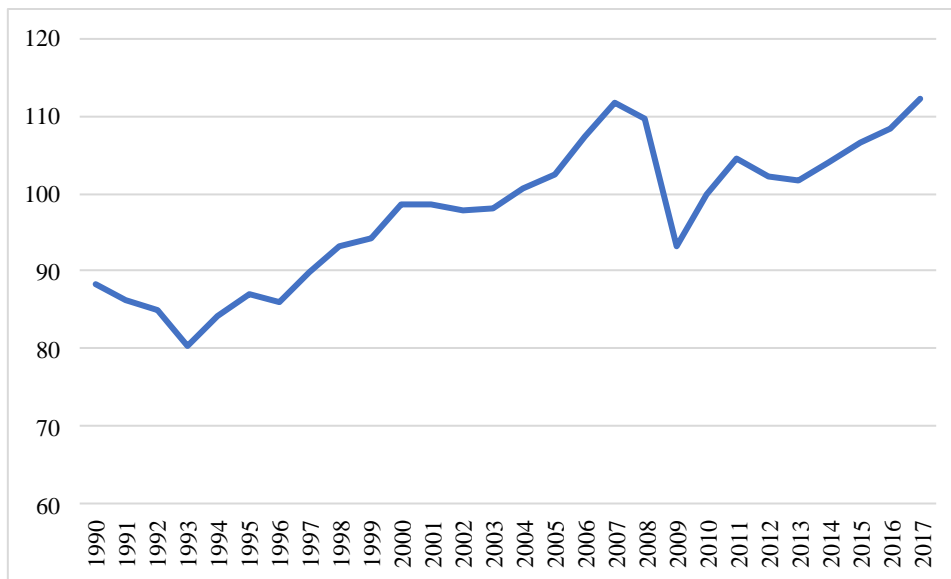


Figure 2: European Union: manufacturing volume index of production, 2010=100, 1990-2017

Source: Eurostat

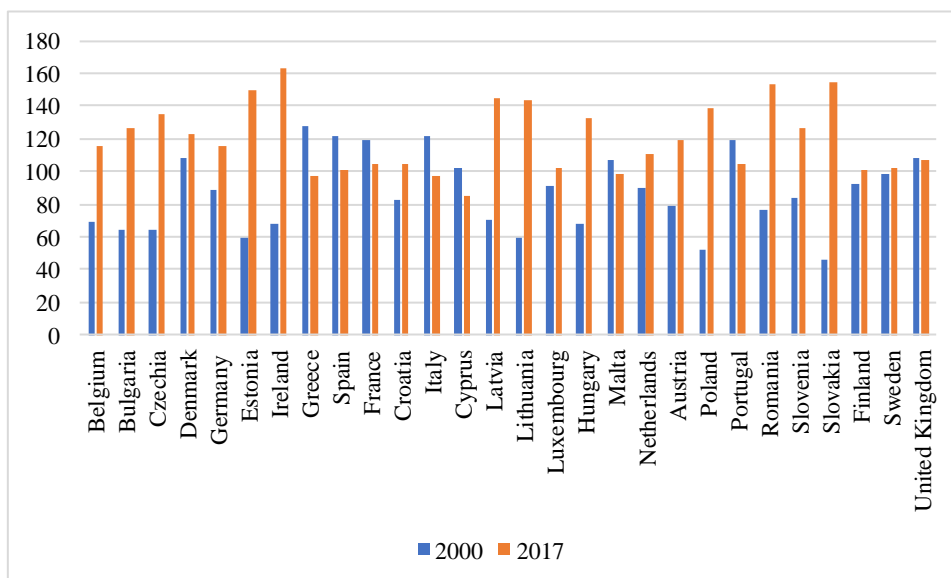


Figure 3: Manufacturing volume index of production, 2010=100, 2000 vs. 2017

Source: Eurostat

Positive trends in industry value added and employment has been also reflected on labour productivity in EU industry increasing by 2.7 % on average from 2009 to 2016, higher than other major economies such as the United States or South Korea (European Commission, 2017b). Despite these positive trends (Figure 4), in order to stay in the line with United States, Japan and China, Europe needs to re-find industry by fully encompassing the six Key enabling technologies defined in 2009.

