

# Drivers of Convergence in Eleven Eastern European Countries

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## Abstract

This paper investigates the drivers of growth and prosperity in a group of eleven European countries—Bulgaria, Croatia, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovenia, and Slovakia (the EU11). Since the EU11 began the transformation process, this group of emerging countries has made impressive strides as developing market economies and is anchoring development in European Union institutions. There are reasons to believe that the convergence of EU11 income per capita to Western European levels will continue, but will proceed more slowly. The paper concludes that trade and financial integration have sped along at a spectacular pace in the EU11 in the recent past, although trade in modern services and the integration of government bond and

equity markets are somewhat behind. As in the rest of Europe, demographic developments will pose huge challenges for the sustainability of public finance in the EU11 economies. In the next several decades, the EU11 labor force is expected to contract more than labor forces in the rest of the European Union, making it even more urgent that countries in the region reform pension systems, change migration policy, and find incentives to attract talent to the region. Closing the gap with the rest of the European Union in educational attainment levels and improving education quality might significantly soften the constraints imposed by the demographic threats and produce sizable returns in terms of additional income convergence.

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# DRIVERS OF CONVERGENCE IN ELEVEN EASTERN EUROPEAN COUNTRIES

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JEL: O47;O52; P20; O10

Sector Board: Economic Policy (EPOL)

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## Introduction<sup>2</sup>

**The European economic growth model has delivered unprecedented welfare to the continent over the last half century.** The model's blend of enterprise and social inclusion is unique. The resultant continuous process of economic integration in Europe over the last half century boosted economic growth and facilitated income convergence throughout the region, often driven by trade and financial linkages. European enterprises not only profited immensely from integration but are significantly more socially responsible than in other parts of the world. European states invest heavily in education and research and development (R&D) activities and offer social protection to workers both during and after their participation in the labor market. In the last two decades, the virtues of the European growth model have now materialized in the income convergence being experienced by EU11.<sup>3</sup>

**In spite of its remarkable success, several aspects of the European economic growth model require reform to ensure that it is sustainable.** Among the priorities for many European states today are providing incentives for labor mobility, making public finances more sustainable, and adapting social security systems to demographic developments, and harmonizing regulation across borders.

**This paper zeroes in on the EU11 region to explore what is driving their prosperity and growth.**<sup>4</sup> Since they began the transformation process, this group of emerging countries has made impressive strides as developing market economies and is anchoring development in EU institutions. The speed at which economic integration has taken place and its healthy returns in terms of income growth and convergence make the EU11 countries particularly interesting economies to study.

**The main messages related to the drivers of growth and prosperity in the EU11 are as follows:**

- **Convergence:** The financial crisis had a significant effect on income growth in the region; as a result, the extraordinary income convergence process that took place in the last decade has decelerated. The EU11 region does have good prospects for further convergence dynamics although the speed of income convergence may differ

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<sup>2</sup> The authors are grateful for valuable inputs provided by Ewa Korczyk, Emilia Skrok, and Sebastian Eckardt. We thank Satu Kahkonen, Yvonne M. Tsikata, Peter C. Harrold, Stella Ilieva for comments on earlier drafts of this paper.

<sup>3</sup> The EU11 group of countries comprises Bulgaria, Croatia, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovenia, and Slovakia. See Annex 1 for a complete list of country groupings.

<sup>4</sup> This paper adopts the thematic framework presented in Gill and Raiser (2012) "Golden Growth: Restoring the Luster of the European Economic Model."

significantly across economies. Largest gains in income convergence in EU11 will come from closing the gap in human capital investment with EU15.

- **Trade and finance:** Although trade and finance have fueled convergence in incomes and living standards, trade in modern services has not increased concomitantly. Trade will remain pivotal for sustaining economic growth in EU11. Financial integration within EU11 and between EU11 and EU15 will continue, but with a focus on strengthening stability in cross-border banking.
- **Enterprise and innovation:** Firms in EU11 have been successful at creating jobs, raising productivity, and competing in international markets. Innovation indicators, however, suggest that EU11 countries as a group lag behind other EU member states.
- **Labor:** Recent demographic developments in Europe are raising questions about the sustainability of the European growth model. Because of demographics, pension policies as well as policies to close the educational attainment gap and create incentives for labor market participation and the return of skilled workers who have migrated will gain in importance.
- **Government:** EU integration has helped enhance the quality of government by strengthening the rule of law, facilitating economic openness, and promoting voice and accountability. This was achieved mainly through high outlays for social benefits. E11 governments are still larger than in other emerging countries with similar income levels. This differential and shortcomings in government effectiveness are holding back growth. Moreover, pressures for more social spending are likely to rise as the demographics worsen.

## Income Convergence and Post-Crisis Prospects for the EU11

**Europe's economic growth in the last half century has noticeably narrowed income differentials between countries.** From 1950 through 1973, Western European incomes converged quickly toward those in the United States. Then, by the early 1990s, the incomes of more than 100 million people in the poor south—Greece, southern Italy, Portugal, and Spain—grew closer to those of advanced Europe. The European convergence in consumption levels in the last four decades is unmatched. Annual per capita consumption in the southern periphery of the EU grew by 4 percent, while the 2 percent increase in the wealthier EU members was still impressive. Except for East Asia, the rest of the world has seen little or no convergence.

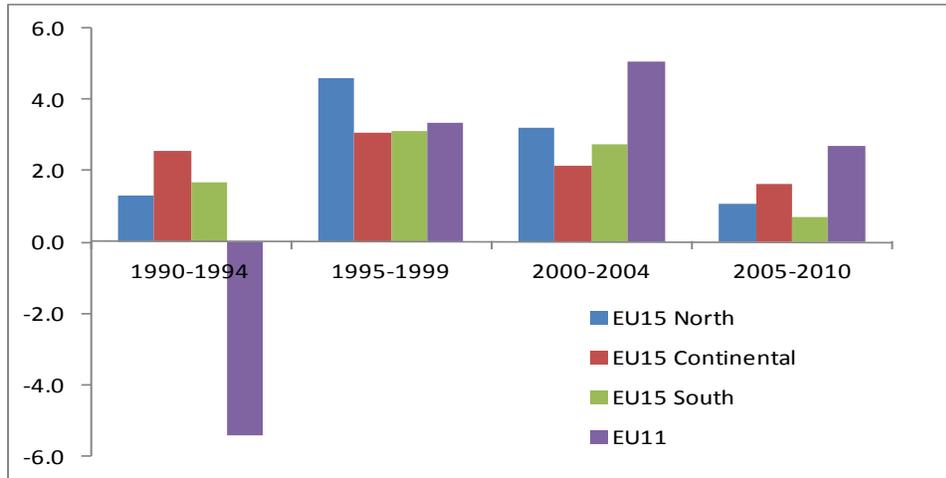
**Starting with the EU association process of the Czech Republic, Hungary, Poland, Slovakia, Slovenia and the Baltic countries in the mid-1990, another 100 million people were gradually absorbed into the EU, and their incomes also increased quickly.** In 2010 income per capita in Hungary was roughly 47 percent higher than in 1994, and Poland's income per capita had more than doubled. Income per capita in the EU11 grew 5 percent annually between 1994 and 2010, narrowing the income gap between EU11 and EU15 by more than 6.5 percentage points. The income convergence dynamics for the period were mirrored in similar cross-country labor productivity growth, with the EU11 region moving toward (though still far from) the other EU economies. From an institutional point of view, the EU's Structural Funds played a particular role for equalizing fiscal capacity across European regions, so as to foster income convergence.

**The global financial crisis and the economic recession in Europe have slowed the pace of income convergence for the EU11 region.** GDP losses in the region hide very marked country differences. For some EU11 countries, the crisis brought major cumulative GDP losses (Latvia and Estonia), but others were affected only minimally (Poland and Slovakia). From 2005 through 2010 there was considerable income convergence in Poland and Slovakia, but in others (notably Estonia, Hungary, and Latvia) income convergence stagnated relative to the rest of the EU. The speed at which the gap in average income per capita between EU11 and the rest of the EU closes provides a measure of convergence. That fell from 0.70 percent a year for 2000–2004 to 0.42 percent for 2005–2010, but for the latter period the effects of the crisis on income convergence dynamics become abundantly clear. The average gap-closing speed for 2005–2007 was 16 times faster than the 0.06 percent a year recorded for 2008–2010. The link between the initial level of income per capita and subsequent growth is much stronger in the period 2000–2004 than in 2005–2010.<sup>5</sup> To sum up, while the period 2000–2010 was characterized by a generalized income convergence trend in the region, the “boom-bust” dynamics in several economies of EU11 made the within-decade developments very heterogeneous.

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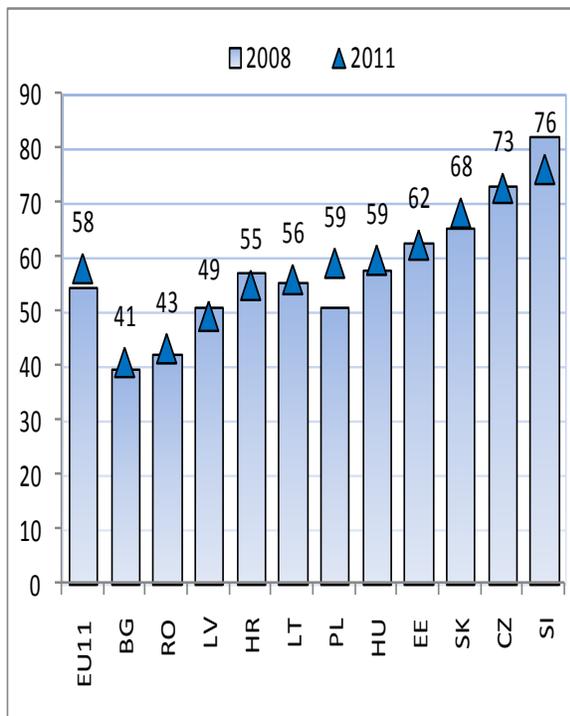
<sup>5</sup> The correlation between initial income per capita and economic growth, which had averaged (–0.5) for 2000–2004—an indication that the poorer economies in the region were growing faster than richer ones—was only (–0.23) for 2005–2010.

