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## Megatrends: Key Forces Forging Our Future

A vision for Europe to prosper and best serve its citizens

A report from Bruegel to the Fondazione Cariplo

Rebecca Christie and Guntram B. Wolff, Editors

## **DIRECTOR'S WELCOME:**

All aspects of our society must grapple with a fundamental set of challenges underpinning the world economy. These megatrends offer an opportunity to shape policy in a way that addresses the overarching forces at work. At the same time, stakeholders must prepare, or risk jeopardizing the hard-won stability that emerged from the last wave of crises.

The political, demographic and environmental shifts now underway will profoundly change the global landscape. This report outlines the biggest forces at work and the new outlook necessary to meet the coming test. We hope that the analysis presented here will help shape Europe's and Italy's future for the better. As always, charting trends is not a forecast – the future will depend on the actions that we all agree to do. Progress will depend on our ethical framework and our values just as much as it depends on our capacity to react and cope with the tremendous changes ongoing. We hope our report can make a difference for positive change.

*Guntram Wolff, Director, Bruegel*

## OVERVIEW/EXECUTIVE SUMMARY

By Rebecca Christie

The global economy in the 21st century requires European leadership. Two decades of monetary union have underpinned a period of intense technological and societal change. To build on its achievements and lay the groundwork for future prosperity, Europe must step into a new leadership role that will allow it to shape global forces alongside peers in North America and Asia. Doing this effectively will require understanding and adapting to the fundamental forces at work.

Bruegel scholars have identified a series of overarching challenges that will touch every element of the European project along with economies and societies of Europe. The long-lasting effects of these 'megatrends' must be considered comprehensively. It's time for new ideas that offer strategic solutions, to ensure that our societies continue to thrive.

### Megatrend: Climate change

**We must find the right path** to transform our economic and societal system so that it is climate neutral and can act to preserve and restore biodiversity. China, the United States and the EU are the world's top 3 emitters today. Together, these 3 blocs contribute to more than half of world's total CO<sub>2</sub> emissions, while the 100 smallest-emitting countries collectively add up to only 3.5 percent of emissions. Climate-change effects are becoming stronger, not weaker.

To mitigate these developments, the global energy system must switch from fossil fuels to clean energy sources. Other important actions include promoting energy efficiency and conservation; promoting reforestation and establishing new forests; promoting carbon capture utilisation and storage; promoting geoengineering solutions; and shifting food consumption patterns. Conservation will mean using less energy in general, and transitioning to more efficient technology will aid that goal. Geoengineering is a more daunting prospect, since it refers to deliberate and large-scale human intervention in the Earth's climate system.

Greenhouse gas emissions continue to raise at a rapid pace globally. European emissions are decreasing as a share of global atmospheric pollution, but the EU is far from reaching the targets set by the Paris agreement. Moreover, Europe imports polluting goods from third countries, therefore "outsourcing" some of its greenhouse gas production. Our policies must shift comprehensively to make sure Europe is helping and not hurting the environmental outlook.

### Megatrend: Migration

Migration via regular as well as irregular channels will be an important force shaping the global economy. Europe may receive new waves of "climate migrants" arriving as conditions in some countries become less hospitable, due to rising sea levels and changing weather conditions. Given past resistance to absorbing refugees from countries affected by war, there may be political opposition to providing a haven and a workplace for those looking to start over in a new place. Europe will need to confront its values as well as its economy and public sentiment in preparing for these shifts.

Any assessment of immigration trends must consider **not only the movement of people but also the movement of public opinion**. Economic data show that welfare "abuse" is not systemic and that, in fact, migrants can contribute positively to economies and labour markets. Shifts in technology and demographics will accentuate these developments. Countries with aging populations may need to look globally to find caregiving staff on the necessary scale. In addition, new technologies mean that skilled workers will be more in demand and more likely to look internationally for opportunities.

Migration in general facilitates cross-border social and economic ties, leading to an increased mobility of ideas and technologies, capital, and goods and services. If managed effectively, it could lead to improved productivity and gains from trade. If managed badly, public resistance will undermine the stability of our societies.

## Megatrend: Technology and the Future of Work

Technology-driven trends like artificial intelligence, automation, and platform work are already shaping the way companies and workers collaborate. Shifting geopolitical patterns are creating new risks of disruption of supply chains for key industries, while the rise of artificial intelligence and increased connectivity will transform the needs of the workforce. Employment will not necessarily drop, but it will change as a result of communications capabilities and shifts in which jobs require human expertise.

As the labour market shifts away from traditional employment, policymakers will need to grapple with how to adjust societal safety nets in response. It has long been recognised that social protection systems were not designed with non-traditional employees and the self-employed in mind.

In Europe, social partners will need to find new common ground on how to manage these challenges, how to preserve economic growth and how to maintain their commitments to the welfare state. This **transformation may be bigger** than those driven by previous technological pushes. In particular, artificial intelligence will affect almost all jobs in some way. Any response needs to find ways to allow for change to happen in a way that allows workers and policy makers to adapt.

## Megatrend: The Modern Labour Force

We see five developments shaping employment in advanced countries: increasing labour force participation; changes in the composition of the labour force; decreasing working hours; still high youth inactivity in some parts of Europe; and divergent productivity trends.

The EU shows an overall bright picture when it comes to employment levels, but **regional and generational differences** cloud the outlook. States and regions diverge significantly, in terms of unemployment and also workforce participation – for example, Italy's employment rate is 58% and France's is 65%, while Germany is at 75%. Youth joblessness remains a substantial concern in some European countries, especially the Southern states.

Labour productivity in Europe is catching up to the US by some measures, but workers in other countries work longer hours, which makes their productivity seem higher by comparison. The big question for employment going forward will be not just quantity, but quality, as we assess how the fundamental nature of working is going to change

## Megatrend: Inequality and Societal Cohesion

Decreasing global income inequality, due to wage gains in China and India, is one of the biggest factors shaping the global economy. Yet divergences remain, especially in developed economies. A more inhospitable climate will heighten differences between the rich and the poor. We already see that it is difficult for young people from disadvantaged backgrounds to catch up to their better-off peers. As global weather trends exacerbate these inherent advantages, a large part of the world's population will have to work harder than ever just to keep up.

Within Europe, we see inequality trends moving in different directions in different regions. In general, there are higher levels in the south and lower levels in the west. Within Italy and Spain in particular, regions with higher inequality also are dealing with higher youth unemployment. In the context of globalisation and digitisation, corporate profit shifting has increased to high levels, depriving governments from revenues. In advanced countries the tax burden is now more heavily placed on labour taxes due to the shift away from taxing corporate profits.

Inequality is relatively stable in the EU, compared to the UK and the US. But **the burden of sustaining the welfare states** – which maintain the quality of life that European democracies have agreed is essential – falls increasingly on the shoulders of the middle classes. Personal income taxes have been substantially increasing compared to corporate and wealth taxation. If we add urban-rural divides to this picture, the distributional challenge becomes even clearer. Some countries continue to have high levels of poverty. Two key challenges are making our societies both fairer and more sustainable.

## Megatrend: European monetary union

**Europe must grapple directly** with the diverging fortunes of countries that have tied their economies together through not only the single market but also monetary union. Recent data show that the banking and capital markets union are not yet delivering as expected, as witnessed by the lack of increase in cross-border risk sharing and inability to tackle the doom loop between banking system and sovereigns. Differences in real interest rates for sovereigns are also significant and are undermining economic convergence.

During the first decade of the euro, a number of factors led to major vulnerabilities in southern euro members: lower interest rates; weak productivity growth that was outpaced by wage growth; increased financial integration that fostered capital flight to other parts of Europe; and inadequate national policies. These vulnerabilities were reflected in external imbalances, structurally weak fiscal positions, and banking sector fragility. Painful adjustment followed after 2010, which inflicted social pain. Meanwhile countries like Germany and the Netherlands have accumulated unwieldy surpluses, suggesting they are not investing enough in future growth.

There have been some positive developments recently. Long-term real interest rates have been falling below zero in all euro area countries, and there has been some renewal of financial integration. If not addressed, however, divergences in GDP per capita between some euro-area member states and others might undermine the political and social sustainability of Europe's monetary union.

## Megatrend: Trust in Civil Institutions

Distrust toward media, governments and institutions has increased worldwide, affecting **turning-point events** such as the 2016 US presidential election and the UK's Brexit referendum. It is clearly visible in the European Union. Despite some improvement in the last couple of years in the EU, a general lack of trust characterizes our European societies: depending on the country, this can be directed towards the EU, national governments and/ or media. This distrust is substantially correlated with a country's perceived quality of institutions. The widespread rise of populism is inevitably part of the context.

Europe is in the midst of a reckoning with how member states view the EU's collective institutions. Countries with weaker domestic governance tend to have higher faith in European bodies than counterparts where local institutions are viewed as highly trustworthy. In turn, countries with lower relative trust toward central institutions do not always have constructive views of their peers. This has created divisions and a perception that some countries are "more equal" than others, which has hurt the EU's ability to strengthen itself and work toward further integration.

Given the economic and cultural benefits of working together, overcoming these barriers to trust will need to be a greater priority.

## Megatrend: Aging populations

European societies are among the fastest aging in the world, but they're **not alone on this path**. China also is becoming a fast aging country while Japan is one of the oldest societies in the world. Meanwhile, neighbouring Africa is the youngest continent in the world and will exhibit a dramatic rise in population size in the next 20 years. Policy planning must assess how demographic change and increase in retirement age is correlated to the future pension systems and policy.

Older citizens must prepare for changes to their longstanding way of life. Everything from how we sort our trash to where we live will be affected by climate change. Transportation, indoor air conditioning and flood prevention are just some of the issues at stake. Meanwhile, migration will not have much of an impact on the demographic changes now underway.

Rising retirement ages mean citizens will spend more time in the workforce over the course of their lives, making it crucial that they learn the skills to adjust. Policy must address how older workers and retirees can benefit from new technology rather than be exploited by it. Artificial intelligence algorithms must be taught not to discriminate. Older citizens must not be left behind as the digital economy evolves.

**These megatrends should drive the European response to a wide range of policy problems. While not exhaustive, they offer a framework for considering how individual decisions play into broader shifts. If not addressed correctly, policymakers risk threatening the European Union's hard-won gains and hurting its efforts to promote sustainable development worldwide. The opportunity is clear-cut: a well-crafted response can put the EU on the path to success.**

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## Megatrend: Climate Change

By Simone Tagliapietra

### Summary:

Climate change effects are still becoming stronger, not weaker, despite international commitments to reduce carbon dioxide emissions and work toward a carbon-neutral society by 2050. While the phenomenon has been under study for a century, it has only risen to the top of the public agenda in the last 10 years. Mitigation, adaptation and international standards will all need to be part of the necessary response. The problems are global, but solutions must be enacted at the local and national levels. As citizens grapple with more frequent episodes of drought, heavy rainfall and flooding, it is becoming clear that action is required. The question then is what kind, and how.

### Connections:

- *Migration*: Less developed countries are likely to face a range of climate-driven changes that will impact how much of their population chooses to seek new homes. This means parts of the developed world that are more insulated from severe weather and rising sea levels may see increases in regular and irregular migration, which will policymakers will need to take into account.
- *Technology and the Future of Work*: Reversing climate trends will rely heavily on changing technology. From agricultural practices to manufacturing, stakeholders will need to change the way they do business so they can reduce environmental harm and speed up societal adaptation.
- *The Modern Labour Force*: A changing climate will affect much of the economy. Just a few of the sectors that may face severe impact: agriculture, forestry, fishing, seaside and mountain tourism, health, transport, the energy system, financial services and insurance. Countries will need to prepare their economies accordingly.
- *Inequality and Societal Cohesion*: Changing weather conditions may heighten differences between how affluent and working-class populations live, and climate change threatens the lives of many who live in poverty. Stakeholders will need to consider how policy actions affect citizens at all economic levels of society.
- *European Monetary Union*: Europe is committed to not only stabilizing its greenhouse gas emissions but reducing them in coming years. Integrating this pledge into the euro area's fiscal planning will be a big challenge, particularly given the financing required for transformational projects.
- *Trust in Civil Institutions*: Trust in the international community's ability to fight climate change was damaged by the 1992 Kyoto Protocol, which excluded developed countries from its emissions targets and was never ratified by the U.S., the world's biggest greenhouse gas producer. The Paris Agreement of 2016 has rebuilt confidence in international action, but its ultimate success will depend on how willing individual countries are to follow through on their commitments.
- *Aging Populations*: As industry and farming practices change to adapt to climate trends, so too will the jobs on offer, which may be a particular challenge for workers nearing retirement. Countries will need to make sure workers can find new jobs as old industries are phased out, and that the entire workforce has the necessary background to recognize their role in protecting the planet.

### Analysis:

Climate change is possibly the greatest challenge of our time. It entails a long-term change in the Earth's average climate, due to human activities that – like the combustion of fossil fuels – propel greenhouse gas (GHG) emissions into the atmosphere. Among these emissions, carbon dioxide

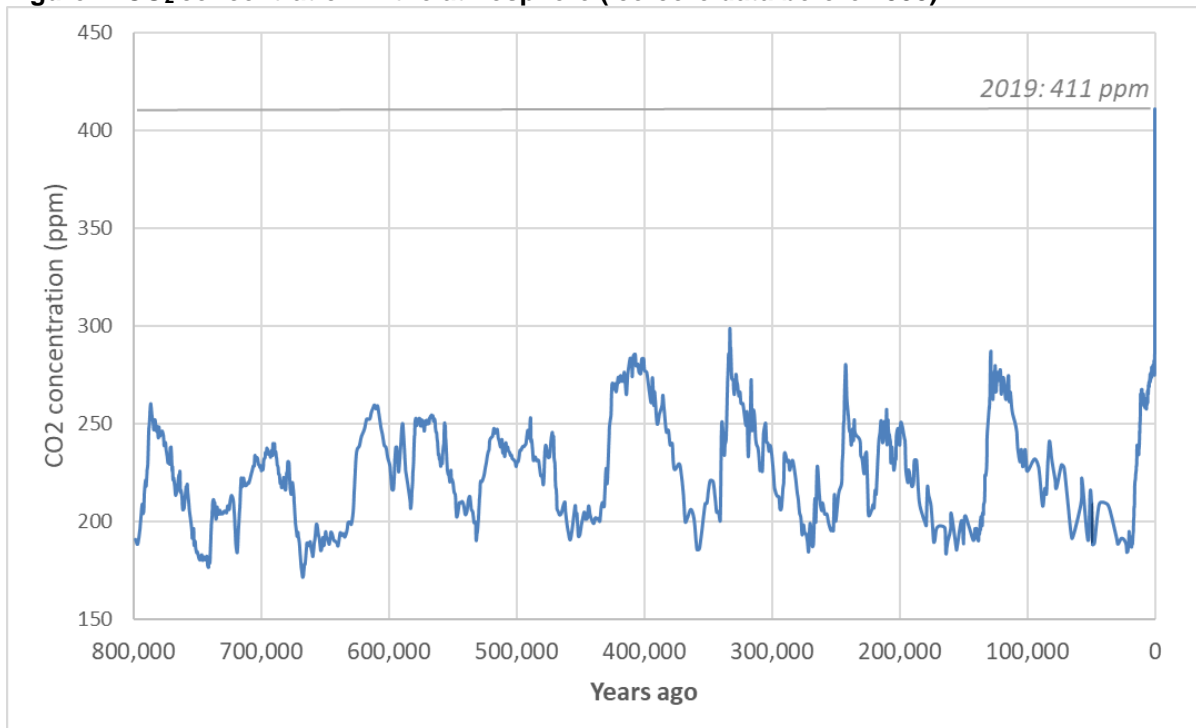


(CO<sub>2</sub>) is by far the most important, accounting for 76 percent of the total, followed by methane (16 percent), nitrous oxide (6 percent) and others (2 percent) (Source: IPCC, 2014).

The abundant empirical evidence on the unprecedented rate and global scale of the impact of human activities on the Earth system has led many scientists to call for the introduction of a new epoch in the geological time scale: the Anthropocene (Zalasiewicz et Al., 2017)

Global atmospheric concentration of CO<sub>2</sub> has increased from a pre-industrial value of about 280 parts per million (ppm) to 411 ppm in 2019. This level of atmospheric concentration exceeds by far historical levels, as over the last 800,000 years it remained in the range of 170 to 300 ppm as determined from ice-cores (Figure 1).

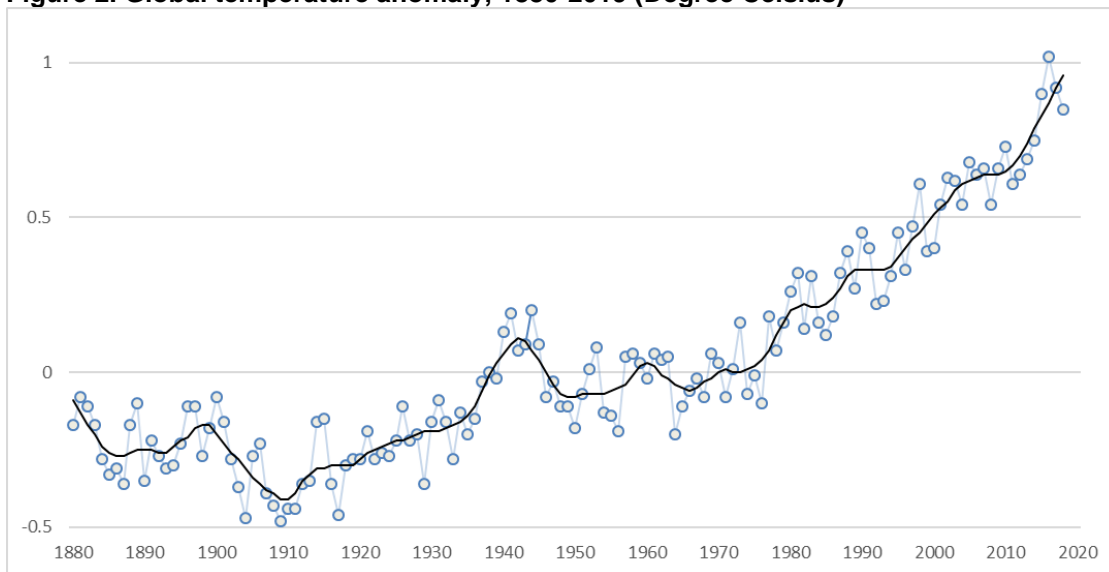
**Figure 1. CO<sub>2</sub> concentration in the atmosphere (Ice-core data before 1958)**



Source: Bruegel on Scripps Institution of Oceanography (2019).

As a result of this unprecedented increase of heat-trapping CO<sub>2</sub> concentration in the atmosphere, global average temperature has increased to date by approximately 1 degree Celsius above pre-industrial levels (Figure 2).

**Figure 2. Global temperature anomaly, 1880-2019 (Degree Celsius)**

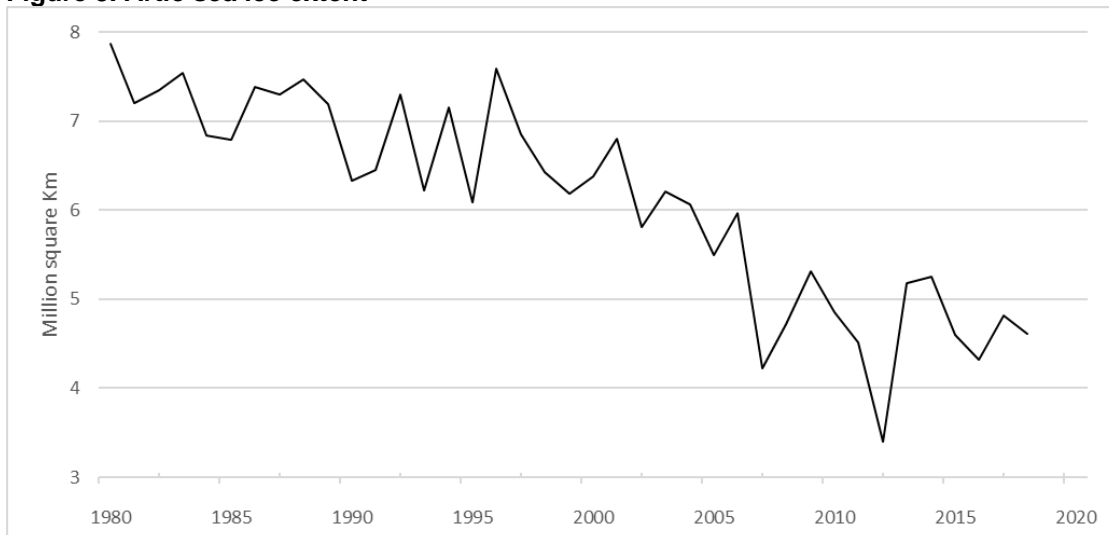


Source: Bruegel on NASA (2019).

This is alarming, because scientists have shown that the only sensible way to protect the world from the more dramatic impacts of climate change is to limit global warming to 1.5 degrees Celsius (IPCC, 2018).

Furthermore, warming greater than the global average is being experienced in many land regions and seasons, including two to three times higher in the Arctic. As a result, the extent of the ice in this region has decreased from 7.9 million sq. km in 1980 to 4.6 million sq. km in 2018 (Figure 3).

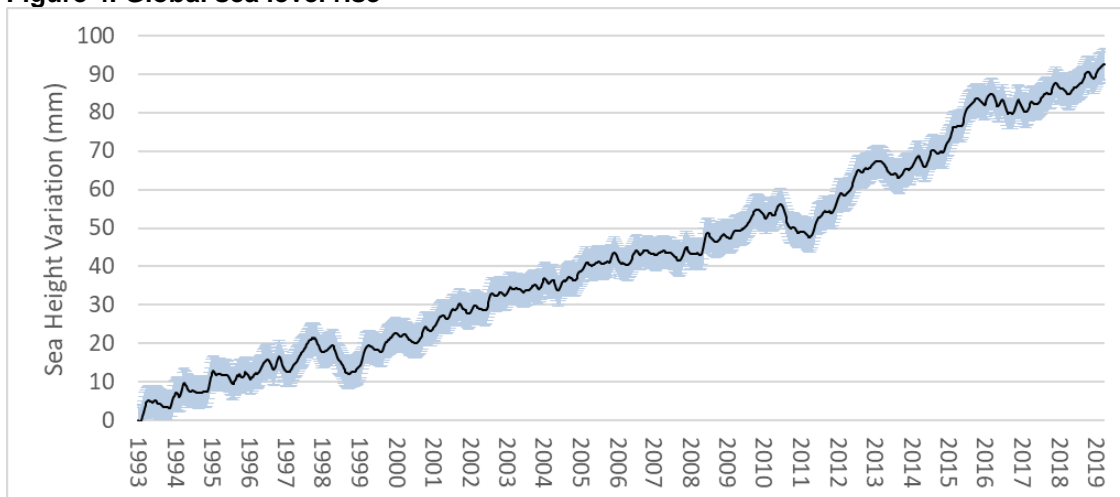
**Figure 3. Arctic sea ice extent**



Source: Bruegel on NASA (2019). Note: measured as average September extent.

This has vast repercussions. Added water from melting ice sheets and glaciers, together with the expansion of seawater as it warms, have indeed led to an unprecedented rise in global sea level (Figure 4) – which represents a vital challenge for coastal cities across the world, as well as for islands.