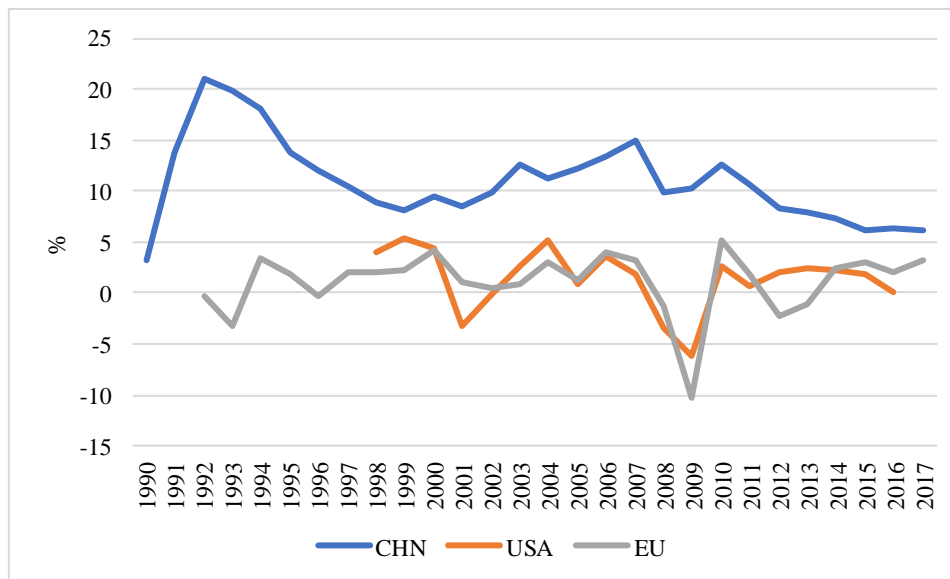


Figure 4: Industry (including construction), value added (% of GDP), 1990-2017
Source: World Development Indicators

Also, two new digital technologies, namely, artificial intelligence and digital security and connectivity, need to be added as an answer on “The Made in China 2025 strategy” which aims to upgrade China's industrial base by focusing on ten key industries. The economic importance of Key enabling technologies lies in underpinning Europe's global leadership in various industries, particularly in high value added and technology-intensive industries. Further, The Regional Innovation Scoreboard 2016 showed that regions which specialised in key enabling technologies had a positive and significant effect on economic performance, higher than regions specialised in other fast-growing technologies (European Commission, 2018a).

Furthermore, although, the productivity in Europe increased, there are main underlying challenges European industry is facing up. The first challenge refers to technology diffusion, how already-developed and emerging technologies adopt. For example, in the case of Germany, the leader in industrial production, the full shift to the key enabling technologies for the future (KET 4.0) could take by one estimate around twenty years. The reasons are explicable. First reason refers to increasing numbers of new companies entering the market and helping them to grow. Second issue is about increasing productivity in established companies who face obstacles in implementing new technology. According to second issue, small and medium-sized enterprises tend to use key enabling technologies less frequently than larger companies. In Europe, 36 % of surveyed companies with 50-249 employees use industrial robots, compared to 74 % of companies with over 1 000 employees. Only one fifth of EU companies are highly digitised. Further, only one in five manufacturing companies has already used advanced manufacturing solutions. In order to address these two aspects of technology diffusion, different policy instruments are essential (European Commission, 2018a). The second challenge refers to increasing global competition among several emerging market economies, of which China is the most significant, focusing on advanced technologies and strategic value chains.

As mentioned before, The Made in China 2025 strategy, can present attractive opportunities for some European businesses in order to provide critical components, technology and management skills. On the other hand, market access for European business can be expected to shrink, especially in areas where Chinese companies are able to close the technology gap.

Hence, it is essential for the EU to support the competitive development of strategic value chains in which most future manufacturing jobs are likely to be created in Europe. The last but not the least challenge refers to necessary investments in education and skills. Increasingly globalised value chains and digital transformation are structurally changing the labour market and the nature of work. A high-level skill is needed to continually improve, to boost employability and competitiveness. According to current estimates, more than 70 million adults in the EU are affected by gaps in basic skills and businesses are increasingly reporting difficulties in finding employees with adequate skills (European Commission, 2018a).

Thus, European union needs to strengthen the industry's ability to continuously adapt and innovate by facilitating investment in new technologies and embracing changes brought on by increased digitalisation. Companies, as well, need to participate by upgrading the technology base, future-proofing business models, internalising sustainable development principles and embracing innovation (European Commission, 2017b). Next chapter is focused on analysing the industry's competitiveness in the European Union, highlighting the several aspects of an economy's industrial competitiveness stage.

4. Industrial performance analysis: an EU – Croatia comparison

The analysis of industrial performance is based on interpretation of the CIP Index (Competitive Industrial Performance Index), published annually by UNIDO (United Nations Industrial Development Organization). Namely, the CIP Index assesses and benchmarks industrial competitiveness, which for the Index is defined as the capacity of countries to increase their presence in international and domestic markets, while developing industrial sectors and activities with higher value added and higher technological level (UNIDO, 2017). It captures the ability of countries to produce and export manufactures concurrently and hints to the advancement of structural transformation. The CIP concept emphasizes countries manufacturing development and implies that industrial competitiveness is multidimensional (1st dimension: capacity to produce and export, 2nd dimension: technological deepening and upgrading, and 3rd dimension: world impact) (UNIDO, 2017). Since 2002, the CIP Index has been a primary instrument for economies to analyse their industrial competitiveness with that of others, and it is a performance (or “outcome”) indicator rather than a potential (or “process”) indicator (UNIDO, 2015).

According to CIP performance quintile, the countries are divided into five categories: top, upper middle, middle, lower middle and bottom. The Figure 5 shows which development group a country belongs to. According to the latest available data, it is apparent that 16 out of 28 EU member states belong to the Top countries group (Germany, Ireland, Belgium, Italy, Netherlands, France, Austria, Sweden, United Kingdom, Czechia, Spain, Denmark, Poland, Slovakia, Hungary and Finland), 10 countries belong to Upper Middle group (Slovenia, Portugal, Romania, Lithuania, Luxembourg, Estonia, Greece, Croatia, Bulgaria and Latvia), 1 country to Middle (Malta), and 1 to Lower Middle group (Cyprus). Additionally, five out of ten economies in the global top 10 are from the European Union, and 17 countries are among the top 30 (see Figure 5).

