

# Introduction

## Abandoning the FDI-based economic model driven by low wages

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The financial crisis marked a breaking point in the growth and development model of Central and Eastern European (CEE) middle-income economies. The period of high growth fuelled by external financing has apparently come to an end since the onset of the crisis in 2008, with the pace of convergence with the old EU members slowing significantly in a number of countries. The crisis has also exposed some structural weaknesses and vulnerabilities in these economies, earlier masked by high growth. These weaknesses have also called into question the role of foreign direct investment (FDI) as the main driver of modernisation and sustainable growth. At the same time, the crisis coincided with the end of a longer cycle marked by FDI expansion in Central and Eastern Europe linked to the opening up of the region and its subsequent EU accession. A former publication by the ETUI (Galgóczi *et al.* 2015) looked at the main FDI processes and patterns in both quantitative and qualitative terms, concluding that the ‘golden era’ of FDI was over: FDI flows from 2008 onwards have declined substantially in what seems to be more than just a cyclical effect. Questions were also raised in qualitative terms as to what extent FDI enables CEE economies to upgrade their position in the international division of labour, and to what extent domestic enterprises and in particular local SMEs are integrated into value chains.

The overall picture thus seemed to confirm the view that CEE middle-income economies need to redefine the future role of FDI and at the same time explore other growth engines in order to continue the process of convergence with the high-income countries.

The starting point for this work is the observation that since 2008 convergence in terms of GDP/capita has lost momentum, with convergence in nominal wages grinding to a standstill, overall growth rates far behind pre-crisis rates, investments collapsing and inward FDI flows lagging behind pre-2008 levels. The development of per capita GDP between 1997 and 2016 is shown in Table 1. It is not a simple or uniform picture and Poland seems to be the only country continuing to converge towards the EU-15 level at a similar pace before and after the crisis. It is also the country least dependent on FDI. For the rest of the four Visegrad<sup>1</sup> (V4) countries, as with all other EU CEE countries, the trend is generally still towards catching up, albeit not as rapidly as in the pre-crisis years. A trend break can well be recognised. While this does not prove that the FDI-driven strategy has run its course, it does raise questions about its lasting future potential. This needs to be assessed in a more detailed investigation of specific themes, taken up in the following chapters. It is also worth emphasising that FDI has been only one of the main growth drivers. Another has been EU funds, accounting for up to 5% of GDP in the

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1. Poland, Czechia, Hungary and Slovakia.

last programming period (see the chapter by Ferry in this volume). One implication of this is that other (indigenous) growth drivers have played even less of a role, with their (declining) impact masked by this other benefit of EU membership. Another implication is that the eventual reduction in EU funding levels threatens a further slowdown in convergence, unless the resulting investment is well-used to develop future growth potential.

Table 1 Gross domestic product at current prices per head of population, PPS, EU15=100

	1997	2008	2016
Czechia	64.7	75.6	81.2
Hungary	43.1	56.3	63.6
Poland	39.6	50.0	64.1
Slovakia	44.3	64.4	72.6
Bulgaria	25.0	39.2	44.5
Estonia	34.4	61.9	69.1
Latvia	28.5	53.1	60.2
Lithuania	31.1	56.7	70.5
Romania	24.7	44.5	54.5
Slovenia	67.2	80.9	77.0

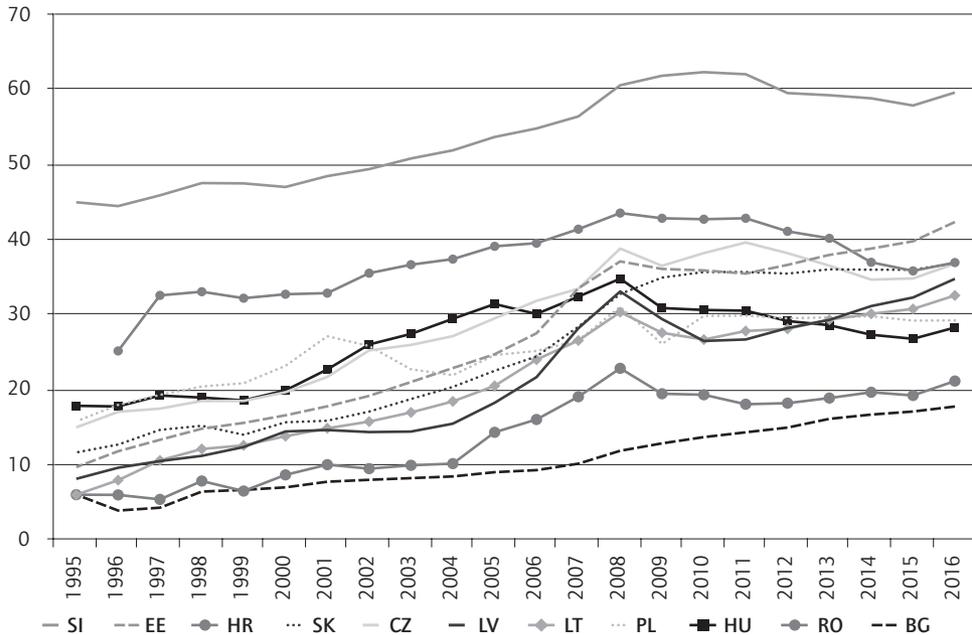
Source: AMECO (2017), [http://ec.europa.eu/economy\\_finance/ameco/user/serie/ResultSerie.cfm](http://ec.europa.eu/economy_finance/ameco/user/serie/ResultSerie.cfm)

Figure 1 shows the development of nominal compensation on a Euro basis (most indicative for capital, labour and services mobility) for all CEE new member states (EU11) over the last twenty years. The trend break in 2008 is clear, and in certain countries (Croatia, Czechia, Hungary, Poland, Romania and Slovenia) wage convergence went into reverse gear. In most of the EU11, relative wage levels have hardly moved over the past decade (up to 2016), with only Estonia and Bulgaria the exceptions. At the same time, Bulgarian wages in 2016 were still just 17.7% of the EU15 average and, with the exception of Slovenia, wage levels of the rest of the EU11 were between 20% and 40% of this average. In this case, then, convergence has virtually ground to a standstill. Though the low-wage model was confirmed and continued, as indicated above, it was associated with slower convergence in real terms.

