

Challenges to Eastern Europe's Growth

Simeon Djankov¹

25 October 2016

Background paper for the panel on *Reinvigorating Growth, Competitiveness and Investment*, EBRD conference, Budapest, 10 November

Abstract In the quarter of a century since the fall of communism, eastern Europe has undergone tremendous change. The region is converging towards the average European income and life expectancy has risen by five years on average. Three challenges to economic growth have however become acute in the years following the entry of eastern European countries into the European Union. The first is attracting and retaining of people into the labour force. The second is catching up on innovation, which includes creating a single market for services in Europe and developing financial platforms that back the evolution of new industries and technologies. The third challenge is shifting to a green economy, which can boost competitiveness and create new investment opportunities. Resolving these challenges may increase eastern Europe's growth for the next decade to pre-eurozone crisis levels.

¹ London School of Economics and Peterson Institute for International Economics. Former Deputy Prime Minister and Minister of Finance in Bulgaria (2009-13). Special thanks to Peter Murrell and Andrei Shleifer for providing advice at the formative stages of this research, and to Leszek Balcerowicz, Olivier Blanchard, Caroline Freund, Sergei Guriev, Cullen Hendrix, Vaclav Klaus, Ivan Kostov, Ivan Krustev, Hans-Peter Lankes, Igor Luksic, Theodore Moran, Ivan Miklos, Elena Nikolova, Marcus Noland, Avinash Persaud, Mattia Romani, Daniel Treisman and seminar participants at Aarhus University and Tel Aviv University for helpful comments. Owen Hauck and Yordan Georgiev provided valuable research assistance. Contact: sdjankov@lse.ac.uk.

1. Introduction

In the quarter of a century since the fall of communism, eastern Europe has undergone tremendous change. GDP per capita at purchasing power parity more than quadrupled in Estonia, Poland and the Slovak Republic. All three outpaced such traditional growth engines as Singapore and Korea at the same stage of their development. The rest of the region is converging towards the average European income.

In the first years of transition, a heated argument emerged among economists on what constitutes successful policies in transforming centrally planned economies into dynamic market economies. A basic economic model emerged: deregulation of prices and markets, macroeconomic stabilisation, and privatisation of state-owned enterprises were deemed essential for achieving economic freedom and returning to economic growth. So was the building of new state institutions, capable of efficient and transparent support of markets.

Early economic reformers favoured deregulation and privatisation: first, to prevent the asset stripping in state-owned enterprises, and second, because economic reforms were expected to create a demand for more political freedom. Leszek Balcerowicz was the most prominent proponent of this view.² Stanley Fischer added that reforms had to go fast because of the collapse of the previous non-market system (Fischer and Frenkel, 1992). The rationale for rapid post-communist transformation was illustrated in economic models first proposed by Shleifer and Vishny (1994) and later by Djankov and others (2003).

Prominent theorists argued however that the creation of a market economy did not require enterprises to be privatised quickly. Janos Kornai, for example, favoured gradual privatisation, and thought that the state should select responsible owners to run the economy (Kornai, 1990). Peter Murrell, Gerard Roland and Joseph Stiglitz espoused a similar view, on the argument that gradualism in privatisation and the creation of market institutions would avoid a political backlash against the reformers.³ As Nobel Laureate Joseph Stiglitz (2002) put it: “gradualist policies lead to less pain in the short run, greater social and political stability, and faster growth in the long [run]. In the race between the tortoise and the hare, it appears that the tortoise has won again.” The debate on the speed and sequence of economic reforms continued among economists for over a decade. In the end, both sides were right: countries that privatised quickly such as Czechoslovakia (and subsequently the Czech Republic) and countries that privatised more gradually such as Slovenia achieved sustainable economic growth. The initial steps turned out not to matter very much.

Three challenges to economic growth have arisen in the years following the entry of eastern European countries into the European Union. The first is attracting and retaining of people into the labour force. The second is catching up on innovation, which includes creating a single market for services in Europe and developing financial platforms that back the evolution of new industries and technologies. The third challenge is shifting to a green economy, which can boost

² See, for example, Balcerowicz (1995).

³ Murrell (1992), Roland (1994) and Stiglitz (1994).

competitiveness and create new investment opportunities. Resolving these challenges may increase eastern Europe's growth in the next decade to pre-eurozone crisis levels.

The rest of the paper is organised as follows. Section 2 documents the success of the post-communist transformation in eastern Europe in several figures. These figures capture progress in some key economic indicators over the period 1989 to 2015. Section 3 lays out some remaining challenges on eastern Europe's growth path, as well as some thoughts on possible solutions. Section 4 concludes. The paper is designed to spur debate over the course of economic development that eastern Europe can undertake. It is by no means a comprehensive treatise on constraints to economic growth in the region.

2. The transformation in eastern Europe in three figures

The post-communist transformation started with an initial economic slump of between 15 and 40 per cent of GDP across countries due to the collapsing Comecon trading system, the disorganisation that ensued and the reallocation of labour towards the informal sector (Blanchard 1997). Borders sprung up everywhere and enterprises that had been created as part of a single production chain found themselves behind one or more borders overnight (Djankov and Freund, 2002). In addition, payment systems fractured and inflation shot up. With the exception of Czechoslovakia, where the initial period was largely orderly, every country experienced years of chaotic economic destruction.

The fact that the economic transition started with such a large output decline was seen as a puzzle. After all, the communist system was known for a myriad distortions. Economists expected that removing these distortions may result in output increase. This is not what happened. The initial impact of the fall of economic dictatorship in post-communist countries was extreme economic disorganisation (Murrell 1992). As the communist control of the economy was eliminated, so were the mechanisms for keeping order.

One of the most visible signs of economic change was the shift to private property. By 2001, a dozen years after the fall of the Berlin Wall, the majority of productive assets in post-communist countries were in private hands. The share of the private sector in GDP reached 80 per cent in the Czech Republic, Hungary, the Slovak Republic and the three Baltic countries (EBRD 2013). The effects of privatisation on productivity were generally positive in the manufacturing and service sectors. The economic effects from privatisation were often large too, adding several percentage points to enterprise growth rates. Privatisation to outsiders was associated with 50 per cent more restructuring than privatisation to insiders (managers and workers). Investment funds, foreigners, and other block-holders produced more than 10 times as much restructuring as diffuse individual owners. State ownership within partially privatised firms was also surprisingly effective, producing more restructuring than enterprise insiders and non-block-holder outsiders (Djankov and Murrell 2002).