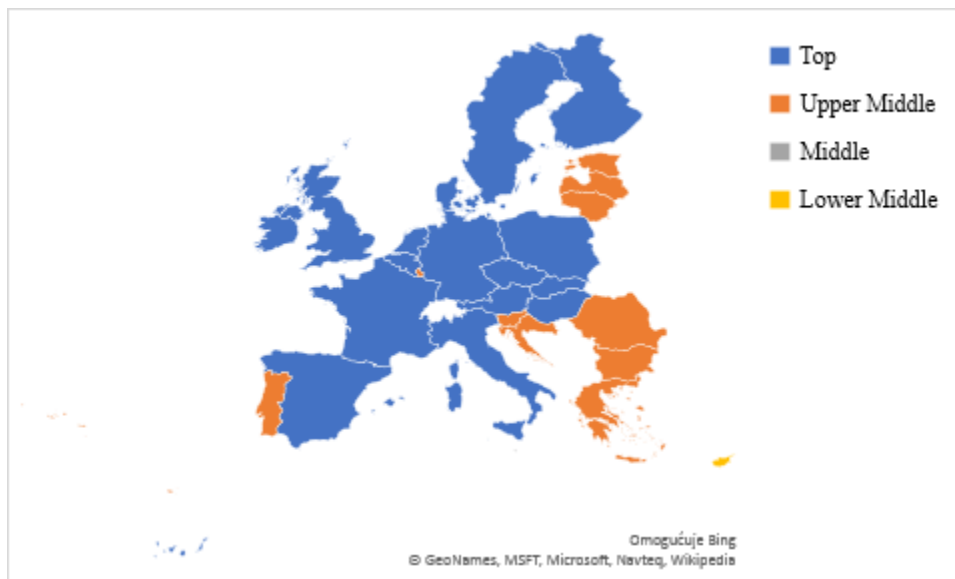


Figure 5: EU-28 countries according to CIP performance quintile, edition 2016
Source: UNIDO

Figure 6 shows the scores of the EU-28 countries according to the Competitive Industrial Performance Index in 2016. Parentheses on Figure 6 show the global rank according to CIP Index in 2016. Based on the figure it can be concluded that Germany is the most industrially competitive country in the world for the 20th consecutive year (since 1994) (see Figure 7). Namely, Germany’s manufacturing sector is a key factor in its macroeconomic performance, with a strong industrial core and an ability to control complex industrial value creation chains (UNIDO, 2015). Germany is then followed by Ireland, Belgium, Italy, Netherland and France. Croatia is ranked 24th, among the member states of the EU-28, and 53rd in the global rank.

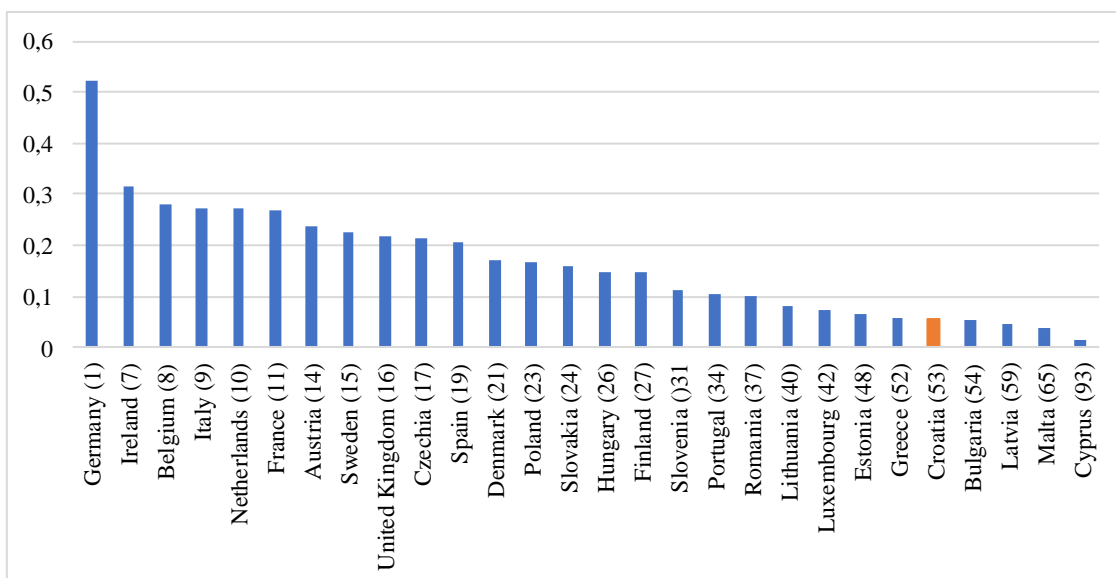


Figure 6: Scores of the EU-28 countries according to the Competitive Industrial Performance Index, edition 2016.
Source: UNIDO