**Figure 1. Average Annual Real GDP Growth (Percent)**



Source: For EU11: World Bank ECACE regional tables; for Western Europe, IMF World Economic Outlook<sup>6</sup>

**Figure 2. GDP per Capita, PPS Percent of EU15 Average**



Source: World Bank ECACE regional tables and IMF WEO

Note: Purchasing Power Standard (PPS)

**Table 1. Income Gap Change, EU15 Average and EU11 Economies**

	1990-1994	1995-1999	2000-2004	2005-2010
<b>EU11</b>	<b>-1.36%</b>	<b>0.08%</b>	<b>0.70%</b>	<b>0.42%</b>
Bulgaria	-0.36%	-0.29%	0.34%	0.29%
Croatia	-2.45%	0.12%	0.63%	0.23%
Czech R.	-1.03%	-0.59%	0.41%	0.57%
Estonia	-1.66%	0.46%	1.32%	-0.02%
Hungary	-0.97%	-0.10%	0.60%	-0.02%
Latvia	-2.31%	0.42%	1.06%	-0.05%
Lithuania	-2.76%	0.28%	1.05%	0.31%
Poland	-0.05%	0.41%	0.31%	1.08%
Romania	-0.48%	-0.43%	0.42%	0.30%
Slovakia	-1.68%	0.09%	0.71%	1.34%
Slovenia	-1.18%	0.45%	0.82%	0.61%

Source: World Bank ECACE regional tables and IMF WEO

Note: Positive values indicate that the gap decreases, negative values indicate that the gap increases

<sup>6</sup> EU15 South: Greece, Italy, Portugal, and Spain; EU15 North: Denmark, Finland, Ireland, Sweden, and the United Kingdom; EU15-Continental: Austria, Belgium, France, Germany, Luxembourg, and the Netherlands.

**While in the last decade income growth differentials have substantially reduced the income gap between EU11 and the rest of the EU, the poor performance of EU15-South was also an important factor to explain such a development.** Between 2007 and 2010 the gap between EU11 and EU15 South closed by 0.17 percent annually but the gap between EU11 and EU15-Continental group widened by 0.09 percent.

**How can EU11 countries re-accelerate income convergence with the rest of the EU?**

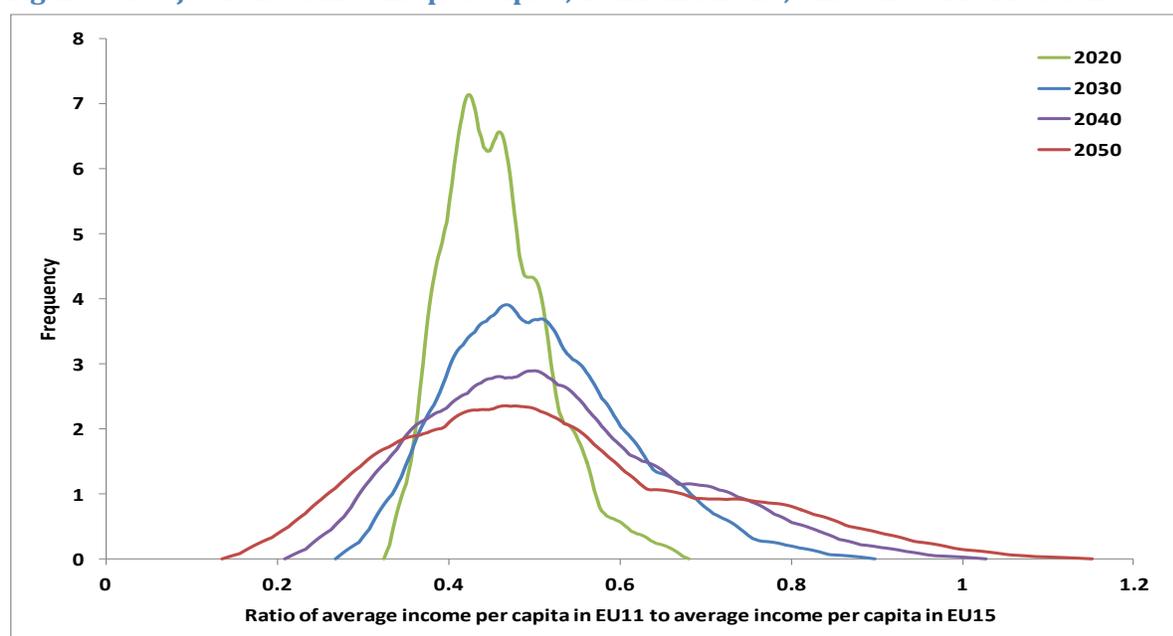
Having identified several plausible scenarios about changes in technology and the accumulation of human and physical capital in EU11, it is possible to project the likelihood of income convergence.<sup>7</sup> From the analysis it appears that the likelihood of EU11 income convergence with EU15 in the long-term is very high, but fully converging will take time. The distribution of relative income per capita in EU11 with respect to EU15 obtained from projection exercises for 2020, 2030, 2040, and 2050 indicate that the income convergence process will continue, and eventually the distribution of relative income per capita will become more concentrated around values that imply full, or close to full, convergence of incomes in EU11 and EU15 (Figure 3).<sup>8</sup>

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<sup>7</sup> We apply a simple income projection model developed to quantify future income convergence prospects for the EU11 region under several scenarios for the future dynamics of physical and human capital accumulation and shifts of the technology frontier. Using the estimated parameters of a panel regression model, Crespo Cuaresma, Havettová, and Lábaj (2012) propose to create income per capita projections for the countries in the European Union based on combinations of paths of physical capital accumulation (high, medium, and low scenarios); human capital dynamics (constant attainment rate and improvement scenarios); and technology frontier shifts (constant and linear extrapolation). By assigning such scenarios to different EU regions (EU11 versus EU15, in our case), the exercise provides 144 potential income paths by country. These can be used to evaluate the potential for EU11 convergence by decade. The combination of scenarios implies that uncertainty about future developments in production factors is explicitly incorporated into the quantification of the income convergence progress (see also Hlouskova and Wagner, 2005, for related income projection models applied to Central and Eastern European economies).

<sup>8</sup> The results presented here are based on a simulation design that implicitly assigns equal likelihood to all possible scenarios. Weighting income projections by *a priori* subjective probabilities of occurrence will yield shifts in the projections' histogram.

**Figure 3. Projections of Income per Capita, EU11 and EU15, Smoothed Distribution**



*Source:* Authors' calculations based on Crespo Cuaresma, Havettová and Lábaj (2012)

*Note:* The figure plots the (smoothed) histogram of the 144 projections for 2020, 2030, 2040, and 2050. It shows average income in EU11 as a share of EU15 income. As the projection horizon increases, the histograms become "fatter" because of uncertainty about the long-term development of income per capita. As time progresses, the center of the smoothed histogram moves to the right, with a larger share of observations around 0.8–1, which suggests close to full convergence.

**Human capital accumulation dynamics are the key factor in explaining why some EU11 countries are more likely to be successful in closing the income gap with EU15 in the long term.**<sup>9</sup> Differences in income convergence speed within EU11 can be attributed to the sizable gap with EU15 regarding human capital accumulation. To close these differences, further investment in human capital could significantly accelerate income convergence. Investment in human capital can even pay off where educational attainment is already relatively high if demand is rising for skilled workers and employers are running into specific skills shortages (see World Bank 2012). To the extent that human capital investments (in terms of both quantity and quality) affect an economy's ability to innovate, the benefits for income convergence from policies directed to improving skills may be particularly important.

**In terms of accumulation of production factors, the growth rate of physical capital in the EU11 region has been systematically above that in EU15.** Redirecting investments to more productive sectors seems to be an income convergence priority in the region. The recent crisis has also had a negative effect on innovation policies in EU11, which diverge in innovative capabilities from the rest of the region (Archibugi and Filippetti 2011). Such a

<sup>9</sup> Recently, a number of scholars have emphasized the prominent role of human capital accumulation as a driver of income growth and convergence in Europe in studies of the determinants of economic growth and income convergence patterns in Europe (see LeSage and Fischer 2008; Crespo Cuaresma, Doppelhofer, and Feldkircher 2012; and Crespo Cuaresma and Feldkircher 2012).

development, through its effect on growth in total factor productivity (TFP), poses risks to progress in EU11 income convergence with EU15.

**In a nutshell, while in the last 20 years progress in income convergence with the rest of the EU can be considered a success, the financial crisis jammed on the brakes.** Taking into account current production factor endowments, although heterogeneous across individual economies the prospects of continuing on the convergence path are good for the region as a whole. If the right policies are in place, further gains can be expected from convergence in educational attainment for countries where human capital investment lags behind the EU15 economies. Such a lag, as measured by the difference in the share of working age population with tertiary education to the EU15 average, ranks from 19.7% in Romania to -7.6% in Estonia.

## Trade and Finance: Fueling Economic Growth, Increasing Vulnerability

**Trade and finance—facilitated by the single market of the EU and its forebears—have fueled convergence in incomes and living standards.** In 2009 Europe's trade in goods was worth about \$4.5 trillion, more than East Asia's and North America's combined, and trade in services was worth \$2.25 trillion, more than the entire rest of the world combined. Today, Europe's economies are more integrated through trade than those of any other part of the world, stimulating faster convergence in incomes and living standards. EU11 has been especially effective at taking advantage of their opportunities to integrate westward by trading goods and modern business services.

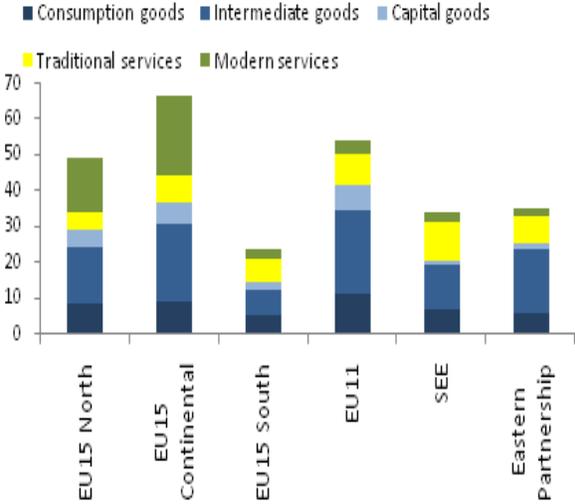
**While trade in goods between the EU15 and the EU11 countries has grown rapidly since the mid-1990s, trade openness varies.** Trade flows relative to GDP are much higher in the EU11 states than elsewhere in the world due to low barriers to goods trade in the Single Market, falling trade barriers for both goods and services, and the relatively small size of economies in the region. However, trade-to-GDP ratios and the direction of intra-EU trade flows vary. Trade-to-GDP ratios in Hungary, the Czech Republic, Estonia, and Slovakia have reached EU15-Continental levels, led primarily by trade in intermediate goods.<sup>10</sup> Location does a lot to explain trading patterns between new and old EU member states. EU15-North, especially Finland, Sweden, and Denmark, are important destinations for exports from Estonia, Latvia, and Lithuania. EU15-Continental countries, especially Germany, are major markets for exports from Poland, the Czech Republic, Hungary, Slovenia, and Slovakia. EU15-South has not been much of a market for exports from EU11

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<sup>10</sup> While EU15-Continental comprises six EU countries (Austria, Belgium, France, Germany, Luxemburg, and the Netherlands), the aggregates are largely driven by Germany. The latter accounts for almost one half of the EU15-Continental output.