This publication follows up on the earlier one, focusing on the progress made towards developing future drivers of the economic catching-up process in Central and Eastern European transformation economies after more than 20 years of FDI-driven development. The geographical focus of this publication is generally on the Visegrad 4 (V4) countries, but in certain chapters covers the whole CEE region. The time horizon considered is the post-crisis period (2008 up to now), although longer trends are also looked at in individual cases.

Though academic studies and analyses conducted by international financial institutions have viewed and interpreted CEE growth prospects differently, they were generally bleak until 2015: e.g. ‘convergence to Western European *growth rates* instead of to *income levels*’, meaning that growth rates in the region tend to be aligned with the moderate EU-15 growth rates. This totally questions income convergence prospects (Podkaminer

Figure 1 Average nominal compensation per employee in EU11 in % of the EU15 average (on EUR/ECU basis)



Source: AMECO 2017, [http://ec.europa.eu/economy\\_finance/ameco/user/serie/ResultSerie.cfm](http://ec.europa.eu/economy_finance/ameco/user/serie/ResultSerie.cfm)

2013). The World Bank (2014) used ‘cloudy outlook for emerging Europe’ as a headline for the region’s growth prospects, emphasizing that ‘in many countries of Central and Eastern Europe, the challenge is to finally put the economic crisis behind’. In early 2016 the IMF (2016) formulated its growth expectation for Central and South-Eastern Europe (CESEE), stating that: ‘despite the strong cyclical rebound, growth in CESEE remains well below the pre-crisis level and the region is facing considerable challenges over the medium term’.

One of the most pessimistic interpretations of the region’s growth and convergence chances is to be found in the cited study by Podkaminer:

‘Of course, further progress can still be made even within the current growth model. Indigenous R&D sectors could develop in the CEECs, providing the CEEC economies with streams of unique technological innovations, creating scope for large-scale high value-added domestic production and employment. In the same vein, in some time perspective indigenous business classes could develop in CEECs to take advantage of new lucrative opportunities generated by the indigenous R&D. However, as things stand now, the CEEC R&D sectors are close to extinction, with the more creative personnel leaving for the United States or Western Europe, while production, banking and trade are firmly in foreign hands – as it used to be the case over a couple of recent centuries. Transition came much too late.’

Although the general tone has changed since 2016, questions about convergence and long-term sustainable growth prospects remain.

Concluding that the CEE region is off-track from its pre-crisis convergence trajectory towards advanced economy income levels, an IMF publication (2016) posed the question of how CEE countries could get back onto the fast convergence path. The main recommendations were to improve labour supply in terms of skills and in view of the demographic challenge; to boost investment, given that the per capita capital stock is still just one third of the Western European average; and to raise productivity by maintaining higher total factor productivity growth rates than advanced economies and by improving government efficiency. But the key question is whether this implies the need for a substantial shift from past policies and what priorities should be followed.

The McKinsey Global Institute (Labaye *et al.* 2013) proposed a new growth model for the CEE region that ‘favours investment-led growth over consumption and increases the region’s ability to finance its future growth and attract foreign investment’. Beside a continuing role for FDI, the report also emphasized that increasing the productivity of lagging domestic sectors would be necessary and that these economies need to improve their self-funding capabilities. ‘Critical enablers’ for a new growth model included investments in infrastructure, education and innovation, as well as regulatory and institutional reforms. Expanding high-value-added exports would be a pillar of sustained economic growth. At this general level, proposals like this have often been made, with policymakers speaking in these terms many times in the past. The question is how to bring it about in the context of a history of low public spending and wage levels that make it difficult to retain the most qualified people. What priorities need to be set and what policy changes are necessary?

In 2017 there were signs that the old model might still have some life left in it. There were indications of more dynamic economic growth in the region, with CEE growth in the first quarter reaching an annual 4.0% and with the forecasts for Hungary, Estonia and Slovenia being revised upwards. Some financial analysts were welcoming an era of new growth dynamics in the region. Multiple growth drivers were at play: first of all domestic consumption was helped by wage increases, low interest rates and tight labour markets; investments that were depressed since the crisis started to rebound primarily due to a more favourable cycle of EU investment funds; and FDI also seemed to pick up. Though this gives rise to a certain optimism, the drivers behind such a short-term revival in growth do not point to a return to sustained growth and convergence in the future.

Ernst & Young (2017) called the region ‘competitive and attractive’, pointing to signs of new dynamism in FDI. Based on an own survey conducted in 2016, it saw the CEE region showing a strong momentum in attracting FDI. Poland ranked fifth in the whole EU, attracting 256 projects, a 21% increase compared to 2015. Czechia had 110 projects (up 53%) and Hungary and Slovakia also achieved gains. The CEE region captured 23% of FDI projects but 52% of jobs, and attracted half of Europe’s industrial FDI projects.