CIP Index allows us to observe not only the absolute level of key indicators at any time but also their rate of change (UNIDO, 2015). According to the data in Figure 7, which displays an absolute change in global ranking between 1990 and 2016 in the EU-28, the biggest movers

are Poland and Lithuania. Countries that displayed the biggest losses are Cyprus and Croatia. On the other hand, between 2000 and 2016, the biggest positive movers were Slovakia and Lithuania, and the biggest losers were Malta and Luxembourg. Hence, it is notable that some Central and Eastern European countries have strengthened their industrial competitiveness while a few of Europe's largest economies, in particular, Finland and Portugal, have fallen in the competitiveness rankings. When it comes to Croatia, in the observed twenty-seven-year period (1990-2016), its ranking on global relative industrial competitiveness fell for as many as 19 positions (from 34th place in 1990 to 53rd place in 2016), while in the period from 2000 to 2016 it fell only by 1 place (from 52nd place in 2000 to 53rd place in 2016). The results are particularly interesting, as 150 countries have been included in all analysed years.

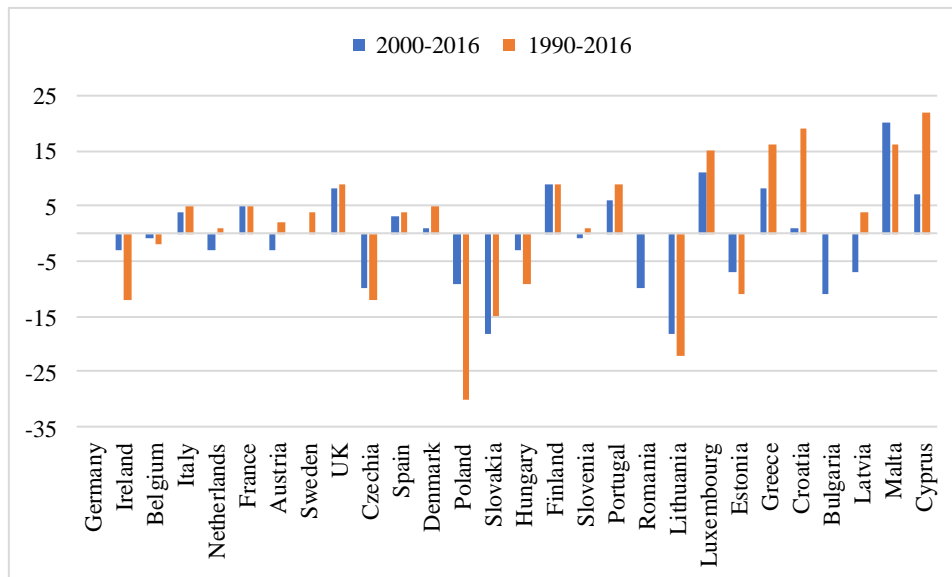


Figure 7: Absolute change in global ranking between 2000-2016 and 1990-2016 in the EU-28
Note: Minus indicates growth in the rankings and vice versa.

Source: UNIDO, author's calculations

The trend of the CIP index for Croatia is shown in Figure 8. It is a downward trend that has been particularly noticeable in 1990-ies and since 2008. As it is known, Croatia experienced a war in 1990-ies and a severe crisis lasting from 2009 to 2015.

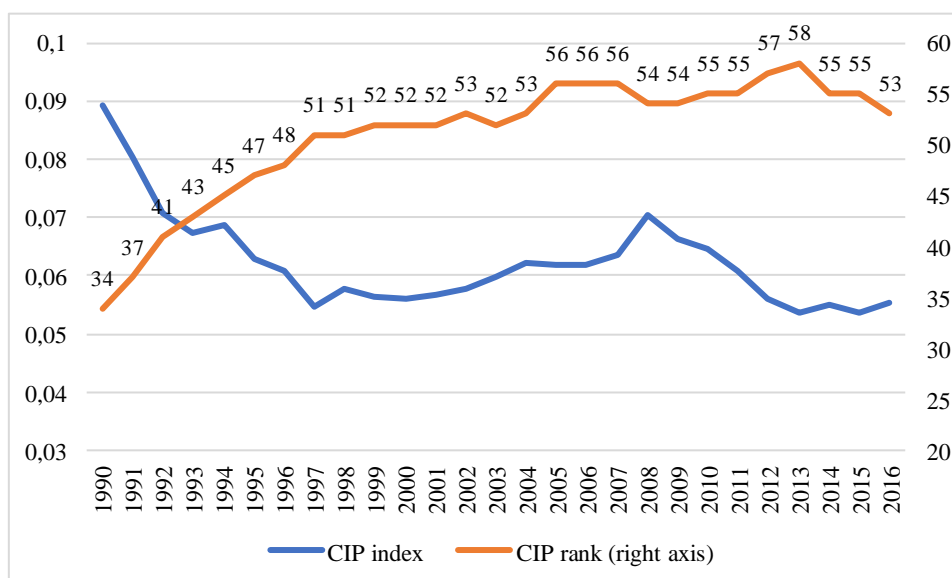


Figure 8: Scores and ranks of the Croatia in the Competitive Industrial Performance Index (CIP), 1990-2016

Note: Higher number on the scale indicates a setback.