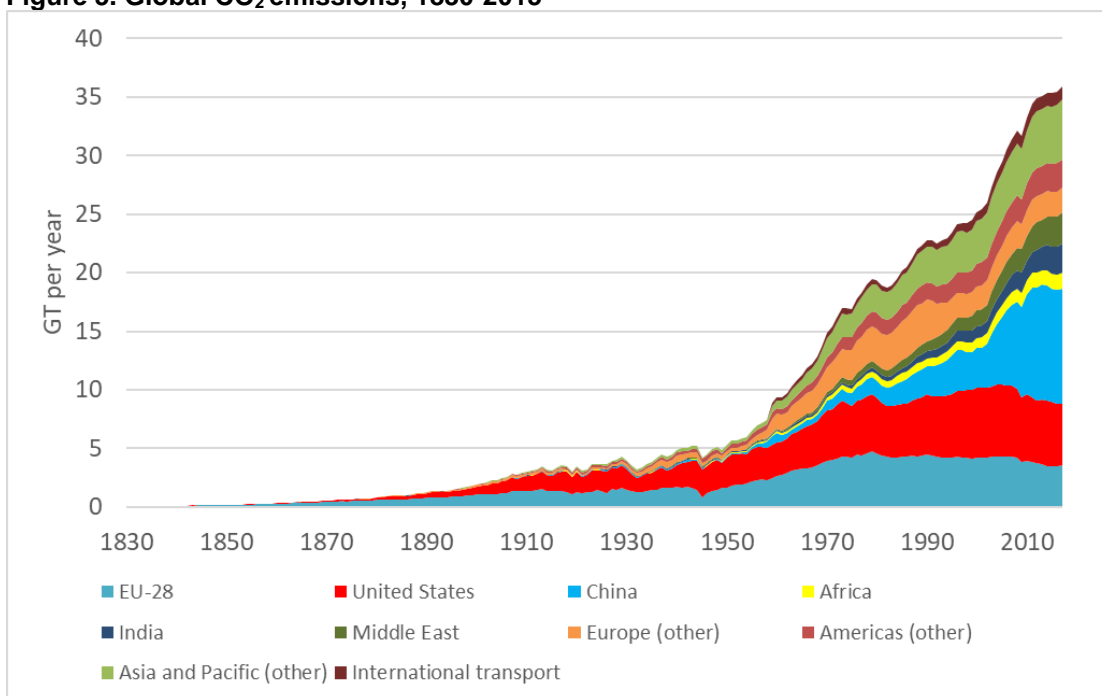
**Figure 4. Global sea level rise**



Source: Bruegel on NASA (2019).

Global CO<sub>2</sub> emissions have been driven by different regional dynamics over time. Between 1830 and 2015, the United States and Europe have been the world's key CO<sub>2</sub> emitters. China's CO<sub>2</sub> emissions impressively increased over the last three decades, making it the second largest historical emitter after the United States (Figure 5).

**Figure 5. Global CO<sub>2</sub> emissions, 1830-2015**

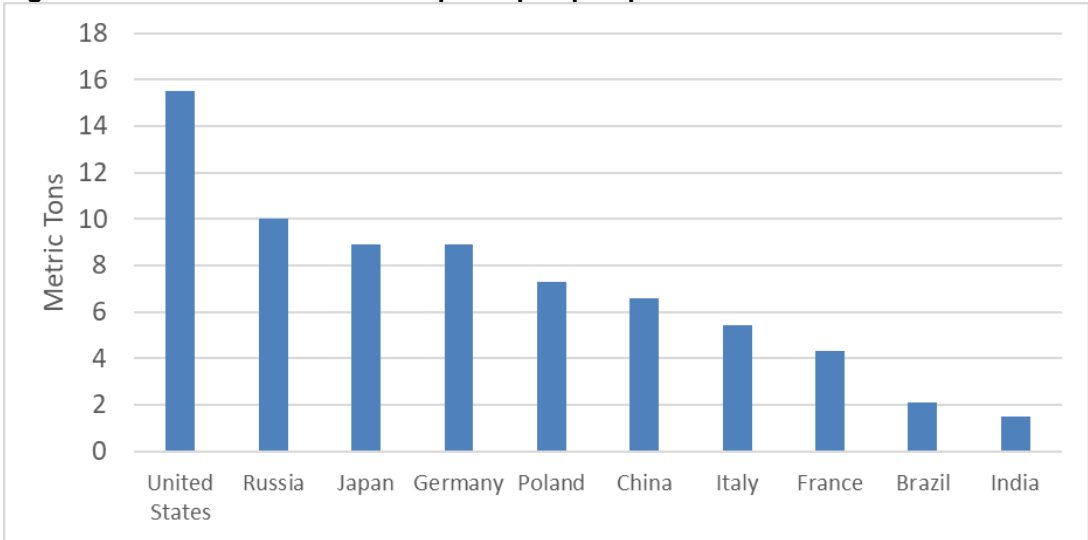


Source: Bruegel on Carbon Dioxide Information Analysis Center (2019).

Today, China, the United States and the EU are the world's top 3 emitters. Together, these 3 blocs contribute to more than half of world's total CO<sub>2</sub> emissions, while the 100 smallest-emitting countries collectively add up to only 3.5 percent of emissions.

The commonly used CO<sub>2</sub> emissions measurement system does not take into account population size, which is a big drawback. For this reason, it is also useful to look at the per capita dimension of CO<sub>2</sub> emissions, which reveals the high per capita emission level of the United States and the low levels of emerging economies such as India and Brazil (Figure 6).

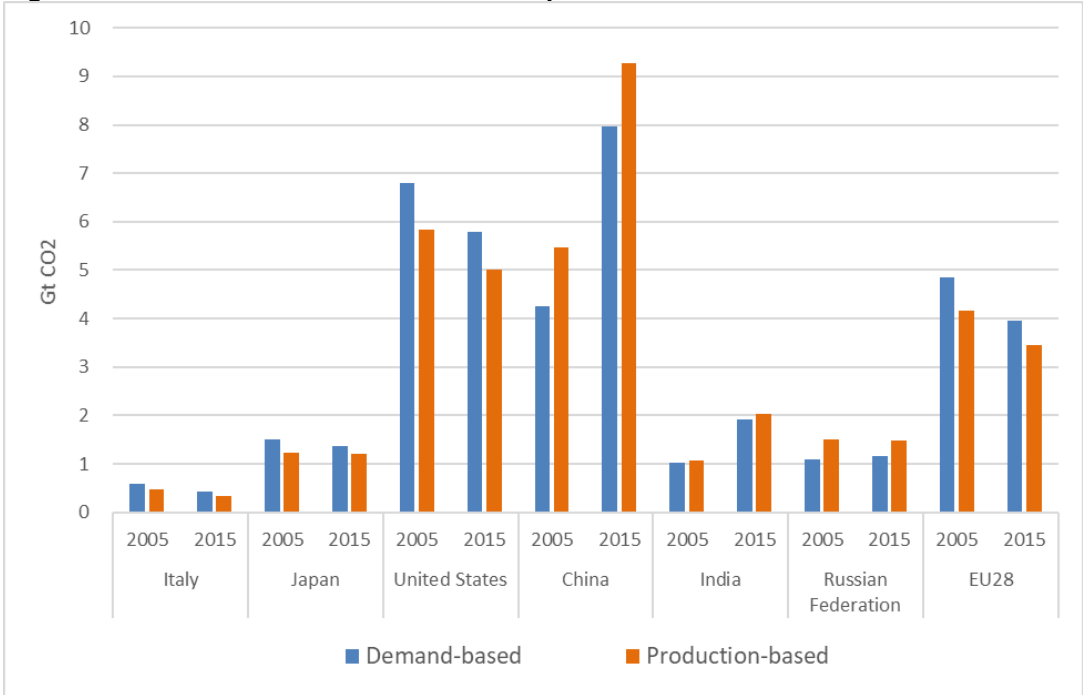
**Figure 6. Global CO<sub>2</sub> emissions: a per capita perspective**



Source: Bruegel on IEA (2019).

Another shortcoming of this measurement system is that it takes into account their production rather than their consumption. As a consequence, the emissions that might have been imported or exported in the form of traded goods are not taken into consideration. It is thus useful to also look at a demand-based accounting of CO<sub>2</sub> emission. This is sensible because, for instance, some of the CO<sub>2</sub> produced in emerging economies is due to the production of goods consumed in developed countries (Figure 7).

**Figure 7. CO<sub>2</sub> emission: demand-based Vs production-based**



Source: Bruegel on OECD (2019).

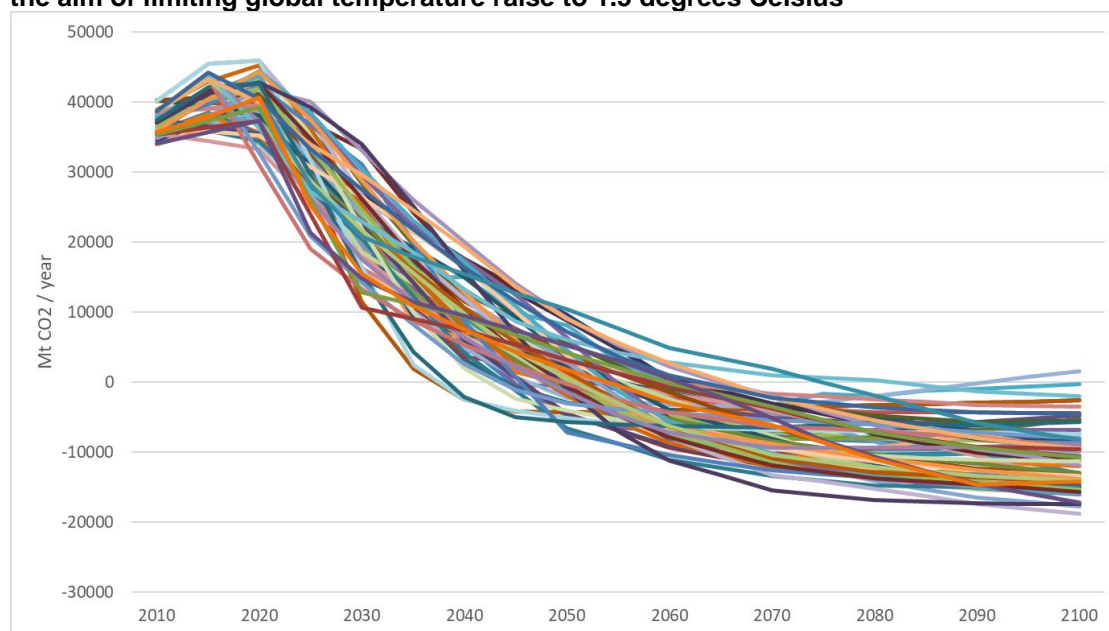
There are two complementary ways to respond to climate change: mitigation (i.e., reducing climate change) and adaptation (i.e., adapting to life in a changing climate).

### Climate change mitigation

Mitigation is the activity aimed at reducing the flow of heat-trapping GHGs into the atmosphere, either by reducing sources of these gases or enhancing the 'sinks' that accumulate and store these gases. The Paris Agreement set the target «to keep the increase in global average temperature to well below 2 degrees Celsius above pre-industrial levels and to pursue efforts to limit the temperature increase to 1.5 degree Celsius, recognizing that this would significantly reduce the risks and impacts of climate change» (UNFCCC, 2015, p.3).

Climate scientists estimate that global warming is likely to reach 1.5 degree Celsius already between 2030 and 2050 if it continues to increase at the current rate. They also estimate that in order to limit global temperature rise to 1.5-degree Celsius, global CO<sub>2</sub> emissions have to peak around 2020 and then rapidly decline by about 45 percent from 2010 levels by 2030, and then reach net zero around 2050 (IPCC, 2018) (Figure 8).

**Figure 8. Global CO<sub>2</sub> emissions in 70 different climate modelling scenarios consistent with the aim of limiting global temperature raise to 1.5 degrees Celsius**



Source: Bruegel on IPCC (2018).

This suggests the urgent need to reduce the world's emissions through mitigation actions. The main climate change mitigation action entails the switch of the global energy system from fossil fuels to clean energy sources. Other important actions entail promoting energy efficiency and conservation; promoting reforestation and establishing new forests; promoting carbon capture utilisation and storage; promoting geoengineering solutions; and shifting food consumption patterns.

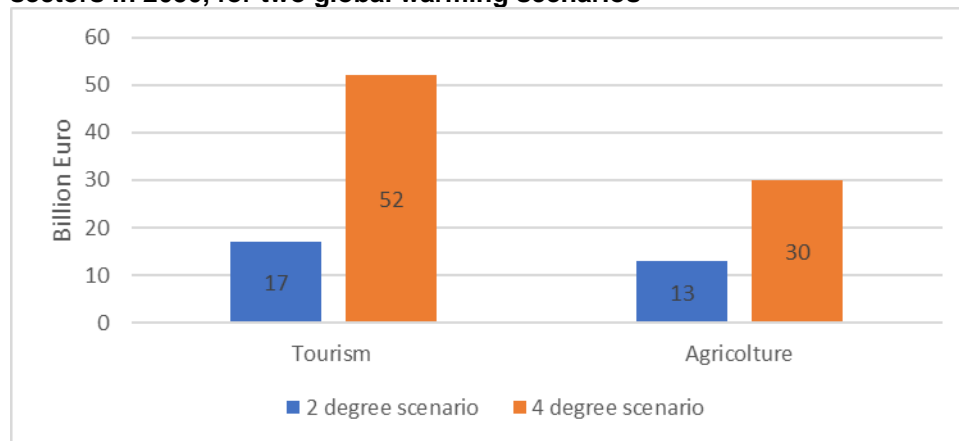
Conservation will mean using less energy in general, and transitioning to more efficient technology will aid that goal. Geoengineering is a more daunting prospect, since it refers to deliberate and large-scale human intervention in the Earth's climate system. This could take the form of technologies aimed at cooling the planet by reflecting sunlight away from Earth or at siphoning gasses out of the atmosphere. More traditional climate-changing methods involve trees: forests retain and absorb CO<sub>2</sub>, so replacing forests or creating new ones can help sequester carbon emissions out of the atmosphere and store them in wood and greenery as a result of photosynthesis. Farm policy will also play a role. To put it bluntly, if cows were a country, they would rank third in GHG emissions after China and the United States – ahead of the EU.

### Climate change adaptation

Adaptation will be another key part of the climate response. Rainfall patterns may change, water resources may become harder to come by, and extreme weather events like heat waves, floods and droughts may become more frequent. As a result, economic sectors that depend on climatic conditions, such as agriculture, forestry, fishing, seaside and mountain tourism, health, transport, the energy system, financial services and insurance, may be severely affected. Preventive action and adaptive measures are crucial, as the costs of such preventive actions are less onerous than those resulting from the damage due to the same impacts (Stern, 2007).

In the case of Italy, available scenarios on the potential direct damages of climate change have shown that tourism and agriculture would be the two economic sectors hit the most (Figure 9).

**Figure 9. Potential annual damages from climate change on Italy's tourism and agriculture sectors in 2050, for two global warming scenarios**



Source: Bruegel/Italian Ministry of the Environment (2017).

Examples of adaptation measures are the construction of flood defences and artificial dykes to cope with sea level rise; the adaptation of existing building standards to cope with future climatic conditions, in particular extreme weather and climate events that may occur in the future; the more efficient use of scarce water resources; the development of drought-resistant crops; the selection of forest species and practices less sensitive to heavy rainfall and fires; and the development of effective spatial plans taking into account possible changes in climatic conditions.

Adaptation must be planned with appropriate strategies at local, regional and national level, with the aim of making societies more resilient to climate change. These measures should be implemented through plans that present appropriate allocations of financial resources and systems for monitoring the effectiveness of the measures implemented. Efforts to mitigate and adapt to climate change also imply complex cross-sectorial interactions between energy, water, land use, and biodiversity.

### International climate regime

Climate change is a problem of the global commons. As Edenhofer et Al. (2013, p.1) suggest, “the atmosphere is a global common-pool resource in its function as a sink for GHGs, and it is openly accessible and appropriated by everyone free of charge in most regions of the world”.

The geographical origin of GHG emissions into the atmosphere has no effect on the impact of those emissions. Any jurisdiction taking action against climate change thus incurs the full costs of those actions, while climate benefits are distributed globally. Therefore, for virtually any jurisdiction, the climate benefits it reaps from its actions will be less than the costs it incurs, despite the fact that the global benefits may be greater – possibly much greater – than the global costs.

As Stavins (2011, p.1) points out, “this presents a classic free-rider problem, which is why international cooperation on climate change is essential.”

The international community has established a United Nations framework and a mechanism of regular meetings to take stock of the implementation of the Convention on Biological Diversity and the United Nations Framework Convention on Climate Change (UNFCCC), approved at 1992's so-called Earth Summit. These meetings also offer a pathway to take the necessary decisions to facilitate further implementation.

The UNFCCC treaty did not include any emissions reduction target. Such targets were eventually established in an amendment: the Kyoto Protocol of 1997. The Protocol was based on a principle of common but differentiated historical responsibilities, and it put an obligation to reduce GHG emissions only on developed countries. In particular, these countries had to ensure that, between 2008 and 2012, their GHG emissions would have been reduced by at least 5 percent compared to 1990 levels. To this end, the Protocol attributed to each developed country a certain percentage of emissions. Developing countries were not included, not even those like China who have strong industrial bases that are already important contributors to global GHG emissions. This disparity of obligations led to the non-ratification of the Kyoto Protocol by the United States, at the time the world's main GHG emitter.

The inadequacy of the Kyoto Protocol contributed to an increasingly generalised lack of confidence in the ability of the world's countries to agree on mechanisms on a global scale that could go beyond short-term policies and the exclusive pursuit of national interests. Neither did the poor results of numerous subsequent meetings, including those held under the UN. This included efforts to renew the Protocol's commitments after their 2012 expiry, in order to establish different and fairer mechanisms for sharing emission reductions contribute to improving the situation. Some stakeholders considered it unrealistic to agree on an effective global mechanism, even though the problem itself takes place globally, and suggested a shift towards bilateral or regional strategies. That way, at least countries with common interests could take action together.

The fact that in December 2015, after complex negotiations, the Paris Agreement was adopted by the 195 parties of the UNFCCC substantially changed the international climate change regime. The Paris Agreement – which came into force on November 4, 2016 – is the first-ever universal, legally-binding, agreement on climate change. As previously stated, it aims at holding the increase in the global average temperature to well below 2 degrees Celsius above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5 degrees Celsius.

The Paris Agreement is a complex international policy architecture, presenting both bottom-up and top-down elements. Bottom-up elements are the Nationally Determined Contributions (NDCs), which are non-binding targets and actions voluntarily designed by countries. Top-down elements are the centralized oversight, guidance, and coordination architecture of the Agreement. The Paris Agreement is therefore a legal hybrid, blending non-binding emissions targets with binding elements of accountability, such as the revising NDCs every five years in an effort to increase their level of ambition. The Paris Agreement therefore bets on the force of rising norms and ambitions rather than legally binding and effective rules to achieve its aims. It remains a risky bet, particularly when considering that about 78 percent of the NDCs – notably of developing countries – contained within the Agreement are conditional on external financial and technical support.

The Paris Agreement thus provides an important framework to tackle climate change, even though we will not be able to judge its ultimate success for many years. International cooperation is important, but actions ultimately have to be undertaken at national levels.

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# Megatrend: Migration

By Martin Kahanec

## Summary:

The European Union must take account of internal migration and labour mobility as well as exchanges with outside jurisdictions. Irregular migrants draw most of the headlines, but traditional, normalized migration continues to play a big role in the European economy. Policymakers must consider public opinion, effects on the welfare system and economic and labour market impacts, just as they take stock of population flows. Robust evidence and hard data show that welfare “abuse” is not systematically present and that, in fact, migrants contribute positively to economies, labour markets, and public budgets. The challenge now is to develop a sustainable migration framework that nurtures the economic benefits of labour mobility, provides humanitarian relief to qualifying refugees, and wins acceptance from citizens.

## Connections:

- *Climate Change:* Europe may see new waves of “climate migrants” arriving as conditions in some countries become less hospitable, due to rising sea levels and changing weather conditions. Given European resistance to absorbing refugees from countries affected by war, there may be political opposition to providing a haven and a workplace for those looking to start over in a new place. Europe will need to confront its values as well as its economy and public sentiment in preparing for these shifts.

- *Technology and the Future of Work:* As the economy becomes more anchored around highly-skilled workers and modern technology, EU countries will need to assess how they prepare for these changes. This includes how they tap into the well of international talent. Scientific exchanges and cross-border collaborations would provide EU scholars and innovators with the best opportunities to develop intellectually, but tensions with some non-EU countries like China could put up barriers.

- *The Modern Labour Force:* Europe must assess how it will integrate newcomers at all education and skill levels. Immigration is bimodal, with immigrants overrepresented in low-skilled jobs that have been hard to fill from local populations as well as in some high-skilled jobs where international talent is essential. The contribution of all these workers should be acknowledged and supported with social resources. At the same time, Europe will need to offer education and training to all segments of its population and make sure that all children have access to the skills they will need to succeed.

- *Inequality and Societal Cohesion:* Migration will force EU countries to come to terms with how they feel about cultural diversity and class mobility. Racism and discomfort with unfamiliar forms of religious belief have been driving factors in right-wing political movements, that in some cases have led to violence against mosques and synagogues. EU countries will need to reconnect with their core values to push back against this trend.

- *European Monetary Union:* The euro represents one of Europe’s biggest triumphs of cooperation and cross-border unity. European policymakers must be careful not to let this achievement be eroded by national and regional fragmentation. Isolationist political movements can hurt economic cooperation as well as local society if they are allowed to flourish unchecked. Labour mobility provides an important adjustment mechanism for the monetary union to absorb asymmetric economic shocks, making it more resilient and sustainable.

- *Trust in Civil Institutions:* All EU citizens need to feel that their governments have their interests at heart and that policymakers are working to maintain the welfare state in accordance with community goals. Legacy populations need assurances that their pensions and health care will be taken care of, and that they will not be asked to provide disproportionate financial support to newcomers in a way that causes them extensive harm. Likewise, newcomers need to have trust that they will be treated fairly by social institutions, including health providers, police and the court system.

- *Aging Populations*: As European countries face worker shortfalls and increased caregiving needs; they may look to migrants from within the EU or outside its borders to make up the gap. Countries will need to have realistic assessments of how their population will shift and what services will be needed.

