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Article

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End of previous Forum article

Cristobal Ridao-Cano and Christian Bodewig*

How Can Europe Upgrade Its “Convergence Machine”?

For the past 60 years, the European Union (EU) has delivered its citizens some of the highest living standards in the world. A 2012 World Bank report “Golden Growth: Restoring the Lustre of the European Economic Model” dubbed Europe a ‘convergence machine’: trade and financing – fueled by the largest and deepest regional integration effort in recent history – generated convergence in living standards between Member States.¹ Coupled with a strong enterprise sector and innovation, this is the reason why Europe accounts for about one-third of world GDP with less than one-tenth of the world’s population. The convergence machine was particularly powerful for the EU’s newest members during the accession process. As the living standards of poorer countries converged with those of richer ones, so did the living standards of regions and households across Europe. And with the help of fiscal policy, the EU has managed to keep net income inequality at a much lower level than in the United States, despite having roughly the same level of market income inequality.

But 60 years on, the convergence machine is no longer working for everyone, as signs of growing divides are

emerging across the EU – not just between countries, but also between regions and households. Two divides are increasingly evident and risk interfering with the workings of the convergence machine: First, Europe has been experiencing a growing productivity divide between Member States and regions. In accordance with global trends, total factor productivity (TFP) growth has been slowing down everywhere in the EU. But the slowdown has been most pronounced in the Southern European countries (Figure 1). Countries in Central and Southeastern Europe (CEE) have been catching up and productivity has been growing in Continental and Northern Europe.²

Second, within-country household income inequality increased in most of today’s EU Member States between 1989 and 2013. The increase was most notable between 1989 and 1995, particularly in CEE countries, as a result of their transition from socialist economic systems. Inequality picked up somewhat after 2008, particularly in Southern Europe and CEE. The post-crisis recovery has not brought inequality down – in fact, it continues to grow in many countries. Inequality in labour incomes has been driving much of the widening income inequality, with the ratio of labour income to total inequality exceeding 70% in all countries,³ driven by the growing inequality between top and bottom individual earnings (Figure 2). Per capita labour income has become more unequally distributed since the 1990s in most EU countries – a trend that intensified after 2008, particularly among countries in the south where labour income inequality was already the highest.

* The authors can be contacted at cbodewig@worldbank.org and cridaocano@worldbank.org. This article is an abbreviated version of the recent World Bank report, C. Ridao-Cano, C. Bodewig: Growing United: Upgrading Europe’s Convergence Machine, Washington DC 2018, World Bank Group, available at www.worldbank.org/eca/growingunited.

1 I. Gill, M. Raiser: Golden Growth: Restoring the Lustre of the European Economic Model, Washington DC 2012, World Bank Publications.

2 This paper uses the following country groupings: Northern Europe: Denmark (DK), Finland (FI), Ireland (IE), Sweden (SE), United Kingdom (UK); Continental Europe: Austria (AT), Belgium (BE), France (FR), Germany (DE), Luxembourg (LU), Netherlands (NL); Southern Europe: Cyprus (CY), Greece (EL), Italy (IT), Malta (MT), Portugal (PT), Spain (ES); Central and Southeast Europe (CEE) – North: Estonia (EE), Latvia (LV), Lithuania (LT); CEE – Continental: Croatia (HR), Czech Republic (CZ), Hungary (HU), Poland (PL), Slovak Republic (SK), Slovenia (SI); CEE – South: Bulgaria (BG), Romania (RO).

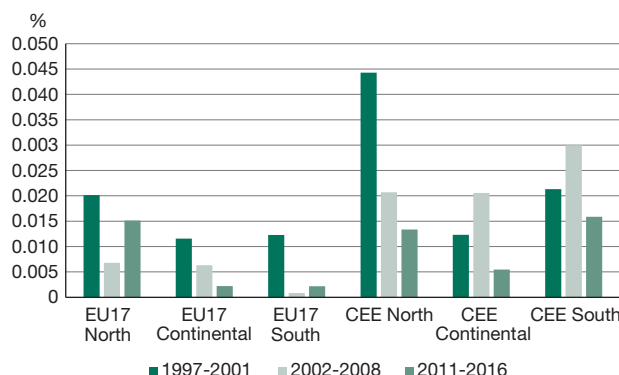
3 C. Ridao-Cano, C. Bodewig, op. cit.