Source: UNIDO

Next, Figures 9, 10 and 11 present the sub-indicators of the CIP index, determined within the three critical dimensions that cover various aspects of an economy's industrial competitiveness performance. Individually, 1st dimension (capacity to produce and export manufactured goods) is expressed by the manufacturing value added per capita (MVApc) and manufacturing export per capita (MXpc) indicators and it signifies an economy's industrialization level. These two indicators for Croatia are shown on Figure 9 where can be seen a noticeable downward trend of MVApc since 1990, and a slight increase of MXpc during the 1990-2016 period. Namely, although exports in recent years have contributed to GDP growth and have been recognized as a potential generator of economic growth, still it is below the level of comparable economies (European Commission, 2018e). Second, from 2013 to 2016 European countries recovered from the crisis while Croatia still floated through it which resulted in stronger growth in exports than imports. And finally, in 2013 Croatia entered the EU which opened new markets for products that were not exported before and facilitated existing exports.

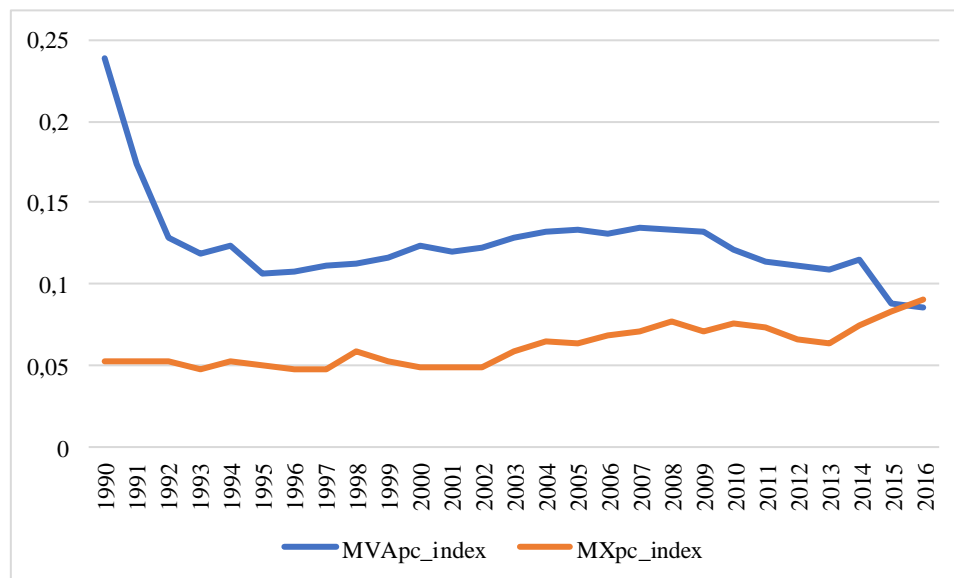


Figure 9: First dimension indexes of CIP for Croatia, 1990-2016

Source: UNIDO

Second dimension of CIP index refers to technological deepening and upgrading expressed by industrialization intensity – INDint (calculated as: $[\text{share of medium and high tech activities in total manufacturing value added} - \text{MHVAsh} + \text{share of manufacturing value added in GDP} - \text{MVAsh}]/2$) and industrial export quality index – MXQual (calculated as: $[\text{share of medium and high-tech activities in total manufacturing export} - \text{MHXsh} + \text{share of manufacturing exports in total exports} - \text{MXsh}]/2$) indicators. The movement of the indicated composite indicators for Croatia is displayed on Figure 10. It demonstrates that the industrial export quality index (MXQual) is at nearly the same level as at the beginning of the observed period, i.e. 1990 (which partly explains the movement of MXpc on Figure 9). Additionally, while the share of the higher complexity of export (38) in recent years has increased, the overall

complexity of Croatian exports (0.75) is still below the (simple) average of the group CEE10¹ (0.93) (European Commission, 2018e). As for the industrialization intensity index, it shows the fluctuations during the observed period and a noticeably lower level compared to 1990.