However, even with brighter short-term growth perspectives, it would be complacent to assume that the pre-crisis growth model is not in need of renewal to make catching up

with Western European developed economies a realistic perspective within a couple of decades. We need to take the following into account.

We certainly see a trend break in growth and convergence going beyond the prolonged cyclical effect of the crisis and the ill-designed crisis adjustment policies (see also the chapters by Hunya and Weresa in this volume). As far as FDI is concerned, the big wave of reorganising the division of labour in Europe after enlargement has come to the end of its cycle. Mass privatization programmes have finished and, in a number of countries, re-nationalisation strategies are even emerging (see also the chapter by Sass). Profit repatriation by foreign investment enterprises has become a major concern in the region.

In the wake of the crisis, the role of FDI was subjected to a critical rethinking with regard to the contribution of foreign investments to sustainable future growth, with a distinction being made between ‘good’ and ‘bad’ FDI. FDI focused on exploiting domestic markets (banking, retail, utilities) and possibly repatriating realised profits was seen as not welcome (Hungary and Poland have introduced specific taxes for these sectors), while FDI aimed at strengthening export capacities in mainly the manufacturing sector (automotive and ICT), but also business services, was seen as most welcome and enjoyed further support. At the same time, upgrading perspectives in terms of shifting activities by foreign affiliates towards higher value-added and more knowledge-intensive production became a declared policy focus, although, as the chapters by Ferry and Szent-Ivanyi show, without dedicated policy instruments and outcomes. Greater involvement of domestic suppliers in global value chains has also become a priority (as described in the chapter by Sass).

The economic model where the ‘comparative advantage’ of the region was based on low production costs (and thus wages) is no foundation for long-term development. The case of the automotive industry also demonstrates that the mostly low value-added subcontracting role played by the region in GVCs has reached its limits (Pavlinek *et al.* 2017). In Pavlinek’s words, this model offers the perspective of ‘truncated development’. With lower levels of FDI and with their limited and subordinated position in existing GVCs, CEE Member States need to embark on a more balanced ‘high road’ development model.

One of the major concerns in the CEE region is the existence of a dual economy featuring highly productive (mainly FDI-driven) export-oriented activities alongside mostly domestically-owned and domestic market-oriented sectors with low productivity (for the productivity gap between domestic and FDI-based sectors, see the chapter by Knell in this publication). This productivity gap is a hurdle for future development and catching up with developed economies. As Table 2 shows, the productivity divide between sectors of CEE economies is often greater than the productivity gap with Germany in the same sector. In Hungary for example productivity in motor vehicle manufacturing in 2015 was more than four times higher than in retail services, while German productivity in vehicle production was ‘only’ 2.4 times higher.

**Table 2 Labour productivity divide: apparent labour productivity in selected branches and countries ('000 EUR/employee)**

GEO/TIME	Retail services		Manuf. of chemicals		Manuf. of motor vehicles		Info-communication	
	2008	2015	2008	2015	2008	2015	2008	2015
European Union (28)	n.a.	26	n.a.	100	n.a.	77	n.a.	87
Germany	28.0	28.9	102.1	119.0	73.5	111.4	93.8	96.5
Czechia	13.5	14.2	34.7	50.9	29.0	44.5	57.6	48.1
Hungary	8.9	10.4	51.3	84.8	40.3	47.8	37.7	33.4
Poland	10.9	11.3	41.7	44.2	29.9	33.2	49.1	38.6
Slovakia	16.7	13.1	20.1	40.0	17.7	43.3	53.6	42.5

Note: Eu28 2015: 2014

Source: Eurostat (2017) Annual enterprise statistics (NACE Rev. 2) [sbs\_na\_sca\_r2]

Apparent labour productivity is defined as value added at factor costs divided by the number of persons employed.

Table 2 also raises further questions that cannot be answered on the basis of available aggregate data. For example, productivity developments over time also suggest major differences among sectors and countries. Productivity in the automotive sector increased substantially between 2008 and 2015 in all V4 countries, and the chemical sector – a further sector benefiting from ‘good’ FDI – also performed well, with productivity greatly improving, especially in Hungary. On the other hand, in information and communication technology, productivity even decreased in all V4 countries between 2008 and 2015 – certainly not a sign of upgrading.

To enable sustainable convergence, the region needs more than just FDI: the quality and nature of FDI matters a lot and the huge productivity differentials within the CEE national economies need to be addressed.

This publication will address these issues in more detail, demonstrating the need for a comprehensive change in policies. The main issues to be dealt with are the following.

The chapters will discuss and analyse the state of play in terms of growth, investment, FDI and innovation capacity, matching this to convergence objectives.

The changing role of catching-up middle-income economies in the international division of labour is addressed by several chapters: How to generate more value-added content? Are there any signs of an ‘upgrading’ process, with corresponding government strategies emerging? What government policies on FDI are appearing, is the focus on attracting more FDI or more on upgrading local value added? What role do investment promotion agencies play and how are EU cohesion policy funds being used to promote sustainable catching-up? Are new developments in the strategies of multinational companies emerging? Does digitalisation and the concept of industry 4.0 involve new strategic approaches affecting the role of peripheral economies and supplier networks? Is the indigenous SME sector taking up the challenge in international competition and is it able to play a decisive role in the supplier networks of existing multinationals? Are locally-based multinationals emerging?

The role of innovation, R&D /public and private/ and human capital is also discussed in detail.