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Figure 1
Total factor productivity growth in the EU, 1997-2016

TFP growth, country group averages



Note: TFP per country group are unweighted averages

Source: Calculations based on data from the AMECO database of the European Commission.

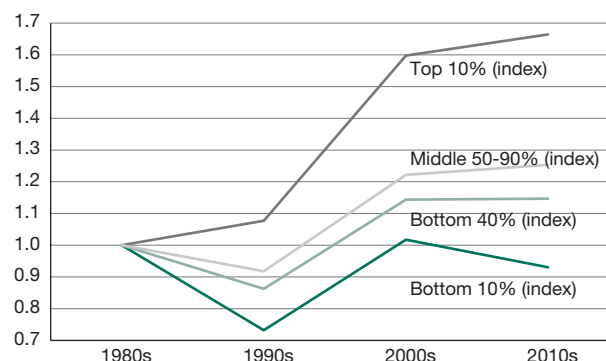
Accelerating technological change risks generating growing divergence

Will Europe be able to sustain convergence with growing productivity gaps between countries and regions as well as rising in-country household income inequality? We argue that Europe's convergence machine is due for an upgrade to keep up with accelerating technological change, as the growing divides can in part be explained by the interplay between technological change and low-level opportunities for people and firms to thrive: Accelerating technological change offers ever richer opportunities for well-skilled workers and frontier firms, while low-skilled workers and less productive firms risk falling behind.⁴

4 Technological change stands out amid other 'megatrends' as an increasingly potent source of opportunity and disruption. Technological change is neither a new phenomenon nor the only major force driving shifts in Europe's economies. Declining working-age populations make productivity gains the main driver of growth (see M. Bussolo, J. Koettl, E. Sinnott: *Golden Aging: Prospects for Healthy, Active, and Prosperous Aging in Europe and Central Asia*, Washington DC 2015, World Bank Group) and are inducing firms to adopt automation technology more intensively (see D. Acemoglu, P. Restrepo: *Secular Stagnation? The Effect of Aging on Economic Growth in the Age of Automation*, in: *American Economic Review*, Vol. 107, No. 5, 2017, pp. 174-179). Globalisation has come with offshoring of production processes and associated jobs (including within the EU, from older to newer Member States) leaving countries in the EU focused on increasingly more sophisticated higher-value-added activities. But the increasing adoption of automation technology will likely reduce the need to offshore some jobs. Looking ahead, technological change is likely to increasingly stand out as the most important, and least predictable, driver of economic development in the EU. EU countries need to prepare themselves for a significant acceleration of technological change because workplace automation and the increasingly cheap use of artificial intelligence and 3D printing stand to revolutionise activities in all economic sectors.

Figure 2
Inequality between top and bottom individual earnings in the EU, 1980s-2010s

Trends in individual earnings, index (1980s = 1), EU average



Note: Figure plots individual earnings (indexed to the 1980s) in the median year of the 1980s and 1990s, and the most recent year of the 2010s, for different segments of the distribution of household disposable income per capita.

Source: Estimates using the Luxembourg Income Study (LIS) data.

How does technological change impact labour markets? Drawing on the methodology employed by Autor et al.,⁵ Gorka et al. look back at how jobs across the EU have been increasingly dominated by cognitive and interpersonal tasks over the last fifteen years, while manual and routine tasks have been in decline (please see Figure 3).⁶ These trends have, for now, been less marked in Central and Eastern European countries, where routine cognitive tasks are still growing slightly, reflecting a less advanced stage of structural change. As a result of technological change, offshoring and the upgrading of the workforce, more and more jobs require skills that complement technology (especially cognitive and social-emotional).⁷ Workers who possess these skills benefit from the changes, while low-skill workers have been on the losing end. The employment share of (mostly high-skill) workers in non-routine cognitive jobs has been increasing the most, and the share of (mostly low-skill) workers in manual jobs has been declining (Figure 4). Thus, low-income Europeans are being left behind in the labour market because of their low skills at a time when technological change and globalisation are requiring workers to be more skilled.