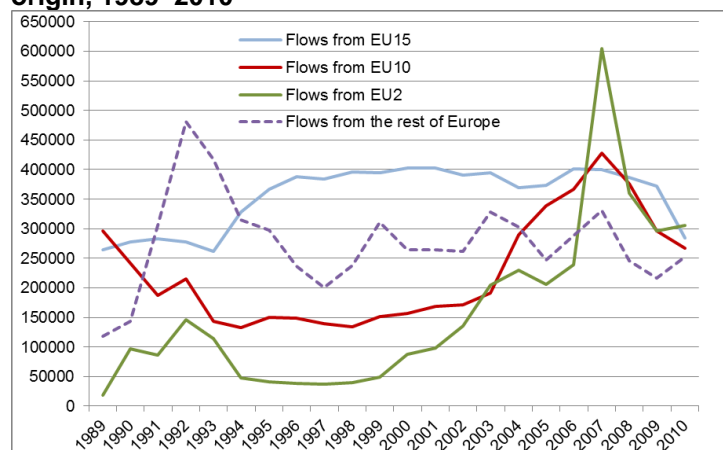
## Analysis:

The history of Europe is characterized by recurring waves of international migration. People have long sought new opportunities in new places in response to economic incentives, social and family factors, conflicts, and natural catastrophes in their home countries, just to name a few of the triggers for moving across borders. These factors continue to influence the modern European Union: in 2018, 7.5% of EU residents were born outside the EU, and additional 4.3% were born in a different member state than their current state of residence according to Eurostat. European migration has been growing: in 2010 the corresponding figures were 7% and 3%, respectively.

The years 2004, 2007, and 2013 marked the enlargements of the European Union and the extension of the EU's internal market, including the freedom of movement of workers, to new member states from Central and Eastern Europe. These enlargements abolished the barriers that precluded East-West migration flows during the Cold War, creating an internal labour market of more than half a billion people. This significantly increased migration flows in the EU, mainly but not exclusively moving in the east-west direction. The scale of these flows was indeed remarkable, with about five and half million citizens of the new member states (EU12) living in the pre-enlargement member states (EU15) in 2010, i.e. an increase of 3.5 million since 2004.

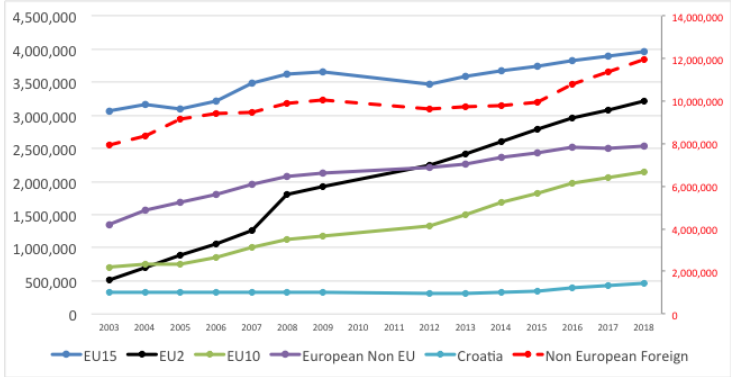
Figures 1 and 2 depict European migration trends over the past few decades. In Figure 1 we observe the increased flows from the rest of Europe in the aftermath of the fall of the Iron Curtain in the early 1990s, as well as the spikes in the 2000s for migration from the EU10 and EU2, following the respective EU enlargements. As shown in Figure 2, the past fifteen years show a steady growth in stocks of foreign-born residents from the respective origins in selected EU member states where a complete time series of migration data was available.

**Figure 1. Migration flows to EU15 destination countries from Europe, by European regions of origin, 1989–2010**



Source: National statistical offices; own calculations. EU15 denotes the fifteen EU member states as of January 2004, EU10 represents the member states that joined the EU in 2004, and EU2 stands for Bulgaria and Romania. Kahanec et al, 2016.

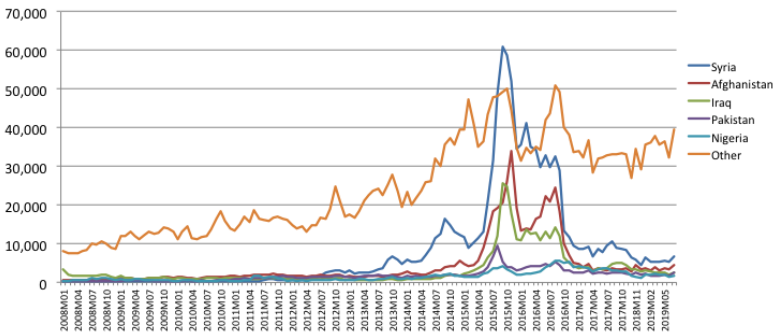
**Figure 2. Stocks of immigrants in selected EU Member States, by region of origin, 2003-2018**



Source: Eurostat; own calculations. Total stocks of foreign-born residents in EU member states with available migration statistics: Austria, Czechia, Denmark, Germany, Finland, Hungary, Italy, Netherlands, Slovenia, Spain, Sweden. Non-European measured on the right axis, all the rest on the left axis.

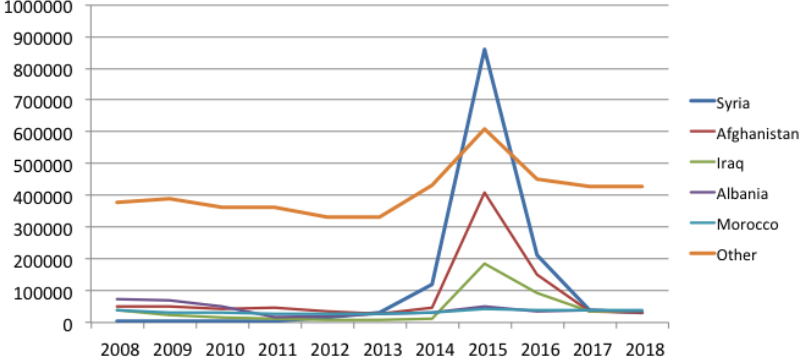
In the mid-2010s Europe went through a period of large migration from countries outside the EU whose homelands had been affected by wars or other calamities. Many called this the European Migration Crisis, when tens and even hundreds of thousand asylum seekers crossed the border and sought asylum in the EU. As shown in Figure 3, the main source countries included Syria, Afghanistan, Iraq, Pakistan, and Nigeria. These inflows intensified in 2015-2017, resulting in more than 3 million applications in total over these three years. The month with the highest inflows was October 2015 with 167,000 applications, since when the inflows levelled off at circa 50-60,000 per month. Figure 4 shows the total numbers of third-country nationals found to be illegally present in the EU. Their number peaked in 2015 at more than 2 million, but declined to circa 600,000 in 2018. This migration wave highlighted the lack of an effective legal, institutional and organizational framework of coping with abrupt inflow of asylum seekers and irregular migrants.

**Figure 3. Asylum and first time asylum applicants in the European Union, 2008-2019**



Source: Eurostat, (migr\_asyappctzm).

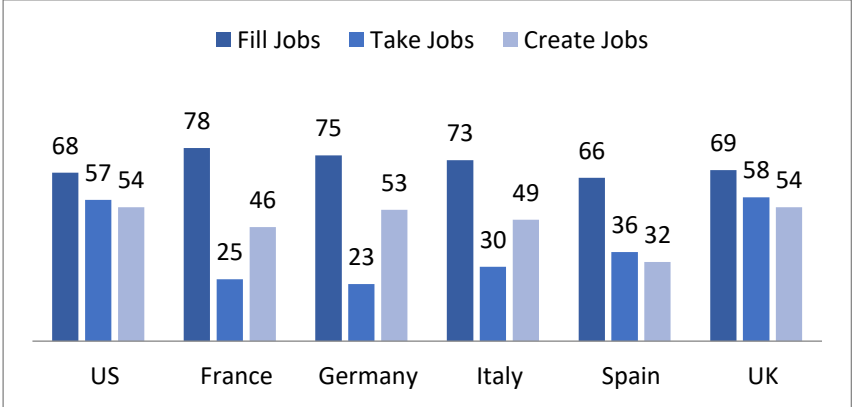
**Figure 4. Third-country nationals found to be illegally present in the European Union**



Source: Eurostat, (migr\_eipre).

The post-enlargement experience resulted in a heated debate about migration within the EU. A few years later the European Migration Crisis turned the debate white hot, resulting in a polarized and radical shift in debate and in political attitudes. This may be because significant shares of citizens view migrants primarily as competitors taking ‘their’ jobs (see Figure 5). However, even larger shares believe immigrants fill in the jobs where there are shortages and significant shares believe that migrants help to create jobs.

**Figure 5. Public opinion on immigrants and jobs, 2011**



Source: Transatlantic Trends. Online at: <http://trends.gmfus.org/>. Notes: Percentage of respondents who “strongly” or “somewhat” agree with the following statements: “Immigrants generally help to fill jobs where there are shortages of workers”; “Immigrants take jobs away from native born”; and “Immigrants help create jobs as they set up new business.”

Indeed, as shown in Figure 6, in only 9 out of the 28 EU member states a majority of citizens agrees (‘totally agree’ or ‘tend to agree’) that immigrants take jobs away. On the other hand, in most EU member states (excepting Finland, France, Luxembourg, Spain, Sweden, and the UK) immigration is seen as a burden on the welfare system by the majority of people. As for the positive overall impact on the economy, the views are rather evenly split across EU member states with 16 (12) EU member states with minorities (majorities) agreeing with a positive impact of immigration.

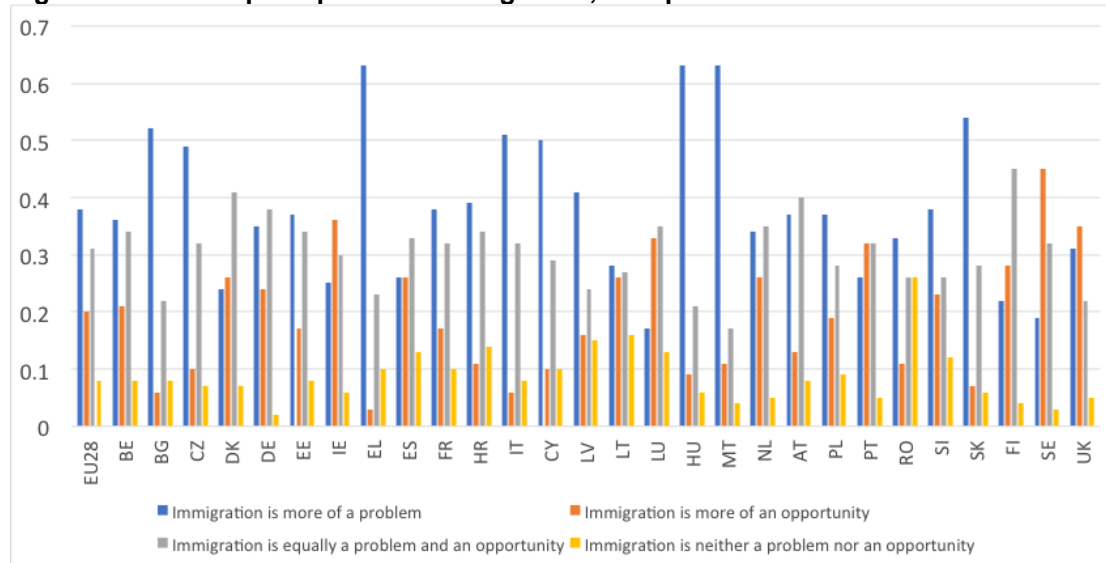
**Figure 6. Citizens' perceptions of the economic impacts of immigration, European Union**



Source: EC (2018), "Special Eurobarometer 469: Integration of immigrants in the European Union", European Commission, <https://ec.europa.eu/commfrontoffice/downloadODP/?0E7C5A2247A2CA174B630838754F0605>.

Overall, as reported in Figure 7, 38 percent of EU28 residents see immigration more as a problem, whereas 20 percent see it more as an opportunity. The percentage of respondents holding the former view is the highest in Greece, Hungary and Malta, with nearly two thirds of their citizens seeing immigration more as a problem. In Ireland, Luxembourg, Portugal and the UK immigration is seen more as an opportunity by about a third of their residents; and as much as 45 percent in Sweden.

**Figure 7. Citizens' perceptions of immigration, European Union**



Notes: Percent of respondents, QA2 – Generally speaking, do you think immigration from outside the EU is more of a problem or more of an opportunity for (OUR COUNTRY) today? EC (2018), "Special Eurobarometer 469: Integration of immigrants in the European Union", European Commission, <https://ec.europa.eu/commfrontoffice/downloadODP/?0E7C5A2247A2CA174B630838754F0605>.

*Migration's impacts*

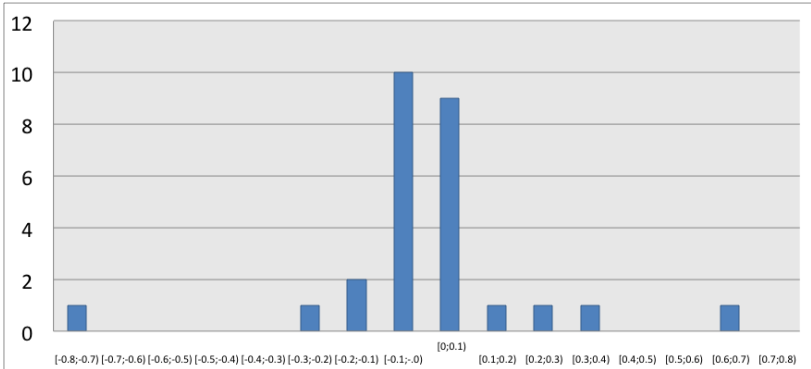
Migrants bring their skilled hands and talents, alongside economic, social and ethnic capital. They may also compete with domestic labour for jobs, welfare or public goods and services. They contribute to and take from public budgets.

Migration in general facilitates cross-border social and economic ties, leading to an increased mobility of ideas and technologies, capital, and goods and services. Thus, it could result in a better allocation of production factors and improved total factor productivity, as well as gains from trade.

Migrants compete with incumbents with similar skills. However, they complement capital and native labour by adding a mix of different skills. The structure of the receiving economy, the composition of immigration, and the institutional/policy framework determine the balance of these effects. The timing and time perspective matter: over time, the receiving countries are more likely to absorb migration's effects.

In general, the available evidence is that the receiving labour markets absorbed post-enlargement immigrants rather seamlessly (Kahanec and Zimmermann, 2010, 2016, Constant 2014). Most of the documented economic effects at the aggregate level are statistically or economically neutral or positive (Peri 2014, Constant 2014, D'Amuri and Peri 2011, Card 1990); negative effects are documented primarily in some niche markets (e.g. for some low-educated, young, and/or immigrant groups) (Borjas 2003, Roy 1997). Figure 8 documents the effects on natives' wages based on 270 baseline estimates from 27 empirical studies. 70 percent of the studies produced coefficients between -0.1 and 0.1, with four studies reporting positive effects (coefficients larger than 0.1) and three studies suggesting negative effects (coefficients below -0.1). Kahanec and Pytlikova (2017) show that intra EU mobility positively affects GDP per capita, and the employment rate in the receiving countries. Kahanec et al (2018) show that immigrants are more flexibly responding to labor shortages than the natives. While some of these studies do cover refugees and asylum seekers, the full impacts of the European Migration Crisis are yet to be evaluated.

**Figure 8. Average coefficient on the impact of immigration on natives' wages, number of studies**



Notes: Based on averages of 270 baseline estimates from 27 empirical studies listed in Peri, 2014.

As for the sending countries, out-migration may be a vehicle of adjustment, may lower unemployment and increases wages in the most affected sectors/occupations (Elsner, 2013, 2013), migrants send remittances, and brain gain and technology transfer may occur to the extent return and circular migration flows emerge. However, the loss of human capital limits the long-term economic potential of these countries, undermines the sustainability of their public budgets, and deepens their demographic gaps/aging. In some countries, especially in the Western Balkans, this demographic decline is dramatic.

**Welfare**

The narrative that migrants shop for welfare benefits is widespread. Gulietti, Guzi, Kahanec and Zimmermann (2013) and Giulietti (2014) show that this is a misconception, however. The association is statistically and economically small, and there is evidence that it disappears if reverse causality is accounted for. Dustman and Frattini (2013) show that migrants positively contribute to UK's public budgets. Zimmermann et al 2012 and Barrett and Maitre 2013 document that welfare take up of immigrants is rather characterized as one of lack of access, and not 'abuse'.

**Migration policy**

Generally speaking, migration policy can be effective in that it does affect the composition of immigrant inflows (ref). This is of key importance, as it significantly affects labour market outcomes of immigrants (ref). Guzi, Kahanec and Mytna-Kurekova (2018) show that more open migration policy

further increases immigrants' flexibility in responding to labour shortages, above that of the natives. A good-practice migration policy should nurture the economic and social benefits of immigration, fulfil the humanitarian obligations, and effectively manage migration flows across national borders.

A migration policy framework resulting in positive social and economic outcomes and projecting the sense of control, mitigating the fears of Europeans of immigration, would also be more likely to be accepted by European citizens. Recent studies indeed show that well-designed migration policies tend to be seen positively by respondents (Jeannet et al 2019). High-skilled immigration also tends to be seen more positively by native-born citizens (Kahanec and Zimmermann, 2011). It is remarkable to see the steep increase in the number of residence permits awarded to remunerated researchers in the European union, increasing from 4,389 in 2008 to 14,538 in 2018, representing an increase of 231%.

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# Megatrend: Technology and the Future of Work

By J. Scott Marcus

## Summary:

The European Union enjoys pockets of strength, but it is seriously lagging overall in both production and use of key transformative technologies such as artificial intelligence (AI), big data, and machine learning. At the same time, shifting geopolitical patterns create new risks of disruption of supply chains for technologies that the EU will increasingly depend on, implying the need to find a proper mix of expanding sources of supply and selectively becoming more self-reliant. Automation based on these same technologies will disrupt the workplace substantially. This disruption will not necessarily result in a significant net loss in employment. Still, many workers will need to transition from no-longer-relevant jobs to new jobs, implying a need both for re-training and for social protection measures to cushion the transition. European social protection systems that were designed with traditional full-time employees in mind will need to adapt to a richer mix of forms of work, including freelancing and platform work such as for ride-hailing services, and to more frequent changes from one form of work to another.

## Connections:

- *Climate Change*: The same technologies that promise to transform European business and society are also crucial to tackling climate change. AI, big data, machine learning and the Internet of Things (IoT) play a crucial role in reducing our consumption of energy by improvements in transport and mobility, housing, agriculture, and more. Efforts to shift the production of energy toward clean, renewable sources and away from the production of CO<sub>2</sub> likewise depend on these technologies. There is, at the same time, great potential in reducing the energy consumption of information and communication technologies (ICT) themselves.
- *Migration*: With the expected changes in the work force, the need to ensure education and training of migrants in useful skills become even greater, both for intra-EU migrants and for migrants entering the EU from beyond our borders. This once again implies a need to recognise that education and training are not only for the young.
- *The Modern Labour Force*: There is a clear need to maintain and enhance worker productivity in order to offset the twin disadvantages of fewer hours per year per worker and of the burden of more generous, but therefore more expensive, social protection systems. This implies the need to incorporate high-tech automation including robots and AI into manufacturing and service sectors at a brisk pace, even if this implies some social disruption. Demand for high skills continues to increase, but routine mid-skill jobs are under greater threat at present than low skill jobs, with complex implications for public policy. Maintaining the quality of education and training while strengthening re-training will be crucial going forward, but will be challenging to the extent that it is difficult to predict exactly which skills will be needed.
- *Inequality and Societal Cohesion*: The changes that automation, robotization and AI are bringing to the workplace are increasing wage inequality. Current trends do not suggest a net decrease in the number of jobs, but they show increasing wage polarisation and a shift away from routine jobs with mid-level skills. There is an urgent need to re-orient education and training to a lifelong learning approach, and to increase flexibility. There is also a need for social protection systems to better accommodate non-traditional employees and the self-employed, and to cushion workers during a possibly painful transition from the jobs of the past to the work of the future.
- *European Monetary Union*: Monetary union was designed to unite a diverse group of countries under a single economic banner, in order to promote growth and financial stability. To the extent that technology reaches euro members unevenly, it could exacerbate tensions over unequal economic

performance throughout the region. Economic policy will need to look for ways to reduce these gaps, as part of efforts to knit the region closer together.

- *Trust in Civil Institutions:* All EU citizens need to feel that their governments have their interests at heart and that policymakers are working to maintain the welfare state in accordance with community goals. This implies a need to modernise social protection systems and to bring them better into line with a workplace where full time traditional employment is declining in favour of non-traditional employment and other forms of work. Good governance is needed across the board, including in the form of good adherence to Better Regulation principles in policy formulation and enforcement. The use of AI, big data, machine learning and IoT-based sensors can play a positive role in policy formulation and enforcement.

- *Aging Populations:* The changes in the workplace brought about by technology-based automation imply increased pressure on social protection systems, at least during an extended transitional phase. In an era where labour's contribution to gross value added is declining relative to that of capital, it may no longer be appropriate to expect this increasing burden to fall mainly on taxation of workers. These trends exacerbate the challenge that was already implicit with an aging population, where fewer workers must pay for social protection for more retirees. It will be difficult to meet these challenges.

## Analysis:

Europe faces a growing challenge of managing the global impact that automation is having on the nature of work. To date, alarmist predictions of job losses made a few years ago notwithstanding, automation has had little negative impact on the number of jobs, and there are even indications that the use of robots has a net positive impact on the volume of employment. Be that as it may, there is no question that we are entering a period of intense transition where technology will transform most jobs. Europe is not the world leader in the key technologies that are transforming the volume and nature of work, but it will have to confront their effects nonetheless.

The growth in *platform work*, as epitomised by ride-hailing services and labour platforms, has initiated an intense debate over the protection of platform workers, most of whom are classified as being self-employed. This has brought to a boil a larger discussion that had been simmering at a low level for decades. As the labour market shifts away from traditional employment, it has long been recognised that social protection systems were not designed with non-traditional employees and the self-employed in mind.

### *Europe is lagging in key technologies*

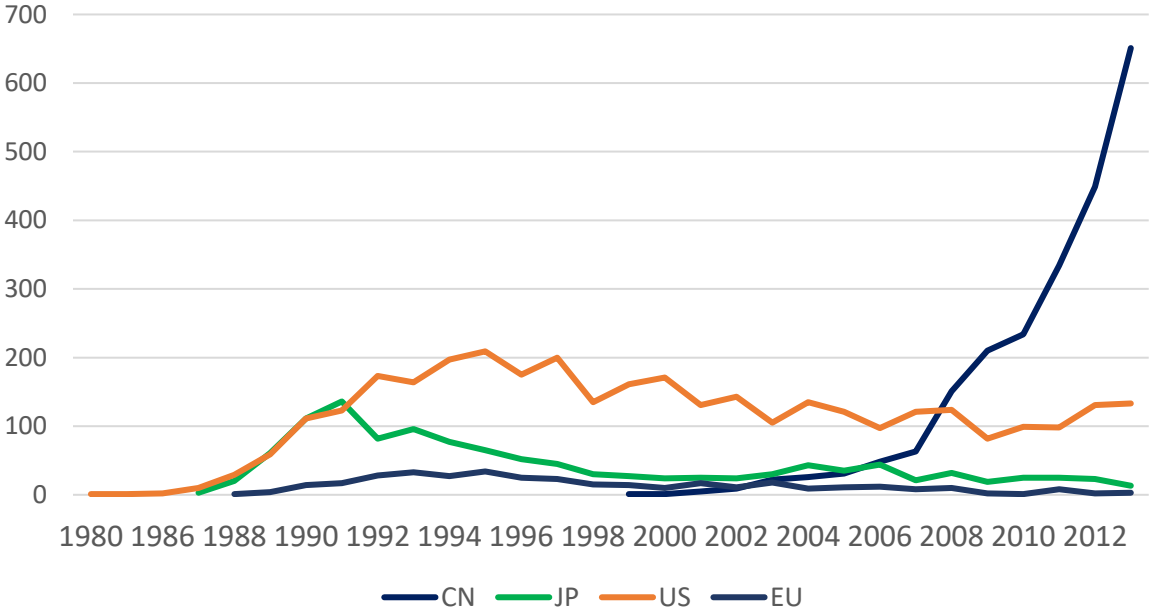
By multiple measures, Europe is falling behind in both production and use of a number of key transformative technologies such as AI, machine learning, and big data. The lead has long been with the United States, and increasingly it is also with China. These lags are important because these technologies where Europe is at risk are part of a cluster of technologies that collectively promise to transform our economies and societies in the coming years. These also include robotics and the Internet of Things, a term coined to describe a wide range of everyday devices that produce and exchange data over communications networks.