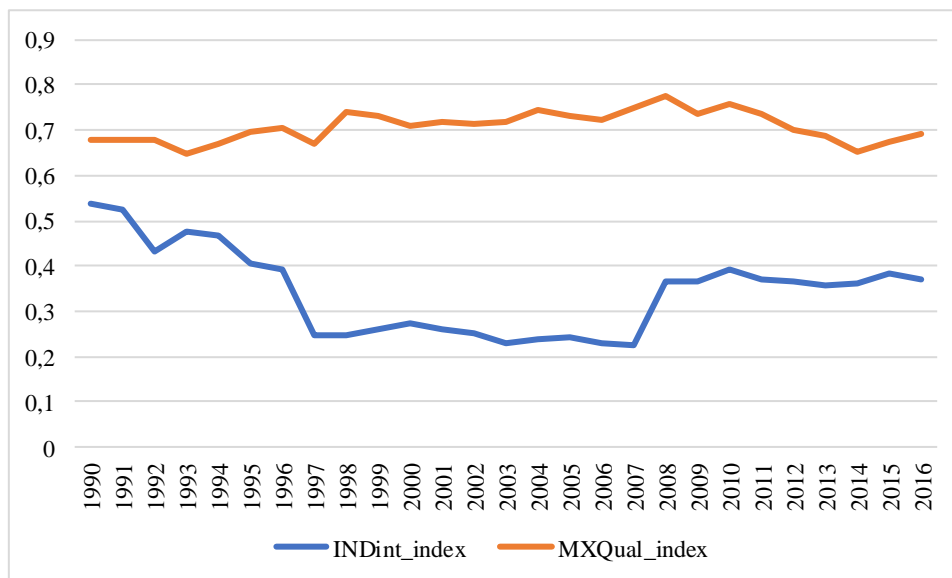


Figure 10: Second dimension indexes of CIP for Croatia, 1990-2016
Source: UNIDO

Third dimension captures world impact expressed by the share of world manufacturing value added (ImWMVA) and share in world manufacturing export (ImWMT) indicators. According to data in Figure 11, Croatia recorded a significant decline in the share of both indicators which indicates a Croatia's relative performance and impact in overall manufacturing on one side, and a Croatia's competitive status relative to other economies in international markets on the other side. Considering the trend of indicators since 1990, there is a noticeable decreasing trend of almost all indicators included in the analysis, as evidenced by the movement of the final index in the Figure 8.

¹ CEE10 stands for 10 countries of Central and Eastern Europe and refers to Bulgaria, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovenia, Slovakia.

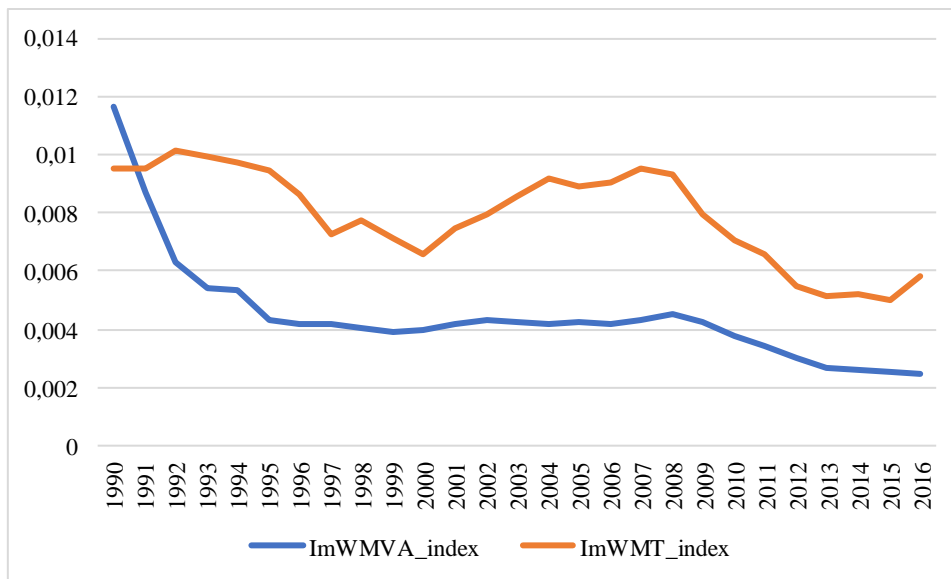


Figure 11: Third dimension indexes of CIP for Croatia, 1990-2016
Source: UNIDO

Figure 12 shows the changes to the production structure in Croatia in 1990, 2000 and 2016. According to the graph, we can conclude that the share of manufacturing value added in total GDP remarkably decreased in the analysed period, but the share of medium and high-tech value added in total manufacturing is slightly higher in 2016 compared to 1990.

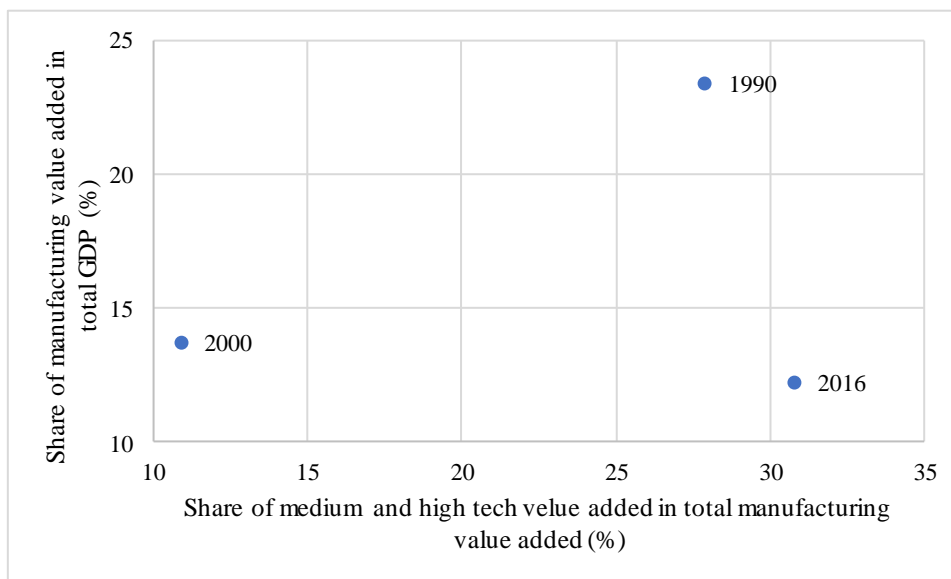


Figure 12: Changes to production structure for Croatia (1990, 2000, 2016)
Source: UNIDO, author's calculations

Finally, as confirmed by the analysis of the CIP index above, Croatia is characterized by a decline in industrial competitiveness. The decline was not only absolute but also relative compared to other former ‘transition’ countries (Figure 13). Along with that, the share of manufacturing in total added value is reducing which shows deepening of the process of deindustrialization. For example, in 1990 Croatia accounted for 25 % of the manufacturing industry's gross domestic product while in 2016 this share was only 11 percent (CBS, author’s calculation). On the contrary, successful former ‘transition’ countries have reindustrialized their economies.