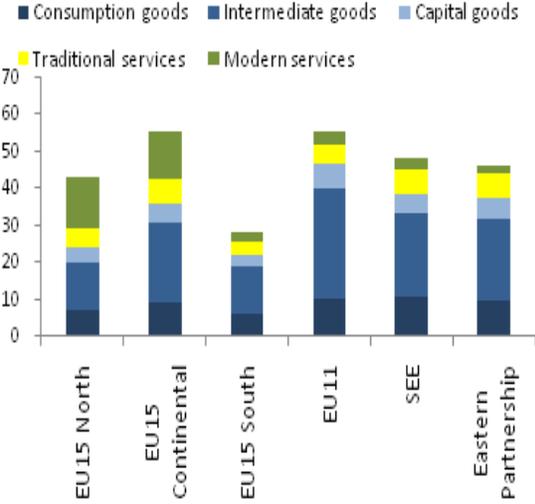
countries, but markets in EU15-North and EU15-Continental countries (especially Germany) have helped keep EU11 exports resilient despite the sovereign debt crisis in peripheral Euro area countries. The EU15 export share with EU11 countries doubled from less than 4 percent in 1996 to almost 8 percent by 2008, and the EU11 export share with the EU15 has remained around 60 percent for the past two decades.

**Figure 4. Exports of Goods, 2009–10, and Services, 2010, by Sector and Regional Groups, (Percentage of GDP)**



Source: Eurostat; World Bank staff estimates

**Figure 5. Imports of Goods, 2009–10, and Services, 2010, by Sector and Regional Groups, (Percentage of GDP)**

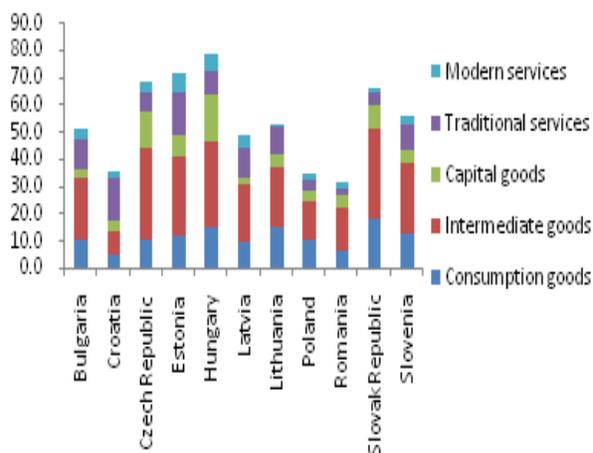


Source: Eurostat; World Bank staff estimates

**Considering the size of their economies, the EU11 countries are the export champions of Europe.** Except for Romania and Bulgaria, the EU11 economies have the largest export-to-GDP shares in the EU, averaging more than 50 percent in 2009–2010. Slovenia, the Czech Republic, Slovakia, Hungary, and Poland also had the largest increases in export shares over the last decade. In EU11 countries, machinery and transport equipment comprised more than half of exports in 2006–2008, with the fastest-growing subcomponent being cars and other road vehicles. However, export growth has not been uniform in EU11. Though trade barriers have been reduced, some countries continue to lag in competitiveness.

**Figure 6. EU11 Exports of Goods, 2009–10, and Services, 2010, by Sector**

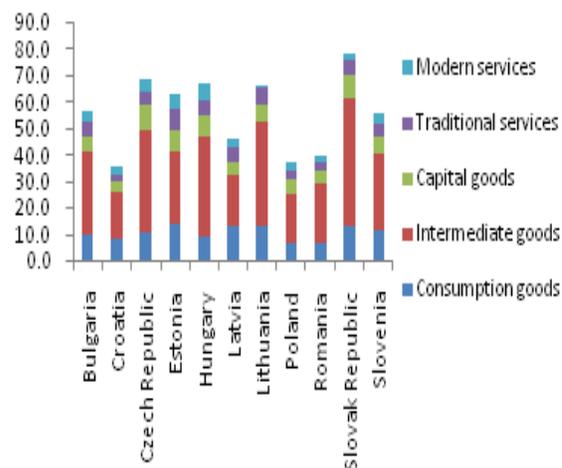
(Percentage of GDP)



Source: Eurostat; World Bank staff estimates

**Figure 7. EU11 Imports of Goods, 2009–10, and Services, 2010, by Sector**

(Percentage of GDP)



Source: Eurostat; World Bank staff estimates

**Europe’s most developed economies have been increasingly outsourcing sophisticated tasks to their EU11 neighbors.** Measures of both export sophistication and relationship-specificity (RSI: the fraction of differentiated inputs embodied in exports) show that trade within Europe is becoming more complex even as trade with non-European partners becomes less so. The sophistication of intermediate exports from EU11 to the EU15 rose by about 15 percent from 1996 to 2005, though it has flattened since then. Moreover, the sophistication of EU11 exports to EU15 rose faster than its exports to markets outside the EU. Again, using an EU15 lens, the EU11 countries are becoming increasingly sophisticated as both sources and markets for goods.

**Trade in modern services in Europe is increasing, but not fast enough.** While costs of cross-border transactions for goods have plunged, for services the single market is still a work in progress. In recent years, intra-EU services exports have grown slower than exports to non-EU countries despite the Service Directive and other initiatives to push regional integration in services. However, EU11 countries integrated faster within the internal market than with the rest of the world. From 2004 through 2008, services exports from EU11 to other EU members grew annually by 24 percent—6 percentage points higher than exports to non-EU countries. But progress is mixed: travel and financial services have done well, transport and other business services—especially those involving new technologies and the Internet—have not. In EU11 countries, the share of services traded is almost double what it was when the transition began.

**Figure 8. EU11 Exports to EU15 by Country Groups,**

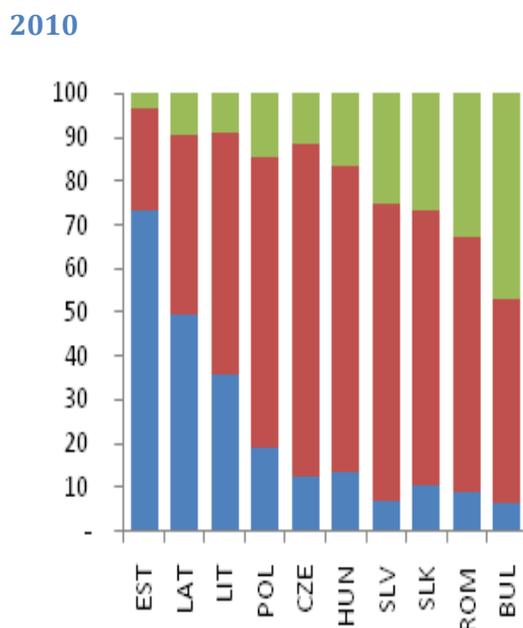
**Better facilitation of trade in services could generate momentum for EU income and productivity growth.** With

reforms that make adopting newer technologies easier, better regulations, and greater mobility of workers, Europe's trade in services could triple in the next decade. More importantly, productivity in the general services sector—which is about 70 percent of GDP in Europe—would increase.

**Integration of financial services in the last two decades was crucial in facilitating financial flows from the EU's richer, slower-growth countries to less-developed, fast-growing new member countries.** While financial integration worldwide progressed rapidly starting in

the late 1990s, Europe stands out for the regional deepening of financial integration, especially in the EU11. As theory would predict, in Europe capital flowed downhill, from richer to poorer countries.<sup>11</sup> Between 2004 and 2008, the average annual capital flow from advanced to emerging economies was more than 10 percent of GDP, compared to about 4 percent in Latin America and the Caribbean.

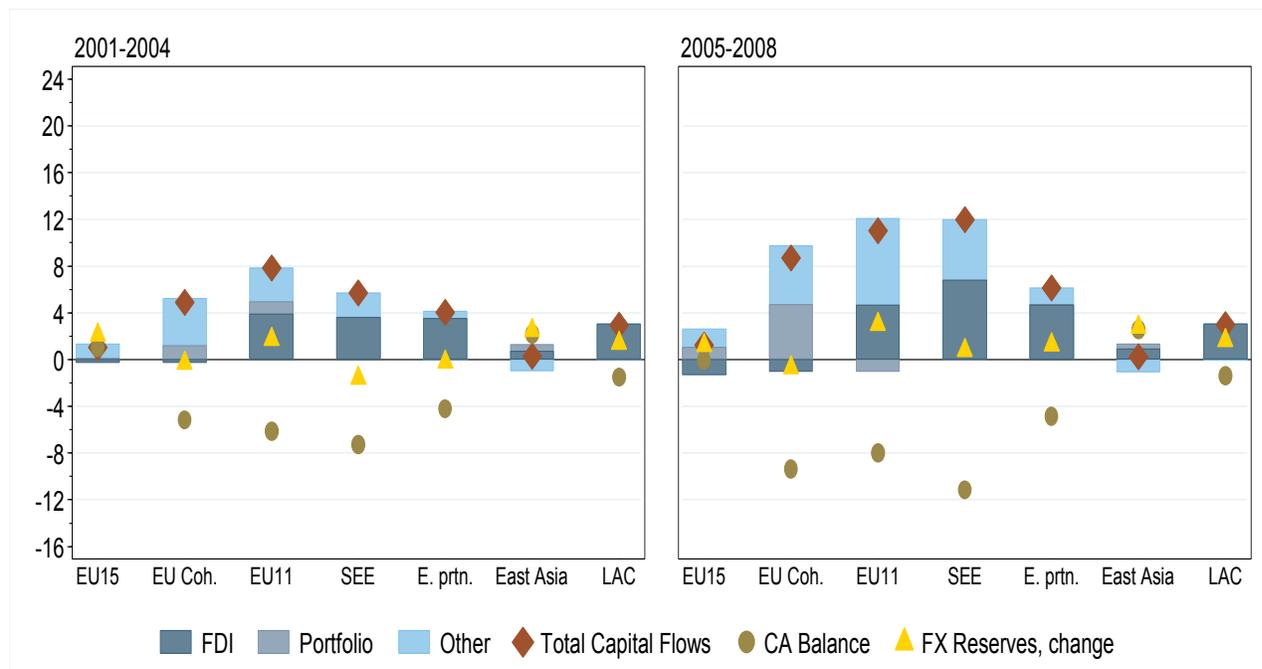
**Furthermore, the composition of the capital flowing into EU11 was different from that of capital flowing into emerging countries in Asia or Latin America.** First, the amount of foreign direct investment (FDI) in emerging Europe was higher than in other emerging markets (Figure 9). In EU11, median average annual FDI inflows were more than 5 percent of GDP between 2000 and 2008; meanwhile, in EU15 median average annual FDI flow was slightly negative. Second, banking and other flows promoted financial integration. The median share in GDP of foreign assets plus liabilities increased from less than 100 percent in 1997 to more than 200 percent just before the crisis broke in 2008. In emerging markets in East Asia and Latin America the median ratio for 1997–2008 never topped 125 percent. Third, entrance of Western banks helped to strengthen corporate governance in the financial sector. In the EU11 countries, foreign ownership of banking system assets today accounts on average for over 80 percent of total assets; the range runs from 25 percent in Slovenia to 99 percent in Estonia. As a result, money and banking markets integrated the most, government bond markets and equity markets the least.



Source: Eurostat, World Bank staff calculations

<sup>11</sup> In other parts of the world, capital flows went uphill – from poorer countries like China to richer ones like the United States. This pattern, though puzzling, is well-established.