The potential transformative impact of these technologies at global level is huge (McKinsey 2013):

- AI and machine learning could unleash productivity gains with "... as much as \$5.2 trillion to \$6.7 trillion in economic impact annually by 2025."
- Robotics "... has the potential to affect \$6.3 trillion in labour costs globally."
- The Internet of Things "... has the potential to create economic impact of \$2.7 trillion to \$6.2 trillion annually by 2025."

The level of patents granted in machine learning and neural networks, key aspects of AI, make this clear (see Figure 1). Over the past 20 years or so, patents granted in the US have declined, but remain strong. The number of patents granted in China has exploded. Patents in the EU and in Japan have stagnated.

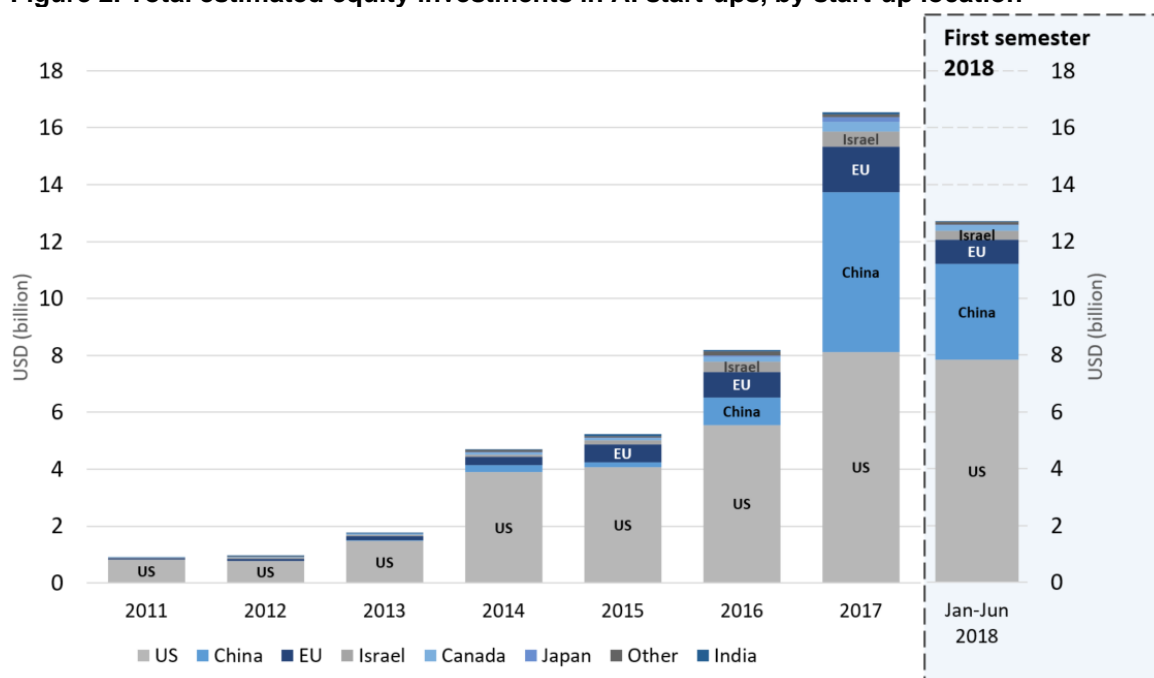
**Figure 1. Patents granted in AI (machine learning and neural networks)**



Source: Bruegel based on PATSTAT

The current level of private investment in AI in Europe is incompatible with a global leadership role. Per the Commission’s Artificial Intelligence for Europe communication, “Europe is behind in private investments in AI which totalled around EUR 2.4-3.2 billion in 2016, compared with EUR 6.5-9.7 billion in Asia and EUR 12.1-18.6 billion in North America.” OECD estimates of venture capital investment in AI start-ups (see Figure 2) likewise make it clear that Europe is far behind the USA and China.

**Figure 2. Total estimated equity investments in AI start-ups, by start-up location**



Source: OECD (2018), Private Equity Investment in Artificial Intelligence, based on Crunchbase

In the past, we might have argued that these lags are irrelevant – as long as friendly trading partners make the products and services available to us, we all prosper. Unfortunately, this argument is less convincing today than it was in the past. Europe’s close relationship with the USA has eroded greatly in the last few years, and the USA is looking to impose export controls, restrictions on Foreign Direct Investment (FDI), and restrictions on visas for visiting foreign professionals in regard to strategic technologies. Artificial intelligence and robotics are high on the list of technologies that face potential restrictions. Global supply chains for technologies that are crucial for Europe’s future face uncertainty at best and unpredictable disruption at worst.

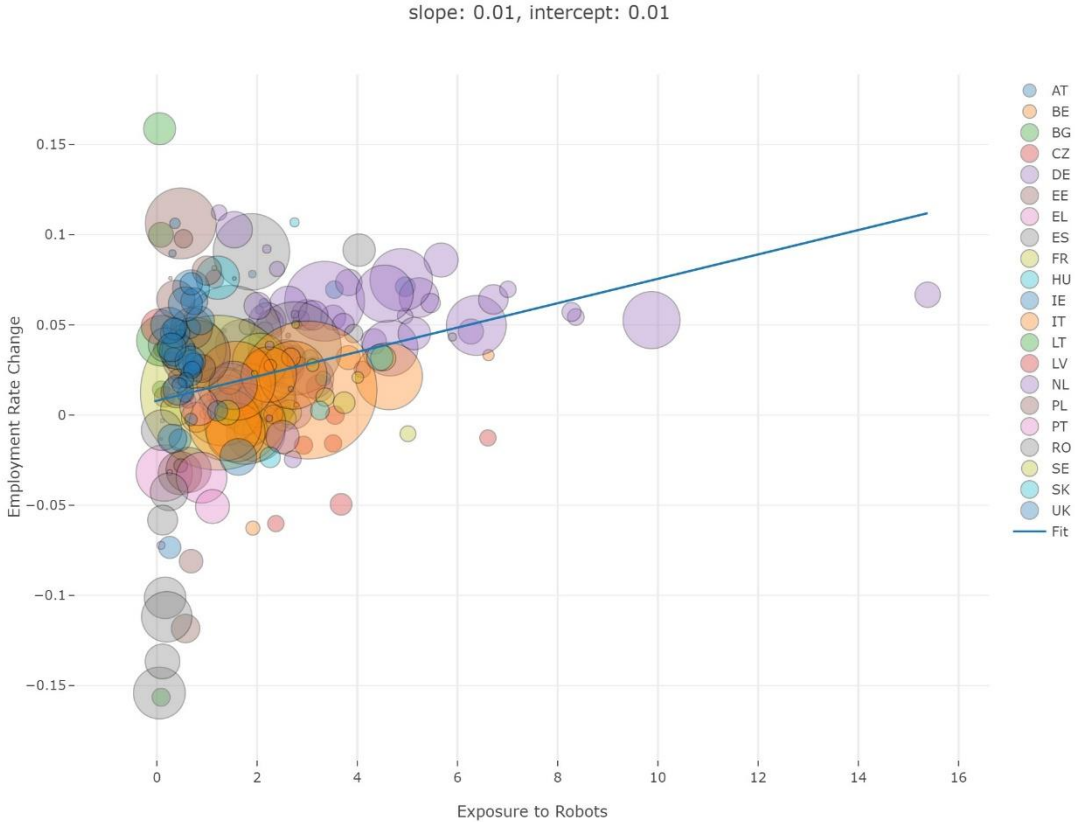
### *The impact of automation on the volume and nature of work*

Fears of changes in the volume in employment due to automatization have been with us for decades, but a widely read published analysis (Frey and Osborne 2016) raised eyebrows when they suggested that “around 47% of total US employment is in the high risk category” for being affected by this trend. Most of the experts who subsequently analysed the data assess, however, found that these estimates are far too high, predicting job losses instead between 8% and 15% in the coming decades (Artznz, Gregory and Zierahn, 2016, McKinsey, 2018, Atkinson, 2017).

Most recently, some experts even question whether there is a net negative impact at all in the near term. Bessen (2019) argues that “[a]utomation does not necessarily lead to a loss of jobs even in the affected industry. When major industries automate, their employment often rises rather than falls”. The relative impact of *substitution* in eliminating jobs and of *productivity gains* and other factors that create jobs seem to be in rough balance, or even to be leading to an increase in jobs in the near term. The longer-term impacts are less certain, however, inasmuch as labour unit costs are rising, while unit costs for robots are falling (Peschner and Piroli, 2018).

Indeed, analysis by Bruegel researchers (Petropoulos et al, 2019) of the relationship between exposure to industrial robots, ICT capital, employment rates and wages found a positive correlation between exposure to robots and employment rates (see Figure 3), but a negative correlation between exposure to robots and real wages.

**Figure 3. Exposure to industrial robots relative to employment rate in EU regions for the total economy**



Source: Bruegel. Each circle depicts a distinct region. The diameter of each circle indicates the size of working population within the region.

*The European social welfare system faces challenges*

Forms of work that allow for a more flexible usage of labour – i.e. forms that diverge from the standard employment contract as self-employment and platform work – are becoming more widespread. (Eurofound, 2015, Katz and Krueger, 2016) Labour flexibility is not a new phenomenon *per se* (Atkinson, 1984, and Atkinson and Meander, 1986), but technological progress, globalisation, and demographic change collectively have accelerated the pace of the shift to new forms of work considerably. (Eurofound, 2018)

Eurofound has identified a wide range of new forms of work that have emerged in recent years. More broadly, we see a continuation of a long-term trend away from traditional, full time employment and toward various forms of *non-traditional employment* and *self-employment*. Moreover, the frequency with which workers change from one mode of work to another has increased markedly over the years.

Most social protection schemes at European Member State level are primarily geared toward the protection of traditional full-time employees. Non-traditional employees such as part-time workers, and to an even greater extent the self-employed, are excluded from statutory assurance of many forms of social protection. These include unemployment benefits, sickness and health care benefits, maternity and equivalent paternity benefits, disability/invalidity benefits, old age / retirement benefits, and coverage for accidents at work and occupational diseases.

Table 1 shows the statutory limitations on the main branches of social protection to which various forms of non-traditional workers are subject.

**Table 1: Lack of formal social security coverage for non-standard workers**

	Casual workers	Seasonal workers	National specificities	Freelance	Apprentices	Trainees	Vocational trainees
Unemployment benefits	RO, HU, MT, LT	BG, RO, LV, HU, MT, LT	AT <sup>a</sup> , CZ <sup>b</sup> , DE <sup>c</sup> , PL <sup>d</sup> , SK <sup>e</sup>		BE, EL, HR, MT, NL, PL	EL, FR, IT, LT, MT, NL, PL, RO	
Sickness benefit	HU, LT, LV, RO	HU, LT, LV, RO	CZ <sup>b</sup> , SI <sup>d</sup>		BE, HU, NL, PL	DK, FR, HU, LT, NL, PL	DK, EL, FR, HU, PL
Maternity benefit	LT, RO	BG, LT, LV, RO	CZ <sup>b</sup> , PL <sup>d</sup> , UK <sup>h</sup>	BG, FR	BE, MT	FR, HU, IT, LT	EL, FR, HU, IT
Accident and occupational injuries	RO, HR, LT	BG, LT, LV, RO	CZ <sup>b</sup> , ES <sup>f</sup>				
Old age/survivors' pensions	MT, LT	BG, HU, RO, LT	CZ <sup>b</sup> , HU <sup>g</sup> , LU <sup>g</sup> , MT <sup>h</sup> , PL <sup>d</sup>		BE, HR, MT	EL, FR, HU, IT, LT, MT	
Invalidity	HU, LT	HU, LT	AT <sup>a</sup> , PL <sup>d</sup>				

Source: *ESDE (2018), page 137*. The table reports in which branches and in which member states non-standard workers are excluded from formal coverage in the sense that they have no mandatory coverage and cannot opt-in to voluntary schemes. National specificities: a) marginal part-timers; b) agreement to perform a job; c) mini-jobbers; d) civil law contracts; e) employees on 'work agreement' with irregular income; f) domestic workers; g) on-call jobs; h) temporary agency work.

Even where statutory coverage exists, non-traditional employees and the self-employed may have difficulty in working enough hours in total and accumulating sufficient contributions, to have an appropriate level of social protection – especially those who frequently change from one mode of work to another. Many benefits are conditional on eligibility periods, or on a level of contributions over a period of years.

As workers move between different forms of non-traditional work, they might not be able to meet the eligibility periods, or they might not accrue enough combined time because the benefits from different forms of labour are not properly aggregated. Rules are already in place (see EU Regulations 883/2004 and 987/2009) to protect key social protection rights when moving from one member state to another, but these rules are geared to traditional employees, and they do not ensure proper aggregation of time worked within a single member state. For a driver for a ride-hailing service who spends part of his or her day as a self-employed driver, and part of his or her day as a part time employee in a different kind of work, the existing rules do not help at all.

A particular concern has been with “platform workers” such as Uber drivers, and those who do work through Amazon Mechanical Turk. Platform work conducted for a client enables the labour market to operate in a more flexible way. Some tasks are performed physically, such as transport, delivery and housekeeping, while others are performed digitally, such as data entry, information collection, programming. The flexibility offered by platform work can provide benefits both to the firm and to the individual, including flexible hours, availability of work to those who might otherwise be fully unemployed. However, it is often argued that platforms like these intentionally misclassify their workers as self-employed in order to avoid contributing to their social protection. Indeed, courts and regulatory bodies have occasionally re-classified workers to be employees in instances where the control exercised by the firm seemed to be roughly equivalent to that of a traditional employer.

Platform work is growing over time. About 10% of Europeans claim to have performed platform work at least once, but the number varies considerably from one Member State to the next. Only a small fraction, however, are heavily dependent on the income derived from platform work today (see Table 2).

**Table 2. One in 10 adults has experience with platform work: Adult population in 14 EU countries, by category.**

	Daily internet users	Has ever done platform work	Of those...		
			Monthly or more	10h per week or more	50% of income or more
UK	88%	12%	9.9%	6.7%	4.3%
ES	67%	12%	9.4%	6.6%	2.0%
DE	78%	10%	8.1%	6.6%	2.5%
NL	86%	10%	8.7%	5.4%	2.9%
PT	60%	11%	7.1%	6.0%	1.6%
IT	66%	9%	7.1%	5.4%	1.8%
LT	60%	9%	5.9%	5.6%	1.6%
RO	42%	8%	6.4%	4.5%	0.8%
FR	70%	7%	5.9%	4.2%	1.8%
HR	63%	8%	5.2%	5.2%	1.0%
SE	85%	7%	5.3%	3.5%	1.6%
HU	71%	7%	5.0%	4.1%	1.3%
SK	68%	7%	5.1%	2.7%	0.9%
FI	85%	6%	4.1%	2.9%	0.6%
Total		10%	7.7%	5.6%	2.3%

Source: ESDE (2018).

As non-standard modes of work increase, it has been recognised that reforms are needed to social protection systems in the Member States in order to ensure adequate protection and a decent standard of living for non-traditional employees and for the self-employed. Platform workers have been prominent in this discussion, but in reality, most if not all self-employed have need of social protection – especially the self-employed who do not have employees of their own, who represented some 9.8 million of the 13.7 million of the self-employed workers in the EU28 in 2017. (DG EMPL, 2018).

#### *Measures undertaken to date*

The EU has been particularly active in strengthening the rights of workers during the current legislative term. This is visible in the *European Pillar of Social Rights*, which contains principles and rights that can be viewed as being essential to the proper functioning of social protection systems in Europe today. The concrete manifestation of the European Pillar of Social Rights that is most relevant here is the Commission’s proposed Council Recommendation on access to social protection for workers and the self-employed (European Commission, 2018). The proposal led to a political agreement of the Council in December 2018, which when enacted would oblige Member States to:

- Allow all individuals in employment and self-employment to adhere to corresponding social protection systems (closing formal coverage gaps),
- Adopt measures allowing all individuals in employment and self-employment to build up and take up adequate entitlements as members of a scheme (adequate effective coverage) and facilitate transferability of social protection entitlements between schemes,
- Increase transparency regarding social protection systems and rights.



The previously cited regulations from 2005 and 2009 had already established some transferability between member state schemes, but not within a member state, and not necessarily between different modes of work.

The Council Recommendation does not establish a legally binding framework, but it has moral force. It remains to be seen whether EU Member States will really implement the measures to which they have committed, and whether the EU will have the will and the force to hold Member States to their commitments.

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## Megatrend: The Modern Labour Force

By Zsolt Darvas

### Summary:

Five key trends characterise employment developments in advanced countries: increasing labour force participation; changes in the composition of the labour force; decreasing working hours; still high youth inactivity in some parts of Europe; and productivity trends that differ depending on what measure is used. Labour productivity in the EU is increasing relative to the US when actual hours of work is considered, but workers in other countries work longer hours, which makes their productivity seem higher by comparison. It remains particularly hard for young people to enter the workforce. The big question for employment will be not just quantity, but quality, as we assess how the fundamental nature of working is going to change.

### Connections:

- *Climate Change*: Europe will need to rethink its industrial base and its transportation network in light of commitments to eliminate net carbon emissions. This in turn will affect available jobs and the supply of workers to fill them.
- *Technology and the Future of Work*: Knowledge and analytical skills will be central to the future workforce, particularly for young people at the start of their careers. The number of jobs in the EU for people with lower qualification levels declined between 1992 and 2007, then dropped massively during the crisis.
- *Migration*: Worker movement within EU member states has been successful and has contributed to economic growth across the continent. More open migration systems allow foreign workers to make stronger contributions to labor market shortfalls.
- *Inequality and Cohesiveness*: The gap between qualified workers and those whose skills don't match demand has grown since the financial crises of 2008 and 2012. Going forward, Europe will need to assess its educational system as well as its economic outlook.
- *European Monetary Union*: Differences within the euro area will increase tension, shining a spotlight on national and international policies that affect job markets. Not only are some countries growing faster than others, but some countries like Italy have low levels of workplace participation compared to their peers. This will heighten pressure to take joint action.
- *Trust in Civil Institutions*: Government, media and civil society stakeholders will need to serve all citizens even as knowledge gaps widen within the population. It will be important to reach across those differences and build a system that can help all members of society succeed economically.
- *Aging Populations*: Older workers and middle-aged women are joining and staying in the workforce in growing numbers, which will help with manage the growing number of retirees compared to working populations. However, the difficulty faced by young jobseekers shows the big challenge ahead.

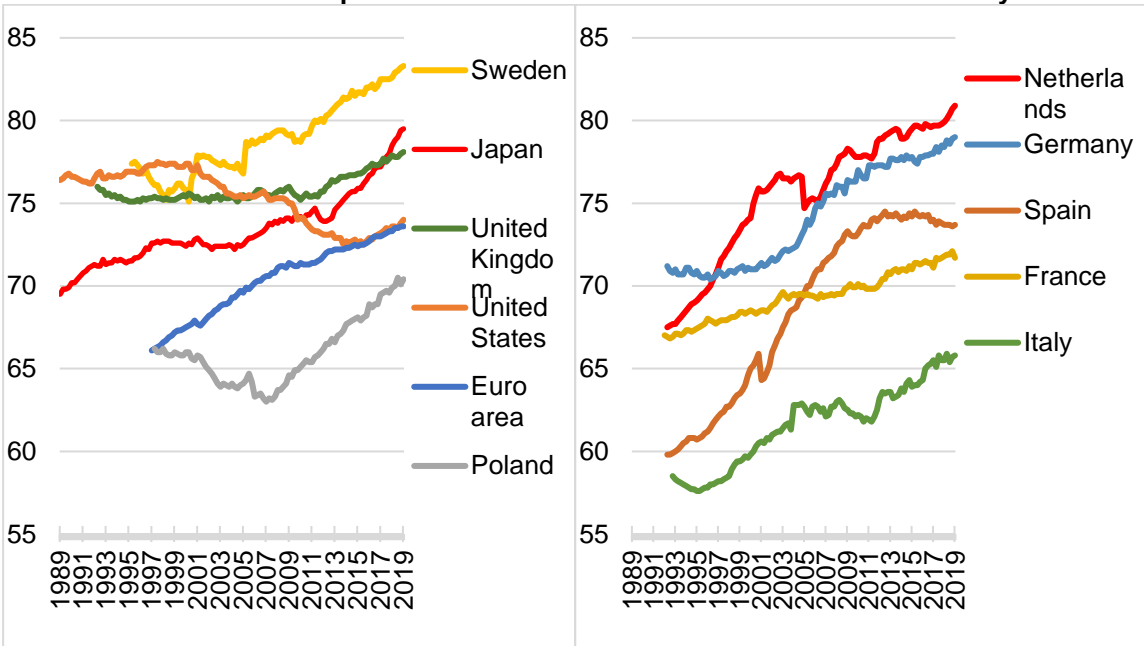
### Analysis:

Growing participation in the labour force is taking place in most advanced countries, with the notable exception of the United States from the late 1990s to 2015 (Figure 4). Elsewhere in the developed world, more and more people would like to work, including older workers and women who had not previously sought jobs. This trend appears even in Sweden, where labour force participation was already high, and especially in Japan where unemployment has remained low but the ratio retirees to workers has risen sharply.

Euro-area labour force participation rate has been increasing steadily, and even a crisis-related surge in unemployment did not break the trend: a steadily higher percentage of Europeans are either participating in work or trying to do so. Even in hard-hit Greece and Spain, labour force participation continued to go up after 2008, as well as in Italy after a temporary setback during the global crisis. The increase is driven largely by higher participation of middle-age women and older age cohorts of both genders, while the participation of the youth further declined. Yet big differences remain across the currency union, with Italian labour force participation just passing 65 percent, while the Netherlands is over 80 percent.

Increased labour force participation can at least partially compensate for worker shortages arising from aging populations. There is a limit to how much the labour force can grow, but we are not there yet.

**Figure 4. Labour force participation rate (age 15-64, % of population), 1989Q1-2019Q1**  
**Global comparison** **Euro-area diversity**



Source: Eurostat’s ‘Employment and activity by sex and age - quarterly data [lfsi\_emp\_q]’ dataset.

Of note, US labour force developments were the opposite of what have been observed in other advanced countries from the late 1990s to 2015. In the US, more and more people have become disenchanted with labour markets and have given up looking for a job altogether. Young people of both genders and middle-aged men have been most likely to drop out of the workforce, offset somewhat by an increase among older men.