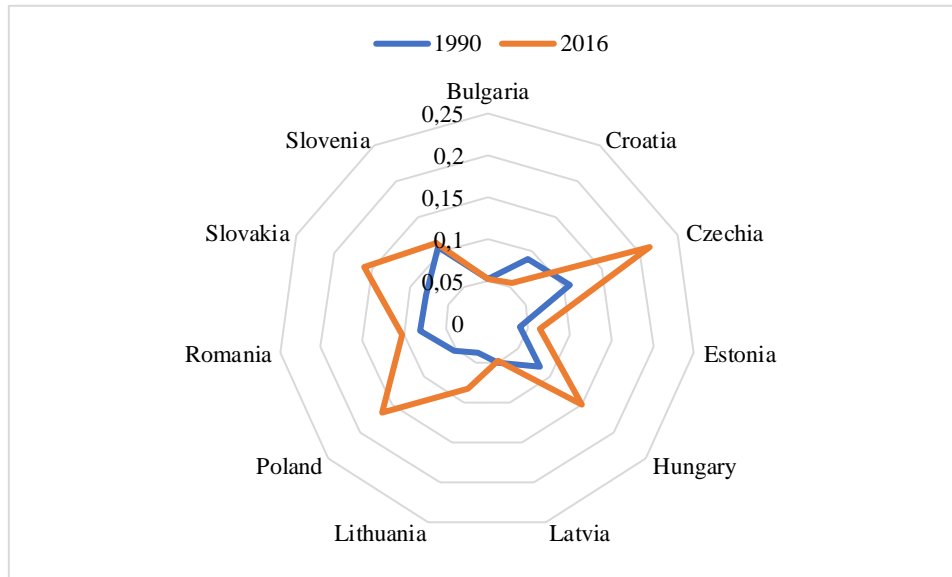


Figure 13: CIP index in CEE10 and Croatia, 1990 vs. 2016
Source: UNIDO

5. Concluding remarks

Globalisation and technological progress are incrementally and inevitably reshaping economies (European Policy Centre, 2018). Regardless of whether the economies rely on traditional manufacturing or on the high tech and high skilled service-oriented industrial production, it plays a special role as an engine of growth and convergence. Namely, one of the most striking and robust findings concerns the relationship between the share of manufacturing and the duration of growth episodes: according to Szirmai and Verspagen (2015) the larger the share of the manufacturing sector at the start of a growth episode, the period of growth continues longer.

In that context, in a fast-changing world, and after the shadow of the financial and economic crisis, the industry in different ways at different stages become an important dimension of discussion on the agenda of the European Commission. Many documents analysed in the paper prove the new direction in industrial policy of the European Union.

The need for stronger industrial base is evident from our analysis which suggests that EU member states must adopt a rapid transformation to stay ahead and retain a current competitive edge. This is done by analysing long - turn trends in industrial performance in the EU and by employing the Competitive Industrial Performance (CIP) Index. According to CIP performance the brightest EU industrial star is Germany, while some other EU countries are also among top countries group. But many EU countries straggle behind and one of them is Croatia.

According to CIP Index in 2016 Croatia is ranked 24th among the EU-28 countries and 53rd in the global rank. The picture is more complex when we look at a longer period. Since its independence, the CIP Index in Croatia has mostly downward trend that has been particularly noticeable in 1990-ies and since 2008. Unfortunately, the improvement will not come by itself. As an EU member state, Croatia has to accomplish set goals, and in the case of non-fulfilment, it will have consequences. As can be concluded from the paper, many strategies

are being written and adopted, but the main challenge for Croatia are action plans and their implementation.

Namely, although exports in recent years have contributed to GDP growth and have been recognized as a potential generator of economic growth, still it is below the level of comparable Central and Eastern European economies. This is in line with, for example, the Global Competitiveness Index of the World Economic Forum which shows that Croatia is stagnant while comparable economies are progressing. The Croatian government must show political will and action to pursue specific plans and guarantee their realization or the course of events will be more unfavourable.

References

CBS. Croatian Bureau of Statistics. <https://www.dzs.hr/>.

EEAG. 2018. EEAG Report on the European Economy. CESifo, Munich. Available at: <https://www.cesifo-group.de/DocDL/EEAG-2018.pdf>.

European Commission. 2010a. *Communication from the Commission – Europe 2020: A strategy for smart sustainable and inclusive growth*. COM(2010) 2020. Brussels.