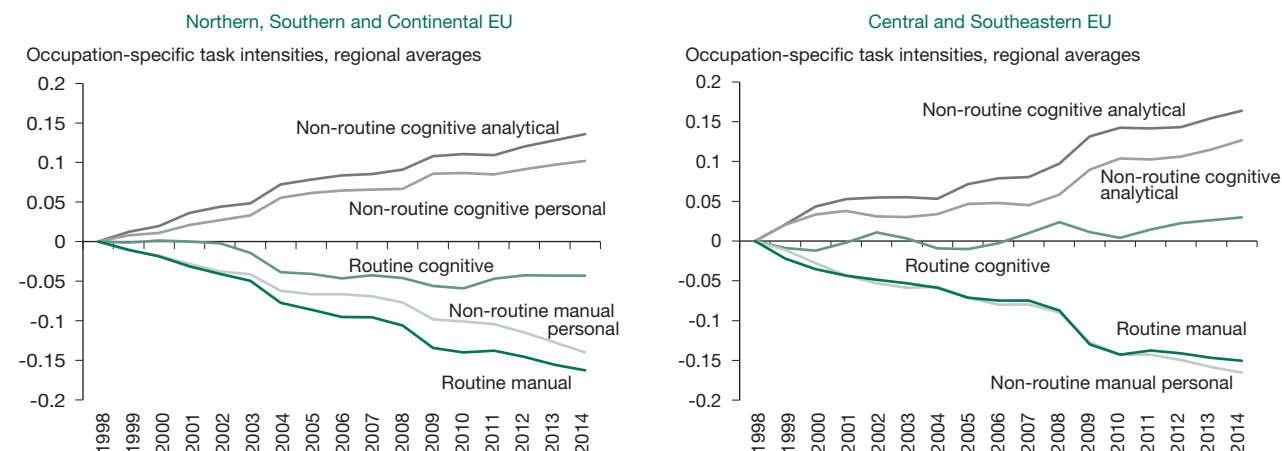
A similar trend can be observed in the enterprise sector. As Europe's frontier firms thrive and take advantage of

5 D. Autor, F. Levy, R. Murnane: *The Skill Content of Recent Technological Change: An Empirical Exploration*, in: *Quarterly Journal of Economics*, Vol. 118, No. 4, 2003, pp. 1279-1333.

6 S. Gorka, W. Hardy, R. Keister, P. Lewandowski: *Tasks and skills on European labour markets*. Background paper for the World Bank report "Growing United: Upgrading Europe's Convergence Machine", IBS Research Report No. 03/2017, Warsaw 2017, Institute for Structural Research.

7 Ibid.

Figure 3
Changes in the task content of jobs in the EU, 1998-2014



Note: Malta, Cyprus, and Luxembourg are excluded due to small samples. The intensity of each task is measured for each occupation, aggregated for each country and standardised over time.

Source: S. Gorka, W. Hardy, R. Keister, P. Lewandowski: Tasks and skills on European labour markets. Background paper for the World Bank report "Growing United: Upgrading Europe's Convergence Machine", IBS Research Report No. 03/2017, Warsaw 2017, Institute for Structural Research.

technological change, productivity differentials are widening. Research using firm-level micro data from OECD countries shows that frontier firms are benefiting the most from technological change and globalisation. Productivity dispersion between firms is large and rising, as the most productive firms are pulling ahead and the bottom firms are falling behind. This is also generating increased wage dispersion between firms.⁸

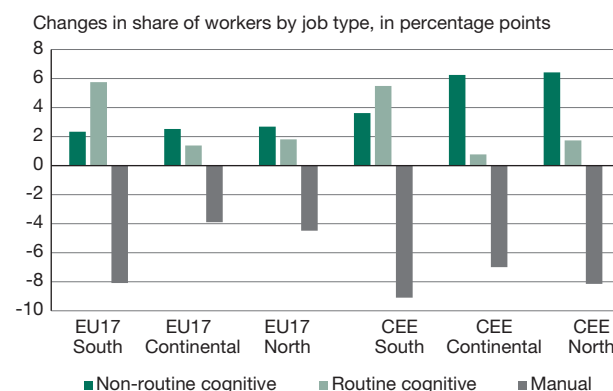
Conceptual framework based on equality-of-opportunity principle