**Figure 9. Capital Flows, Average of Group Median Values, (Percentage of GDP)**

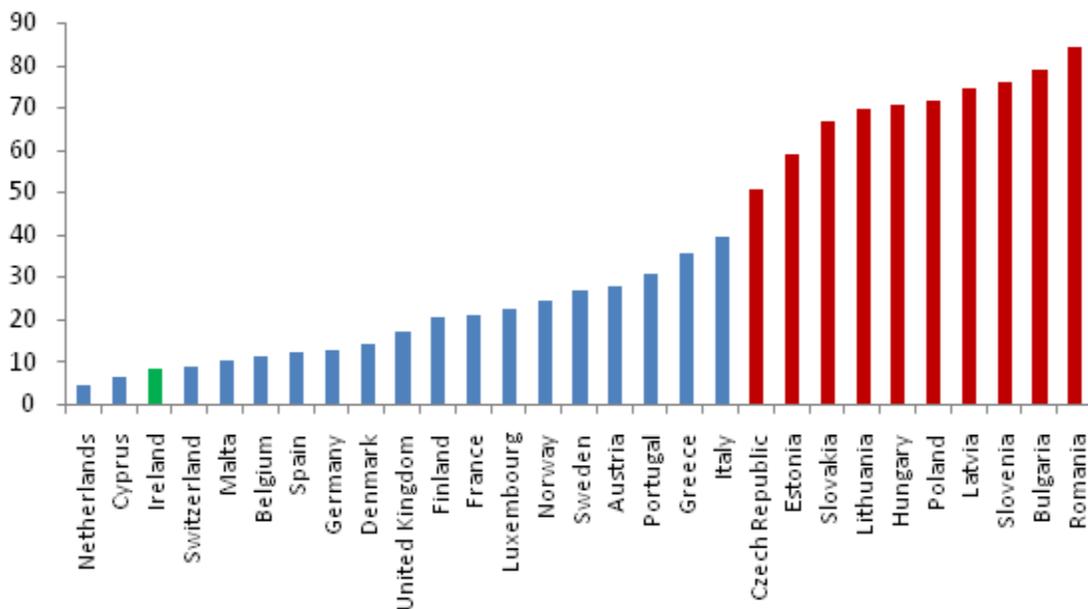


Source: Gill and Raiser (2012); World Bank staff calculations.

Note: EU coh = EU cohesion countries; E. prtn = EU eastern partnership countries; LAC = Latin America and the Caribbean region; CA = current account; FX = foreign exchange.

**In some cases financial integration and closeness to Western European finance led to excesses, making EU11 countries vulnerable to financial deleveraging of Euro area banks.** Access to finance made it possible to borrow from abroad for investment not only to fuel growth and convergence but also to finance the consumption that has made these economies vulnerable to sudden reversals in capital flows. Financial integration has led to rapid growth in private credit in EU11. The credit growth was supported not only by such supply factors as access to finance but also by demand for housing and consumer durables. Moreover, residential overcrowding in the new EU countries was much worse than in the old EU member states (Figure 10).

Figure 10. Primary Residence Overcrowding, 2009 (Percent of tenants)



Source: Eurostat

**Trade and finance e will remain pivotal for convergence.** As Europe looks for new ways to boost both incomes and productivity, it could consider deepening integration of trade in both goods and services. While there is certainly room for the EU11 countries to export more niche products and services, they can also achieve growth by improving the sophistication of the goods and services they export. Though financial integration will continue to power the EU convergence engine, deleveraging of Euro area banks from their EU11 hosts has spurred home and host authority coordination efforts in support of stable cross-border banking.<sup>12</sup>

## Enterprise and Innovation: Closing the Productivity Gap

**Europeans believe that private enterprises are accountable to shareholders for profit, but they also have more responsibility for the social and environmental consequences of their actions than businesses elsewhere in the world.** Firms are

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<sup>12</sup> The European Bank Coordination (“Vienna”) Initiative was established at the height of the global crisis of 2008-09 as a private-public sector platform to secure adequate capital and liquidity support by West European banking groups for their affiliates in Central, Eastern, and Southeastern Europe. The initiative was re-launched in January 2012 in response to renewed risks for the region from the Euro area crisis.

therefore expected not only to significantly contribute to job creation and job security but also to be globally competitive. This belief also induces more widespread regulations in social and environmental policies

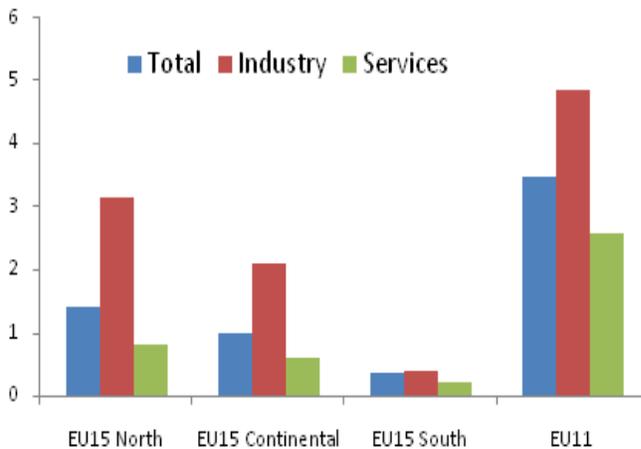
**Over the last decade European firms have been successful in creating new jobs, increasing the value added to their products, and exporting to foreign markets.** This general trend was driven by EU11 countries as well as those in EU15-North and EU15-Continental. In EU11 economies, from 2002 to 2008 growth in average employment was about 2.7 percent and in value-added about 5.6 percent; meanwhile the same countries were exporting the equivalent of about 54 percent of GDP to foreign markets.

**Fueled by the expansion of the services and construction industries, EU11 was generating almost twice as much employment as EU15,** even though in much of the region growth in manufacturing jobs was negative. From 2002 to 2007 the number of jobs in service industries grew above 3 percent in Latvia, Romania and Estonia and reached its overall maximum of 5.9 percent in Lithuania. In contrast, between 2002 and 2007 growth in Slovenian manufacturing jobs averaged just 0.6 percent, and manufacturing employment actually shrank in Hungary (-0.9 percent) and Latvia (-1.4 percent). Negative employment growth dynamics in the more traditional industrial sectors have been evident throughout the EU11.

**Within EU11, the firms that are creating jobs are of different sizes.** In the Slovakia, Estonia, and Romania, for example, employment growth occurs mainly in firms with less than 10 employees, while in Bulgaria and Poland, it is large firms that are net job creators. From 2002 to 2007, in Slovakia average annual employment growth in firms with less than 10 employees was 11.4 percent, while it was just 0.4 percent for larger firms. In the same period in Hungary, the number of jobs in firms with less than 10 employees decreased by 0.1 percent, but employment in large firms grew about 10 times faster (to about 1 percent).

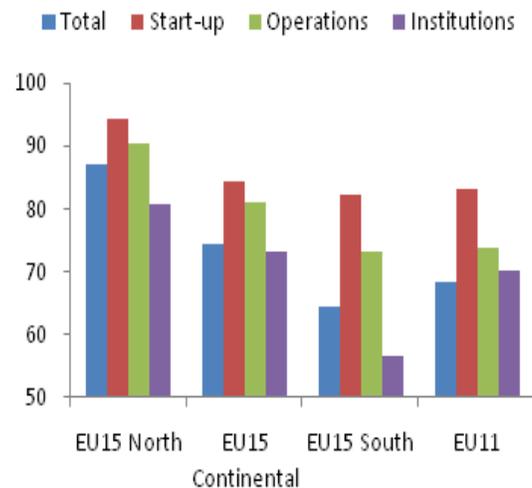
**Since 2000, an increase in labor productivity has led EU11 value-added to grow more than twice as fast as in the EU15.** Not only did EU15-South fail to gain much in productivity in the last decade, firms there tend to be less internationally competitive. Although in absolute terms, labor productivity is substantially higher in EU15 than EU11, the gap has narrowed significantly over time. From 1995 to 2009, for instance, EU11 countries made the largest productivity gains in the whole EU, with productivity shooting up by 2.5 percent in service industries and about 5 percent in manufacturing.

**Figure 11. Labor Productivity Growth, 1995–2009**  
Percent, Constant 2005 US\$ thousands



Source: World Bank, International Labor Office (2010b), United Nations, and country sources.

**Figure 12. Doing Business Ratings**



Source: World Bank.

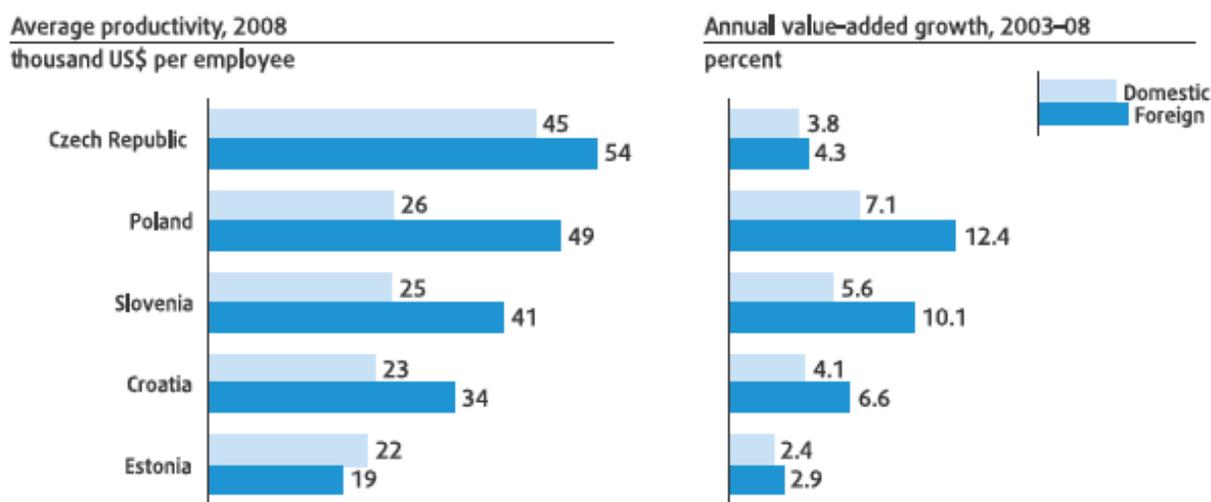
**According to the 2011 and 2012 editions of *Doing Business for Eastern Europe and Central Asia* EU11 countries are among the most-improved economies.** In particular, Hungary has substantially facilitated the creation of successful businesses. Latvia has, among other things, reduced the time it takes to export and import by introducing electronic submission of customs declarations. This allows Latvian companies to compete more successfully in world markets. Based on *Doing Business* indicators, the EU11 countries provide the same quality of business environment as most EU15 economies (Figure 12).