## **1. The end of the FDI-driven model**

The chapter by *Gabor Hunya* takes a detailed look at the macroeconomic development of the CEE countries after the crisis, with an emphasis on investment and growth drivers.

Household consumption is currently the main growth driver in the EU-CEE (wiiw 2016), while within the V4 this was the case in Hungary and Poland. In Czechia and Slovakia by contrast, investment spending was the largest contributor to growth. Future economic growth is dependent on the ability to increase productivity and investment, regardless of whether the latter is foreign or domestic.

EU-CEE countries import capital not only in the form of FDI but also as transfers from EU structural funds, a source used to finance investments mainly in infrastructure but also in the private sector. The chapter compares these two major sources of foreign investment for financing projects in the EU-CEE.

Backed by data, the author shows that the current new wave of economic growth in the EU-CEE relies on more than just FDI. The ratio between gross fixed capital formation (GFCF) and value added (GDP) – the investment rate – started to recover in 2015 after a long period of decline, although pre-crisis rates are still out of sight. The share of new investment (net capital formation) in total investment in capacity expansion was higher in the CEE region than the EU-28 average (15%), being above 40% in Poland, around 20% in Hungary and Czechia, but below the EU average in Slovakia.

The author notes however that while any investment growth contributes positively to the GDP of a given year, the longer-term income generated by such investment will determine whether it promotes sustainable growth.

In terms of external investment financing, the chapter provides a balance of payments analysis discussing the balance of the capital account (including transfers from EU funds and from international financial institutions) and that of FDI as recorded on the financial account. Prior to the financial crisis, the EU-CEE was the target of soaring FDI inflows, while EU transfers remained rather small. The relationship between the two external financing channels changed after the crisis, with FDI decreasing and EU transfers allocated for the 2007-2013 financing period starting to flow. The two types of external financing differ a lot in their content. Capital transfers primarily finance infrastructure and other public investment projects or support SME development. FDI funds, on the other hand, generally flow to large private businesses.

FDI inflows recovered in 2016, reaching their highest level since 2008, primarily due to high inflows to Czechia, Hungary, Croatia and Romania (Hunya 2017). The 2016 recovery is in line with generally improving business sentiment and demand conditions throughout the European Union and is expected to continue in 2017.

The amount of FDI stock as a percentage of GDP is the highest in Bulgaria and Hungary, followed by Czechia and Slovakia (for 2015: 83, 70, 62 and 51 per cent respectively). In 2014 foreign penetration in terms of value added reached 53% in Hungary, more than 40% in Czechia, Romania and Slovakia, and less than 30% in Croatia, Poland and Slovenia. What is more important however is to compare the four foreign penetration indicators used in FATS. In terms of production value, Slovakia has a similar share of foreign affiliates as Hungary, namely close to 60%. But in terms of value added, the Hungarian figure is 10 percentage points higher. In fact, Slovakia has the biggest discrepancy between the shares in terms of production and value added, indicating that it specializes in assembly work with a high imported content. In Poland, foreign shares in value added are higher than in production, making it the most diverse economy, with much domestic sourcing.

A big decline in Hungary in the share of foreign corporate investments in 2013 and 2014 indicates the rising investment activity of domestic companies which enjoyed preferential treatment in the distribution of EU funds. By contrast, special taxes levied on part of the foreign-owned sector (retail and utility companies) decreased profitability and thus the funds available for investments. Alone among the countries under survey, the post-2010 Hungarian government has introduced several measures negatively discriminating against various foreign-dominated economic sectors engaged in non-tradable services. This has prompted certain investors to leave the country, and domestic ownership now dominates in the financial sector and utilities. At the same time, multinational companies signed so-called strategic agreements stipulating government support for additional investments in manufacturing and business services, for R&D activities and job creation. Selective benefits provided to certain domestic companies have engendered market segmentation and are giving rise to increasing cronyism. Nevertheless, the figures on foreign penetration do not show any decreasing role of foreign affiliates in the Hungarian economy as a whole.

As regards other external investment sources, project financing from the European Fund for Strategic Investments (EFSI) under near-market conditions may be less advantageous for EU-CEE countries than taking out a grant from the European structural and investment funds (ESIF), despite the delayed project financing. Regardless of this aspect, EFSI funding seems to be biased towards the EU core countries, an issue needing to be addressed in the future. As of August 2017, V4 countries were involved in a total of 25 projects, compared with 28 in Germany and 14 in the UK (EIB 2017).

The author concludes that the current investment mix can support average economic growth of about 3-4% in the EU-CEE, higher than in the past ten years, though still far below that preceding the financial crisis. Although more capital inflows – and especially FDI – may further accelerate growth, the pre-crisis years have taught the lesson of overheating. The conclusion of this chapter is that EU-CEE countries can expect to be on a more balanced albeit slower growth path in the years to come.

Based on a literature review and regional political debates, *Magdolna Sass* presents FDI-based models of the V4 countries and examines how the perceptions and policy objectives regarding the role of the local subsidiaries of multinational companies

has changed recently. The author then provides a reality check, looking at to what extent FDI-related policies have indeed changed and how domestic economies are performing.

The problem of convergence is of paramount economic and political importance for the V4 countries. Disenchantment with the performance of MNC subsidiaries in driving growth in the V4 economies and contributing to their catching-up with the core EU countries can be seen in all four countries. Furthermore, after the short inward FDI 'honeymoon', the crisis years showed that certain forms of FDI increased the vulnerability of the economies in question. In the ensuing low-FDI post-crisis environment with increased profit repatriation, the 'dark sides' of being exposed to foreign capital were witnessed in the region.