The impact of technological change on inclusive growth is shaped by the opportunities that countries provide to their people and firms. We propose a simple framework for looking at the growing divides based on the principle of equality of opportunity for people and firms. Under this framework, the potential of countries to grow inclusively is jointly determined by the opportunities for people and enterprises to thrive and contribute productively to the economy. The equality-of-opportunity principle implies that the prosperity of people and firms should be determined by talent, effort and entrepreneurship, not by the social origin of an individual (for example, birthplace, parental education) or the enabling environment for firms, which are outside their control. Policies should therefore focus on leveling opportunities and compensating for

inequalities. The framework can be illustrated by a two-dimensional space that maps opportunities for firms and people to thrive in each country or region and the resulting potential for inclusive growth.

Opportunities for firms are determined by the business environment, supporting infrastructure, and the possi-

Figure 4
Development of employment shares by job type in the EU, 1998-2014



Note: Jobs are classified by their most intensive task into non-routine cognitive, routine cognitive, and manual.

Source: S. Gorka, W. Hardy, R. Keister, P. Lewandowski: Tasks and skills on European labour markets. Background paper for the World Bank report "Growing United: Upgrading Europe's Convergence Machine", IBS Research Report No. 03/2017, Warsaw 2017, Institute for Structural Research.

8 G. Berlingieri, P. Blanchenay, C. Criscuolo: The great divergence(s), OECD Science, Technology and Industry Policy Paper No. 39, Paris 2017, OECD Publishing, available at <http://dx.doi.org/10.1787/953f3853-en>.

bilities of upgrading firms' capabilities through innovation and technology adoption. These opportunities result in a distribution of firms by total factor productivity (TFP) levels. A better business and innovation environment would lead to a higher share of firms at the top of the TFP distribution. Burdensome business regulations would lead to a high share of lagging firms.

Opportunities for people include opportunities to build relevant skills and find good jobs as well as second chances for people who fall behind. These opportunities mainly result in a distribution of workers by skill level. If there are many opportunities, it would lead to a high share of high-skill workers, but few opportunities would result in a high share of low-skill workers.

Figure 5 maps EU countries in the opportunity space. It focuses on core and widely accepted measures of opportunities for firms and people: business environment and skills.⁹

Most Northern European countries, as well as Germany, Estonia, Latvia and Poland are among the top opportunity performers: a majority of their youth – including those from disadvantaged backgrounds – attain basic competency in reading in the “Programme for International Student Assessment” (PISA) and their firms enjoy considerable economic freedom. At the other extreme, many Southern and Central European countries are below the EU opportunity average. They are characterised by a high number of students below basic competency in reading and tend to be characterised by more burdensome regulations.

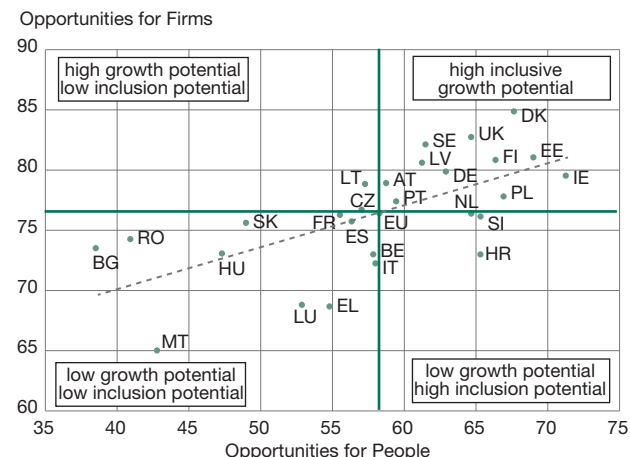
What is driving this disparate picture? The next section examines EU countries' record of equipping (i) their future workforce with foundational skills and (ii) the conducive environment of their firms to succeed.