US labour force participation had been falling until 2015, when it reached euro area levels. Since then, euro-area and US labour force participation have grown alongside each other. Still, it’s worth considering participation trends when comparing unemployment developments. Also, there is a striking similarity between the EU and the US in terms of a major long-term change in the labour market: the decline in jobs with low education requirements and the increase in jobs with high education requirements (Figure 5).

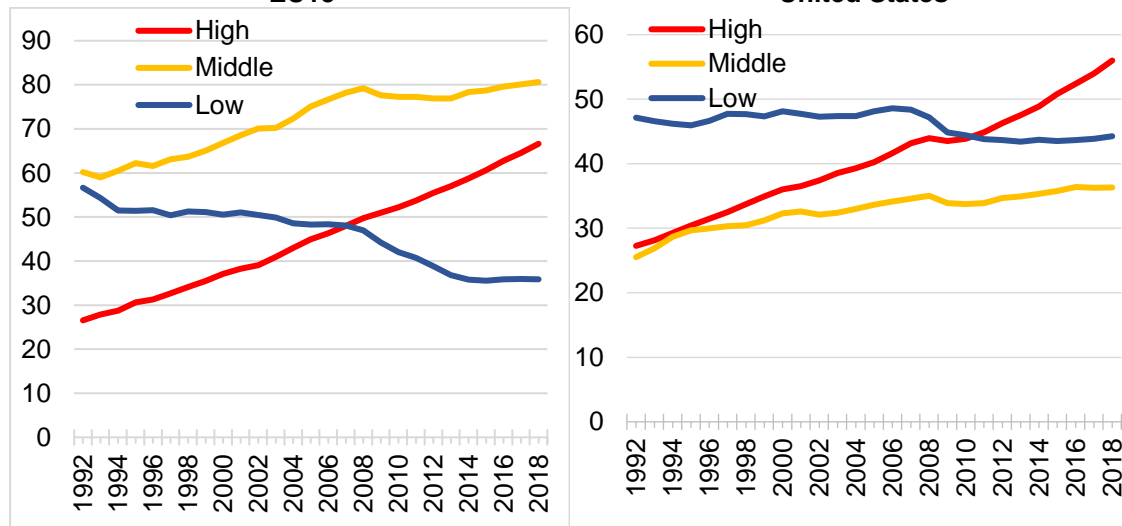
The number of jobs for people with higher education has increased significantly and steadily in both the EU and the US, starting at least in 1992 when EU data became available. The number of such jobs has practically doubled in two decades. It is really noteworthy that during the global and European financial and economic crises of the past few years, employment of highly-educated workers continued to increase in the EU, even in countries suffering from large increases in unemployment, such as Cyprus, Italy, Ireland, Lithuania, Portugal and Spain. In three other hard-hit

countries, Estonia, Latvia and Greece, the employment of the highly-educated remained broadly stable.

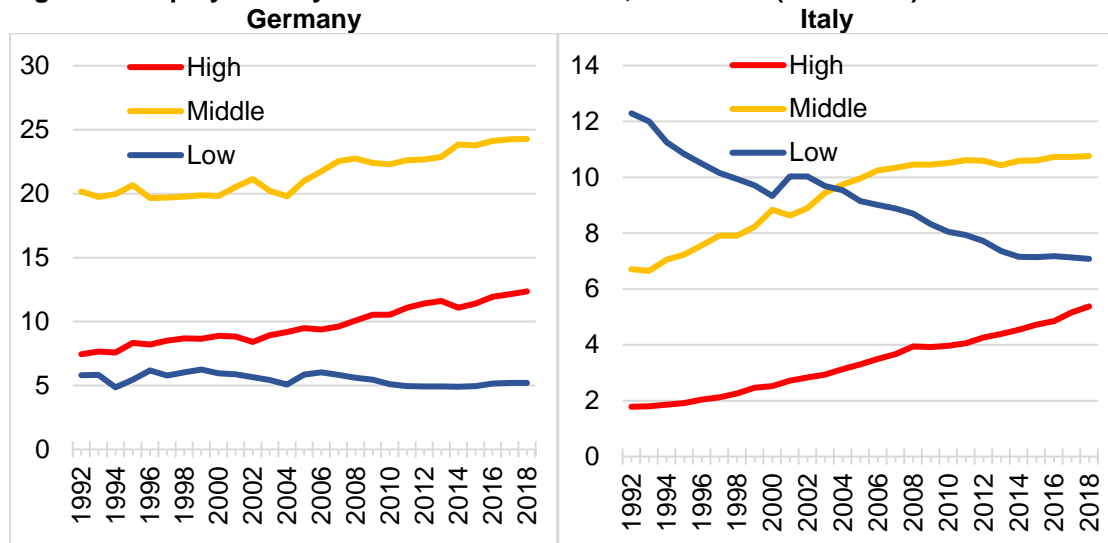
Certainly, underemployment – working in jobs that require a lower level of education than what the worker has, could be a factor in the trends seen for tertiary educated workers. That said, research shows that younger workers are still heading into knowledge-based jobs rather than true low-skilled employment. In a study of U.S. underemployment following the great recession, Abel and Deitz (2019) concluded that recent underemployed college graduates were channelled into jobs that appeared to be more oriented toward knowledge and skills when compared to the distribution of jobs held by young workers without a college degree. Moreover, they also found that underemployment is a temporary phase for many young graduates when they enter the labour market, as it often takes time for new graduates to find jobs suited to their education. That said, the U.S. concept of a permanent job is different from the standard in many parts of Europe, which means it is hard to draw an exact parallel for career paths.

Jobs requiring medium-level qualifications increased significantly after 1992 in both the EU and the US, but there was a slight decline after 2008 and only slow job growth has resumed. On the other hand, the number of jobs in the EU for people with lower qualification levels declined between 1992 and 2007 and dropped massively during the crisis. There were a few exceptions to this trend, like in Spain and Ireland, where the pre-crisis housing bubbles were associated with the creation of low-skilled jobs in the construction sector. However, the excess creation of those jobs proved to be unsustainable. The lasting exception to this trend has been in Germany, where the number of jobs with low educational attainment has practically remained unchanged. In the US, the number of such jobs was more or less stable from 1993 to 2007, after which there was a sizeable decline. Therefore, the 2008/2012 global and European crises have amplified the differences between the availability of jobs requiring high and low levels of education, even though the divergence started more than a quarter of a century ago.

**Figure 5. Employment by educational attainment, 1992-2018 (millions of jobs)**



**Figure 6. Employment by educational attainment, 1992-2018 (continued)**

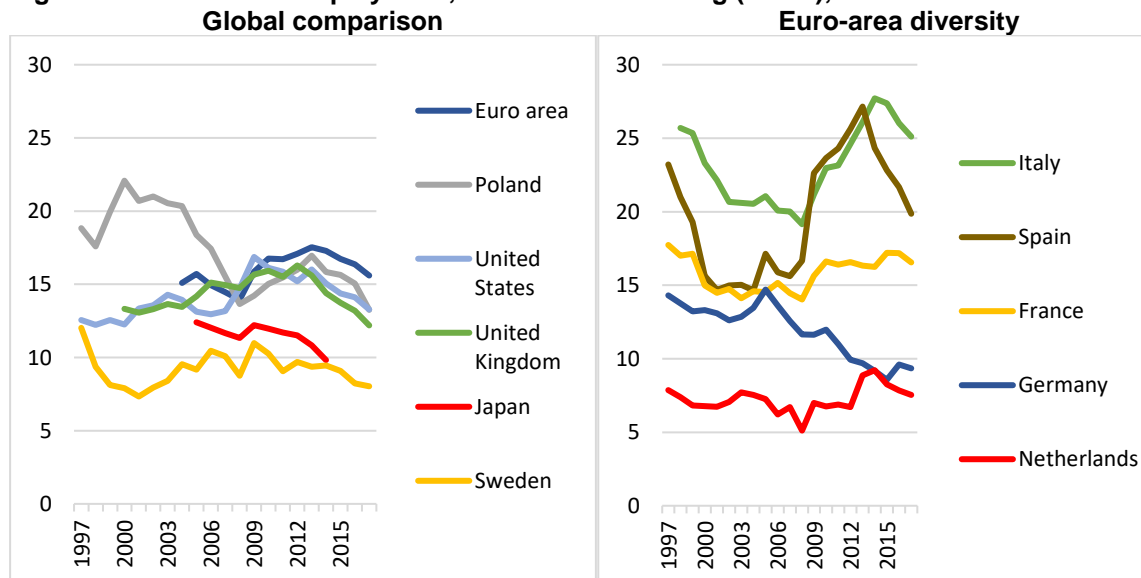


Source: Eurostat 'Employment by sex, occupation and educational attainment level (1 000) [lfsa\_egised]' dataset for EU countries and US Census Bureau for the US. Note: EU15 is the aggregate of the first 15 EU members. Classification for EU countries: high – Tertiary education (levels 5-8), middle – Upper secondary and post-secondary non-tertiary education (levels 3 and 4), low – Less than primary, primary and lower secondary education (levels 0-2). Classification for the US: high – Bachelor's degree or higher, middle – Associate's degree or some college, low – High school graduates and less.

### Still high youth unemployment

Despite the increase in jobs for highly educated workers, and in workforce participation overall, youth unemployment and inactivity remain a problem. Because young people often seek out study and training opportunities in addition to paid work, economists often look at the so-called NEET indicator (Not in Employment, Education or Training) to gauge how that cohort is doing.

**Figure 7. Youth not in employment, education or training (NEET), 1997-2017**



Source: OECD (2019), Youth not in employment, education or training (NEET) (indicator). doi: 10.1787/72d1033a-en (accessed on 15 July 2019). Note: the euro-area average considers 16 countries (not including Cyprus, Lithuania and Malta).

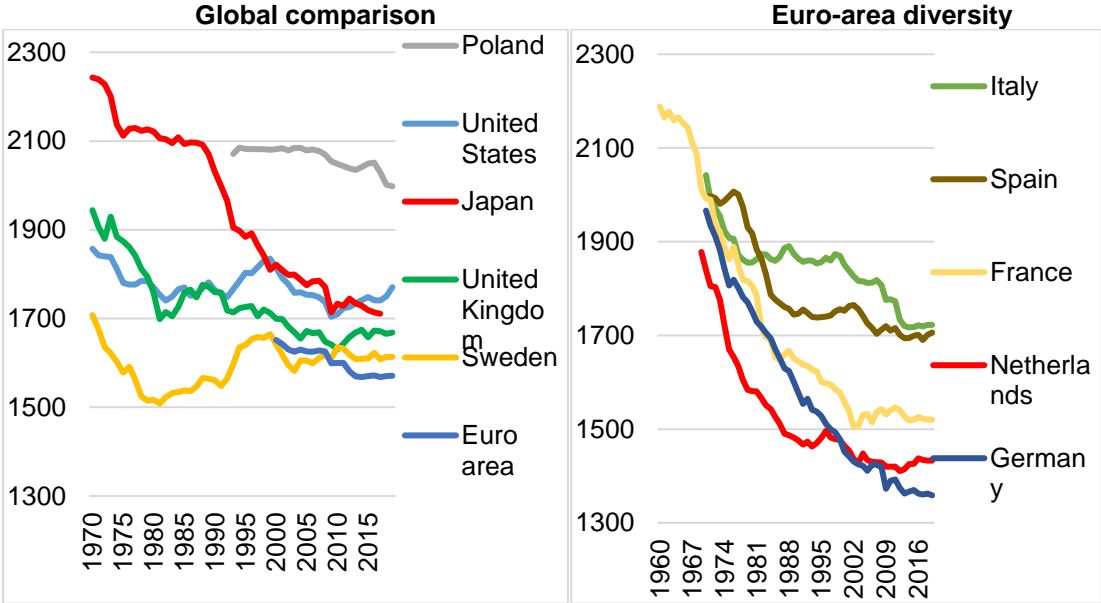
NEET in the euro area is higher than in non-euro peers like Poland and Sweden, as well as non-EU countries like the U.S. and Japan. Crisis played a role – the indicator increased after the global financial crisis of 2008 and the peak of the euro crisis in 2012, and it has fallen somewhat since then – but the 15.6 percent seen for the euro area in 2017 can be considered relatively large.

That said, there are again significant differences within the common currency zone. While the share of NEETs in the Netherlands is only 7.5 percent of the total youth population aged 15-29, in Italy the figure is as high as 25 percent, an alarming proportion, even if there was some decline from the peak value of 27.7 percent in 2014. Spain shows a remarkable improvement since 2013, yet its almost 20 percent value is well above the values of best performing countries. NEET seems to be stuck at about 16-17 percent in France.

*Decreasing working hours*

There has been a major decline in the average number of hours worked per person employed (Figure 8). In several advanced countries, the reduction from 1970 to 2018 was about 20 percent, while the French data, the only one available from 1960 in the European Commission’s AMECO dataset, shows an additional 10 percent decline from 1960 to 1970. Such declines are really remarkable and could make working more attractive and thereby boost labour force participation. But one possible reason for the decline in working hours is the more widespread use of part-time jobs, which leaves room for a possible mismatch between the type of jobs sought and the type of jobs available.

**Figure 8. Average annual hours worked per person employed, 1960-2018**



Source: AMECO dataset, May 2019.

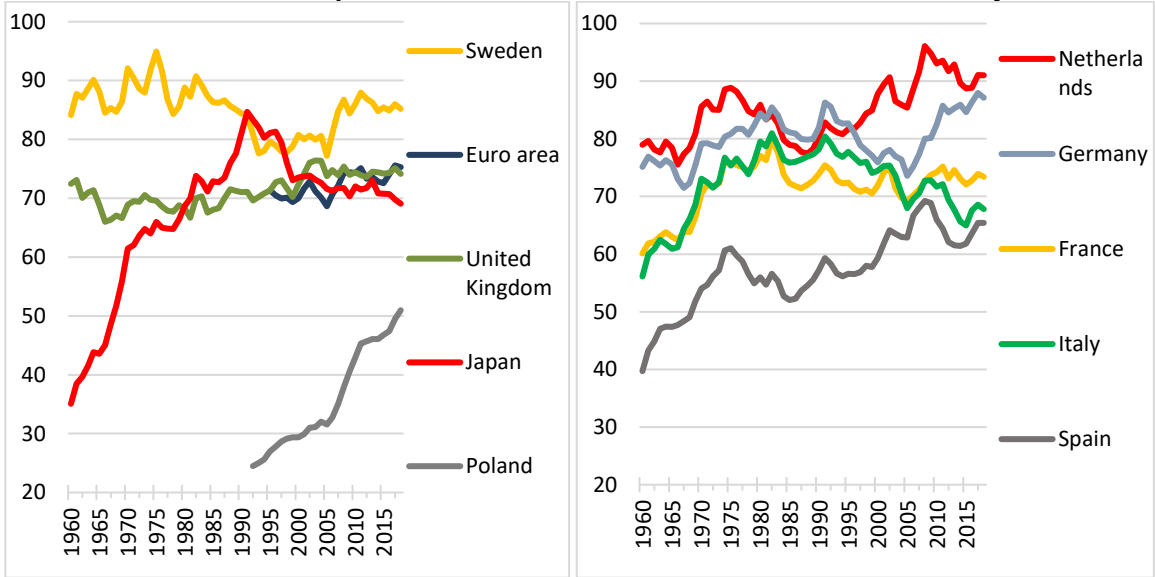
Conditions vary. In 2018, a Polish worker on average worked 2002 hours, while a euro-area worker on average worked only 1570 hours. US, Japanese, UK and Swedish workers also worked more than euro-area workers. Among the five largest euro-area countries (right panel of Figure 8), Italians worked the most (1723 hours in 2018) and Germans worked the least (1363 hours). Considering the smaller euro-area countries too, there are eight countries in which workers work more than in Italy, with the highest value of 2044 hours observed in Greece. That is also the record in the EU. There is no EU country with lower average hours worked than in Germany.

*Improving European labour productivity, considering actual hours worked*

The large differences in hours worked per employee have major implications for labour productivity comparisons. Productivity must be considered in terms of what each employee can produce, as well

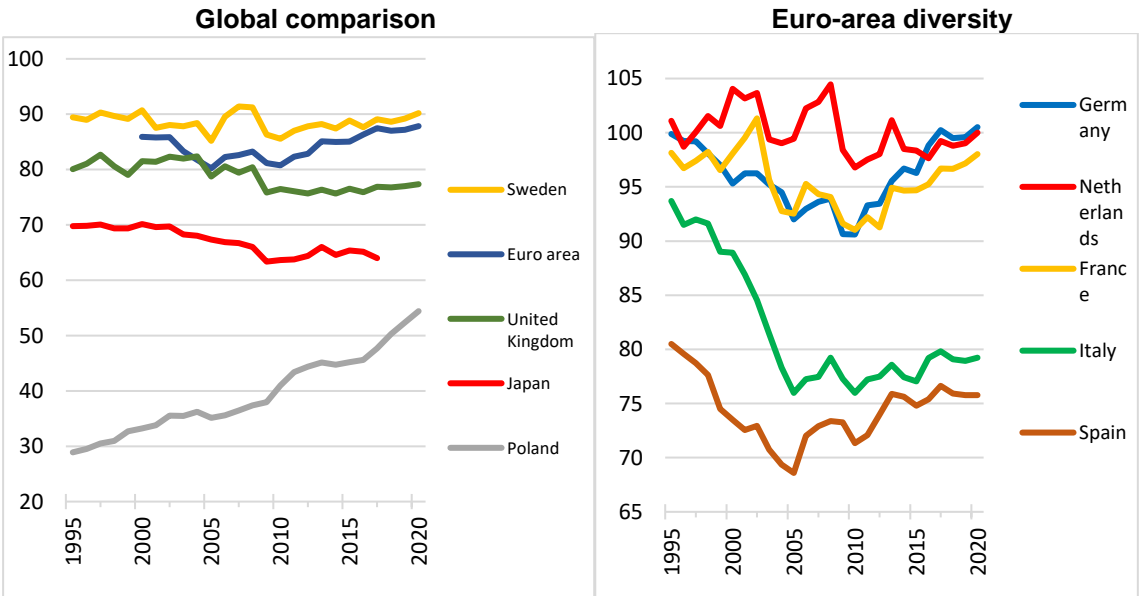
as how productive those workers are per hour. This offers a new perspective on how to compare the U.S. to the EU. The left panel of Figure 9 shows that the euro area's labour productivity per capita oscillated between 70 percent and 75 percent of the US value in the past two decades. (Figure 5).

**Figure 9. GDP per capita at purchasing power standards (United States = 100), 1960-2020**



Source: AMECO dataset, May 2019.

**Figure 10. GDP per hours worked at purchasing power standards (United States = 100), 1995-2020**



Source: AMECO dataset, May 2019.

Looking at productivity per hours worked, the euro area's productivity relative to the US has been gradually increasing from the level of 80 percent in 2010 towards 90 percent by 2019 (left panel of Figure 10). That is, looking at actual work time the euro-area productivity has converged towards US productivity in the past decade, but Europeans work fewer hours than US workers, possibly because Europeans value leisure time more. Moreover, some euro area member states are already at the US level in terms of productivity per hours worked, such as the Netherlands, which on average was at

the US level during the past two decades, and Germany and France, which reached or grew very close to the US level from 2005 to 2019.

While average productivity developments of the euro area as a whole have been rather positive in the past fifteen years, Italian developments are disappointing. Output per hours worked was at 94 percent of the US value in 1995, which has fallen close to about 75 percent by 2005 and hardly changed since then (right panel of Figure 10). Therefore, Italy has a persistent productivity problem, dating to well before its euro-area entry.

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## Megatrend: Inequality and Societal Cohesion

By Zsolt Darvas

### Summary:

We see several global trends that are driving shifts in this area. Decreasing global income inequality, due to wage gains in China and India, is one of the biggest factors shaping the global economy. Within Europe, we see inequality trends moving in different directions in different regions. In general, there are higher levels in the south and lower levels in the west. Within Italy and Spain in particular, regions with higher inequality also are dealing with higher youth unemployment. In the context of globalisation and digitisation, corporate profit shifting has increased to high levels, depriving governments from revenues. Overall, in advanced countries the tax burden is now more heavily placed on labour taxes due to the shift away from taxing corporate profits.

### Connections:

- *Climate Change*: A more inhospitable climate will heighten differences between the rich and the poor. We already see that it is difficult for young people from disadvantaged backgrounds to catch up to their better-off peers. As global weather trends exacerbate these inherent advantages, a large part of the world's population will have to work harder than ever just to keep up.
- *Migration*: EU countries will need to take newcomers into account when assessing social mobility. All children should have the same opportunities to learn and succeed. To the extent that social architecture is getting in the way, policymakers should redouble efforts to improve the system.
- *Technology and the Future of Work*: Technology companies have proven to be some of the most adept at shielding profits from corporate taxation, either by moving financial operations offshore or by constructing companies that benefit shareholders and executives without generating taxable profits. Policymakers will want to assess how much tax revenue comes from firms instead of directly out of workers' income.
- *The Modern Labour Force*: In regions characterised by higher income inequality, youth coming from poorer family backgrounds receive poorer education and have lower chances of getting a job. This association holds both before and after social redistribution efforts, suggesting that redistribution is not capable of sufficiently correcting the adverse consequences of the factors that increase income inequality. Deeper underlying causes of income inequality should be tackled, which would likely result in lower unemployment too.
- *European Monetary Union*: The euro area depends on goodwill and a shared promise of future prosperity. All members benefit when citizens in every member state can feel that their quality of life is improving and that standards of living are converging. When one region or country feels that they are falling behind, it can create resentment that threatens financial stability across the region.
- *Trust in Civil Institutions*: When the tax system benefits company owners at the expense of those they employ, it is harder for ordinary workers to trust that the money coming out of their paychecks is justified and being put to good use. Likewise, the experience in Spain and Italy compared to their Northern European peers suggests that the social welfare system could do a better job of helping disadvantaged populations catch up, without necessarily requiring a higher budget.
- *Aging Populations*: As citizens retire and leave the workforce, they face new financial challenges. These obstacles affect not only them but their children and caregivers. EU countries will need to assess how they take care of aging populations so as not to unduly burden following generations.

## Analysis:

Inequality is receiving more and more attention in policy discussions, in all its dimensions. Income imbalances are most frequently discussed, yet inequalities in other indicators, such as wealth, health and education, as well as the gender balance, are similarly important.

Inequality of outcomes can result from inequality of opportunity, like access to education, high-quality health care system, jobs, finance and the judicial system. All of these issues are central to the understanding of inclusive development.

The assessment of inequality of outcomes depends on the sources of inequality. In some ways, it is desirable to have income inequality resulting from different levels of effort, because if someone decides to study and work harder than her or his classmates then a higher income may be justified. When opportunities are equal, some measure of income inequality can encourage people to study and work harder and to take risks in order to capitalise on high rates of return.

But inequality of opportunity is unambiguously adverse. While 'fairness' is a very difficult moral concept, common sense suggests that it is unfair when the deck is stacked in favour of some cohorts, to the disadvantage of others. If, among two people with the same talent and effort, one achieves more just because she or he was born in a more advantageous place, that is not a situation that hard work can remedy.

These persistent shortfalls of opportunity lead to under-investment in human capital by poorer segments of society and reduces social mobility. Beyond hurting the individuals in question, inequality of opportunity has country-wide implications too, because it limits the talent available to occupations and to societies.