In this environment, V4 governments are increasingly looking to other potential candidates to drive their economic growth. The rhetoric has changed, with a differentiation increasingly being made between 'good' and 'bad' FDI. Efforts have been made in V4 countries, especially Hungary and Poland, to prioritise domestic capital accumulation. However, the generous incentives for and the good treatment of subsidiaries already operating in these countries, especially in export-oriented manufacturing industries, have not changed considerably.

Looking for evidence of this changing political and economic climate, the author looked at the OECD FDI regulatory index, finding that, up to 2015, apparent anti-FDI attitudes did not seem to have materialised in regulatory terms in the analysed countries. The data shows that, with the exception of Slovakia, FDI regulatory restrictiveness decreased in the Visegrad group between 2006 and 2010 and plateaued (with the exception of Czechia) between 2010 and 2015. However, compared with other countries examined by the OECD, the V4 countries still offer an outstandingly liberal FDI climate.

Otherwise very similar, V4 countries differ in terms of changes in their approach to FDI and in ways to help domestic enterprises catch up. The chapter shows that successful alternatives to foreign-owned subsidiaries are scarce, with no common pattern identified. Hungary (and Poland) seem to be the most active countries in trying to reduce the share of and reliance on foreign-owned companies in certain sectors of the economy. In search for alternative 'growth engines' the author looks at the share of state-owned enterprises, large domestic companies, regional multinationals and the SME sector in the V4 economies (in terms of output, productivity and employment). Hungary has a small group of strong regional multinational companies, dominating a few industries, while Czechia and especially Poland have a relatively high number of domestically-owned large companies. In terms of productivity, all enterprise categories have significantly lower levels than the EU28 average, with smaller enterprises lagging more. The data shows no significant differences between individual V4 economies, although Czech micro- and medium-sized and Polish and Slovakian small-sized firms were somewhat more productive than the rest in the group. However, up till now, none of these groups of companies have come to the fore, whether as subjects of economic policy or in economic performance.

The chapter also provides a comparative overview of outward foreign direct investment (OFDI) in the V4. While this country group is the most active in OFDI within the new member states, it remains much behind the OECD average. Detailed analysis also shows that, with regard to current OFDI, two factors play an important role: cross-border investments by foreign subsidiaries and OFDI by domestic enterprises in tax havens for tax optimisation.

Although there are some signs of change, with certain enterprise groups other than foreign subsidiaries making advances, the search for non-FDI growth drivers yields no convincing result.

## **2. Competitiveness: Low R&D intensity and missing innovation capacity**

The chapter by *Marzenna Anna Weresa* examines how the competitiveness of V4 countries developed over the post-crisis 2008-2015 period and how these changes related to innovation and human capital development in the context of a digital world. The author presents a comparative overview of the main economic and social performance indicators of the V4: GDP/capita, productivity, human development index (HDI), the digitalisation of the economy and society index (DESI) and the Global Competitiveness Index (GCI) calculated by the World Economic Forum. While Czechia shows the best results among V4 countries in the majority of competitiveness indicators analyzed (GDP/capita, HDI, GCI and DESI), since 2008 GDP/capita convergence for the V4 has been rather limited and, except for Poland, productivity in the region has not improved. Looking at the V4's digital economy and society performance, the whole region lags behind the EU. The main picture emerging from the review is that low labour costs remain the main base for competitiveness in all V4 countries – a base no longer sufficient to keep up with other emerging economies and to catch up with developed countries.

The chapter also examines the V4's innovation capacity and performance, using average innovation performance as measured by the Summary Innovation Index. EU member states have been divided into four different performance groups: innovation leaders, strong innovators, moderate innovators and modest innovators. All V4 countries are below the EU average, being ranked in the category of moderate innovators with a stagnating or deteriorating trend since 2008. Nevertheless, detailed data still indicates certain niches where V4 countries perform well, e.g. 'youth upper secondary education'. The author also observes that all V4 countries base their innovation performance primarily on non-R&D expenditures. In all V4 countries, this indicator is above the EU average, while both public and private R&D expenditures in relation to GDP are much below the EU averages. The author concludes that the role of innovation in shaping competitiveness in V4 countries remains limited.

The main barriers preventing the V4 countries from switching to a new competitiveness model based on skills and innovation are: too low R&D levels (including business R&D); inefficient links between science and business; barriers to knowledge diffusion and learning processes; and the insufficient development of digital skills (for further details see also the chapter by Knell).

Therefore, a long-term economic policy challenge for the V4 countries is to create a framework for achieving competitiveness through innovation and digitalization. These goals can only be achieved when a broader institutional environment is addressed by appropriate policy measures. Further institutional changes are needed, including reforms in the education and science sectors and support for entrepreneurship and establishing start-ups. Innovation should be enhanced as a primary driver of V4 competitiveness. The expansion of innovative companies requires reforms in the R&D sector, the introduction of new policies aimed at boosting business R&D as well as the injection of additional funds, and in particular higher investment in knowledge diffusion. The latter can be eased by incentives for venture capital market development. Improvements in innovative capacity should be supported by cluster development, including the strengthening of local supplier networks around foreign investments. Building innovation capacity is a cumulative, path-dependent activity that generates technical change, investment in new capacity and is very much a network-based activity (see also the chapter by Knell). It is also a complex and diverse activity that involves interaction between users and producers, and between companies and other organizations, engendering different patterns of technological accumulation and innovation depending on the learning structure. The chapter by Martin Ferry points also to the fact that even if a substantial share of EU cohesion policy funds is earmarked for innovation, V4 countries use these funds mainly for hardware and infrastructure investments, but not for enhancing their innovation capacity.