Low-skill Europeans lack opportunities to thrive in the labour market

The impact of changes in the task content of jobs on inequality and growth depends on the level and distribution of skills in the workforce of today and, more importantly, tomorrow. The skill divide in the workforce of tomorrow will be shaped by the extent to which opportunities are provided to all young people to acquire relevant skills for the labour market – starting with foundational cognitive

9 While a worker's skill set is arguably broader than the cognitive skills measured by PISA, we use PISA due to its wide availability and because cognitive skills, like social-emotional skills, represent a critical foundation for the acquisition of technical skills and for jobs increasingly intensive in non-routine cognitive tasks.

Figure 5
Potential for inclusive growth in EU countries



Note: Cross-lines are European Union average. Opportunities for firms (quality of the business environment) are measured by the Doing Business 2017 Distance to Frontier Index. Opportunities for people (skills) are measured by the percentage of students with basic reading competencies in PISA 2015, corrected for inequality of opportunities (variation in PISA scores explained by socioeconomic status of students) and the proportion of early school leavers (people aged 18-24 who only have lower secondary level education or less and are no longer in education or training).

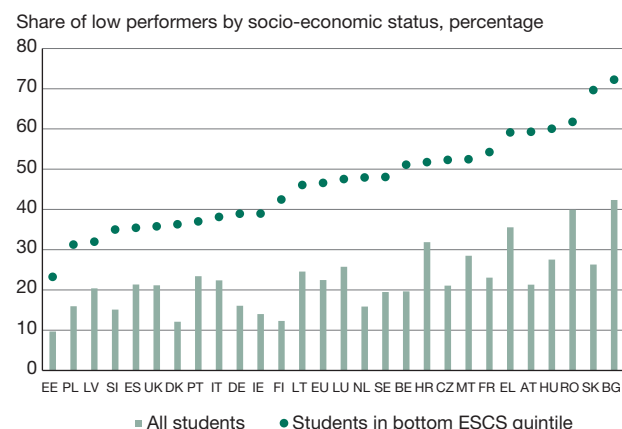
Source: Calculations based on Programme for International Student Assessment (PISA) and Doing Business data (for calculation see doingbusiness.org/content/dam/doingbusiness/media/Annual-Reports/English/DB17-chapters/DB17-DTF-and-DBRankings.pdf).

and social-emotional skills and complementing these with current, job-specific technical skills. Unequal opportunities to build relevant skills will not only make inequality persist over time, but it will also reduce long-term growth.

While education attainment has increased throughout the EU, too many young people still do not obtain basic cognitive skills. The share of people with a tertiary level education increased substantially between 2000 and 2015 across all EU countries except Lithuania. In the latest PISA round of 2015, some EU countries, like Finland, Ireland and Estonia, are almost on par with the leading countries in East Asia, but several EU countries significantly lag behind. More importantly, many young people across Europe do not acquire the basic cognitive skills in school. Part of the problem in some countries is that youth leave school too early:¹⁰ close to 20% leave early in Malta, Spain, and Romania. Another part of the problem, affecting at least half of the EU countries, is that 20% of 15-year-olds perform below basic proficiency in reading (and mathematics)

10 Early school leaving is defined as the share of people age 18-24 who have only lower secondary education or less and are no longer in education or training.

Figure 6
Share of low performing students in EU countries



Source: World Bank staff calculations based on PISA 2015.

on the PISA; in Bulgaria, Malta, Romania, and the Slovak Republic, it goes up to one-third or more (Figure 6).