Inequality within most countries, and also inequality between countries, is to a large extent determined by the inequality of opportunities. For example, a person born in a rich US family will most likely have a much richer and longer life than a person born in a poor Mexican family, irrespective of their talents and efforts. When analysing cross-country differences, the literature concludes that higher income inequality is associated with less inter-generational (or social) mobility: the children of poor families tend to stay poor, while the children of rich families tend to stay rich (Corak, 2013).

Educational achievement is a driver of social mobility, as is the lack of it, and the literature finds that richer parents can provide better educations for their children. Tertiary education enrolment increased much faster, from an already higher level, for high-income families than for low-income families in the United States (Bailey and Dynarsky, 2011), and possibly in other advanced countries characterised by high levels of income inequality. The negative impact that income inequality has on social mobility is perhaps the most important reason why income inequality reduction should be a policy goal. Therefore, reductions would be welcome both in global income inequality, when we consider the income distribution of all individuals on the globe, and in national inequality, when we consider the income distribution individuals within a country.

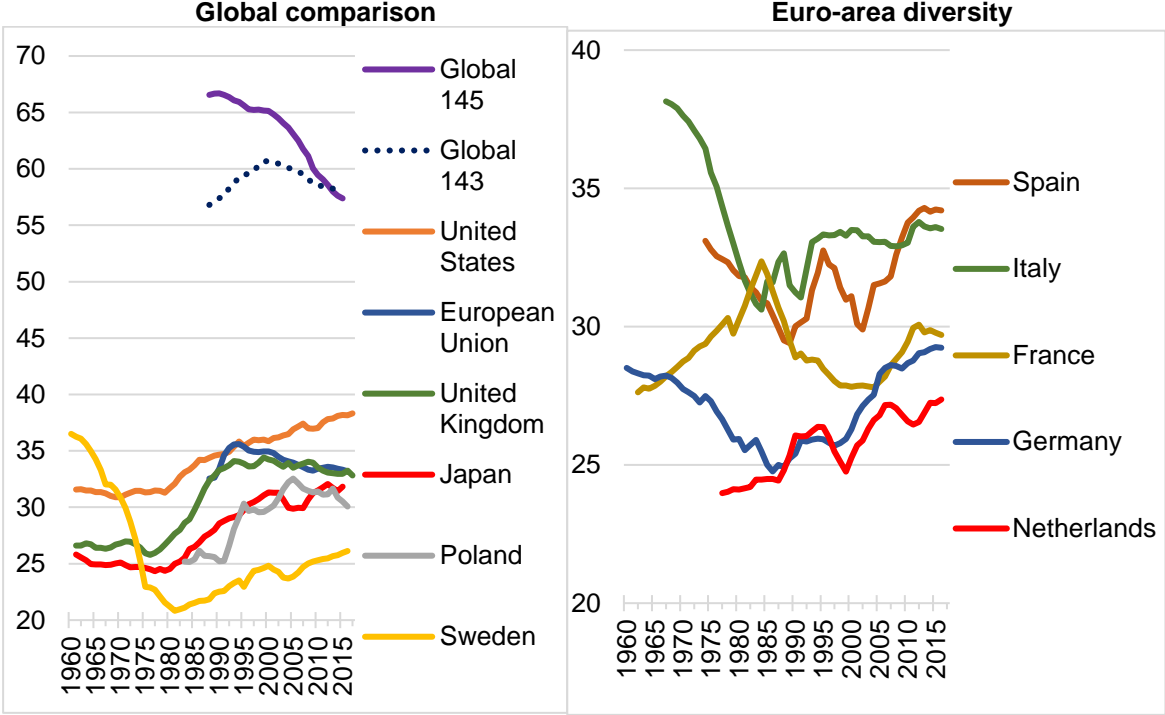
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Figure 4 shows that global income inequality among the citizens of 145 countries, which account for 95 percent of global population, declined significantly between 1988 and 2015. This is good news. The main reason for the decline in global inequality was convergence of income per capita, which was offset to a small degree by the increase in within-country inequalities and the increased population share of poorer and more unequal countries (Darvas, 2019).

However, China and India played a decisive role in global income inequality developments. If we exclude the impacts of these two populous countries, global income inequality increased in the period leading up to 2000 and the decline since then has been relatively slow. Without China and India, global interpersonal income inequality in 143 countries would have been higher in 2015 than in 1988.

These 143 countries account for 57 percent of world population and therefore the income distribution of more than half of the world population did not really become more equal from 1988 to 2015. This result calls for further policy actions, and in particular the reinforcement of the United Nations Millennium Development Goals (MDG).

**Figure 11. Gini coefficient of disposable income inequality, 1960-2017**



Source: Darvas (2019) and the Standardised World Income Inequality database.  
 Note: Global 145: the combined population of the 145 countries, which accounts for 95 percent of global population. Global 143: Global 145 minus China and India, which accounts for 57 percent of global population.

When focusing on European countries, national income inequality declined in a number of countries in the 1960s and 1970s, such as Italy, Germany, Spain and Sweden, but has drifted upwards since then. Yet if we look at the past 10 years, income inequality developments within EU countries were rather mixed: inequality has increased in 13 EU countries and it has declined in 13 other countries, according to Eurostat data. It remained unchanged in one country and data for Croatia is not available for the full period. The level of income inequality is also diverse across European countries, with Spain and Italy having relatively high values, while Sweden, Denmark and Belgium having rather low values.

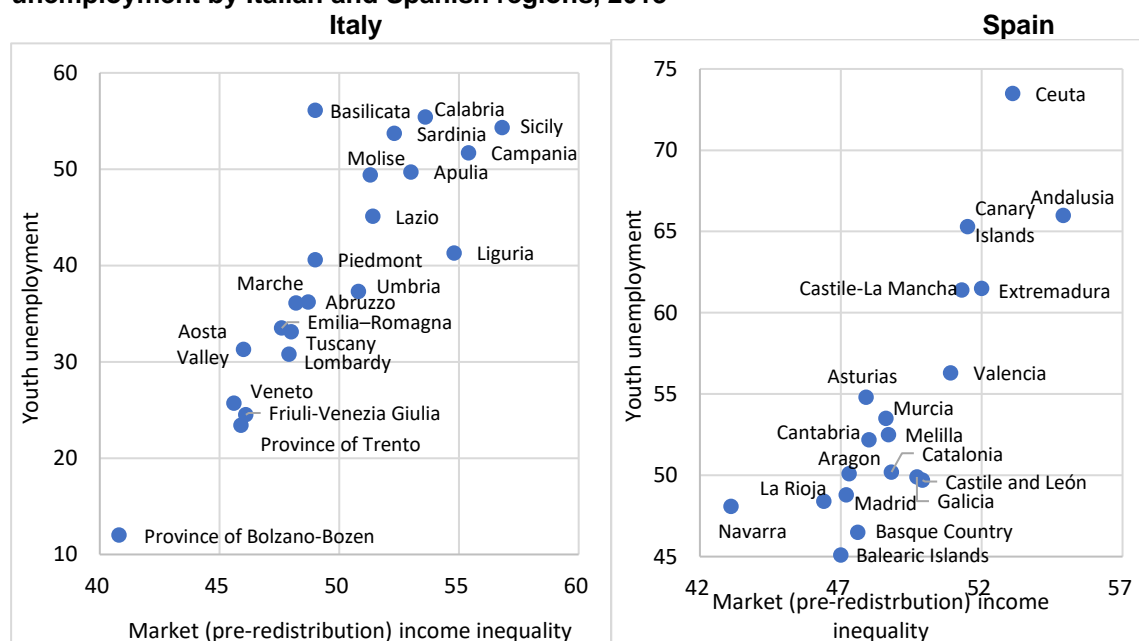
Bruegel's previous research has shown (Darvas and Wolff, 2014) that the efficiency of the national redistribution system is much weaker in southern Europe, including in Italy, than in western and northern European countries. This finding implies that income inequality could be lowered in southern European countries without requiring any extra money but instead moving to a more effective redistribution system, such as better targeting of social benefits, wider tax bases and more progressive taxes.

There are also significant differences in income inequality between regions within countries, especially in Italy and Spain. Figure 12 shows a clear association between regional income inequality and regional youth unemployment rate in Italy and Spain. Southern Italy is typically characterised by high income inequality and high unemployment, while the reverse applies to northern Italy. A number of historical, economic and social factors explain this diversity, including the poorer quality of education in the south, limiting the opportunities of youth living there, and the weaker economy, which in general weakens job opportunities. Thereby, in regions characterised by higher income inequality,

youth coming from poorer family backgrounds receive poorer education and have lower chances of getting a job.

The finding that this association holds both before and after redistribution suggests that redistribution is not capable of sufficiently correcting the adverse consequences of the factors that increase income inequality. A key lesson is that the deeper underlying causes of income inequality should be tackled, which would likely result in lower unemployment rates too.

**Figure 12. Association between the Gini coefficient of income inequality and youth unemployment by Italian and Spanish regions, 2013**



Source: OECD's Regional Well-Being Dataset and Regional Labour Dataset. Note: income inequality is measured by the Gini coefficient, while youth unemployment rate is the percent of unemployed among those who either work or wish to work (the labour force).

Various factors could have contributed to the increase in income inequalities in advanced countries over the past decades:

- Trade globalisation: importing goods from countries with lower wages increases competition and can lower the wages for unskilled labour in advanced countries. This effect can be amplified by offshoring: moving production from high-wage to low-wage countries.
- Financial globalisation: concentration of cross-border financial claims in relatively higher-skill and technology-intensive sectors, coupled with financial deregulation, increases rents in the financial sector.
- Technological change: growth has been accompanied by technological change that favours those with the right skills who might receive a higher compensation.
- Changes to labour market institutions: more flexible labour markets, decline in trade union membership and the increase in more temporary forms of employment could disadvantage lower-skilled employees.
- Redistributive policies: tax systems become less progressive over the last few decades, increasing the disposable income gap between the rich and the poor.

- Fiscal adjustment strategies: in the aftermath of the 2008 global and the 2012 European financial and economic crises, public spending on education, health, families and children were cut more than spending on the elderly, thereby limiting public services essential for families and the youth.

Let us zoom in on some tax issues. Figure 13 shows that in most large advanced countries, corporate tax revenues have declined, while personal income tax revenues increased. There were no clear trends in changes in payroll taxes and taxes on goods and services. The increased reliance on personal income taxes imply that the burden of sustaining the welfare states is increasingly on the shoulders of the middle classes.

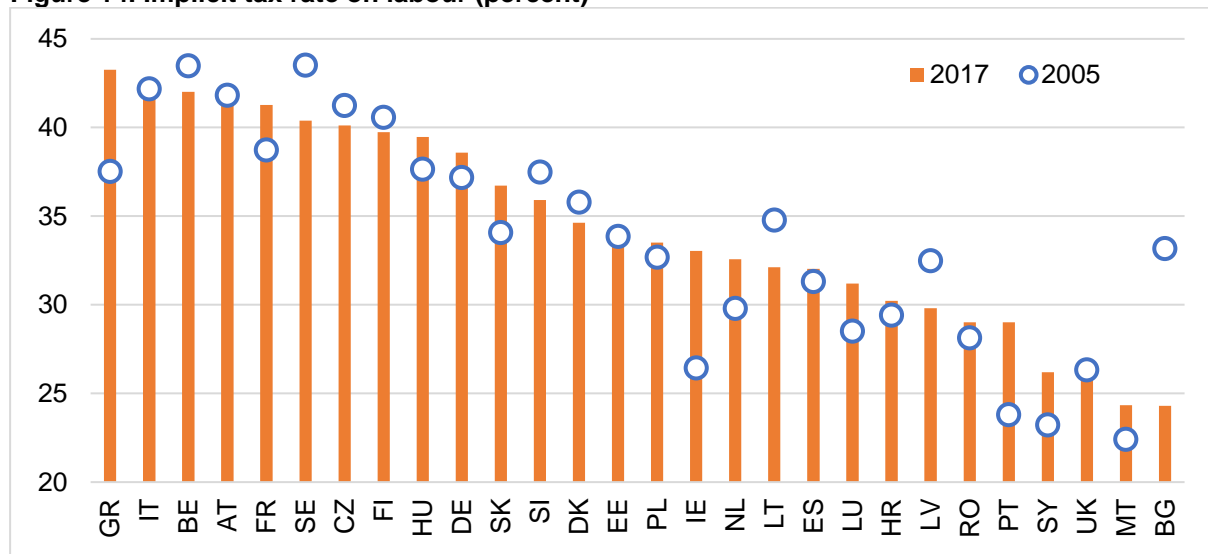
**Figure 13. Tax revenue from corporate profits, personal income, payroll and goods and services (2000-2017 difference)**



Source: OECD Tax on corporate profits (doi: 10.1787/d30cc412-en), Tax on personal income (doi: 10.1787/94af18d7-en), Tax on payroll (doi: 10.1787/2787e067-en) and Tax on goods and services (doi: 10.1787/40b85101-en) datasets.

Figure 13 reported actual tax revenue changes, which result from changes in tax rates and tax bases – the latter is influenced by policy changes and underlying developments, like increased labour force participation. Considering labour tax rates, including all elements: personal income taxes, social security contributions paid by the employee and social security contributions payed by the employer, we see huge differences across EU countries (Figure 14), ranging from 24 percent in Bulgaria to 43 percent in Greece in 2017. Italy had the second highest tax rate on labour after Greece.

**Figure 14. Implicit tax rate on labour (percent)**



Source: DG Taxation and Customs Union of the European Commission, based on Eurostat data

Corporate taxes rates have declined significantly. The IMF (2018) reports that the average statutory corporate income tax rate in high-income countries fell from 38 percent in 1990 to 22 percent in 2018. One reason for the global decline is increased tax competition and tax avoidance by multi-national corporations in the context of globalisation and digitisation, whereby companies book their profits in jurisdictions with low tax rates and bases.

Profit shifting opportunities arise in relation to the allocation of risk within multi-national enterprises (MNEs), the valuation of intangibles, and the avoidance or limitation of physical presence (IMF, 2019). The presence of complex, intangible-and technology-heavy business models make the detection of profit shifting difficult. Tørsløv, Wier and Zucman (2018) estimate that many advanced countries suffer from large losses from corporate profit shifting (Table 3). A clear implication is that a more effective fight against corporate profit shifting would lead to substantial revenue gains for governments, thereby allowing lowering other taxes, such as labour taxes.

**Table 3: Estimated revenue loss from corporate profit shifting (percent of revenues collected)**

Country	Revenue loss
France	21%
Germany	28%
Italy	19%
Japan	6%
Poland	8%
Spain	14%
Sweden	13%
United Kingdom	18%
United States	14%

Source: Table 2 of Tørsløv, Wier and Zucman (2018).

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## Megatrend: European Monetary Union

By Zsolt Darvas

### Summary:

The dramatic divergence of GDP per capita between some euro-area member states and others might undermine the political and social sustainability of the European monetary union. During the first decade of the euro, a number of factors led to major vulnerabilities in southern euro members: lower interest rates; weak productivity growth that was outpaced by wage growth; increased financial integration that fostered capital flight to other parts of Europe; and inadequate national policies. These vulnerabilities were reflected in external imbalances, structurally weak fiscal positions, and banking sector fragility. Painful adjustment followed after 2010, which inflicted social pain. Meanwhile countries like Germany and the Netherlands have accumulated unwieldy surpluses, suggesting they are not investing enough in future growth. Positive developments have emerged more recently, with long-term real interest rates falling below zero in all euro area countries and a renewal of financial integration. The euro area also has made great strides toward banking union, setting up a common supervisor and a new framework for handling troubled banks. These developments provide better ground for major policy reforms, which are needed to reverse economic divergence.

### Connections:

- *Climate Change*: Tensions within the euro area mirror global tensions from economic inequality and uneven exposure to climate change. Countries like Italy and Greece are not only facing divergence within the euro area, they also are first in line to accept refugees from Africa and other parts of the world where rising temperatures are forcing populations to seek new homes.
- *Migration*: The euro area faces internal population shifts inside the monetary union, internal migration from elsewhere in the EU, and also external migration from the developing world. Integrating these newcomers with existing citizens will be a challenge for economic policymakers. They have the potential to spark growth and improve productivity, if the workforce can accommodate them. But slower growing regions risk losing their most talented citizens, who may move away in search of better opportunities.
- *Technology and the Future of Work*: Investment will be needed to adapt to technological change, environmental demands and shifts in the employment base. Yet some of the euro area's strongest performers have also been some of the most reluctant to invest in the future of their economies. For example, in 2018, the current account surplus of Germany was larger than the surpluses of China, Japan and Russia combined. This excess surplus represents insufficient domestic investment, which in turn holds back growth across the euro area because of spillover effects.
- *The Modern Labour Force*: Differences in investment costs and job opportunities mean lower-performing countries and regions risk seeing their most talented citizens move to other areas. Euro-area policymakers will need to find ways to help weaker regions catch up to their more established peers, so that economic standards converge instead of drawing farther apart.
- *Inequality and Societal Cohesion*: Frustration with uneven economic prospects leads to frustration with the political system and the institutions that support it. It also makes it harder for governments to calibrate fiscal policy to the needs of the economy, instead of the restrictions of the marketplace. Policymakers will need to find ways to help disparate regions.
- *Trust in Civil Institutions*: The euro and the institutions that support it are some of Europe's biggest success stories, which also makes them lightning rods for resentment. The euro crisis demonstrated that solidarity within the currency union cannot be taken for granted. More recent tensions over monetary policy show the need to preserve confidence in the ECB and the euro itself.



- *Aging Populations*: Euro area countries have fertility rates below the population replacement rates, meaning their demographics will inevitably shift older as current workers age and are succeeded by a smaller cohort. This has big implications for fiscal policy, as countries will need to improve growth and productivity so they can raise revenues to provide services without creating undue burden.

## Analysis:

The euro has been one of the European Union's biggest achievements and one of its biggest tests. Europe's balance of payments, banking and sovereign debt crises led to rescue programmes for five of the euro's 19 members, with Greece requiring three aid packages before it could get back on track. Yet the crisis was also an opportunity, and the common currency has emerged stronger than it was before. Common banking supervision and tighter banking regulation have laid the groundwork for future financial stability. Now the currency union must address the unequal growth rates among its members, lest diverging economic fortunes lead to a new existential threat.

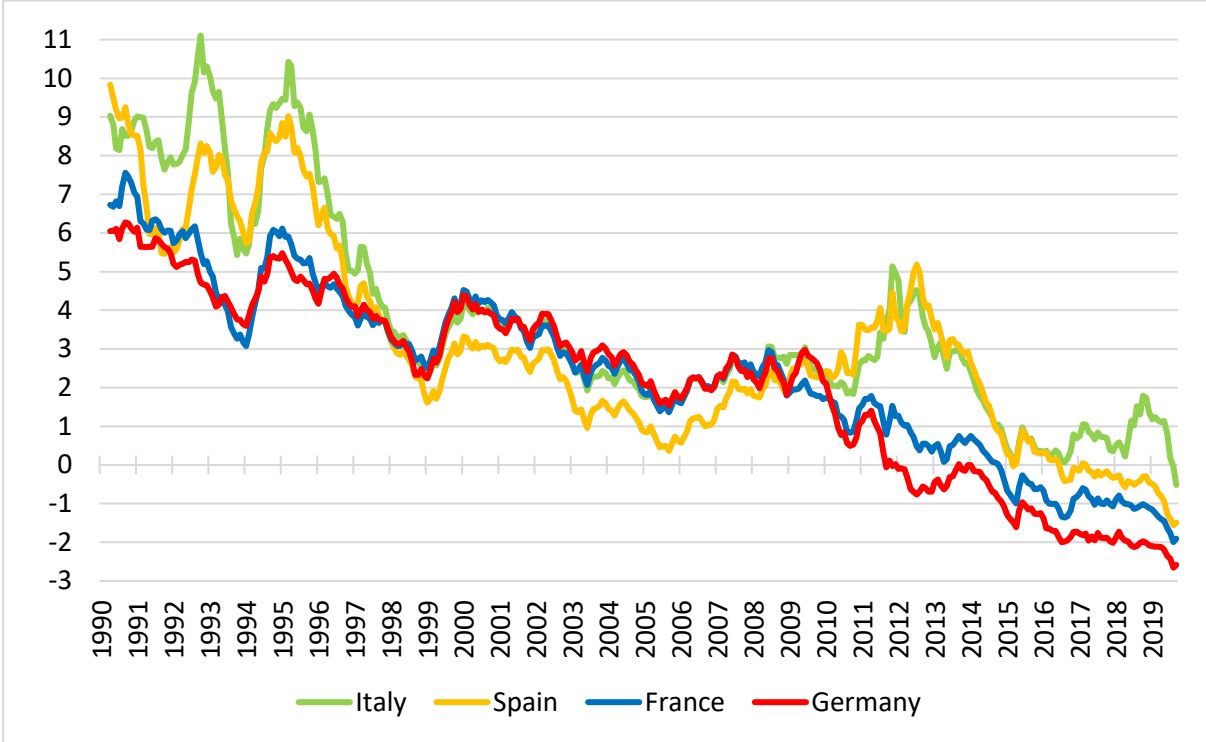
The most dramatic impact of euro area divergences is reflected in GDP per capita developments. In 1999 GDP per capita of Italy was almost the same as in Germany measured at purchasing power standards (that is, adjusted for differences in price levels), but by 2019 Italy fell short of Germany by a quarter, according to European Commission data. The gap is just slightly less, one-fifth, when considering GDP per hours worked. Other southern European countries also had rather weak overall performance during the first two decades of the euro area. Figures 5 and 6 of the Modern Labour Force chapter show this data in more detail.

The social and political sustainability of a monetary union with widening economic divergences is questionable. People in countries or regions that persistently fall behind get disenchanted. Some of them might move to other regions or countries which are more prosperous – thereby depriving their region from valuable labour, as typically the more talented workers are the ones who leave. Those who stay might blame the EU and the euro area for failure of their region and might support populist parties, which, in turn, might pursue policies which weaken European integration. Even if populist parties do not come to power, their increased popularity influences the actions of mainstream parties in power.

The main reasons for the dismal economic performance of southern European countries over the past two decades are well understood. While there were important country-specific factors for each country, there were a number of common themes.

In anticipation of euro membership, the interest rates in southern countries gradually fell to the level of the low German interest rate from their previously higher levels. At the same time, these countries had higher price and wage inflation, partly reflecting the convergence of their lower price levels with the euro-area average. But lower interest rates, coupled with somewhat higher wage and price increases, lowered the real value of the interest rate (Figure 4), which in turn fuelled consumption and credit booms; raised wage growth beyond productivity growth; and generated large external imbalances such as large current-account deficits (Figure 16). These external deficits were primarily financed by borrowing from abroad, and therefore external indebtedness also increased to very high levels in several southern European countries. Ireland and Spain in particular saw credit and construction bubbles (Ahearne *et al*, 2008). Weak productivity growth throughout the first decade of the euro, and even before, was a further problem, especially in Italy and Portugal (Calligaris *et al*, 2016; Sapir, 2018; Darvas and Szapáry; 2008).