Looking at the internationalisation of R&D and innovation processes, the chapter by *Mark Knell* examines to what extent technology transfer contributes to economic growth and to convergence in the CEE region.

Foreign direct investment (FDI) can facilitate the cross-border transfer of a variety of resources, including R&D and innovation, with the potential of significant positive *spillovers* to the local economy.

R&D intensity is generally very low in the V4 group: in 2015 total R&D spending accounted for between 1.4% and 1.9% of GDP in Hungary and Czechia, and just 1.0% to 1.2% in Poland and Slovakia, while the EU 2020 target is 3% (see also the chapter by Marzenna Weresa in this volume).

Within this very low R&D intensity, business enterprise research and development (BERD) accounts for a significant share, the majority of which is driven by foreign investment. Nevertheless, the V4 has played only a marginal role in attracting foreign research and development (R&D) targeting the creation of new local competences.

R&D activity by foreign enterprises (inward BERD) is important for all four countries in the V4. In 2013, foreign enterprises accounted for almost three-quarters of BERD in manufacturing, or about €1.7bn, of which Czechia and Hungary had a share of more than two-thirds. While inward BERD increased significantly in all countries between 2009 to 2013, there appears to be little or no growth in domestic R&D activity in any of these countries except Poland.

An international comparison of R&D-related FDI shows that, despite increases in the last couple of years, the CEE region has a marginal share in global R&D-related FDI flows, indicating that FDI to the CEE region has a low R&D intensity. This intensity is largely dependent on sectoral patterns, with the dominant automotive industry characterised by medium R&D internationalisation. This follows a predominantly demand-driven strategy, as the industry tends to adapt products to satisfy local customers' preferences. In Europe, Germany accounts for two-thirds of total European R&D activity in the industry, while R&D-related FDI in the CEE region consists of secondary R&D activities with the main aim of adapting products to local markets. Even with this subordinated role, 90% of BERD in the CEE automotive industry is of foreign origin.

Going beyond R&D, the chapter also examines innovation in domestic and foreign enterprises based on an international innovation survey, classifying them as innovative or non-innovative. An innovative enterprise is one that introduced new or significantly improved goods or services or a new or significantly improved production process, distribution method or supporting activity between 2012 and 2014. The data confirms that the majority of enterprises with a head office abroad tend to be more innovative than domestic ones. Czechia appears to be the most innovative of the V4 countries, followed by Poland, Hungary and Slovakia.

When examining innovation networks, Germany appears to be the central node, with extensive interaction between it and its neighbours France, the Netherlands, Switzerland and Austria. This observation confirms the analysis of Scherngell (2014) that almost all European R&D activity is located in the centre of Europe, leaving very little in the periphery. Stehrer and Stöllinger (2015) suggest that European manufacturing is becoming increasingly concentrated around a Central European manufacturing core, centred in Germany but including Austria and the V4.

Multinational enterprises can transfer technology to the V4 in two ways: (1) directly, or internally, to local affiliates under their ownership and control; and (2) indirectly, or externally, to other firms in the V4.

The R&D intensity of a country determines its capacity to assimilate technical knowledge. The policy implication is that the V4 should continue to foster its indigenous R&D capability by creating and consolidating domestic research centres and networks, and also by making greater use of available EU funds.

The chapter by *Andrea Szalavetz* investigates the impact of new disruptive technologies, referred to as 'Industry 4.0', on the current geographical configuration of value chains from the perspective of FDI-hosting intermediate-level 'factory economies'. For factory economies – which according to Baldwin's typology provide labour input to international production networks –, the implications of certain Industry 4.0 technologies may represent a threat not only to future upgrading opportunities (in the field of manufacturing-related process development), but may also jeopardise prior upgrading achievements that could become digitalised through the new technology (e.g. production planning and scheduling).

Reviewing recent literature, the author sees the main challenge in how GVC headquarters realign their strategic locational choices to the emergence of the new manufacturing technologies: whether they keep their existing manufacturing facilities and upgrade them through installing Industry 4.0 technologies (*retention*); consolidate and concentrate manufacturing activities in specific locations (*selection*); or re-shore part of the activities, and at the same time establish new facilities, and/or outsource certain tasks (*reconfiguration*).

The main section of the chapter discusses possible developments associated with selected Industry 4.0 technologies based on interviews in a sample of MNC manufacturing subsidiaries in Hungary in the automotive and electronics sectors.

The author concludes that, in the short term, (beneficial) *retention mechanisms* have prevailed over such harmful scenarios as *specific location selection* or a *reconfiguration* option for the value chain. It remains to be seen, however, whether medium- and longer-term reconfigurations of GVC architectures triggered by technological change will reinforce or rather mark down these initial developments.

The main policy implication of the results is that immediate action is needed to reform education systems in factory economies. Delays in boosting the supply of adequately skilled workers and in aligning training with skill demands may eventually hinder the adoption of advanced manufacturing technologies, leading to activities being relocated. As one of the interviewees remarked, ‘We badly need “vocational schools 4.0”, where future workers are educated to use modern technologies, and will possess, at least, some basic programming skills.’