European Commission. 2010b. *Communication from the Commission – An Integrated Industrial Policy for the Globalisation Era: Putting Competitiveness and Sustainability at Centre Stage*. COM(2010) 614 final. Brussels.

European Commission. 2011a. *Communication from the Commission – Roadmap to a Resource Efficient Europe*. COM(2011) 571 final. Brussels.

European Commission. 2011b. *Communication from the Commission – A Roadmap for moving to a competitive low carbon economy in 2050*. COM(2011) 112 final. Brussels.

European Commission. 2014a. *Communication from the Commission – For a European Industrial Renaissance*. COM(2014) 14 final. Brussels.

European Commission. 2014b. *Communication from the Commission – Towards a circular economy: A zero waste programme for Europe*. COM(2014) 398/2. Brussels.

European Commission. 2015. *Communication from the Commission – Closing the Loop - An EU Action Plan for the Circular Economy*. COM(2015) 614/2. Brussels.

European Commission. 2016. *Communication from the Commission – Next steps for a sustainable European future - European action for sustainability*. COM(2016) 739 final. Strasbourg.

European Commission. 2017a. *Communication from the Commission – Delivering on low-emission mobility: A European Union that protects the planet, empowers its consumers and defends its industry and workers*. COM(2017) 675 final. Brussels.

- European Commission. 2017b. *Communication from the Commission – Investing in a smart, innovative and sustainable Industry: A renewed EU Industrial Policy Strategy*. COM(2017) 479 final. Brussels.
- European Commission. 2017c. *State of the Union 2017 – Industrial Policy Strategy: A holistic strategy and a strong partnership in a new industrial age*. Factsheet. Available at: <https://www.consilium.europa.eu/media/32444/a-holistic-strategy-and-a-strong-partnership-in-a-new-industrial-age.pdf>
- European Commission. 2018a. *Re-Finding Industry – Report from the High-Level Strategy Group on Industrial Technologies*. Conference Document, 23 February 2018. Available at: https://ec.europa.eu/research/industrial_technologies/pdf/re_finding_industry_022018.pdf.
- European Commission. 2018b. *Science, Research and Innovation Performance of the EU 2018 – Strengthening the foundations for Europe's future*. Publications Office of the European Union, Luxembourg. Available at: https://ec.europa.eu/info/sites/info/files/rec-17-015-srip-report2018_mep-web-20180228.pdf.
- European Commission. 2018c. *Commission Work Programme 2019, Delivering what we promised and preparing for the future*. 23.10.2018 COM(2018) 800 final. Strasbourg. Available at: https://ec.europa.eu/info/sites/info/files/cwp_2019_en.pdf.
- European Commission. 2018d. *Re-Finding Industry – Defining Innovation*. Report of the independent High Level Group on industrial technologies. Publications Office of the European Union. Luxembourg.
- European Commission. 2018e. *Communication from the Commission – 2018 European Semester: Assessment of progress on structural reforms, prevention and correction of macroeconomic imbalances, and results of in-depth reviews under Regulation (EU) No 1176/2011*. COM(2018) 120 final. Brussels.
- European Commission. 2019a. <https://ec.europa.eu/>.
- European Commission. 2019b. Europe 2020 targets: statistics and indicators. Available at: https://ec.europa.eu/info/business-economy-euro/economic-and-fiscal-policy-coordination/eu-economic-governance-monitoring-prevention-correction/european-semester/framework/drafteurope-2020-strategy/europe-2020-targets-statistics-and-indicators-eu-level_en.
- European Commission. 2019c. Smart Specialisation Platform: Industrial Modernisation. Available at: <http://s3platform.jrc.ec.europa.eu/industrial-modernisation>.
- European Council. 2019. Council of the European Union. Available at: <https://www.consilium.europa.eu/en/>.
- European Policy Centre. 2018. *How do industrial transitions succeed? Transatlantic considerations on drivers for economic development*. Policy brief, sustainable prosperity for Europe programme, 19 December 2018. Available at: http://www.epc.eu/documents/uploads/pub_8924_industrial_transitions_succeed.pdf?doc_id=2090

Eurostat. 2017. EURONA – Eurostat review on national accounts and macroeconomic indicators, 2/2017. Available at: <https://ec.europa.eu/eurostat/documents/3217494/8574823/KS-GP-17-002-EN-N.pdf/e82e7896-aefc-4e88-b0b2-f7687c18dbba>.

Szirmai A, Verspagen B. 2015. Manufacturing and economic growth in developing countries, 1950–2005. *Structural Change and Economic Dynamics*, 34: 46–59.

UNIDO. United Nations Industrial Development Organization, <https://stat.unido.org/>.

UNIDO. 2015. *Industrial Development Report 2016*. The Role of Technology and Innovation in Inclusive and Sustainable Industrial Development. United Nations Industrial Development Organization. Vienna.

UNIDO. 2017. *Industrial Development Report 2018*. Demand for Manufacturing: Driving Inclusive and Sustainable Industrial Development. United Nations Industrial Development Organization. Vienna.

United Nations. 2019. *The Sustainable Development Agenda*. Available at: <https://www.un.org/sustainabledevelopment/development-agenda/>.

World Development Indicators, <https://datacatalog.worldbank.org/dataset/world-development-indicators>.