Privatisation and deregulation in the post-communist transition were only part of a broader set of reforms to achieve economic growth. Early reformers had to deal with many other pressing

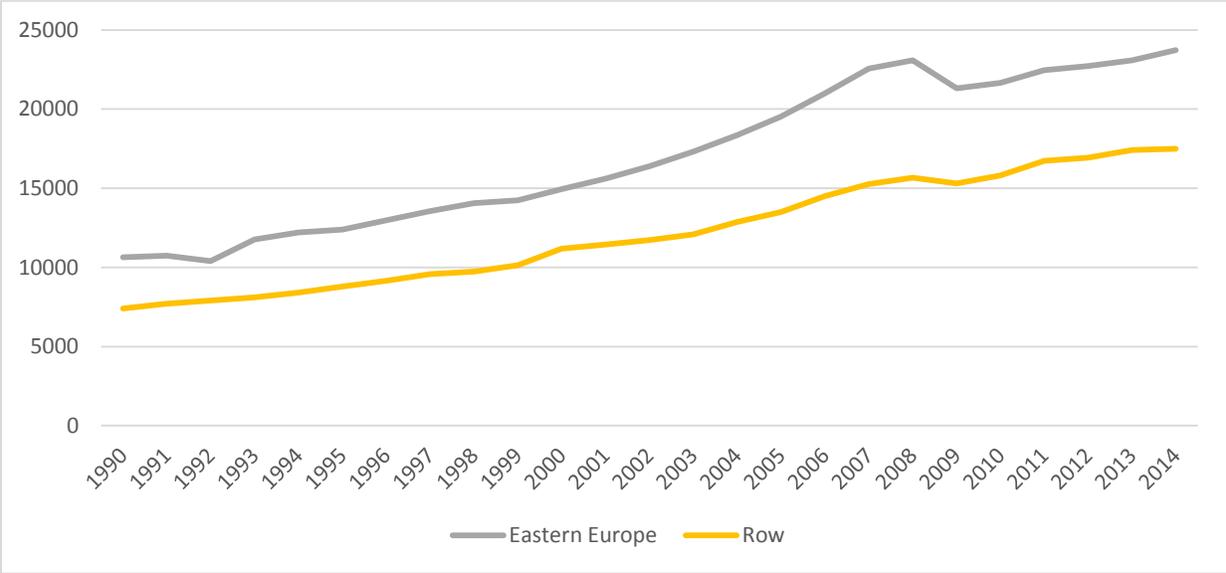
issues such as liberalising prices and international trade, macroeconomic stabilisation, restituting property nationalised during the communist years, and in the case of Czechoslovakia, the Baltic countries, Croatia and Slovenia creating many national institutions from scratch. Both privatisation and deregulation were seen, however, as critical for popular support for other reforms, and for making political change irreversible.

After this initial precipitous fall in production between 1990 and 1995, recovery occurred nearly everywhere (figure 1). Eastern Europe includes Croatia, Slovenia, Estonia, Latvia, Lithuania, Bulgaria, Romania, Poland, Hungary, Czechoslovakia (from 1989 to 1992) and separately the Slovak Republic and the Czech Republic from 1992. Table 1 details the variables and data sources used in this study.

[Table 1 here, attached at the end of the paper]

Overall, eastern Europe has grown faster than the world’s average over the past quarter of a century. Slovenia has grown to be the richest post-communist country, with income per capita of US\$ 30,600 in purchasing power parity in 2014 (see Figure 1). Average incomes in eastern Europe have shot up from around US\$ 10,650 per person to US\$ 23,730. The only dips in incomes took place in the initial years of transition – 1990 to 1995; and in 2008 to 2010, during the eurozone crisis. Previous literature has studied the initial fall in production and its reasons, for example Murrell (1992) and Blanchard (1997). In this paper we do not shed additional light on this period, but rather look for patterns in economic convergence to average European levels over the past quarter of a century.

Figure 1: GDP per capita, at PPP 2011 dollars



Note: Eastern Europe includes Croatia, Slovenia, Estonia, Latvia, Lithuania, Bulgaria, Romania, Poland, Hungary, Czechoslovakia (from 1989 to 1992) and separately the Slovak Republic and the Czech Republic from 1992. We also show RoW, a world average, for comparison purposes.

Source: World Bank's World Development Indicators, accessed 5 September 2016.

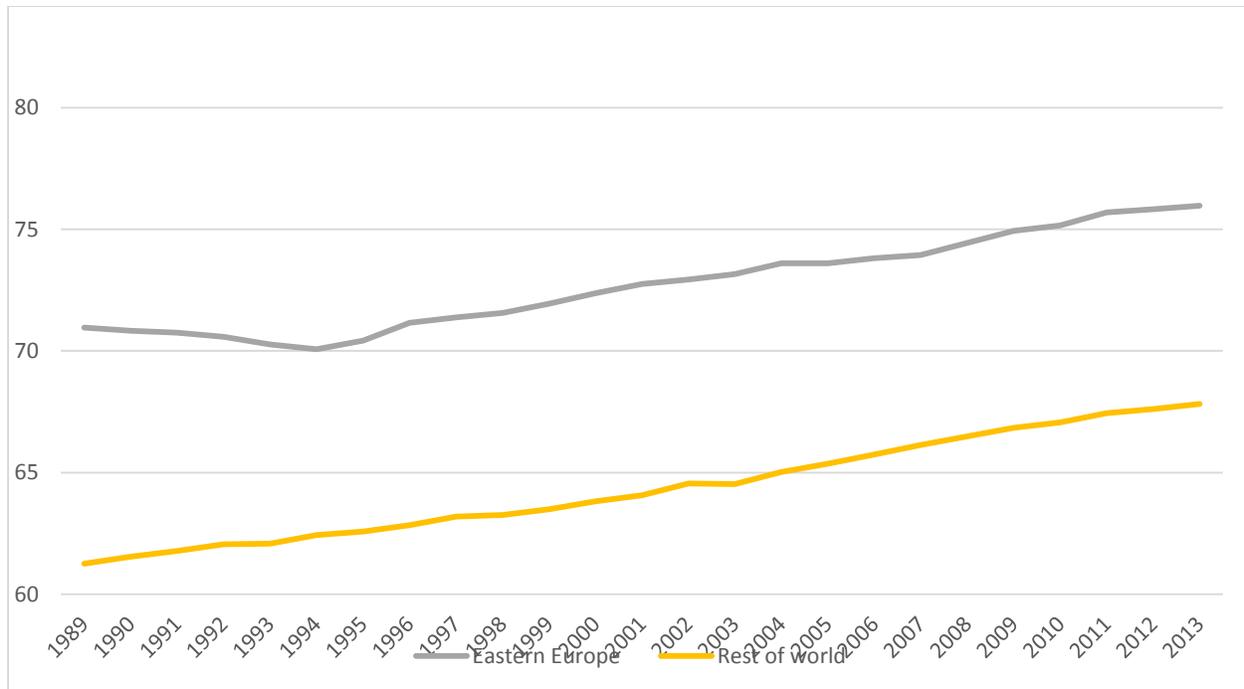
Over 25 years, living standards in eastern Europe have increased substantially for most people, although the official GDP numbers show much milder improvements and are inconsistent with just about any direct measure of the quality of life, raising questions about communist GDP calculations. Post-communist citizens have seen a vast jump in car purchases, travel abroad, and elite university education, among other achievements.