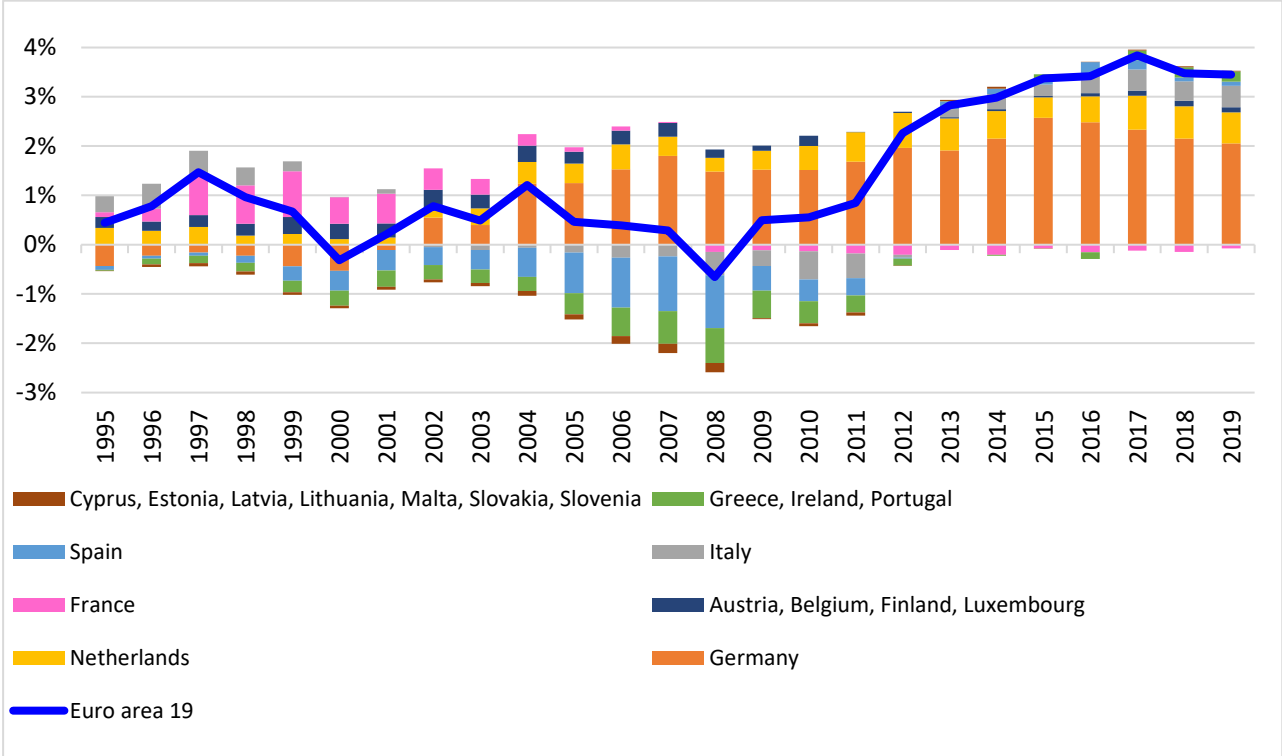
**Figure 15. Long-term real interest rates, April 1990 – October 2019**



Source: Bruegel calculation using 10-year government bond yield data from the European Central Bank (starting in 1993) and IMF International Financial Statistics (1990-1992) and inflation forecasts of the various vintages of IMF World Economic Outlook (WEO) forecasts.

Note: Real interest rates are calculated as the difference between 10-year government bond yields and 10-year ahead inflation forecasts, based on IMF WEO. IMF WEO includes forecasts for 5 years ahead: we assume that the inflation forecast for the fifth year ahead will prevail in the subsequent five years too, and thereby we calculate inflation projections ten years ahead. IMF forecasts are typically published in April and October of each year: we have linearly interpolated the April and October ten-year ahead inflation forecasts to get a forecast inflation value for each month. See Darvas (2019) for further details about the methodology.

**Figure 16. Euro area 19 current account balance (% of euro area 19 GDP)**



Source: Bruegel calculations using the April 2019 IMF World Economic Outlook.

Southern euro members also had structurally weak public finance positions, despite reduced real interest rates before the global financial crisis. Greece and Italy had rather high public debt levels even before 2008 (around 100 percent of GDP). Spain had a seemingly good fiscal position with public debt below 40 percent of GDP and, in some years before 2008, budget surpluses. But too much revenue came from the construction industry and other booming sectors, while major vulnerabilities were built up in the banking sector. Ultimately, pre-2008 southern European developments turned out to be unsustainable.

When the crisis hit, private capital inflows stopped. This necessitated harsh current-account adjustment. ECB bank financing helped to cushion some of the speed of adjustment, but it was still an abrupt transition. Strained fiscal positions necessitated procyclical fiscal tightening, so that fiscal policy was not available as an instrument to mitigate the economic shock. Meanwhile mounting non-performing loans and large holdings of domestic government bonds, which faced large market price declines, compromised bank balance sheets and reduced the ability of banks to support economic recovery. In some countries, bank losses were partly absorbed by public-sector bailouts, limiting fiscal space even further.

Pre-crisis wage growth in excess of productivity necessitated painful wage cuts and led to increased unemployment and emigration during the crisis years. Speculation on possible exits from the euro created contagion and uncertainty, reducing investment further. The inadequate crisis-management framework in the euro area worsened the problems.

The adjustment pain was reflected in sharply increasing real interest rates in southern European members, while real rates of highly-rated countries, such as Germany and France, started to fall after 2010 (Figure 4). High interest rates on government bonds adversely impact public debt sustainability, and also lead to higher borrowing costs for the private sector, given that government bond yields act as the benchmark for banks.

After the recovery from the 2008 global financial crisis, the euro area entered a second recession in 2012-2013, while unemployment increased. Eventually, the euro area returned to growth in 2013

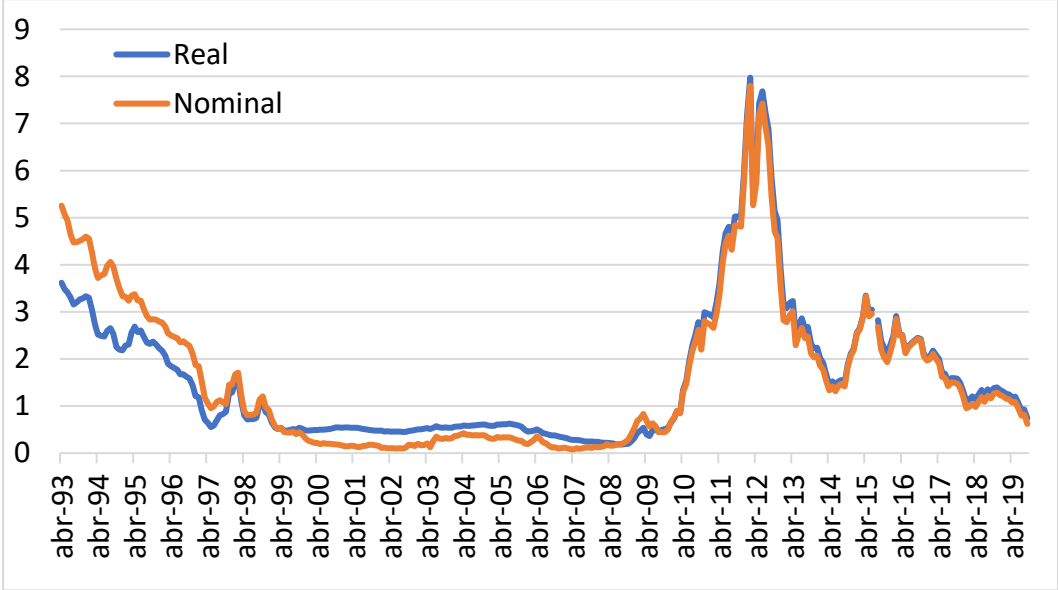
and southern European countries also came out of the deep economic contraction of the early 2010s, but the recession lasted too long and inflicted major social pain.

The adjustment of external imbalances was one-sided. While current account deficit countries, including Italy, turned to current account surpluses or a closed to balanced position, the surpluses of Germany and the Netherlands have even increased after 2010 (Figure 16). Thereby, the euro area moved from a closed to balanced current account position to a sizeable surplus.

In 2018, the surplus of Germany was larger than the surpluses of China, Japan and Russia combined. While there are structural reasons for an increase in the German current account surplus, such as aging, the actual surplus is much larger than what econometric estimates would justify for Germany. Thereby, the excess current account surplus reflects insufficient investment in Germany, which holds back euro-area growth via spillover effects.

On the other hand, good news has emerged in that interest rates declined in all southern euro members, and even the long-maturity real interest rates fell below zero in all euro area countries by the autumn of 2019 (see Darvas, 2019). In Italy the real rate turned negative in August 2019, followed by Greece in September, shortly after new governments were formed. In these two countries, positive market assessment of the new governments played a major role in falling interest rates, which shows the important effect that political developments can have on market conditions. Taken as a whole, the variability of interest rates across the euro area fell to lows not seen since 2010 ( Figure 17).

**Figure 17. Cross-country standard deviation of the 10-year nominal and real interest rates of the first twelve euro-area members, April 1993 – October 2019**



Source/note: Bruegel calculations using data sources described in the note to Figure 4.

The European Central Bank’s financial integration indicators consider several dozen aspects of financial integration in the euro area (ECB, 2018; Hoffmann *et al*, 2019), and thereby they are particularly useful in the analysis of financial integration and disintegration. There are two composite indicators: the price-based indicator relies on measures of cross-country asset return dispersion (e.g. the cross-country standard deviation of certain interest rates), while the quantity-based composite indicator aggregates data on cross-border holdings for different asset classes (e.g. bonds or equities) across different sectors.

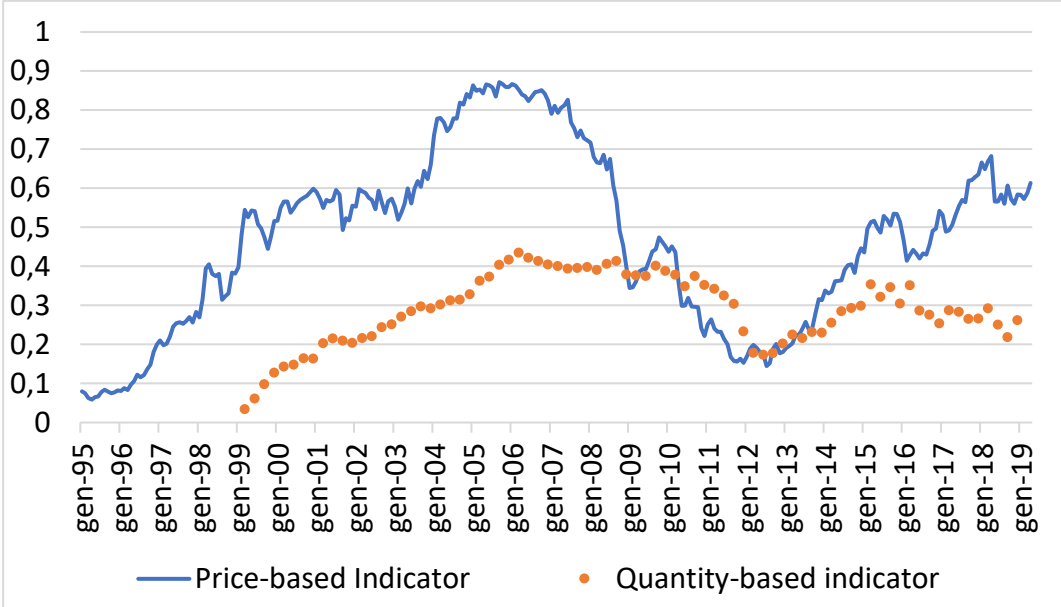
Developments in both composite indicators suggest that euro-area countries became gradually more financially integrated after the introduction of the euro in 1999 (

Figure 18). This trend strongly reversed with the onset of the financial crisis in 2007. However, after financial markets have been stabilised, a gradual recovery in financial integration started. While the 2019 level of financial integration is still below the levels observed in 2007, it is good news that financial integration divergence turned to convergence again, which provide a better ground for resumed economic convergence, if major policy reforms repair structural weaknesses.

What's at stake is not how rich or poor a country is, but whether it's moving closer to where its peers are. Regional underperformance correlates very strongly with votes for extremists or nontraditional political parties, which has long-term implications. Furthermore, when real interest rates diverge, investors in regions with higher rates are penalized with substantially higher costs than for similar projects in other areas. Policymakers will need to rebuild trust in local institutions and work to address domestic economic disparities. Monetary policy also may play a role, if the European Central Bank can raise inflation back to its target level of just under 2 percent.

The global and euro-area crises showed that the fortunes of euro members are bound together, and trouble in one country can lead to shockwaves across the monetary union. Meeting the current set of challenges will need to be a top priority for Europe's institutions and policy leaders.

**Figure 18. The ECB's euro-area financial integration composite indicators, January 1995 – April 2019**



Source: [https://www.ecb.europa.eu/stats/financial\\_markets\\_and\\_interest\\_rates/financial\\_integration/html/index.en.html](https://www.ecb.europa.eu/stats/financial_markets_and_interest_rates/financial_integration/html/index.en.html) European Central Bank,

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## Megatrend - Trust in Civil Institutions

By Maria Demertzis

### Summary:

The European Union is in the midst of a reckoning with how member states view the collective institutions they have built alongside their national governments. Countries with weaker domestic governance tend to have higher faith in EU institutions than counterparts where local institutions are viewed as highly trustworthy. In turn, countries with lower relative trust toward central institutions do not always have constructive views of their peers. This has created divisions and a perception that some countries are “more equal” than others, which has hurt the EU’s ability to strengthen itself and work toward further integration. Given the economic and cultural benefits of working together, overcoming these barriers to trust will need to be a priority for policymakers and other stakeholders.

### Connections:

- *Climate Change*: Action at the European level is required to address the threat of rising temperatures and warming oceans. Yet collective action is impossible without faith in coordinating institutions. If EU member states do not trust each other enough to find consensus, they will fall short of their goals and fail to make the most of their collective potential for global influence.
- *Migration*: When trust breaks down across borders, that process can extend to communities themselves, making it harder to integrate newcomers and make the most of outside investment. Politicians often cite “European values” as a reason to limit migration. It would be more constructive to shift the focus to reinforcing and expanding the reach of European values and civic integrity.
- *Technology and the Future of Work*: Even as citizens question their trust in traditional institutions, they are adapting their lives to a more digital environment that puts trust in faceless customer reviews and corporate algorithms. Balancing convenience with ethical action and consumer protection will be one of the biggest challenges for society going forward.
- *The Modern Labour Force*: Today’s workforce relies on educated, mobile workers who can make the most of new opportunities. To the extent that poor trust in EU institutions and certain member states persist, it can put up barriers to investment and mobility that restrain growth and productivity.
- *Inequality and Societal Cohesion*: In a climate where citizens of many European member states feel that some countries are more trustworthy than others, it will be difficult to move ahead with collective reforms to strengthen the euro, fight climate change and improve living conditions across the EU. Trust in central institutions is a central element of the European project.
- *European Monetary Union*: To prosper in the long term, the euro area needs to complete the banking union and consider ways to pursue more fiscal integration, moves that are impossible given the current reluctance toward further integration. Rebuilding trust in European institutions will be essential for the monetary union to reach its full potential.
- *Aging Populations*: Europe’s diverse history means that today’s older citizens have memories of conflict and economic hardship predating the euro and the European Union. At the same time, the recent economic crises have weakened their faith in the EU institutions that have been built over their lifetimes. Policymakers looking to rebuild trust will need to reach out to these voters.

### Analysis:

Attempts to reform and expand the euro zone, and indeed to expand the EU are stalled by an obtrusive lack of trust. The European Commission itself has argued that people in most EU member states perceived this as a trust crisis on several levels, (European Commission 2017). In the years that followed the financial crisis we observe striking changes in the EU itself and in many regions,

leading to political fragmentation and even polarisation across many countries. Brexit and renewed separatist movements in many countries are just some of the examples.

The process of globalization that has been going on since the early 80s and the occurrence of a once in a lifetime economic crisis have made Europeans feel their economic well-being is not directly under their own control or indeed of their own governments. The migration crisis, the result itself of turmoil in geographically distant countries, has only confirmed this fear of losing control over one's own fate.

The issue of trust appears differently to different stakeholders. On one hand, the loss of trust in our ability to self-determine seems to bring about an increasing mistrust of authority, including politicians, governments and common European institutions. On the other hand, however, we observe an opposite effect; an increase in "digitally enabled" trust. Based on "faceless" reviews, consumers place their trust in previously unknown service providers. This has led to a trust-enabled digital economy that provides for an increasing share of our welfare. Botsman (2017) explains how in the new world order, people may have lost confidence in traditional institutions and political leaders but are happy to rent their own homes to complete strangers or ride a car with a possibly unregulated driver. She presents this shift in trust both as a challenge and an opportunity in a general sense. But for the EU, this break in trust has prevented countries from agreeing how to complete the union architecture.

European countries divide themselves in camps along different fault lines: North vs South, East vs West, ins vs outs and – always – them vs us. Some countries frequently are seen as corrupt and unreliable. These judgments in turn lead to an environment where some member states feel as if they are part of a union out of Orwell's Animal Farm, where are all equal, but some "are more equal than others." (Orwell, 1945). What is the source of this suspicion and why does it arise?

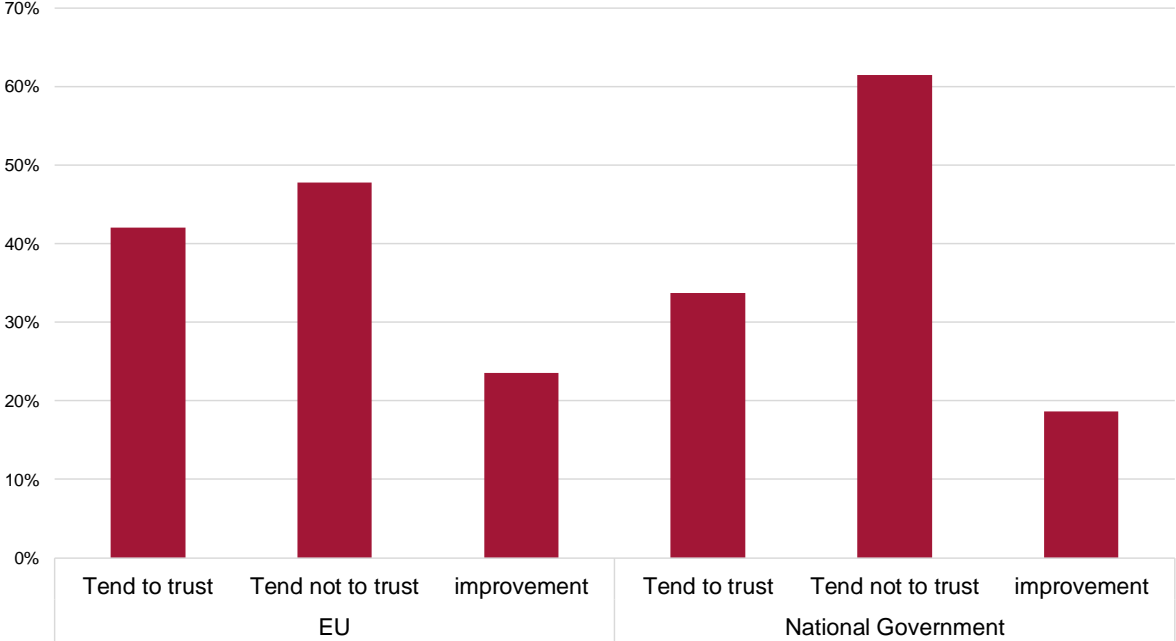
Equally, "Brussels," the collective term for all European institutions, has become synonymous with elitist, inefficient and distant. The owners of these institutions – in other words, the countries of the European Union collectively – are becoming suspicious of how Brussels serves them, or of what it stands for. This suspicion has made Brussels the source of much that goes wrong in countries domestically, which is at times a very convenient scapegoat. On the other hand, notably increased participation in the 2019 European elections is an indication that there are some areas where citizens believe that Europe can provide solutions.

#### *A Deterioration in Trust*

Can Europe realistically attempt to integrate further on the basis of such little trust? Even if one imagines that the single market could continue to operate, can we sustain a common currency in the absence of trust when trust is the very basis on which currencies operate?



**Figure 1. Trust in EU and National Governments**

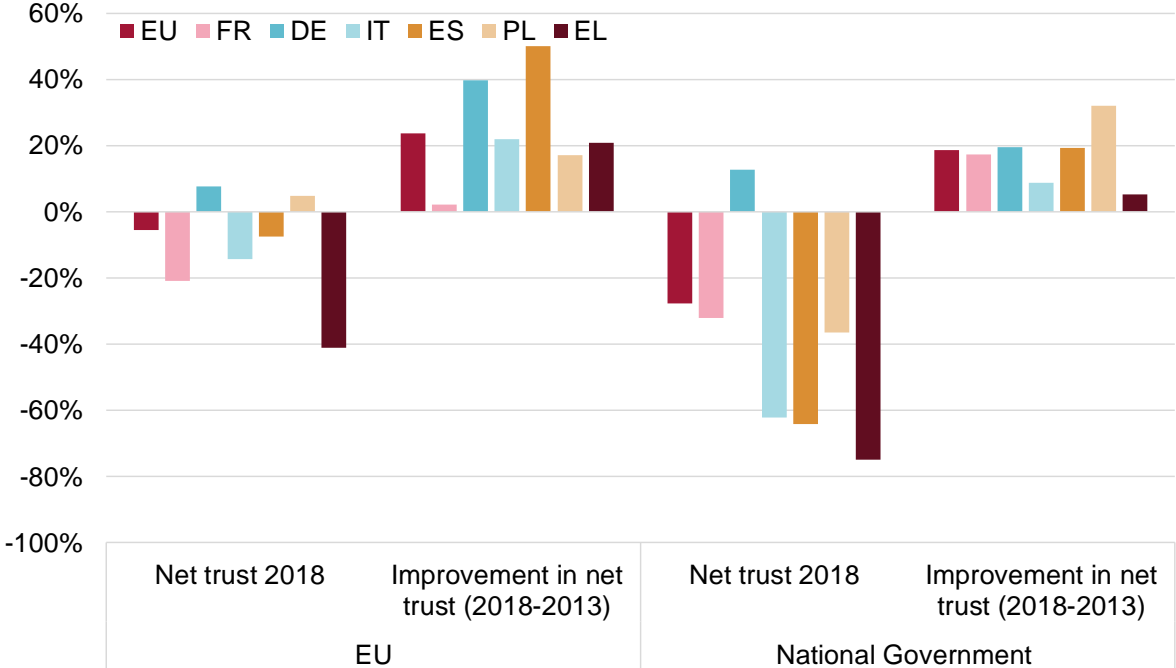


Source: Eurobarometer, 2018. Notes: Variable “Improvement” in those who trust from 2013 to 2017

Figure 1 shows the level of European citizens’ trust in EU institutions, as well as an average for all countries. In 2017, there were still more people that distrust the EU than actually trust it. And that is despite the fact that the share of citizens who do trust the EU has improved by over 20 percentage points since 2013. At the same time a similar, albeit more imbalanced, picture emerges with regards to the average national government.