**EU11 countries that perceptibly improved their business environment were able to attract FDI.** The decision to cut the red tape involved in starting businesses helped these economies attract international investors. Among the leading EU11 FDI recipients are Bulgaria, the Czech Republic, Estonia, Hungary, and Slovakia, all of which have tidied up their doing business indicators in the last two decades. At first glance, the most productive investments seem to be directed toward EU11 economies that have a more business-friendly environment. Arguably, a more-business friendly environment is a pre-condition for making FDI investments more productive.<sup>13</sup>

<sup>13</sup> Empirically, Harding and Javorcik (2011) demonstrate that promoting investments in emerging economies increases FDI inflows into these countries. The total economic impact of the improved business environment in EU11 economies deserves more careful scientific treatment. It would be interesting to assess empirically whether similar FDI projects in EU11 economies with different business environments progress differently. Finally, to fully understand how business regulation affects firm size, productivity, etc. it might be helpful to compare firms within each EU11 country. Differences between countries might have other causes than simply differences in the business environment. Studying variation in regulation of different industries within EU11 economies could be a source of information for future studies.

**Subsidiaries of multinational enterprise (MNE) networks are on average more productive than independent domestic firms.** Foreign-owned firms outdo domestic in both average productivity and productivity growth (Figure 13). There are competing explanations for this. Because MNEs may simply cherry-pick the most productive domestic firms as acquisition targets, foreign ownership might not be sufficient to justify giving it credit for productivity gains (see, e.g., Loungani and Razin 2001; Almeida 2007). Or it may be that post-acquisition productivity growth can be used to isolate the causal effect of foreign ownership. TFP might be a more comprehensive and useful yardstick for measuring the effects of MNEs on productivity growth in EU11.<sup>14</sup>

**Figure 13. Productivity Differentials, Foreign- and Domestically Owned Firms, Selected EU11 Countries**



Source: Amadeus; World Bank staff calculations

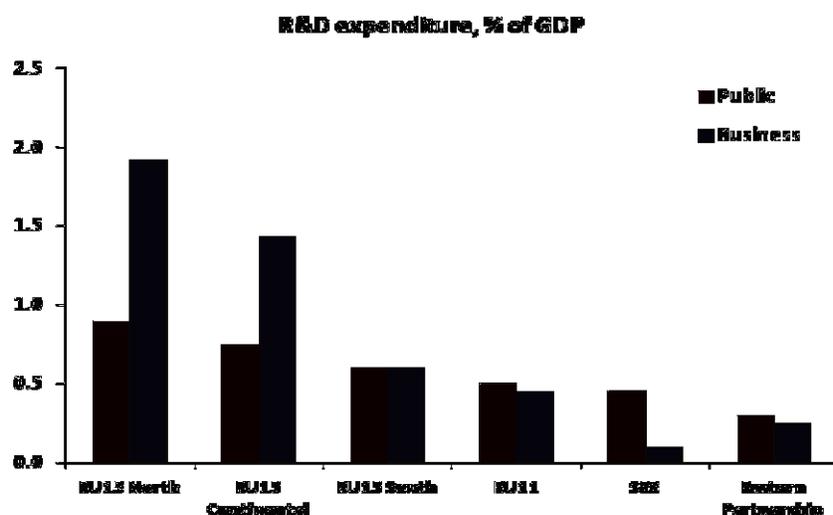
**Notwithstanding success in raising employment, productivity, and competitiveness, for long-run economic prosperity in open economies, innovative capacities are crucial.** Enterprise and innovation—aided by deep and comprehensive regional economic integration—have enabled Europe to account for about a third of the world GDP with less than one-tenth of world population. Clearly, the EU is already one of the most competitive and economically sound regions in the world.

**However, despite their solid growth record, the economies of EU11 score poorly on most dimensions of innovation.** Interestingly, in the EU11 countries the correlation between innovation and TFP growth is slightly negative, while in EU15 it is positive. In part this is explained by the fact that returns on innovation vary in relation to both the stock of complementary investments in physical and human capital and a country's position relative to the technological frontier. As countries get further from the frontier, the business climate is likely to be worse and the private sector less sophisticated, so that even the best ideas will yield little fruit. Moreover, as human capital in both the public and

<sup>14</sup> For excellent surveys on estimation and calculation of firm TFP, see Del Gatto, Di Liberto, and Petraglia (2011) and Van Beveren (2012).

private sector gets weaker, R&D investments might produce fewer good ideas. To the degree that they displace investments in education or infrastructure, the turn on R&D could be negative.

**Figure 14. R&D Expenditure (Percent of GDP)**



Source: World Bank estimates based on Eurostat

**EU11 countries innovate mainly through osmosis.** Firms have demonstrated considerable ability to quickly adopt existing technologies using FDI and trade links as conduits. The increase in ownership by MNEs has induced massive FDI flows into EU11, with benefits for domestic firms. MNE activity is typically associated with technology transfer, which is expected to increase the productivity of the acquired firm (see, e.g., Uminski 2001). Moreover, direct competitors may benefit from productivity spillovers (see, e.g., World Bank 2001). The presence of MNEs fosters competition in local markets by forcing domestic firms to produce more efficiently (see, e.g., Kang 1993). Consequently, FDI is shown to increase productivity generally, which makes all (surviving) firms more competitive. This allows firms to produce on a larger scale, which is likely to enhance job creation. A higher share of FDI inflows relative to GDP can thus be expected to affect productivity positively.<sup>15</sup>

**In summary, over the last two decades, EU11 firms have become more productive and successful in competing in global markets, although in innovation EU11 countries are less effective than other EU members.** In the long run a lack of innovation could cause economic disadvantages. Fostering innovative firms should be a priority for EU11 policymakers.

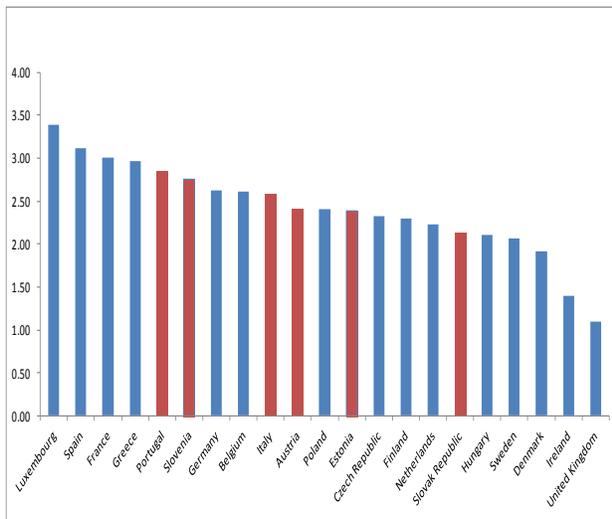
<sup>15</sup> There is variation in the outcome productivity variables that cannot be fully explained by FDI inflows. One remarkable result is that productivity growth varies a lot for countries that attract very similar amounts of FDI (see, e.g., Latvia and the Slovakia).

# Labor: Overwhelming Demographic Challenges

**The degree of social protection European workers enjoy in the form of employment protection and social benefits is significantly higher than in any other developed region.** The generosity of the social protection system allows Europeans to maintain a balance between work and leisure. While this pillar of the European growth model has obvious benefits for workers, it discourages labor participation and is a burden on the public finances. Europeans do indeed work less and retire earlier than Americans. Over the last four decades the effective retirement age in Europe has systematically declined in Europe even though life expectancy has risen significantly. Relatively low labor mobility adds to the problems Europe faces in achieving efficient allocation of labor within and between countries.

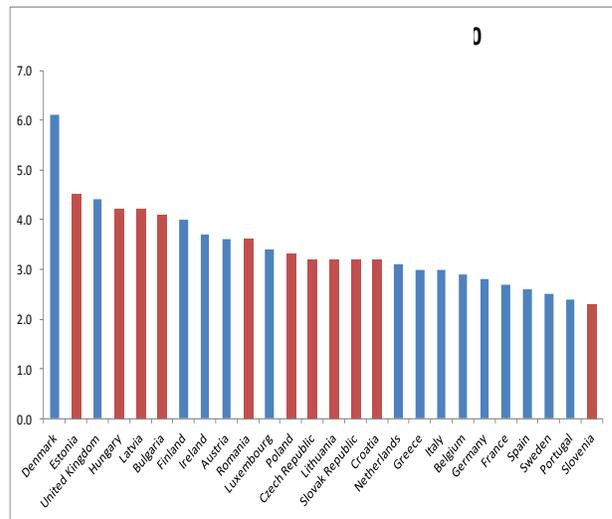
**EU11 social protection indicators do not seem to be systematically different from those in the rest of Europe.** Though EU11 employment protection laws tend to be less stringent than elsewhere in the EU, its market protection indices have been converging with those of the EU15 in recent decades, both because Western European economies have adopted more liberal labor market policies and because EU11 countries have increased protection.

**Figure 15. Employment Protection Index**



Source: OECD Indicators of Employment Protection  
 Note: Scale from 0 (least stringent) to 6 (most restrictive)

**Figure 16. Hiring and Firing Practices Index**



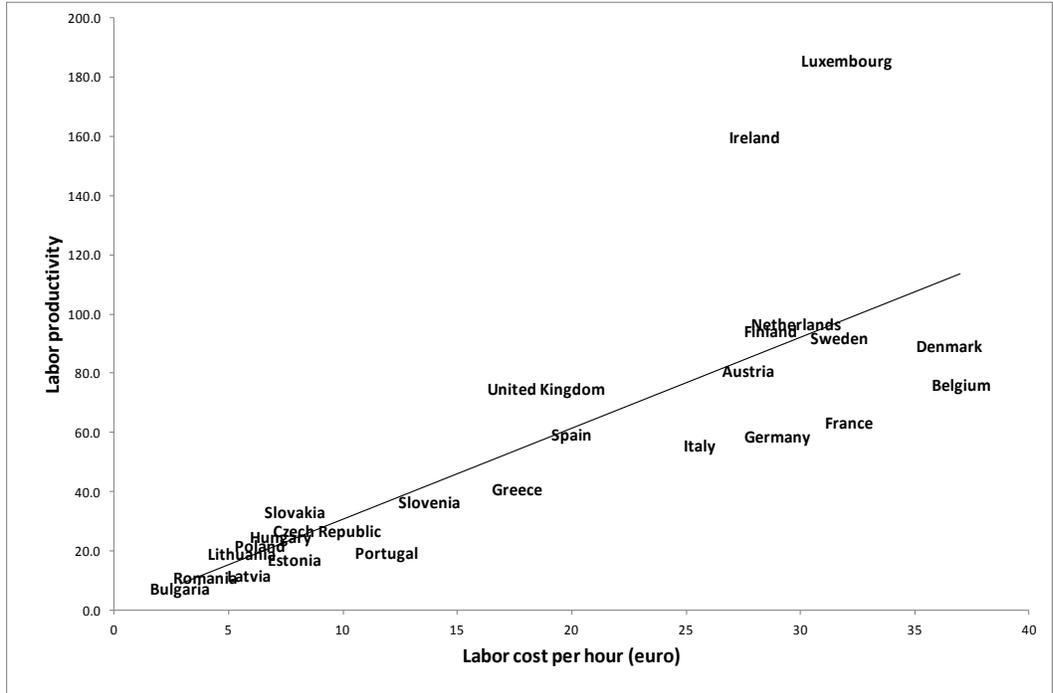
Source: World Bank Doing Business

**Labor costs have accordingly risen faster in EU11 than in EU15, in line with the convergence in labor productivity.** Current labor productivity levels correlate strongly with labor costs per hour (see Figure 17), both within EU11 countries and between EU11 and EU15 countries. In this sense, economic fundamentals appear to be responsible for the

large increases in unit labor costs in EU11 over the last decade. For the case of EU15, such a correlation exists but is not as robust as in the case of EU11, suggesting that institutional factors play a more important role as determinants of unit labor costs differences in high productivity countries.