Andrei Shleifer and Daniel Treisman (2014) have documented this increase in well-being looking at specific types of consumption. Between 1993 (the first year with comprehensive statistics) and 2015, for example, the average among eastern European countries went from one passenger car for every 10 people to one car for every three, higher than the rate in Belgium. In Lithuania, Slovenia and Poland, there are now more cars per person than in the UK or France (UNECE 2016). The number of phone lines per capita grew twice as fast as elsewhere, edging past Latin America. By 2015, cellphone subscriptions per person, at 1.37, had overtaken the West (World Bank, 2016). Communist citizens were rarely allowed to travel abroad. In 2015, residents of eastern Europe made nearly 110 million international tourist trips (World Bank 2016).

Life expectancy has increased by five years on average during the last quarter of a century in eastern Europe (figure 2). Poland, the Czech Republic, the Slovak Republic, Hungary and Slovenia experienced what medical researchers described as “probably the most rapid decrease in coronary heart disease ever observed,” because of the substitution of vegetable oils for animal fats (Zatonski, Campos, and Willett 2008). Slovenia, part of the former Yugoslavia has average life expectancy of 80 years, putting it ahead of the United States. Still, these advances are worse-than-average when compared with the global rise in life expectancy, which shot up by five-and-a-half years in the past quarter of a century. When eastern Europe is compared with other middle-income countries, the gap is even wider – life expectancy in the average middle-income country rose by seven years between 1989 and 2014, albeit from a lower initial level. The stress of economic transition may be accountable for this disparity.

The biggest gains were however in reducing infant mortality, which fell by half throughout the region. By 2015, Slovenia had lower infant mortality than France. Bulgaria and Romania cut infant mortality by two-thirds; Hungary and Poland by three-quarters. This is by far the most successful measure of post-communist transformation. To put this success in perspective, communist countries were able to make substantial progress in reducing infant mortality between 1970 and 1989 as well (Kelly 2016). But the actual number of infant deaths per thousand births in several of these countries—especially in Romania and the former Yugoslavia—was significantly higher than it was in western Europe. It is only in the post-communist period that the catching-up to Western standards took place.

Figure 2: Life expectancy (years from birth)



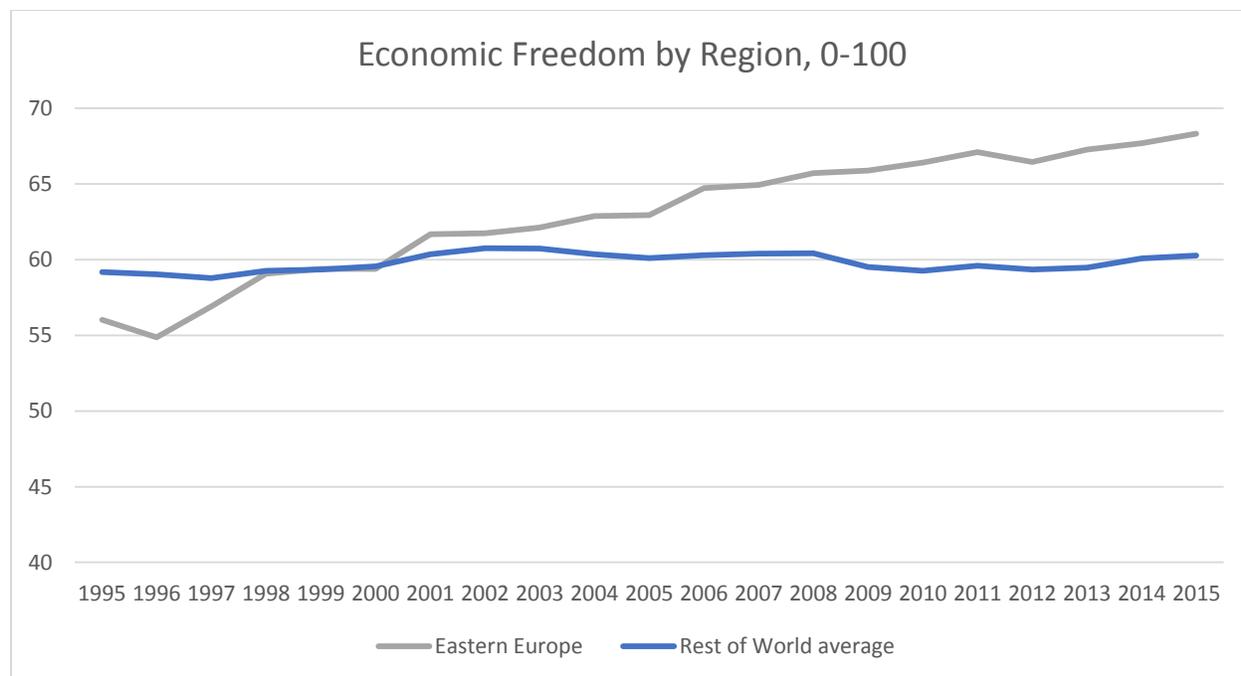
Note: Eastern Europe includes Croatia, Slovenia, Estonia, Latvia, Lithuania, Bulgaria, Romania, Poland, Hungary, Czechoslovakia (from 1989 to 1992) and separately the Slovak Republic and the Czech Republic from 1992. We also show a Rest-of-World category.

Source: World Bank's World Development Indicators, accessed 7 September 2016.

Economic reforms were implemented in all eastern European countries, though in cases like Bulgaria those reforms commenced nearly a decade after the start of transition. Already in 1998, eastern Europe surpassed the world's average in terms of economic freedom (see Figure 3). In the World Bank's Doing Business 2016 index, the countries of eastern Europe show a large improvement since 2004 and are tightly grouped between Estonia at #16 and Hungary at #42 of 189 economies.

Overall, the economic transformation can be considered a success. Eastern Europe's transformation is in fact often shown as an example for other countries to follow. Some of its features are indeed relevant for the transformation in Northern African countries like Algeria; Asian countries like Vietnam; and various African and Latin American countries with significant state control of productive assets. In the wake of the eurozone crisis, some institutional reforms that were undertaken in eastern Europe became possible in countries like Greece and Portugal and some lessons on how to reform have been transferred to the southern members of the European Union.

Figure 3: Economic freedom



Note: Eastern Europe includes Croatia, Slovenia, Estonia, Latvia, Lithuania, Bulgaria, Romania, Poland, Hungary, the Slovak Republic and the Czech Republic. We also show a Rest-of-World category.

Source: Heritage Foundation (2016).

Several challenges remain, and new challenges have sprung up during the past quarter of a century. Some such challenges – like the persistency of corruption in several countries – originated due to mistakes in the transformation process itself, for example the stunted political and economic transition in Bulgaria and Croatia in the early 1990s. Others seem endemic to the process of convergence within the European Union, which allowed many young people to seek better employment opportunities in Western Europe, thus deepening the adverse demographic picture in the East. A third set of challenges emerged after the eurozone crisis and affect the whole European Union, for example the urgent need for single digital and capital markets.