Much of the skill divide is derived from a student's socio-economic background. The share of students below basic cognitive skills is significantly higher among 15-year-olds who belong to the poorest socioeconomic strata and often more than double the average as presented in Figure 6. More than 60% of the bottom quintile of students in Romania, Slovakia and Bulgaria fail to acquire basic proficiency. This has serious consequences: the learning gap between top and bottom socioeconomic quintiles translates into an equivalent gap in schooling years of between two (Latvia) and five (the Slovak Republic) years. Europe's skill divide has not narrowed much over the last 15 years on aggregate, although some countries, like Germany, have managed to reduce it significantly. Finland, long considered an example of excellence and inclusion in education, has seen a growing skill divide in recent years.¹¹ And there are large differences within countries: for example, five regions of Spain, including the Basque Country, have a higher PISA score and lower inequality than the EU average, while Murcia and Andalusia are well below the Spanish average.¹²

Social segregation in schools is a big driver of the skill divide. Part of the reason why students from disadvantaged backgrounds do not perform as well is because they are clustered together in lower quality schools. The correlation between the socioeconomic level of each student and the average socioeconomic level of his or her

school is a measure of school segregation; it is high in many countries in the EU, with Hungary being the most segregated and Finland being the least.¹³ It follows that the schools that poorer students go to are often of poorer quality. This matters for inclusion but also excellence: students in more equal, less segregated education systems in Europe tend to perform better on aggregate.

Firms face significant variations in the business environment between countries and regions

Policies that define the business and innovation environment in a country or region and the institutions that enforce them likely play a big role in explaining differences in productivity performance across countries and regions in the EU. Their importance has grown, and will continue to grow, amid the acceleration of technological change.

Countries of Southern Europe have firms that are smaller and less global. Microenterprises account for a significantly larger share of employment and value added in Southern European countries than in other EU countries (Figure 7). Being small is not necessarily a bad thing, but there is a minimum scale below which size becomes a constraint to growth, particularly in a global market. And not all small firms are equal: microenterprises in Southern Europe are less productive than those in the rest of the EU. Countries in Southern Europe also have the lowest presence of foreign-owned firms in the EU.¹⁴ Conversely, foreign-owned firms contribute the most to employment and value added in Central and Southeast European countries, a tribute to their success at attracting foreign direct investment (FDI). This matters because foreign-owned firms are more productive than domestic firms. Firms in Northern Europe are not only more successful at attracting foreign capital than those in Southern Europe, they are also more global: 10% of Swedish firms belong to Sweden-based enterprise groups with a presence in Europe, while fewer than three percent of Italian or Spanish firms do.¹⁵

The business environment in countries in Southern Europe tends to be more restrictive than in the neighbouring countries to the north (Figure 8). A simple and efficient regulatory framework is needed to balance the social responsibility of firms with a vibrant enterprise sector. Excessive regulations, however, constrain the firms' ability to reach the minimum size required to be competitive, to become more productive, as well as to be international (through exports or offshoring) and attract foreign invest-

11 C. Ridao-Cano, C. Bodewig, op. cit.

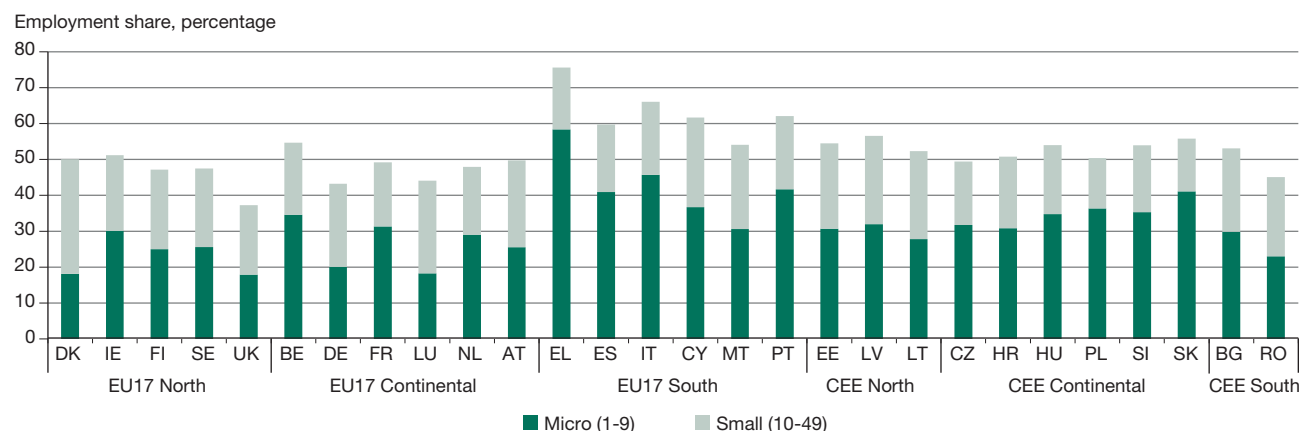
12 Ibid.