**Given the relatively generous social protection system, expected demographic developments are among the most formidable obstacles to the sustainability of the European growth model.** With employment protection high, social benefits generous, and reduced mobility, the most important methods for improving workforce productivity in the long term are to increase labor market participation and both develop skills and attract talent, meanwhile ensuring fiscal sustainability.

**Figure 17. Labor Productivity and Labor Costs per Hour, 2009**



Source: World Bank and Eurostat

**Together the expected shrinkage of the working-age population and the dramatic rise in the proportion of the population above age 65 pose a serious threat to the European growth model.**<sup>16</sup> The median age in EU11, which is currently comparable with the rest of Europe, is expected to increase 6.8 years on average by 2050 (Figure 18). In the rest of the EU the increase is expected to be 5.8 years.<sup>17</sup> The old-age dependency ratio in the EU11 will deteriorate with the share of the elderly in the population reaching 33 percent in 2060 from 16 percent in 2010. Currently, there are about 5 persons of working

<sup>16</sup> The demographic prospects of economies in Central and Eastern Europe were discussed extensively in World Bank (2007). See Annex 2 for more detail.

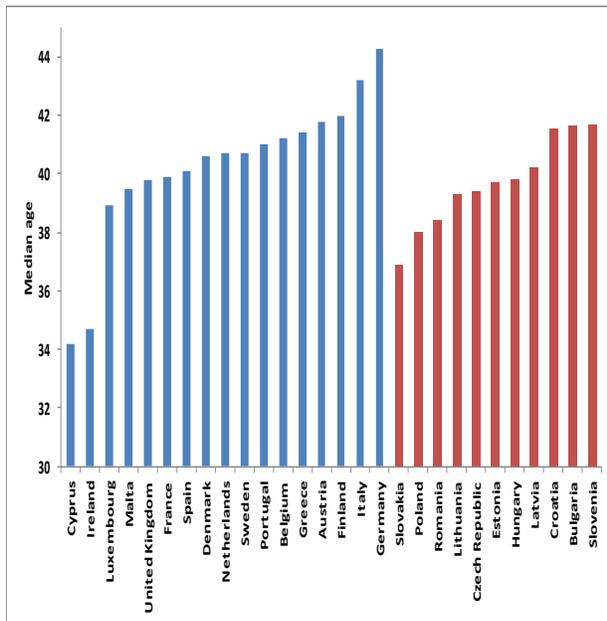
<sup>17</sup> These figures are based on the median scenario of the UN World Population Projections.

age for every person in pension age in the EU11. By the year 2060, this is expected to fall to less than 1.5 persons of working age for every person.

**Since labor participation and savings rates both tend to be lower for older people, such a demographic development has direct effects on macroeconomic factors of production.** If age-specific behavior with respect to participation in the labor market and saving is held constant, without remarkable increases in productivity, EU11 income per capita is likely to grow more slowly.

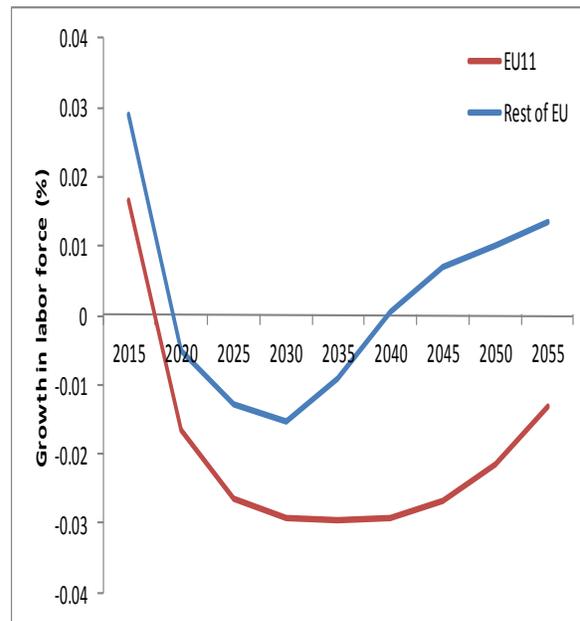
**The expected decline in labor force participation is larger and much more persistent in EU11 than in EU15.** Taking into account the sizable differences in participation rates by educational attainment, methods put forward by Loichinger (2012) were used to obtain projections of the labor force for EU11 and the rest of the EU for 2015 through 2055 (Figure 19).<sup>18</sup> The resultant benchmark labor force growth projections for EU11 and the rest of the EU suggest that the fall in the labor force in EU11 will be more dramatic than in the rest of Europe. The loss in labor force for the forthcoming decades is expected to be of approximately 19% between 2010 and 2050 in EU11, compared to 3% in the rest of the EU. The policy challenges posed by such changes in age structure in EU11 are thus even more urgent than in EU15.

**Figure 18. Median Age in EU Countries, 2010**



Source: UN World Population Prospects (2010)

**Figure 19. Labor Force Growth Projections, EU and EU11, 2015-2055**

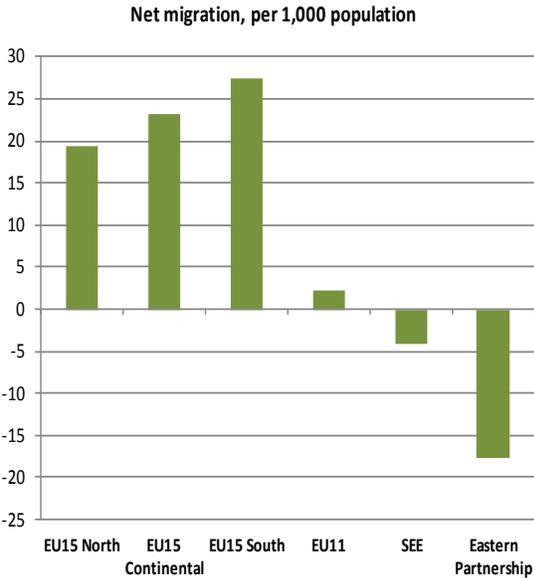


Source: Loichinger (2012)

<sup>18</sup> The method combines age-, sex-, and educational attainment-specific participation rates obtained from the European Labor Force Survey with population projections by age, sex and education calculated using the probabilistic population projection methods described by KC et al (2010)

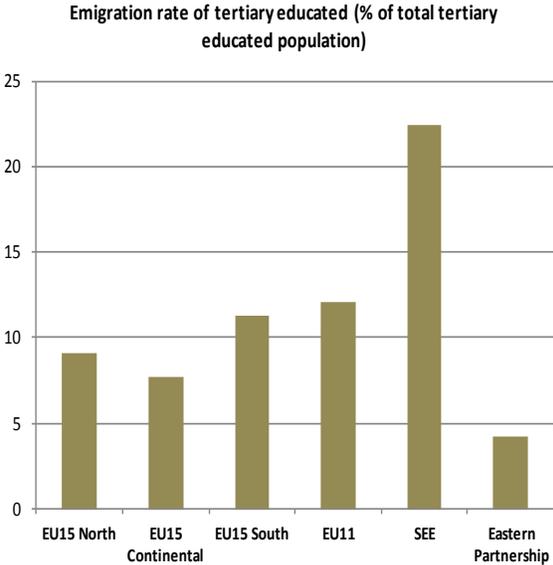
The issues associated with these demographic developments are aggravated because EU11 does a poor job of attracting migrants. The difference between EU11 and EU15 in net migration rates is remarkable (Figure 20). The rate at which highly skilled workers leave the EU11 is the highest of the EU regional aggregates (Figure 21). To the extent that EU11 economies evolve toward innovation and technologically advanced products, a shortage of skills could constrain economic growth in the region. Creating incentives to bring skilled individuals back may soon become a priority for EU11 economies.

Figure 20. Net Migration Rates by Region



Source: World Bank

Figure 21. Emigration Rates of People with Tertiary Education

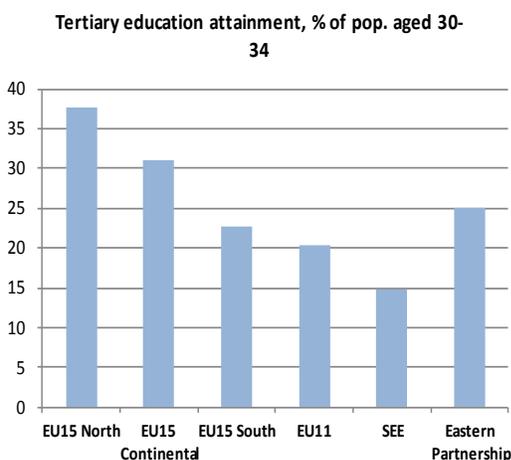


Source: World Bank

Apart from increasing the retirement age, policies to increase EU11 labor participation rates will necessarily have to incentivize and retain highly skilled individuals. A wage premium as high as 25–30 percent was found recently for workers in Eastern Europe who had experience in Western Europe (Iara, 2008). Standard estimates of the returns to education in the region may thus not be very informative for domestic policy if decisions to migrate, and eventually to return, are taken into account. Such earning differentials have potent signaling effects for education decisions. They also may turn the EU11 “brain drain” into a “brain rental” by enabling the return of skilled emigrants to the region.<sup>19</sup> Such beneficial effect, however, requires impulses in terms of demand for skills in EU11 and thus the fostering of innovation activities and entrepreneurship to attract talented emigrants back to the region.

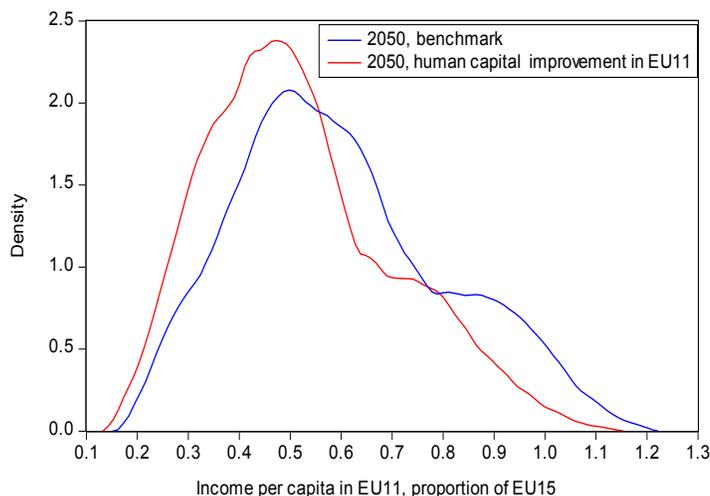
<sup>19</sup> See also the theoretical underpinnings in Mayr and Peri (2009).