3. Challenges to economic growth

Three challenges have become obvious in eastern Europe in the years following entry into the European Union. The first is attracting and retaining of people into the labour force, and the adverse demographic trend in every eastern European country. The second is catching up with competitors in Asia, the United States and Western Europe on innovation, which includes creating a single market for services in Europe and developing financial services that back the development of new industries and technologies. The third challenge is switching to a green

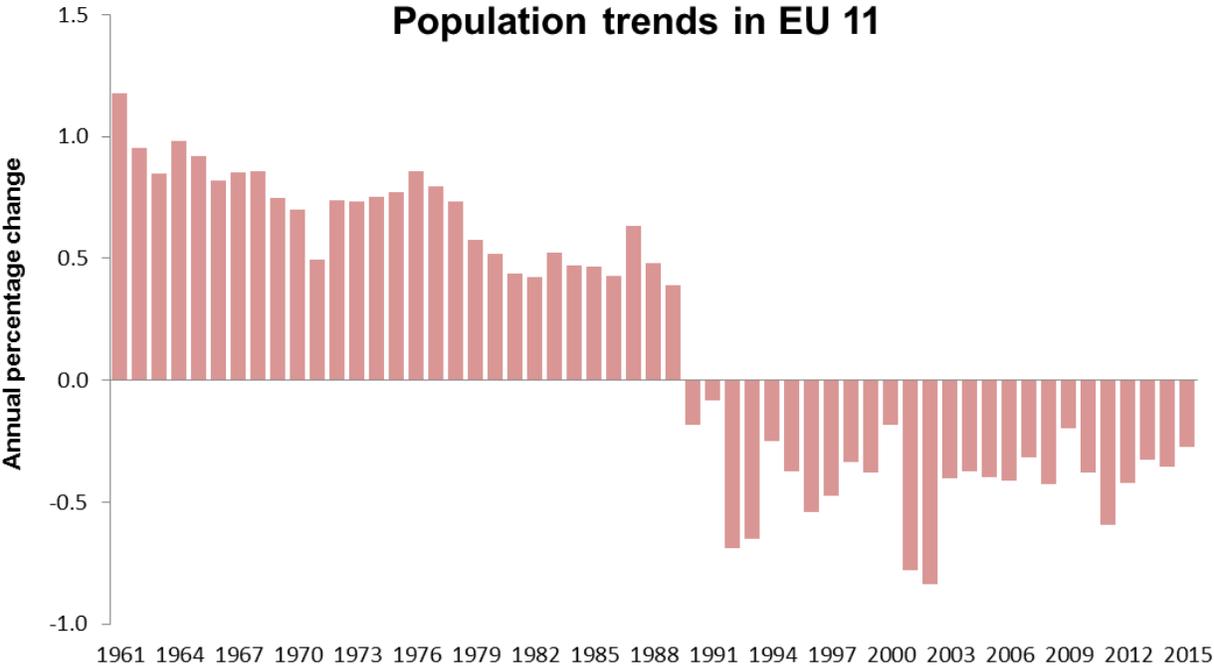
economy model, with improved energy efficiency and increased productivity of the average eastern European firm.

Beyond these three challenges, some eastern European countries face still-remaining reforms in the efficiency of the judiciary, particularly as regards business insolvency, in the transparency of public procurement, and in securing the property rights of investors. Such institutional improvements will make the region more attractive for private investment and increase the funding choices that eastern European companies have. It will also enhance eastern Europe’s reputation as a business-friendly environment.

a. Increasing labour force participation

A country’s ability to attract and retain skilled workers is an important factor for increasing its growth potential. The decline in eastern Europe’s labour force is a significant brake on higher economic growth. The working-age population shrank by around 10 million people in the period 1990–2015, with the prospect of a similar decline in the next 25 years (see Figure 4). The decline is due to low birth rates and increased emigration.

Figure 4: Adverse demographic trend in eastern Europe, 1961-2015



Note: The data is the average annual percentage change in the population of the 11 EU members from Eastern Europe: Croatia, Slovenia, Estonia, Latvia, Lithuania, Bulgaria, Romania, Poland, Hungary, the Slovak Republic and the Czech Republic.

Source: Eurostat, accessed 7 October 2016.

The birth rate in eastern Europe fell precipitously in the first decade of post-communist transition: from 2.1 children per woman in 1988 to 1.2 children by 1998 (European Commission 2015). Economic uncertainty was the single most important reason. Birth rates have increased somewhat since, reaching 1.44 children per woman in Hungary, 1.53 children per woman in Bulgaria and the Czech Republic, and 1.58 in Slovenia, the highest in eastern Europe. But this rate is insufficient to stem the adverse demographic trend.

To make demographic trends worse, labour mobility increased greatly after the 2004 and 2007 expansions of the European Union toward the east. In 2004 about two million citizens from eastern Europe resided in the European Union. During the migration peak in 2007, 1 per cent of the citizens of eastern European countries moved to western and southern Europe. By 2009, the total number of nationals from eastern European countries residing in the EU-15 states increased to 4.8 million. The lifting of labour restrictions in 2014 for Bulgarians and Romanians in nine European Union countries, including Germany, France and the United Kingdom, prompted another emigration wave. Overall east-to-west migration also picked up after 2014 as economic growth has returned to western Europe. By March 2016, 6.3 million eastern Europeans reside in other EU states.

The data show that labour mobility is highly dependent on economic conditions: during the eurozone crisis in 2009–12 the number of Polish jobseekers in western Europe fell by 44 per cent—in part thanks to the relative strength of the Polish economy, while the number of job seekers from Hungary and Latvia increased by 58 per cent and 39 per cent, respectively. Both countries experienced sharp declines in economic growth during this period. These statistics are grounds for some optimism, as they show that labour mobility in Europe follows economic logic. GDP per capita in the Czech Republic, the Slovak Republic and Slovenia is already 80 per cent of the EU average. These countries have experienced net migration inflows in the past decade, mostly from Ukraine and parts of the former Yugoslavia.

But in Bulgaria and Romania income per capita is still roughly half of the EU average and emigration is expected to continue. In 2002, the first year when Bulgarians and Romanians could live and work in some western European countries, over 2.5 per cent of the population moved abroad. Since then, outflows of workers to other EU countries have subsided but still average 0.5 per cent of the population a year. Only Latvia and Lithuania have higher immigration numbers, especially since the eurozone crisis.

Solution 1 Increasing women's participation in the labour force

One solution to the declining labour force is to increase labour participation by women. In 2014, 47 per cent of all eastern European employees were women. To increase this share, policymakers can invest in childcare, legislate flexible working hours, and create incentives for returning to the labour force after children have left home.