The author concludes that it is not technological progress in the field of Industry 4.0 per se that may hit factory economies hard: the lack of human capital coupled with a rigid education system would make them losers in the digital transformation of manufacturing. In addition to education (e.g. improving IT literacy and promoting lifelong learning) and public awareness-raising programmes, government policy should promote overall Industry 4.0 readiness by several means. The first is strategic planning: the elaboration of country-specific and indeed industry-specific Industry 4.0 development plans. Another general policy recommendation is to encourage companies to use the data generated by their state-of-the-art production systems, i.e. developing capabilities in data analytics. This would ensure that investment in Industry 4.0 technologies indeed results in improved productivity and resource efficiency.

Finally, policy should promote players’ participation in European Industry 4.0 initiatives related to research, pilot programmes and demonstration projects. However, success in attracting and retaining ‘good’ FDI would clearly depend on addressing the problems related to human capital and education without which the CEE region’s chances must be judged small.

The starting point of the chapter by *Martin Ferry* – in line with the overall objective of this book - is that the CEE region is facing a paradigm change, as its earlier ‘comparative advantage’ stemming from low production costs cannot provide a foundation for long-

term development. With the decline in their FDI levels and with their limited and subordinated position in existing GVCs, CEE Member States need to embark on a more balanced 'high road' development model. At the same time – as previous chapters of this book also show – CEE economies are low performers in the development of indigenous technological capabilities, as demonstrated by stagnant or even falling research and development (R&D) expenditures and a low innovation propensity.

The chapter assesses the extent to which EU Cohesion Policy (CP) addressed this development challenge in the CEE region during the 2007-2013 period: what did it achieve in strengthening innovative capacities and development potentials in these countries?

The 2014-2020 period is set to be the final phase of substantial CP transfers to the CEE region, and this programming period has an increased focus on innovation support. CP allocations to R&D and innovation, ICT, SMEs and a low-carbon economy show an increase of 6 percentage points in less developed Member States to 35 percent of total funding in 2014-20. Yet entrepreneurship, innovation and ICT policies are only effective when the region is endowed with human capital.

Evaluation evidence indicates that across the CEE region, EU innovation support in the period 2007-2013 was largely focused on 'hard' capital investments (the purchase of technology, new machines, new infrastructure etc.) rather than investment in the development of indigenous innovation capacities.

Up to now, 'innovation' has often been defined broadly to allow spending on infrastructure. There is a similar focus on research infrastructure, technology parks, research centres and buildings or fixed assets. This can absorb investment and is beneficial in boosting 'demand side' growth and higher consumption. However, there are sustainability issues, as infrastructure will have to be maintained after CP investment ends. Moreover, this approach means that less emphasis is put on 'supply-side' impacts that arise through the gradual build-up of 'stocks' of infrastructure, human capital and R&D.

The chapter shows that most progress in the CEE region's absorptive capacity has been made in strengthening capacity for procedural or operational compliance with Commission regulations and requirements, especially financial management and control. This has not been matched by progress in strategic development and policy learning. CP funding is often spent according to short-term considerations, responding to either urgent problems or political considerations rather than to long-term strategic development. Thus, CP innovation funding, in principle supporting the development of strategies and instruments based on partnership, the mobilisation of local stakeholders (including private players), decentralisation and bottom-up approaches, can be subsumed into a system that formally complies with EU regulations and procedures but in reality reflects traditional, hierarchical, redistribution and subsidy allocation patterns. This undermines the development opportunities offered by CP.

The author concludes that a key challenge in optimising the benefits offered to the CEE region by CP innovation support is to ensure sufficient investment in management

capacity. This applies to administrative capacity building for programme managers and stakeholders, particularly at sub-national levels.

### **3. The role of investment promotion and SME support**

The chapter by *Balazs Szent-Ivanyi* analyses the challenges that investment promotion policies face in the V4 countries in the ‘post-FDI’ age. These challenges include the changing competitive advantages of the V4, the questionable nature of the long-term development impacts of FDI, and the changing nature of the business models adopted by multinationals. The main finding is that investment promotion policies in the region have only partially adapted to these. Despite some changes, like targeting higher value-added investments, these policies are still very much ‘stuck in the past’ and influenced by the legacies of the 1990s, remaining focused on generating new, large investments, primarily in the manufacturing sector. The author sets out policy recommendations for the V4 governments to better align their policies with the changing environment. Some of these, like improving the effectiveness of targeting policies or investing more in aftercare services, are within the realm of traditional investment promotion, and show how this policy area still has relevance in the post-FDI age. Many policies however are outside this realm, and the chapter argues that these have been neglected due to an excessive focus on FDI promotion. Industrial policy, education and innovation support are all policies which need a new lease of life in the region. Concrete policy proposals put forward by the author include the following.

Investment agencies should not only focus on attracting new FDI but should promote the upgrading of existing investments through aftercare and incentives.

The agencies should focus more on promoting linkages between foreign subsidiaries and domestic suppliers through specific ‘supplier programmes’ that boost spill-overs.

Support to SMEs for technological modernisation and R&D, but also focused on promoting foreign market entry with non-FDI modalities.

The chapter by *Zhelyu Vladimirov* examines the effects of EU industrial policy on small and medium-sized enterprise (SME) development in the new Member States (NMS) from Central and Eastern Europe. In a detailed analysis, the author identifies significant differences between the SME landscapes in the new and the old Member States, pointing out that SMEs in the NMS are younger, have less experience with internationalisation, and often work far from the technological frontier. A key section of the chapter is devoted to the role of SME clusters. Referring to academic literature, the author argues that improving SME performance will best succeed via cluster building, either in local clusters or in GVC-linked ones. As shown by the literature and case examples, SMEs in the CEE region face huge barriers in both forms of cluster building. In particular, captive inter-firm linkages in GVCs do not support SME upgrading as these are driven by the dominance of lead firms which provide just enough resources and market access to the subordinate firms to make exit an unattractive option.