**Figure 22. Tertiary Education, Age Group 30–34, 2010**



Source: International Institute for Applied Systems Analysis (IIASA) and Vienna Institute of Demography (VID)

**Figure 23. Projections of Income per Capita, 2050: Benchmark Scenario and EU11 Human Capital Investment Improvement Scenario**



Source: Crespo Cuaresma, Havettová and Lábaj (2012); World Bank staff calculations

**Persistent sizable differences in participation rates by educational attainment can be seen in the EU (Figure 22), and are significantly larger for women.** Currently, the share of EU11 population aged 30-34 with tertiary education is about 21 percent, compared to more than 30 percent in EU15-Continental and EU15-North. Further educational expansion at the tertiary level may to some extent be effective in attenuating the detrimental effects of population aging. The average for individuals with tertiary education in EU11 also hides considerable differences between countries in the region. Certain economies might thus earn significant income growth dividends from using investments in human capital to increase participation.

**EU11 investments in human capital are also expected to significantly accelerate the income convergence process.** In order to quantify their effect on convergence, the previous income projection exercise was repeated assuming that EU11 invests more than EU15 in human capital.<sup>20</sup> The results (Figure 23) indicate that EU11 countries have ample room to speed up income convergence significantly by investing in skills formation. Based on both the benchmark scenario and a scenario implying that EU11 invests more in human capital, the distributions of relative income per capita in 2050 for EU11 compared to EU15 indicate that a virtuous interplay of increased labor market participation and higher income growth is likely to result from further human capital investments. This is particularly true for countries that have larger gaps with EU15 in terms of educational

<sup>20</sup> Following Crespo Cuaresma, Havettová and Lábaj (2012), we assume that this share will grow at a speed estimated from the historical experience of countries at similar levels of educational attainment while tertiary educational attainment rates in the rest of Europe remain constant. That scenario implies that EU11 would over time build up a positive differential in human capital accumulation with respect to the rest of the EU that would materialize in a difference of 8 percentage points in the tertiary education attainment rate by 2050.

attainment and thus ample scope for increasing tertiary education attainment rates. In contrast, to improve labor participation through education policy in economies with already high educational attainment, it would be necessary to improve the quality of the educational system.

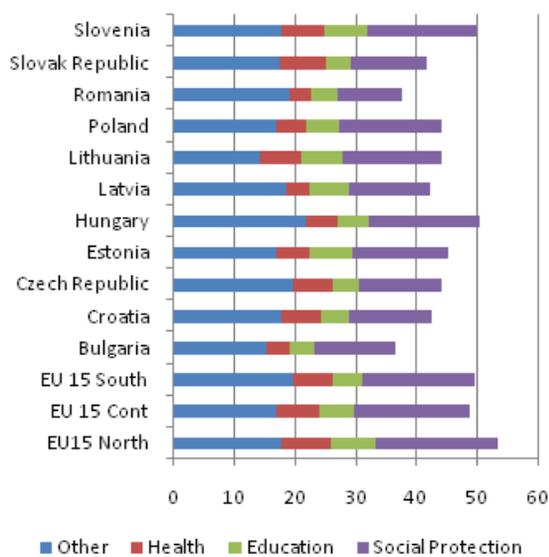
**In sum, the demographic developments that are likely throughout Europe in the next few decades pose particular problems for EU11.** To keep the economic growth model sustainable as society ages and labor force participation plunges, policies are needed to increase labor market participation (e.g., by raising the retirement age) and attract back skilled workers who have migrated. Over the long-term, further EU11 investments in human capital are likely to fuel labor market participation rates and economic growth.

## Government: Institutions Converge, Differences Remain

**For the last decade EU11 governments have been larger than those in emerging economies outside Europe, but smaller than in EU15.** European governments tend to be large: the median government size was larger by 11 percent of GDP in EU15 and 13 percent in Eastern Europe than among their peers in other regions. In 2010, government spending accounted for over half of GDP in EU15 and over two-fifths in EU11. Only in Slovenia and Hungary is the size of the government comparable to the average in EU15. The smallest governments were those of Bulgaria and Romania. Social expenditures explain the variations (Figure 24). The composition of revenues also varies significantly between old and new EU countries (Figure 27). For instance, EU11 countries collect more in indirect taxes and nontax revenues than EU15 countries, but corporate and individual taxes still account for a small share of revenues.

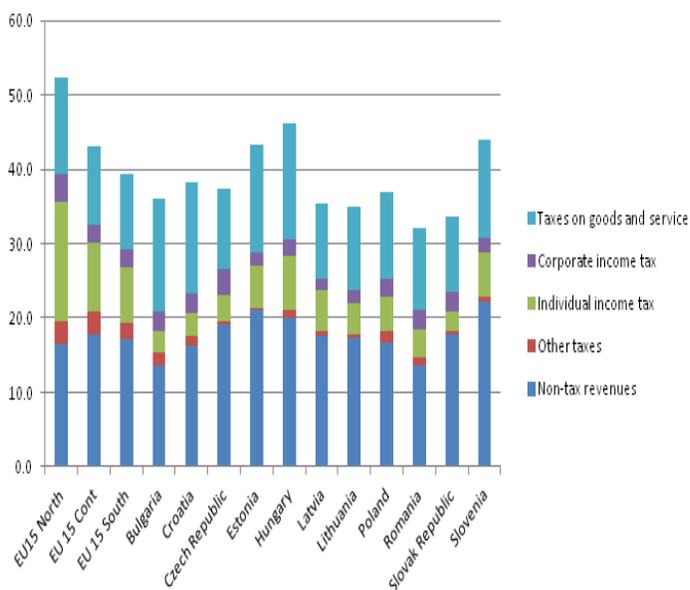
**A large government is a drag on growth.** Over time, big governments tend to create sclerotic bureaucracies that crowd out employment in the private sector and lead to dependence on public transfers and public wages. Large public administrations can also produce organized interest groups keener on exploiting their powers for their own benefit than on facilitating a prosperous private sector (Olson 1982). Econometric results show a powerful inverse relationship in Europe between initial government size and subsequent growth, though not worldwide (Gill and Raiser, 2012). The results suggest that in Europe a 10 percentage point increase in initial government spending as a share of GDP is associated with a reduction in annual real per capita GDP growth of about 0.6–0.9 percentage points a year.

**Figure 24. Composition of General Government Expenditures as a Share of GDP, 2004–2009 (Annual averages)**



Source: Eurostat.

**Figure 25. Composition of General Government Revenues, as a Share of GDP, 2004–2009 (Annual Averages)**



Source: Eurostat.

**EU11 governments are larger than other emerging countries outside Europe because social transfers are large, and the impact of transfers on growth is not as significant as that of spending on public investment or education.** Indeed, the regression results for Europe show that social transfers have a consistently negative effect on growth, even though the coefficients vary in size and significance. High social transfers might well be the negative link from government size to growth in Europe.

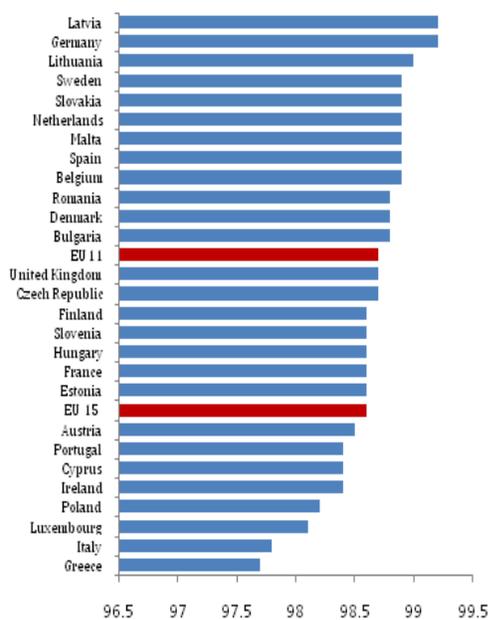
**But size is not the only feature of government that matters – what the government does also matters.** The process of EU integration has helped improve the quality of government in EU11 by strengthening the rule of law (well-defined property rights and a functioning legal system), facilitating economic openness, and promoting voice and accountability. While full income convergence is likely to take decades, the EU11 countries have already successfully adopted EU law (Figure 26). Having a common body of law with EU countries has strengthened the rule of law in the post-Socialist countries and has helped policy reforms implemented over recent decades to strengthen public administration and public financial management.

**However, the quality of institutions in EU11 remains weak relative to EU15: government quality declines from north to south and west to east.** Even though EU11 per capita income is still only about three-quarters of EU15-South, the region matches the south on the government effectiveness indicator (Figure 2). While all EU11 countries have made considerable progress in building up their institutions, in certain aspect there are still

gaps with EU15 countries (especially EU15-Continental and EU15-North). Estonia has made the most progress; its ranking in the Transparency International Corruption Perception index, on effectiveness of government is very close to EU15 levels.

**Moreover, there is considerable scope to make government spending more efficient in EU11 countries.** Although assessing the efficiency of the public sector is always challenging due to difficulties in measuring government output, many studies have identified vast “efficiency reserves” in the public sector: there is considerable scope for saving by, e.g., moderating public wages and pensions or enforcing private contracts. Public Expenditure Reviews of several EU11 economies, conducted in recent years by the World Bank, found three main sources of inefficiency: (1) Governments are slow to adjust spending patterns, especially in education, to shifting demographic trends; (2) incentives for local governments to save are weak; and (3) governments have attempted to improve equity without properly evaluating policy outcomes. In many EU11 countries generous social assistance and other benefits are poorly targeted.

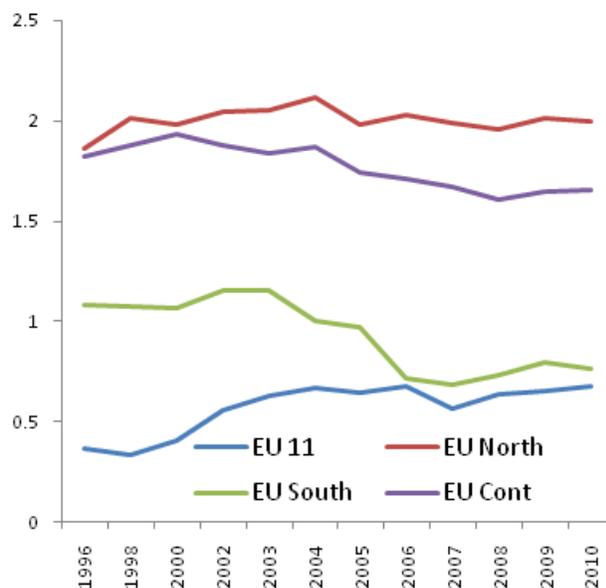
**Figure 26. Adoption of EU Law, 2009**



Source: Eurostat.

Note: The indicators shows the ratio of directives for which measures of implementation have been notified by Member States divided by directives applicable on the reference date by Member States.