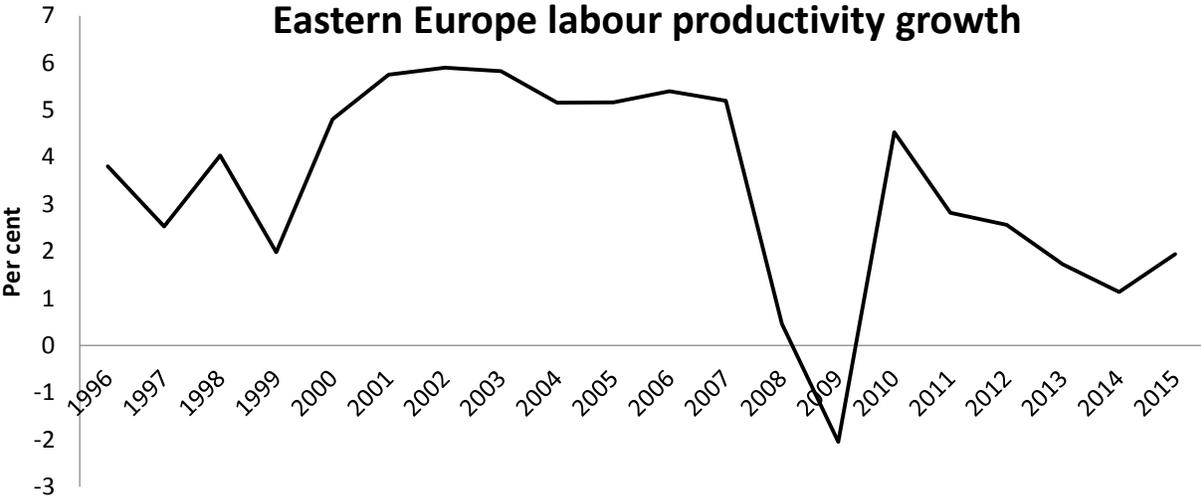
One promising avenue is to allow more flexible hours, for example through part-time employment. The share of European employees working part-time is highest in the Netherlands (52 per cent of employees), followed by Germany and Austria (28 per cent) and Denmark, the United Kingdom and Sweden (26 per cent). Yet this practice is virtually nonexistent in eastern Europe: the lowest shares in the European Union are recorded in Romania (0.7 per cent), Bulgaria (2 per cent), Croatia (3 per cent), and the Slovak Republic and Latvia (6 per cent).

Solution 2 Introducing vocational training

Another solution is the introduction of vocational training to provide job skills from an early age. In 2012, the European Commission announced that Germany would assist six other EU countries—Spain, Greece, Portugal, Italy, Latvia and the Slovak Republic—in strengthening their vocational training systems. The German apprenticeship programme is widely credited with explaining Germany’s high youth employment rate.

Vocational training, similar to that in Germany, is also present in Austria and the Netherlands, and has been resurrected after several decades of communism in the Baltic countries. Bulgaria has also re-introduced vocational schools to serve the expanding industrial hubs near some large cities like Plovdiv and Varna. Vocational training allows workers to generate income from an earlier age and to train for professions that are sought after in the nearby industrial community. It thus significantly reduces job search costs.

Figure 5: Labour productivity in eastern Europe, 1996-2015



Source: Eurostat 2016.

Solution 3 Raising productivity in the average firm

Productivity has to rise progressively in eastern Europe to compensate for the smaller number of workers. All eastern European countries have used EU convergence funds to invest heavily in infrastructure, in on-the-job training, and in upgrading industrial technology to facilitate productivity growth. For a decade starting in 1999 labour productivity rose above 5 per cent per annum (see Figure 5). The eurozone crisis reversed this trend and productivity growth has not recovered to pre-crisis levels.

A major reason lies with eastern European firms. Recent EBRD research identifies management practices in the areas of operations, monitoring, targets and incentives as hampering productivity for all but the large, export-oriented firms. The *Transition Report 2014* shows that compared with Israel, eastern European countries have a higher percentage of firms with low productivity and a lower percentage of highly productive firms (EBRD 2014). For productivity to increase more uniformly, improved training for managers is needed.

Another avenue for increasing productivity is providing non-bank financing options for a large cross-section of firms. Access to finance for the average eastern European company has been largely limited to bank credit. That source of financing rapidly dried up during the eurozone crisis and has not recovered, as banks in the region have continued to deleverage. An alternative source of financing, through private equity or capital markets, is slow to develop. Private equity investment accounts for more than 1 per cent of GDP in developed economies but for less than 0.1 per cent in eastern Europe, including in high-growth markets like Poland. Yet its benefits for the growth and competitiveness of firms are well-documented. Increases in operating revenue are 35 per cent stronger for firms that receive private equity investment relative to their peers in the region, and productivity growth is 17 per cent higher. The EBRD estimates that up to 40,000 firms in the region could potentially attract private equity funding, more than 50 times the number of companies that have actually received such financing in recent years (EBRD 2015). In the next section, we suggest ways to increase the flow of private capital into the region.

b. Catching up in innovation

When the Industrial Revolution spread to Europe after 1848, new business ventures blossomed in eastern Europe as well. Successful start-ups from this period include Škoda, the Czech bicycle and later car producer. In the 1850s, Abraham Ganz established an iron foundry in Buda, Hungary's capital. Consequently, the Ganz factory started building steam locomotives, pumps, and railway carriages as its main products. Its innovative engineers built the first electric railway.

Innovation was not limited to the business community. Research at European universities brought about the development of whole new sectors. In Prague, Jaroslav Heyrovský discovered a method for analysing small quantities of substances, and since 1924 it has successfully been applied in creating solutions containing multiple compounds in the food, construction and chemical industries. The Nobel Prize in Chemistry 1959 was awarded to Heyrovsky for his discovery and development of the polarographic methods of analysis.

But after the Second World War, eastern Europe did not fully regain its innovation energy. The devastation made eastern Europeans risk-averse. The large European market that had been closely linked before the world war was fragmented by trade barriers with the West and restrictions to the free movement of researchers. Many top scientists escaped to western Europe and the United States.

Eastern Europe has to play catch-up in many high-tech fields with western Europe, America and parts of Asia. According to Forbes, only 11 of the world's most innovative 100 tech companies in 2015 were based in Europe, and none in the new member states.⁴ Reuters assesses that only 17 of the top 100 global innovators in any industry are European companies, 11 of which are headquartered in the United Kingdom and six in western Europe.⁵ The Massachusetts Institute of Technology considers that only six of the world's 50 smartest companies in 2016 are European, with none based in eastern Europe.⁶

One reason is the small market size and disparate national regulations. For a start-up software company Europe is still 28 separate markets. A new social media site in Hungary has just 10 million potential users unless it translates its content to other languages. Because of differences in culture across European countries, it would need a new interface, a different marketing strategy, and probably other advertisers to appeal to a larger European customer base. That would mean dealing with new regulations and multiple tax schemes.