He goes on to argue that the effects of an EU SME development policy applying uniform requirements to enterprises operating under unequal conditions leads to the reproduction, or even deepening, of the existing inequality. The chapter shows that the EU initiatives for SME clustering and participation in global value chains (GVC) have not sufficiently contributed to improving SME competitiveness in Eastern European countries. The participation of SMEs from these countries in GVCs is concentrated predominantly in labour-intensive, low value-added manufacturing and services activities, while in many cases project priorities favour existing clusters.

The weak technological capabilities and the lack of state support explain why CEE SMEs are less prepared to follow innovation-based EU policies under the ‘industrial renaissance’ concept. The NMS face significant challenges, with major weaknesses in innovation capacity and knowledge transfer, as they move towards more knowledge- and skills-oriented industries. Additionally, changes in the MNC approach to local suppliers (selecting and sticking to a few ‘half-tier’ suppliers) is limiting the impact on the host economy and on host country suppliers.

The author raises the question whether unconditional government support for FDI is justified or whether government resources could not be better used on more proactive policies aimed at building up *local industrial structures*. The identified low level of technology transfer from MNCs to local suppliers undermines one of the main policy arguments in favour of host governments encouraging FDI. CEE industrial policies will have to be *modified* to improve CEE positions in GVCs, for example by measures facilitating the inclusion of SMEs in the early (research, conception and product design) and final (sales, marketing and distribution services) stages of GVCs.

The chapter concludes that improving SME innovation capacity in CEE countries would require a *mix of policies* specifically addressing these local challenges rather than a single policy instrument for the whole EU, as it is currently the case.

CEE SMEs should be supported by *policies* oriented towards both improving the institutional environment and developing innovation capabilities. It is not enough to transpose EU directives into national legislation, as many CEE countries need additional measures to enforce this legislation. Moreover, support for SME innovativeness should be concentrated more on *innovation capacity development* rather than on immediate innovations. SMEs need simultaneous dual support – *for innovation itself and for their capacity to undertake innovation*. Therefore, accelerating the catching-up process in CEE countries presupposes the implementation of policies devoted primarily to *industrial upgrading, the adoption of new technologies and skills development*. Such policies were applied as state aid, regional cohesion and trade policies in advanced EU countries 10 or 20 years ago.

## 4. Conclusions

The concluding picture emerging from the chapters is rather bleak. They discuss the ongoing paradigm change in the CEE growth model from different angles, including the role of FDI and investment in general, digitalisation, upgrading and spill-overs to domestic economies, innovation and R&D, making use of EU cohesion policy funds, SME support and investment promotion.

Economic growth has picked up in the last two years, and investment has started to grow again, with FDI and EU funds playing the key role, suggesting that there is still some life in the old model. There is however not much evidence that the region is about to embark on a qualitative shift in its growth model. Both public and private R&D are among the lowest in the EU, innovation propensity is low and the region's high rate of internationalisation in production networks is not matched by a high internationalisation of R&D and innovation. Labour shortages and the scarcity of skilled labour are limiting economic development perspectives, and the region does not seem prepared for the digital age.

One finding common to four chapters of this publication as an obstacle to a high road development path is the lack of innovation capacity. This intangible factor, consisting mainly of the quality of institutions, networks between both domestic and international business and research, and human resources, cannot be addressed successfully without a coherent policy approach. It depends not only on private-sector players, but also on public-sector provision of education, skills development and research support, alongside support for the financing and development of innovative businesses. EU funds specifically targeting innovation have – as yet – mainly been used to install and upgrade hardware instead of raising the innovation capacity of players and institutions, reflecting the ancient development policy dilemma: 'give a man a fish or teach him to fish'.

The main picture painted in the review of competitiveness indicators is that low labour costs remain the main base for competitiveness in all V4 countries. This is no longer sufficient to keep up with other emerging economies and to catch up with developed countries.

The evidence from aggregate data on GDP and wages, shown in Table 1 and Figure 1, point to a slowdown in convergence. The evidence displayed in the following chapters shows more clearly that the competitiveness model based on low costs (above all for labour) clearly reached its limits after the crisis. Low wages cannot compensate for a lack of research activity and for low levels of innovativeness. In fact, higher wages might be important for retaining the necessary skilled employers and for encouraging MNCs to transfer higher value-added activities into these countries. However, wage increases are not sufficient preconditions for a sustainable high-road development path. Though the process of departing from this 'truncated' development model may already have started, where the journey is heading for and how long it will take remain unknown. No breakthrough or paradigm shift is yet on the horizon, though there are a few encouraging signs, such as higher growth and investment rates, growing R&D internationalisation in the V4, anecdotal evidence of the strengthening of domestic economic players in some

countries and in certain segments of the economy. Some countries are also doing better than others (Czechia in most of the examined indicators, Hungary in higher value-added levels in manufacturing and some progress in R&D intensity and internationalisation). None, however, have shown more than the first signs of a new dynamism and they remain unlikely to do so until they address the need for a comprehensive policy change to create innovation-based economies. Continued FDI can make a big contribution, but not if it is FDI encouraged by, and seeking no more than, a source of cheap labour to undertaken simple and routine tasks.

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