13 Ibid.

14 Ibid.

15 Ibid.

Figure 7

Shares of employment of microenterprises and small firms in EU countries, 2014

Source: Own calculations, using Eurostat data.

ment. Small firms in the south may prefer to stay small to avoid more complex regulations.¹⁶ Excessive regulations also constrain the ability of small and medium firms to grow.

Central and Southeastern European countries have successfully attracted foreign investments, but business regulations and infrastructure remain a challenge in some countries. Foreign-owned firms contribute the most to employment and value added in Central and Southeastern Europe, and FDI inflows have been a key determinant of firm productivity growth in these countries. All this attests to the key role of FDI inflows in helping Central and Southeast European countries catch up with more advanced economies in the EU. However, the quality of public infrastructure remains relatively low and is also a key binding constraint to firm productivity growth. The quality of business regulations remains a challenge in Bulgaria and Romania, particularly in the lagging regions.¹⁷

Conclusion: toward convergence of opportunities

The European Union can upgrade its convergence machine by emphasising the convergence of opportunities for people and firms. That requires a clear policy focus on equal opportunities at the regional, country and EU levels. This concluding section illustrates this policy approach by examining skills and business environment policies.

¹⁶ C. Ridao-Cano, C. Bodewig, op. cit.

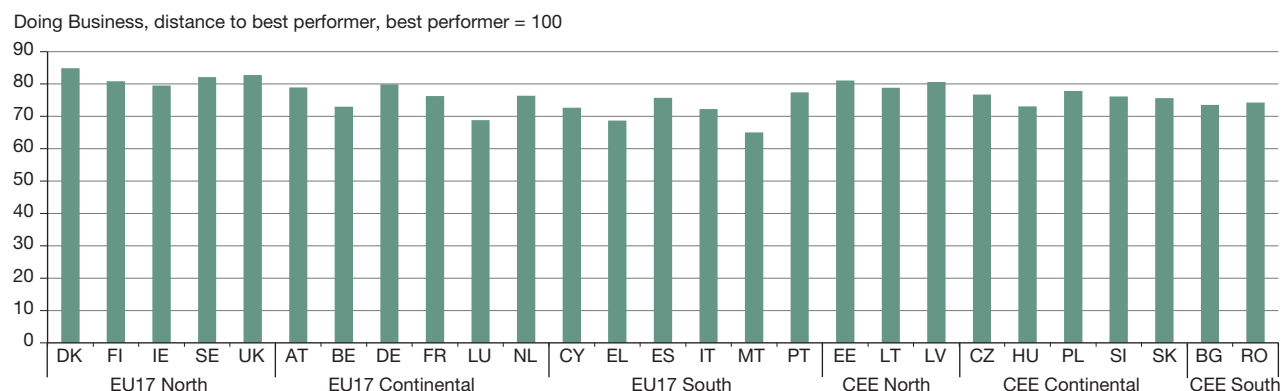
¹⁷ World Bank: Doing Business in the European Union 2017: Bulgaria, Hungary and Romania. Comparing business regulation for domestic firms in 22 cities in Bulgaria, Hungary and Romania with 187 other economies, Subnational Series, Washington DC 2017, World Bank Group.

How to equip Europe's workers with the right skills

In the age of accelerating technological change, ensuring foundational cognitive and social-emotional skills for all is a necessary opportunity policy. To enhance equality of opportunity, education systems need to equip all students, including those with disadvantaged backgrounds, with the necessary basic cognitive and social-emotional skills to make them resilient to technological change. In other words, the goal is to achieve universal basic proficiency in the national and international student assessment, for example maximising the share of 15-year-olds who achieve basic proficiency in mathematics, reading and science in PISA.