A second reason is the shortage of venture finance in Europe in general, and specifically in eastern Europe. Silicon Valley and Route 128 near Boston combine a deep talent pool of researchers with easy access to start-up and venture financing. This combination attracts entrepreneurs in new tech businesses, but also companies that provide them with management consulting or infrastructure support. Asian high-tech hubs, such as Singapore, Taiwan and Bangalore, also have financial and human capital. Israel offers similar advantages in its high-tech incubators near Haifa and Tel Aviv.

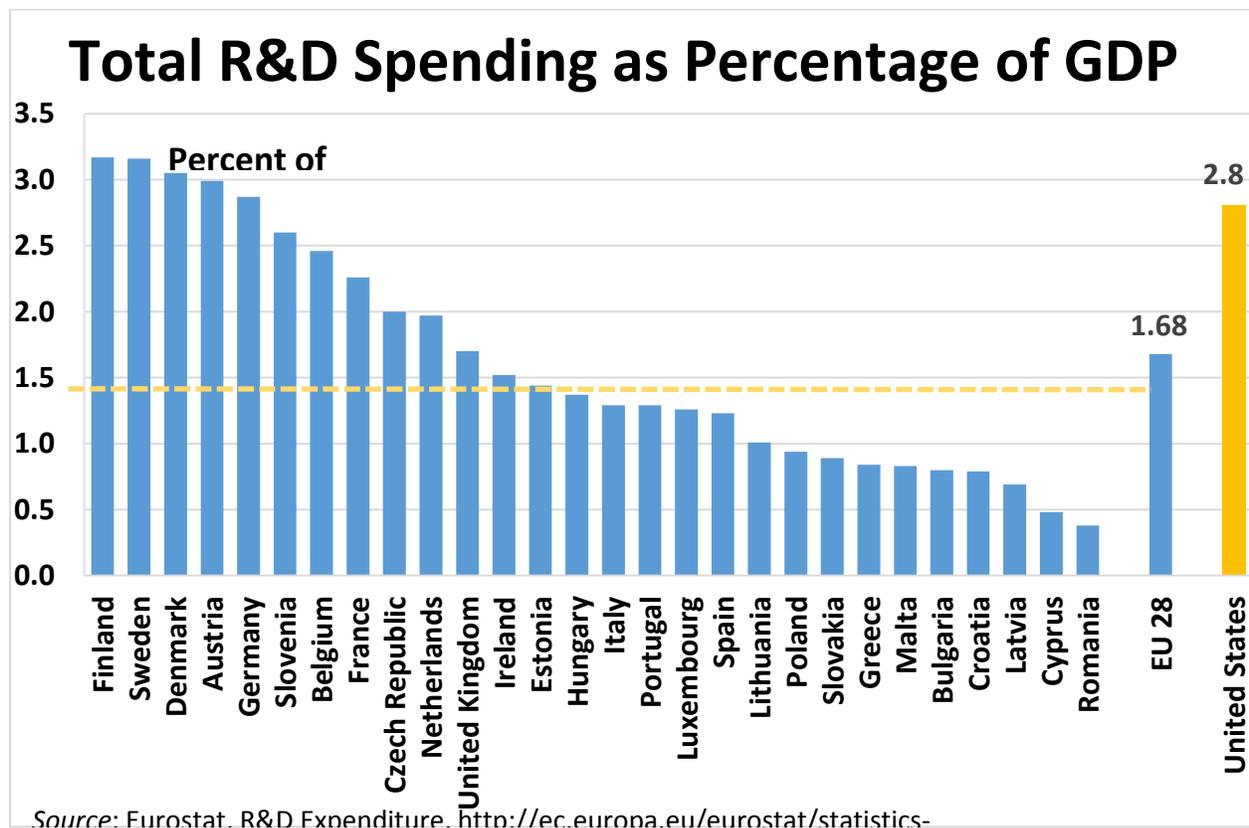
In contrast, Europe's financial services are not directed toward start-ups. European venture capital fund-raising was US\$ 4 billion in 2014, only about one-tenth of that in the United States. New European regulations have further narrowed the base of potential investors. The European investment hubs are not co-located with financial companies. Start-ups may find early-stage financial backing of up to US\$ 500,000, and later-stage support of more than US\$ 10 million, thanks to various EU-wide or national government schemes, but Europe has not found a happy way of channelling state money into innovations. Europe's tech companies regularly struggle to land investment needed to bridge the early and mature stages. The EBRD has some useful experience in this area, having started a €100 million fund aimed at technology start-ups in 2011.

⁴ <http://www.forbes.com/innovative-companies/list/3/#tab:rank>.

⁵ <http://top100innovators.stateofinnovation.thomsonreuters.com/>.

⁶ <https://www.technologyreview.com/lists/companies/2016/#slack>.

Figure 6: Spending on R&D, 2014



A third reason for Europe’s lag in innovation is that European companies have fewer incentives to develop in-house research capabilities. When universities lack significant research potential, industries and large companies can turn to their in-house researchers for developing new technologies. This is happening in some European countries. For example, business has 35 per cent of the 250,000 researchers in the United Kingdom, and spends €29 billion a year on research and development (R&D). German and French companies also spend significantly on R&D, €57 and €32 billion in 2014, respectively. The highest expenditure on innovation by businesses as a share of GDP is in Finland (3.16 per cent of GDP in 2014) and Sweden (3.09 per cent). But

eastern Europe lags behind, even Estonia. Slovenia is the exception, thanks to its innovative pharmaceutical companies (see Figure 6).

Many eastern European countries compete to host outsourcing for established US high-tech companies like HP, IBM, Microsoft and Oracle. They provide local engineers with well-paid jobs but contribute little to domestic innovation and growth. Yet even in the smaller economies, successful high-tech start-ups exist. In Bulgaria, Telerik, a business which began in a dorm room, was bought by US company Progress Software for US\$ 263 million in 2014. Telerik offers a .Net toolbox, a mobile development platform and Sitefinity, a content management system. It had a network of developers that reached 1.4 million. But, as in Telerik's case, such companies are usually acquired by larger American companies early on. Their innovation potential is not only tapped by their new owners, but often diverted from Europe.

Solution 1 Creating the single services market in Europe

The lack of a single European services market retards innovation. Europe does not have a common patent agency; instead, each country has its own national patent office. An example of how national regulation impedes innovation is in the healthcare sector. EU legislation provides common rules for the quality, safety and efficacy of healthcare products, which are supposed to be traded on a single EU market. Healthcare expenditures, however, are largely financed by national healthcare systems, which assess and regulate the prices and reimbursement of healthcare products for public funding. These rules are set by national agencies. Currently there are about 50 health technology assessment agencies in Europe, because some countries do not have national but regional agencies, which leads to great further regulatory fragmentation. Smaller eastern European companies have difficulty covering the high fixed costs of market entry.

Electricity markets are similarly fragmented. This affects the use of spread of new technologies, for example, electrical cars. Electrical vehicles cannot be recharged when the electricity providers cannot identify the driver as a registered end-user. This occurs when travelling across different European countries or, in Italy, even across regions within a country. The same is true of using mobile phones in different European states, which may not have access and pay for a service. The possibility to roam across Europe with a single SIM card is already agreed—for mid-2017, and a similar arrangement is needed for electric cars.