**Figure 27. Worldwide Governance Indicators: Effectiveness of Government Score**

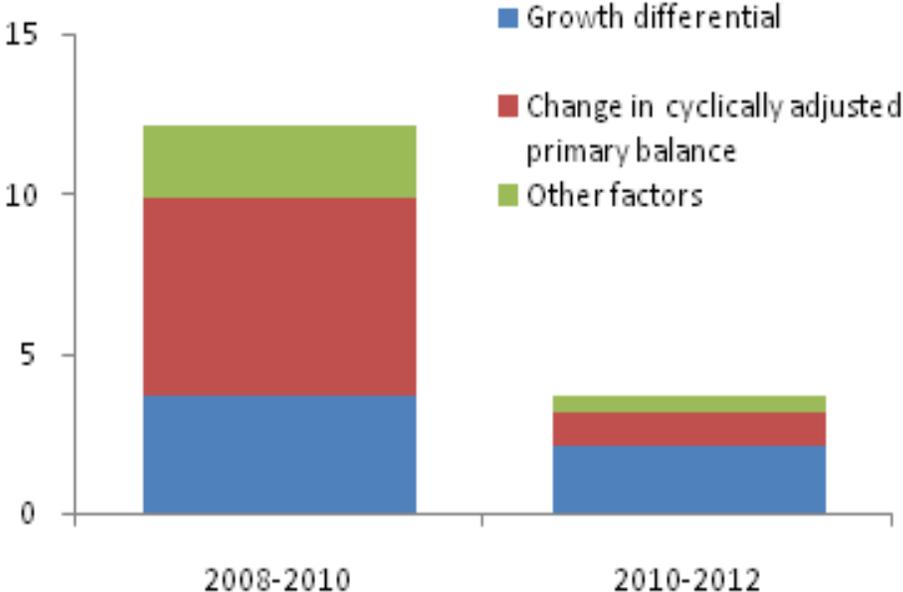


Source: Worldwide Governance Indicators.

Note: Government Effectiveness (GE) – capturing perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government’s commitment to such policies.

**In the medium term the combination of large governments and inefficient spending will inevitably worsen the fiscal position, allowing debt to accumulate and becoming a drag on growth.** Applying lessons from other countries about what works, EU11 countries have significant scope to make the bureaucracy leaner, fiscal institutions more reliable, public services more competitive, and tax administration more effective; and to use electronic government to keep citizens better informed. Otherwise, large governments, moderating growth, weak institutions, and rapidly aging populations will cause large fiscal imbalances. During the crisis, deterioration in fiscal balances contributed more than 50 percent to increases in debt in EU11 countries. Post-crisis, while growth in public debt has slackened considerably, more than half of the ultimate increase was attributable to negative interest rate and growth difference (Figure 28). Because slow growth combined with the primary fiscal deficit will continue to push up EU11 public debt, fiscal consolidation must be a top priority for EU11 policy makers.

**Figure 28. Cumulative Changes in Public Debt and Causes, EU11 Countries (Percentage points of GDP)**



Sources: Eurostat, EU11 member country conversion programs, World Bank staff estimates.

# How to Sustain Medium-term Growth in the EU11?

There are reasons to believe that convergence of EU11 income per capita to Western European levels will continue, but will proceed more slowly. Trade and financial integration have sped along at a spectacular pace in EU11 in the recent past, although trade in modern services and the integration of government bond and equity markets are somewhat behind. As in the rest of Europe, demographic developments will pose huge challenges for the sustainability of public finance in the EU11 economies. In the next several decades the EU11 labor force is expected to contract more than labor forces in the rest of the EU, making it even more urgent that countries in the region reform pension systems, change migration policy, and find incentives to attract talent to the region. Closing the gap with the rest of the EU in educational attainment levels and improving education quality might significantly soften the constraints imposed by the demographic threats and produce sizable returns in terms of additional income convergence.

In spite of the good prospects of further income convergence to EU15, the lessons drawn from the recent growth experience in EU15-South bring to the forefront the latent risks in terms of constraints to sustainable medium-run economic growth. The analysis in this paper identifies certain areas where structural features that may be growth-hampering in EU11 economies resemble those of countries in EU15-South. The lessons learned from the EU15-South region should help EU11 countries to optimize reform policies in order to achieve further income growth. In this respect, measures to improve the business environment, the government quality and spending efficiency, all factors which have been claimed responsible for slowing economic growth in EU15-South, need to be prioritized in the policy agenda of the EU11 economies. In addition, further developing the institutional basis for fostering innovation activities should be given a privileged treatment as an instrument to achieve income convergence. This is more the case since the recent crisis has led to a divergent trend in innovation spending within the EU.

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# Annex 1

## Country Groupings

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**EU11:** Bulgaria, the Czech Republic, Croatia, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, the Slovakia, and Slovenia.

**EU15:** Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxemburg, the Netherlands, Portugal, Spain, Sweden, and the United Kingdom

**EU15-South:** Greece, Italy, Portugal, and Spain

**EU15-North:** Denmark, Finland, Ireland, Sweden, and the United Kingdom

**EU15-Continental:** Austria, Belgium, France, Germany, Luxemburg, and the Netherlands

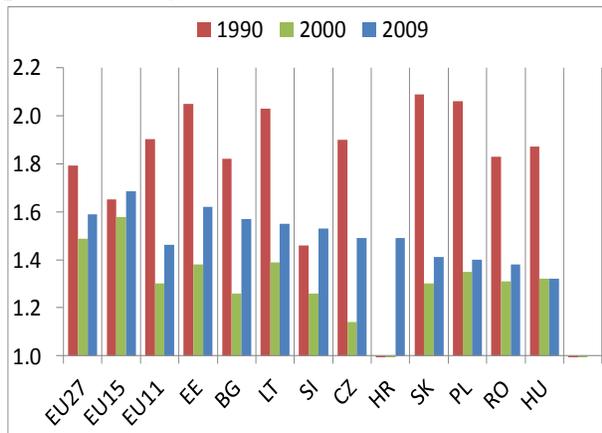
## Annex 2

### The scale of the demographic challenges in EU11<sup>21</sup>

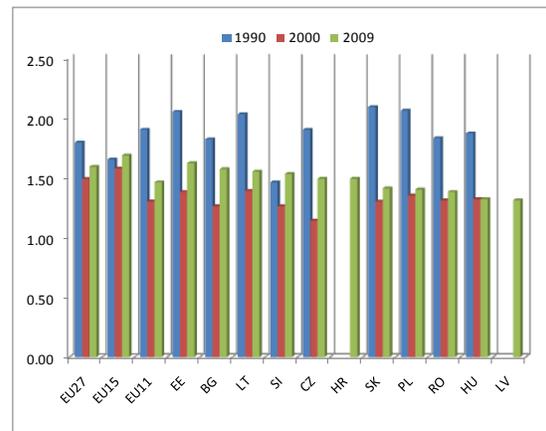
**The EU11's population has declined and aged in the past two decades.** The EU11's population fell from around 106 million people in 1990 to 102 million in 2010. In addition, the age structure of the population in the region has changed towards a larger proportion of the population in older age groups now than two decades ago (Fig 1). Between 1990 and 2010, the share of the population aged 60 and over increased from 9.1 to 12.3 percent. The share of the population aged 80 and over currently accounts for about 4 percent of total. Two key factors drove this change: the large decline in fertility rates (Fig 2) and the fast raising life expectancy (Fig 4). Life expectancy at birth has increased markedly over the last two decades, to about 75 from about 70 in 1990.

**The phenomenon of population aging is not uniform across countries.** Between 1990 and 2010, the EU11 population was aging fastest in Slovenia, which showed 6 percentage point increase in the share of people aged 60 and over. In contrast, in Slovakia the change in the share of the old age population was the smallest. In Bulgaria, Latvia, Croatia and Estonia more than 17 percent of the population is over age 60 today ( ).

**Figure 1. Total fertility rate, (live births per woman), 1990, 2000, 2009**



**Figure 2. Life expectancy at birth**



Source: Active ageing and solidarity between generations, Eurostat

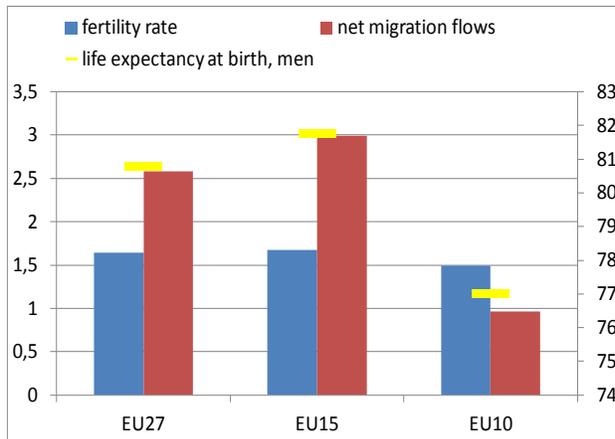
**Looking ahead, the EU11 countries will be aging fast with unprecedented changes in the size and structure of its population** (see Figure 3, Figure 4). The overall EU11

<sup>21</sup> This annex is based on the European Commission. (2012). The 2012 Ageing Report: Underlying Assumptions and Projection Methodologies.

population is projected to fall by about 15 percent between 2010 and 2060 due to three factors:

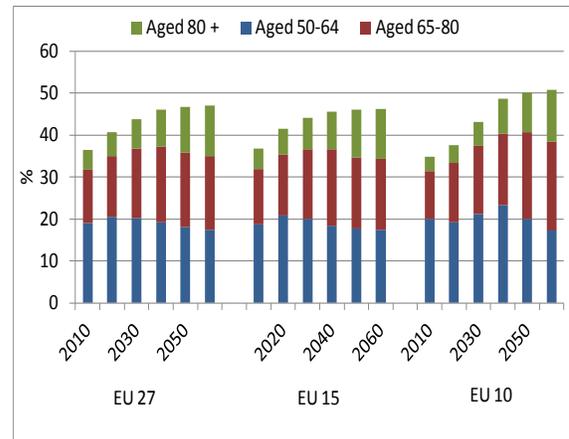
- Although the EU11 fertility rate is expected to reach 1.6 in 2060, it will be well below the natural replacement rate. It will also be significantly lower than the average fertility rate for the EU15.
- Between 2010 and 2060, the EU11 countries will experience only limited migration net inflows. Migration flows are hard to predict, but in the absence of major policy changes, they are unlikely to reverse the overall demographic pattern.
- Life expectancy is projected to continue to increase by about 1.5 year each decade, which is very similar pace to the rest of EU. According to the EC Aging Report, life expectancy at age 65 in the EU11 will continue to rise in the coming decades, reaching about 20 years for men and 25 years for women by 2060.

**Figure 3. Average values for fertility rate, life expectancy, net migration flows in the period from 2010 to 2060, in the Eu27, EU15 and EU10**



Source: The EC (2012 Ageing Report)

**Figure 4. Projected structure of the population by age group, 1 January (% share of total population)**



Source: The EC (2012 Ageing Report)