To close the skill divide, governments need to revisit fundamental questions about education systems and policy as well as their impact on equity. First, governments need to revisit the systemic policies in education that might fuel social segregation in schools. This includes school assignment policies, the nature and extent of school choice, information on school performance and public subsidies to private schools – as well as the interaction of these policies. This is not to say that all these policies should be dropped, but their potential impact on school segregation needs to be examined and understood. Second, governments need to rethink policies aimed at making up for disadvantaged background. Teachers cannot fight their students' disadvantages alone; schools need to conduct strong outreach to the community and parents. Governments need to examine how to promote closer alignment between social and educational policies at the local level, for example through close collaboration between teachers and social workers, in order to address disadvantages. Third, governments should encourage innovation in teach-

Figure 8
Extent of business regulations in the EU, 2017



Source: World Bank: Doing Business in the European Union 2017: Bulgaria, Hungary and Romania. Comparing business regulation for domestic firms in 22 cities in Bulgaria, Hungary and Romania with 187 other economies, Doing Business Subnational Series, Washington DC 2017, World Bank Group.

ing methods and classroom practices to foster the formation of cognitive and social-emotional skills and to ensure that innovation spreads from leading to lagging schools.

Lifelong learning is becoming more important and yet increasingly difficult as the acceleration of technological change makes technical skills redundant at a faster-than-ever pace. At the same time, strong cognitive and social-emotional skills are essential foundations for continuous learning. This is why governments should rethink policies related to technical skill formation. In doing so, there are numerous questions that must be answered. First, because teaching technical skills should not come at the expense of building foundational skills in school, should technical skill formation through vocational schools therefore be delayed to emphasise cognitive skills over technical skills during secondary education? Second, how can trade school/university partnerships be strengthened to ensure that the technical skills that students learn are not already out of date by the time they graduate? Should governments encourage the private sector and businesses to play a greater role in driving content and delivery in vocational training, higher education and adult learning – which is already visible in the case of private coding schools across Europe?

How to build an enabling business environment across Europe's Single Market

A 'convergence machine upgrade' would emphasise reforms to the business environment. Significant variations in the business environment between countries and regions suggest a need for the EU to reexamine its approach and tool-kit to promote a firm-friendly and level playing

field. The setting and implementation of business regulations are largely in the hands of national and regional governments, while EU-level policy is focused on rolling out the Single Market for goods, services, capital and people, on deepening capital markets and on boosting investment. While this division of labour need not change, the EU could apply its convergence machine instruments to business environment policy: setting targets, benchmarking and monitoring the business environment at the national and subnational levels, promoting mutual learning and reflecting policy upgrades in the European Semester.

Southern European countries need to accelerate reforms to improve the quality of business regulations if they are to narrow the productivity gap with their Northern neighbours. Burdensome regulations have generated an entrepreneurial profile that is not fit for a global market and the adoption of new technology, with too many lagging firms. As a result, these countries increasingly fall behind their Northern neighbours and the gap between leading and lagging regions in these countries risks widening, as technological change gains pace. Southern European countries have been making progress in recent years, but reforms need to accelerate and cover all aspects of the business environment, reducing excessive regulations and improving their implementation, particularly in lagging regions.¹⁸

More efforts are also needed in Central and Southeast European countries to improve the quality of the business environment and infrastructure and to continue to attract

¹⁸ T. Farole, S. Goga, M. Ionescu-Heroiu: Rethinking Lagging Regions: Using Cohesion Policy to Deliver on the Potential of Europe's Regions, Washington DC 2018, World Bank Group.

FDI. This would help to narrow the productivity gap with the rest of the EU faster and would sustain their per capita income convergence. Business regulatory reforms are a priority for Bulgaria and Romania, especially measures that would benefit their lagging regions. Poor quality infrastructure is also a binding constraint for firms in many former transition countries that really need improvements in connective infrastructure, like broadband connectiv-

ity, as well as investments in urban infrastructure in secondary cities with high growth potential. These updates would better position them to take advantage of the opportunities that come with technological change. Support for lagging regions should be preceded by reforms to improve the quality of local institutions. Cohesion policy should continue to play a key role in supporting these regional development efforts.