Eastern European firms are hurt disproportionately by the lack of an EU-wide market, as they are late entrants into western European markets and have to deal with high regulatory costs relative to firms from older EU members that had decades to penetrate each other's markets.

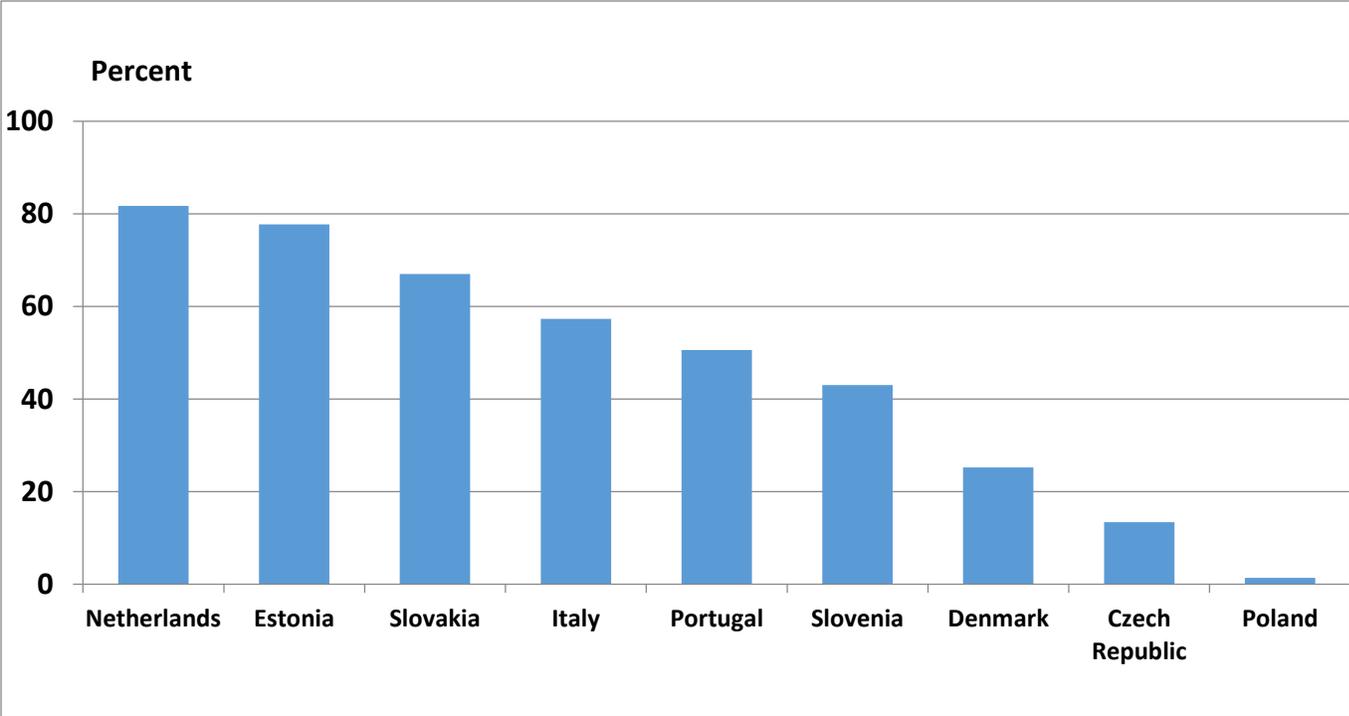
Solution 2 Attracting pension funds to invest in companies

Ninety per cent of all EU venture capital is concentrated in eight countries: the UK, Germany, France, Sweden, the Netherlands, Finland, Belgium and Spain. Eastern Europe receives less than

3 per cent. One reason is the lack of interest from pension funds located in eastern Europe, in part due to cumbersome regulation. Pension funds make up 14 per cent of private venture capital limited partners in Europe, compared with 29 per cent in the United States. In eastern Europe, this share is even smaller, at around 6 per cent (BCG, 2015).

Eastern European countries have implemented second-pillar private pensions after 1998, making it possible for capital to accumulate in private accounts and be used for long-term investment. But countries like Hungary, Poland and the Slovak Republic impose a 20 to 40 per cent maximum limit on foreign government and domestic corporate bonds. Investments in venture capital are limited by law to 10 per cent of the pension funds' portfolio. If a viable venture capital industry is to develop, regulators need to allow a diversification of investment opportunities for pension funds, both at home and abroad. This is particularly important for small countries with tiny stock markets. In Estonia, 75 per cent of pension funds' money is invested in foreign assets, in Luxembourg about 65 per cent (see Figure 7).

Figure 7: Foreign assets of pension funds in selected EU countries, 2015



A recent threat to the private pension funds' ability to invest in companies came from governments. In 2008–09, several eastern European countries reduced the share of the payroll going to private pension savings and redirected the funds to the state treasury in order to finance the ordinary pay-as-you go system. In two cases, governments went further. The Hungarian government nationalised the second pillar in 2010–11, claiming that it was really state property. The Polish government nationalised half the mandatory pension funds in 2013. Its argument was

that the funds were invested in government bonds in any case. The Slovak Republic allowed workers to move back to the state-run scheme from private defined-contribution plans in June 2009 and made occupational pensions voluntary for new labour market entrants. However, the move was short-lived: in 2012, private pensions were again made compulsory. Such policies reduce the stability of the pension system and provide incentives for investments in highly liquid assets, effectively eliminating the possibility for venture capital investments.

Solution 3 Completing the single capitals market in the EU

Capital markets are particularly useful for the growth of companies which are young and cannot provide collateral, when their investments are particularly risky or large compared with the firm's size. Integrated capital markets have three main benefits for eastern European companies seeking to finance innovation: they improve access to funds, reduce capital costs by creating competition among investors, and decrease the risk of disruption in financing through diversification of sources of funding. Several EU states—Luxembourg, Ireland, Denmark and the Netherlands—have larger capital markets than the United States in relation to their GDP, suggesting that conditions in the European Union can be supportive to the development of large capital markets if the European Union adopts legislation and institutions already present among some of its members.

Since the eurozone crisis has abated, progress toward opening and consolidating the capital markets across Europe has proceeded unevenly. A 2016 European Commission initiative involves changes to the Prospectus Directive, with a view to making it easier and less expensive for small and medium-sized companies to raise capital. No prospectus will be required for capital raisings below €500,000. Companies that frequently tap into capital markets will also be able to use an annual “Universal Registration Document,” a registration containing all the necessary information on the company that wants to list shares. Beyond this initiative, however, progress has stalled. The Brexit referendum has further threatened future integration.

Exiting investments via IPOs is harder in eastern Europe than it is in more advanced European economies owing to the lower average level of capital market development. Furthermore, less liquid capital markets also reduce the expected returns from an investment. Both factors discourage private equity activity and hence an important venue for supporting growth in eastern Europe.

c. Shifting to a green economy

Eastern Europe began its transition with a significant handicap, carrying the communist era's legacy of environmental neglect and wasteful use of energy. In spite of significant capital stock transformation during the past 25 years, carbon intensity is still significantly higher than in other

middle-income countries (EBRD 2015). Eastern Europe is also highly dependent on imports of energy, importing over 60 per cent of the energy it consumes. Much of eastern Europe's energy comes from Russia. Some—including Estonia, Bulgaria and the Slovak Republic—depend nearly 100 per cent on Russian gas supplies. Others, such as the Czech Republic, receive three-quarters of their gas supplies from Russia.

Growth in eastern Europe is shackled by the higher cost of its energy relative to costs in the United States and western Europe. Among those most affected are industries such as steel and chemicals, because they use natural gas as a raw material and power source. This trend has affected several eastern European countries, traditional exporters in these sectors.

The European Commission responded to this challenge by proposing a third energy package in 2009, which was far-reaching in its demands for unbundling energy companies and opening markets. The third energy package made the unbundling of supply and production from networks compulsory, offering three alternative models, between which EU member countries could choose. The first, most rigorous model called for full ownership unbundling, separating generation and transmission into companies with different owners. The second model allowed energy companies to retain their ownership of transmission networks, but they had to transfer their operation to an independent system operator. A third model offered a middle way, permitting energy companies to maintain ownership of their transmission networks, but these independent transmission operators had to be legally independent joint stock companies.

The logic behind the third energy package is opening up the energy market and allowing competition to reduce prices. This will have a positive effect on economic growth, particularly in assisting energy-intensive industries. Several other steps need to be undertaken too, so that the green economy takes hold in eastern Europe.

Solution 1: Energy efficiency

The average eastern European household spends about 40 per cent more energy than their comparators in Austria. The main reason is the inefficiency of residential and office buildings. Buildings are responsible for one-third of CO₂ emissions globally but due to the fragmented nature of the market and the split incentives that exist in their ownership or in budgeting and control of public assets, remain difficult to be financed at scale. Several eastern European countries have started to utilise EU cohesion funds to upgrade their residential fund. Bulgaria, for example, has put half a billion euros in a pilot project in several large cities. The residential council prepares the necessary documentation and applies on behalf of all residents. The common areas are treated as shared private property and thus are subject to government funding. Lessons for the start of this programme were taken from earlier such programmes in the Czech Republic and Hungary.

EU funds can also be leveraged with private investment in the thermal retrofit of public buildings. Such projects are now ongoing in several new EU member states under the Juncker

initiative, for example in Estonia and Poland, providing better energy efficiency and improved standard of living.

Solution 2: Further infrastructure financing

Further greening of eastern European economies can be achieved by investments in hydro rehabilitation, solid waste management, and railways. In all three instances, the infrastructure was primarily built in the late 1970s and early 1980s and is in significant need of repair. New technologies in solid waste management generate energy that can feed into the electricity grid and substitute alternatives.

EU transport corridors allow for the upgrading of railway connections, substituting away from trucking, a more carbon-intensive mode of transport. An example is the Baltic-Adriatic Corridor, which connects the Baltic with the Adriatic Sea, through industrialised areas between southern Poland, Vienna and Bratislava, the eastern Alpine region and northern Italy. It comprises important railway projects such as the Semmering base tunnel and Koralm railway in Austria and cross-border sections between Poland, the Czech Republic and the Slovak Republic. Another example is the Orient Corridor connecting the maritime interfaces of the North, Baltic, Black and Mediterranean Seas, and optimising the use of ports from Greece to Cyprus.

Rough calculations suggest infrastructure funding needs of around 300 billion euros across eastern Europe. Some of it can come from public funds, including the EU budget. But an increasing share after the 2013-20 EU programming period has to come from the private sector.

Solution 3: EU energy union

In 2015, the European Commission proposed an EU-wide energy union. If achieved as planned, the energy union may create an all-European space with market-oriented prices for energy. The EU and the EBRD can assist with financing for the development of the necessary infrastructure with links, interconnectors and storage facilities, allowing all members security of supply. The construction of liquefied natural gas facilities in the Baltic states and the Balkans is one such example.

In the meantime, eastern Europe can expand investments in home-based energy sources, including solar, biofuel, wind and the exploration of own gas deposits. These developments will increase its energy independence and over time reduce energy prices, ultimately helping the competitiveness of its businesses. The energy union ensures that entry of new companies and technologies into the energy market is not restricted by the current dominant players.

Financing further investments into green energy has become problematic across eastern Europe, as banks that previously favoured this sector have largely withdrawn due to both deleveraging and regulatory changes in the pricing of green energy in Bulgaria, the Czech Republic and Hungary. Developing alternative funding sources is needed.

4. Conclusion

In most post-communist states, life has improved, sometimes markedly. Citizens enjoy higher living standards, the ability to travel internationally, broader property rights, greater autonomy and personal dignity. Their countries have closed some of the income gap with the West.

After the eurozone crisis, however, economic growth and productivity in eastern Europe has slowed down. Several challenges have emerged to long-term growth as well, none bigger than the adverse demographic trend in the region. Some of these challenges can be overcome with national-level economic and social initiatives, while the resolution of others requires joint action of the eastern European members of the European Union.

Eastern Europe now shares many of the challenges of other less-developed markets in Europe, and one region-specific challenge: greening its economy. Addressing these, while learning from the experience of other European economies, would propel the region to the kind of growth it enjoyed in the early and mid-2000s.

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Table 1: Variables Used in the Study

Variable	Definition	Source
GDP per capita, at PPP	GDP per capita based on purchasing power parity (PPP). PPP GDP is gross domestic product converted to international dollars using purchasing power parity rates. An international dollar has the same purchasing power over GDP as the US dollar has in the United States. GDP at purchaser's prices is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources. Data are in current international dollars based on the 2011 ICP round.	World Bank World Development Indicators
Life Expectancy	Life expectancy at birth indicates the number of years a newborn infant would live if prevailing patterns of mortality at the time of its birth were to stay the same throughout its life.	World Bank World Development Indicators
Economic Freedom (EcFree)	The Index of Economic Freedom varies between 0 and 100 and measures economic freedom of 186 countries based on trade freedom, business freedom, investment freedom, and property rights.	Heritage Foundation
Ease of Doing Business (EDB)	An annual index that ranks countries on the difficulty of conducting business. The index covers 11 topics and 189 countries.	World Bank (2015)
Foreign assets of pension funds	The share of foreign assets in the portfolios of pension funds.	Eurostat (2016)

Population Growth	Annual percent change in the number of citizens.	Eurostat (2016)
Labor Productivity	The change of output per worker in constant national currency.	Eurostat (2016)
R&D Expenditure	Expenditure on research and development as a share of GDP.	Eurostat (2016)

Source: Constructed by the author.