Figure 1 conceals important country differences. Some of these are shown in Figure 2, below, which tells several different stories. Germany has more trust than distrust in both the EU and its own government. Poland trusts the EU on average but distrusts its own national government. Others tend to have more distrust than trust in institutions at both the EU and the national levels.

**Figure 2. Trust in EU and National Governments: country cases (2018)**

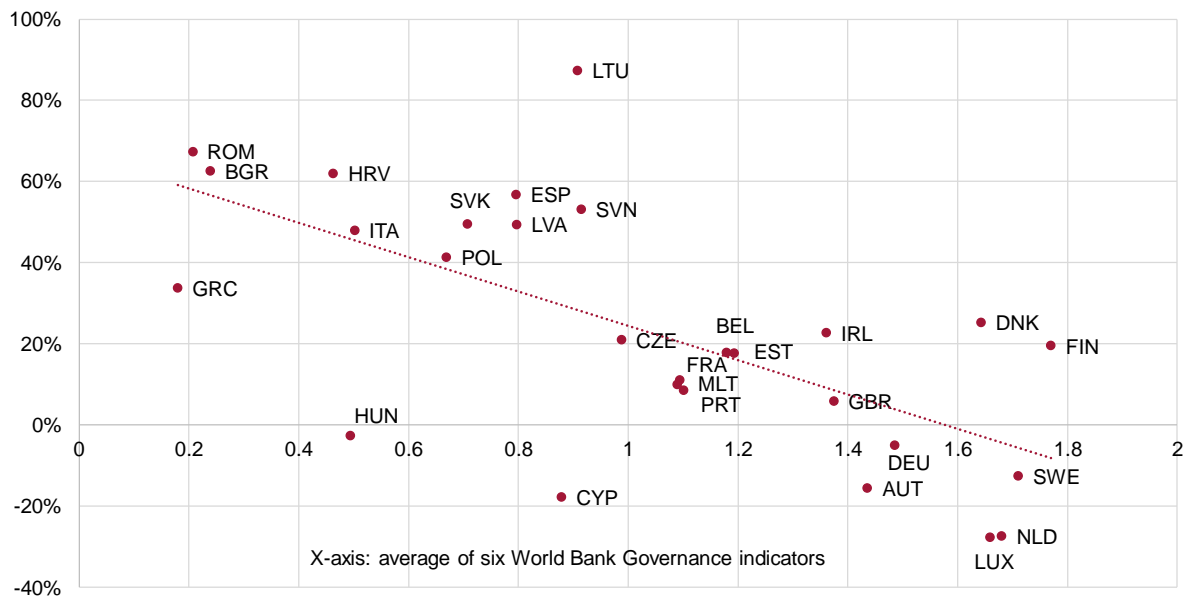


Source: Bruegel based on the Eurobarometer. (Net trust = %Trust - %Distrust).

Certainly, the issue of trust is complex and has multiple drivers. However, in the context of the EU, the inability to find agreement on how to advance arises in part because the quality of domestic governance is too inconsistent. Figure 3 below plots the correlations between the average of six World Bank governance indicators and the net trust for EU and for country institutions. The six indicators are voice and accountability, political stability, control of corruption, government effectiveness, regulatory quality and the rule of law and take values from -2.5 to 2.5. A positive value on the y-axis indicates that the country in question trusts the EU by more than its own national government.

**Figure 3. Quality of Governance and trusting the EU vs National governments**

Y-axis: Net trust in EU - net trust in national government.



Source: Bruegel and World Bank.

What the graph shows is that there is a negative association between the two. As the quality of governance improves, countries tend to either have a more balanced trust between the EU and their own institutions or tend to trust the latter by more. It is worth pointing that those countries which place the highest trust in their own domestic institutions have both high-quality governance as well as high levels of trust for both. By contrast, those countries that do not have good quality domestic institutions tend to trust the EU by a lot more than they trust their own.

The EU recognises the importance of good-quality national-level institutions. However, from its very genesis in 1957, the circle of EU members has included countries that were very different in this respect. Every time this circle expanded to include new member states, it came with the hope of helping to encourage reform for those who were lagging behind. Institutional reform, and therefore convergence in governance standards, was thought to be easier once inside the EU circle.

However, this promise of more effective “reform from within” has not equally successful for all member countries. Some may even say that progress is regressing, eroding trust and the willingness to work together, and by implication hurting Europe’s standing in the world.

### Governance heterogeneity

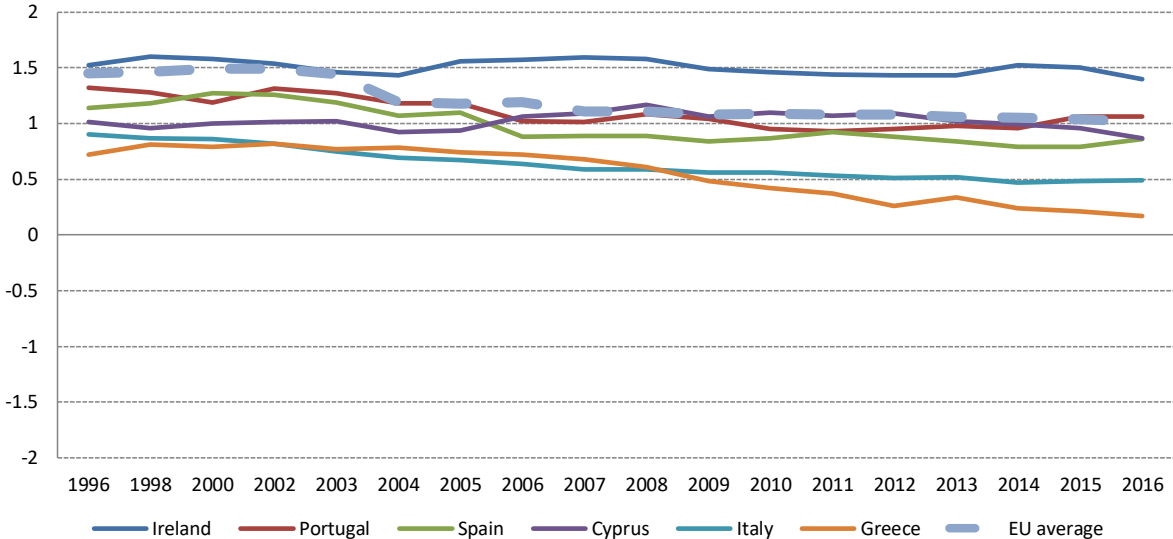
Some of these patterns can be seen in a closer look at the same World Bank Governance Indicators for two country groups, those hit worst by the crisis in the euro area and central and eastern European (CEE) countries, and how they have evolved since 1996 (Demertzis and Goncalves Raposo, 2018). These indicators are more illustrative of long-term trends, rather than two consecutive points in time, and they are not immune to criticism. Nevertheless, they offer an impression of how citizens of any given country have adjusted their perceptions over a period of 20 years. We present both the composite indicator (and arithmetic average of the six indicators) and the values for the rule of law.

Figure 4 below presents the evolution of governance for programme countries – Ireland, Portugal, Greece and Cyprus, as well as Spain and Italy. The picture show that, with the exception of Ireland, these countries were below the average EU number at the start of this 20-year period. Spain, Portugal and Cyprus have maintained their relative positions since then. By contrast, Italy and Greece have diverged from their initial position and are now lagging far behind the current EU average.

Two issues are worth raising: firstly, the deterioration of governance indicators in Greece coincided with the onset of the financial crisis. This is particularly visible for the rule of law and control of corruption indicators. In Italy, by contrast, the deterioration in governance did not coincide with the

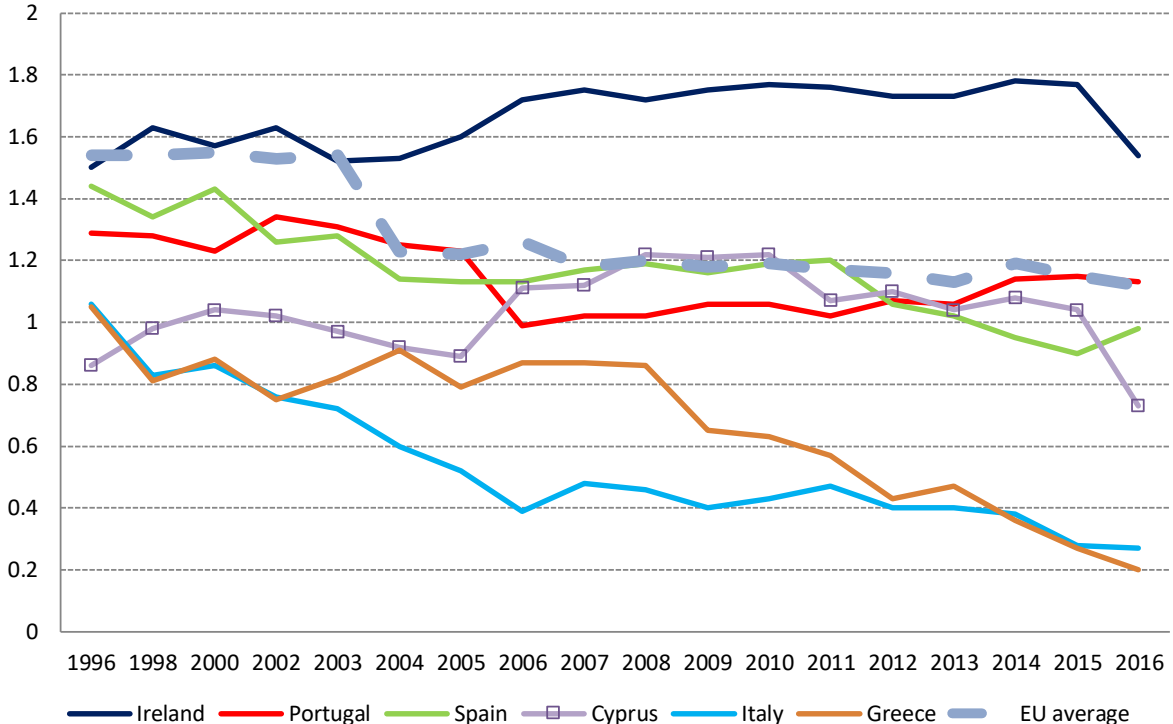
financial crisis. The deterioration observed appears to be slower but has started much earlier, at the beginning of the 21st century. Similar to Greece, the rule of law and control of corruption are the main contributors to this deterioration in Italy.

**Figure 4. Average of six world governance indicators – crisis and Southern European countries**



Source: Bruegel and World Bank.

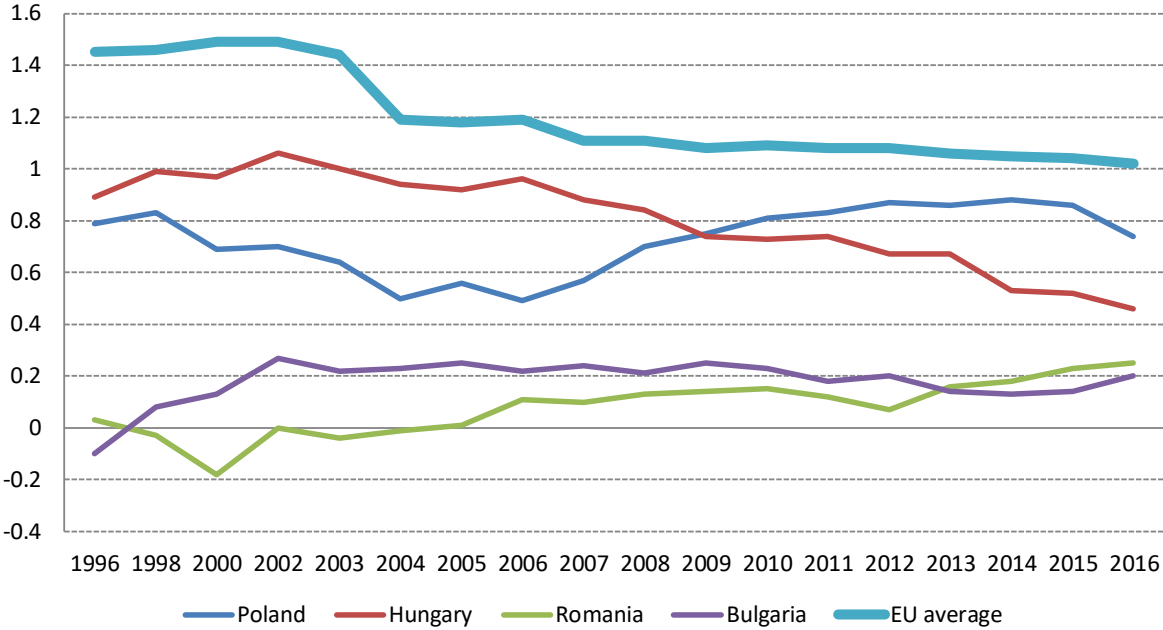
**Figure 5. Rule of Law - - crisis and Southern European countries**



Source: Bruegel and World Bank.

The quality of governance in CEE countries cannot be uniquely described. Here, too, there are important differences, although as a group these countries are generally below the EU average and further away than the previous group, according to these indices.

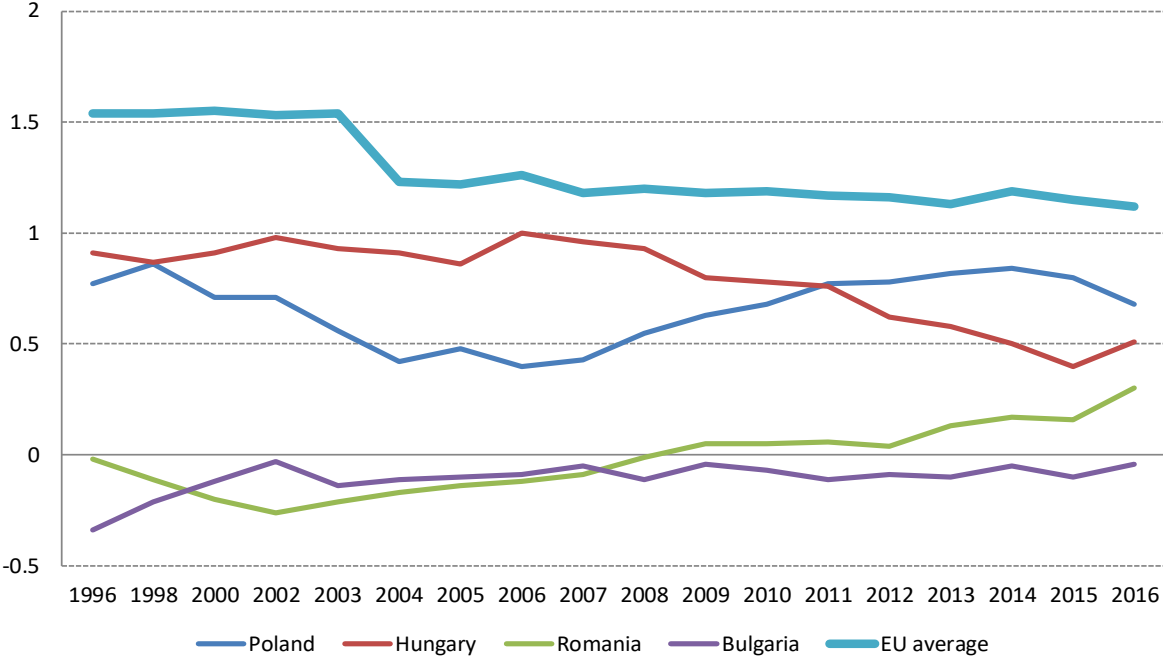
**Figure 6. Average of six world governance indicators – CEE countries**



Source: Bruegel and World Bank.

Hungary and Poland have evolved differently in this respect since they entered the EU in 2004. Poland has seen a general improvement in institutions since accession, whereas Hungary has seen an overall deterioration. This is particularly visible in the rule of law indicator.

**Figure 7. Rule of law - CEE countries**



Source: Bruegel and World Bank.

As explained these perception indicators do not necessarily reflect short-term movements in the actual quality of governance. They do not, therefore, capture the decision of the European Commission to invoke Article 7 – a procedure that can strip member states of certain rights, used

here for the first time – on Warsaw in December 2018, over the risk of a serious breach of the rule of law, which the European Parliament subsequently approved in March. Concerns about the rule of law in Hungary have also been expressed by European Parliament members. The cases of Poland and Hungary are notable because they reflect policy changes that have actively reduced the quality of governance, irrespective of perceptions from the outside.

Bulgaria and Romania are the two countries that score the lowest across the whole period. EU entry in 2008 appears to have helped Romania to improve, albeit on a small scale. It is notable that the rule of law is very poor in Bulgaria but, more importantly, it has seen little to no improvement over a period of 20 years.

Lastly, the prospect of EU enlargement has created a cohort of countries at different stages of EU accession negotiations. This group includes the western Balkan countries as well as Turkey and Ukraine. Less than a decade separates Serbia and Montenegro from the 2025 deadline set for their own EU accession. However, in 2016 these countries and their western Balkan peers were far behind EU Member States in terms of the quality of their institutions. This is also the case for Turkey and Ukraine. In most cases, these countries score negatively and with varied progress over the span of two decades.

### *A way forward*

The lack of trust continues to prevent Europe from speaking with one voice on a number of important issues, including on how to advance the European Union architecture. Contrary to governance convergence, when it comes to economic convergence the EU and euro area have explicit monitoring mechanisms in place. But while desirable and useful, economic convergence is a separate matter from convergence in the quality of institutions, particularly if we are interested in the EU existing in the long haul. The quality of institutions constitutes not only the basis on which good economic outcomes can arise (Masuch et al 2016) but also, importantly, on which they can be sustained. Good economic performance, while possible with different institutional structures, is likely to be reversed in the absence of good regulations or an effective rule of law.

The EU has elaborated economic surveillance processes in place, like the fiscal compact and the Macroeconomic Imbalance Procedure (MIP), to monitor and help reform country economies. But when it comes to monitoring the institutional quality at the EU level, there is nothing equivalent. For as long as there is quite such variation in the quality of governance, it is difficult to imagine how countries can trust each other.

One measure that might help would be to create a Governance Performance Monitor, which would benchmark, monitor and promote convergence. The EU should establish indicators that can evaluate development in the main governance areas. This would increase and sustain momentum and to be part of a broad surveillance process to raise awareness and encourage ownership within member states. The EU's many tools used to enforce economic discipline and cooperation should be augmented with regards to institutional reform. If governance can be demonstrably improved, economic outcomes will improve and trust will follow.

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## Megatrend: Aging populations

By Enrico Bergamini, Rebecca Christie and Larissa Nowjack

### Summary:

European societies are among the fastest aging in the world, but they're not alone on this path. China also is becoming a fast aging country while Japan is one of the oldest societies in the world. Meanwhile, neighbouring Africa is the youngest continent in the world and will exhibit a dramatic rise in population size in the next 20 years. Policy planning must assess how demographic change and increase in retirement age is correlated to the future, especially when it comes to pensions and worker taxation.

### Connections:

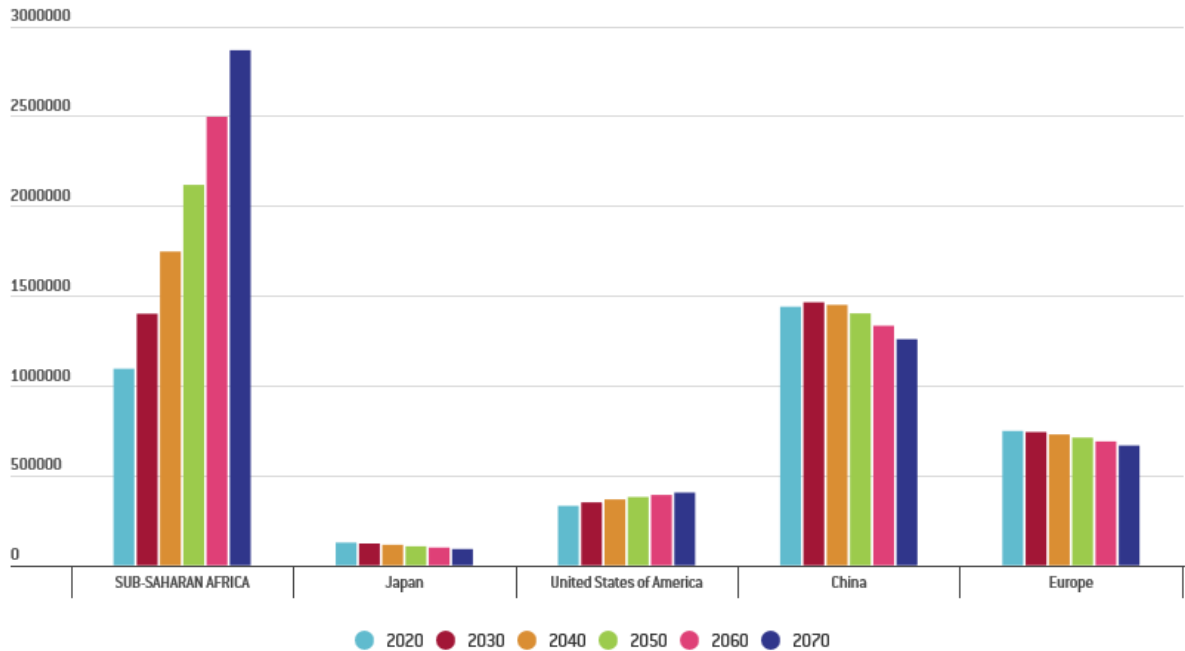
- *Climate Change*: Older citizens must prepare for changes to their longstanding way of life. Everything from how we sort our trash to where we live will be affected by climate change. Transportation, indoor air conditioning and flood prevention are some of the issues at stake. All citizens need to be prepared for how their world is changing and helped to refit their homes or even relocate as necessary.
- *Migration*: Newcomers, whether by regular or irregular channels, won't have much of an impact on the demographic changes now underway. Migration should therefore be neither savior nor scapegoat for the meeting the challenges of an aging society.
- *Technology and the Future of Work*: Older citizens must not be left behind as the digital economy evolves. Policy must address how older workers and retirees can benefit from new technology rather than be exploited by it. Artificial intelligence algorithms must be taught not to discriminate.
- *The Modern Labour Force*: Rising retirement ages mean citizens will spend more time in the workforce over the course of their lives, making it crucial that they learn the skills to adjust to changing trends. Regions must create cultures of learning and cross-cohort collaboration.
- *Inequality and Societal Cohesion*: Some of the areas hit hardest by slowing growth are also those, like parts of Italy, experiencing some of the most rapid demographic change. Policymakers must take all generations into account.
- *European Monetary Union*: Older citizens have the clearest memories of life before the euro. Those experiences should be harnessed to build support for the common currency's achievements.
- *Trust in Civil Institutions*: Older citizens need to retain trust in local government, news media and other civic actors. At the same time, those entities need to serve all their populations and not just cater to the concerns of specific generations. Civil society stakeholders will need to find ways to safeguard widespread confidence in the backbone institutions of democracy.

### Analysis:

Europe's aging population is one of the trends that is easiest to forecast, at least in terms of the demographics. We already now know the age profile of our societies over the next 30 years, and we know what our workforce will look like in two decades' time because those workers have already been born. These changes in the demographic composition are well underway and unlikely to change unless Europe faces a true catastrophe.



**Figure 1. Population projection by region**



Source: Bruegel on United Nations DESA/Population Division

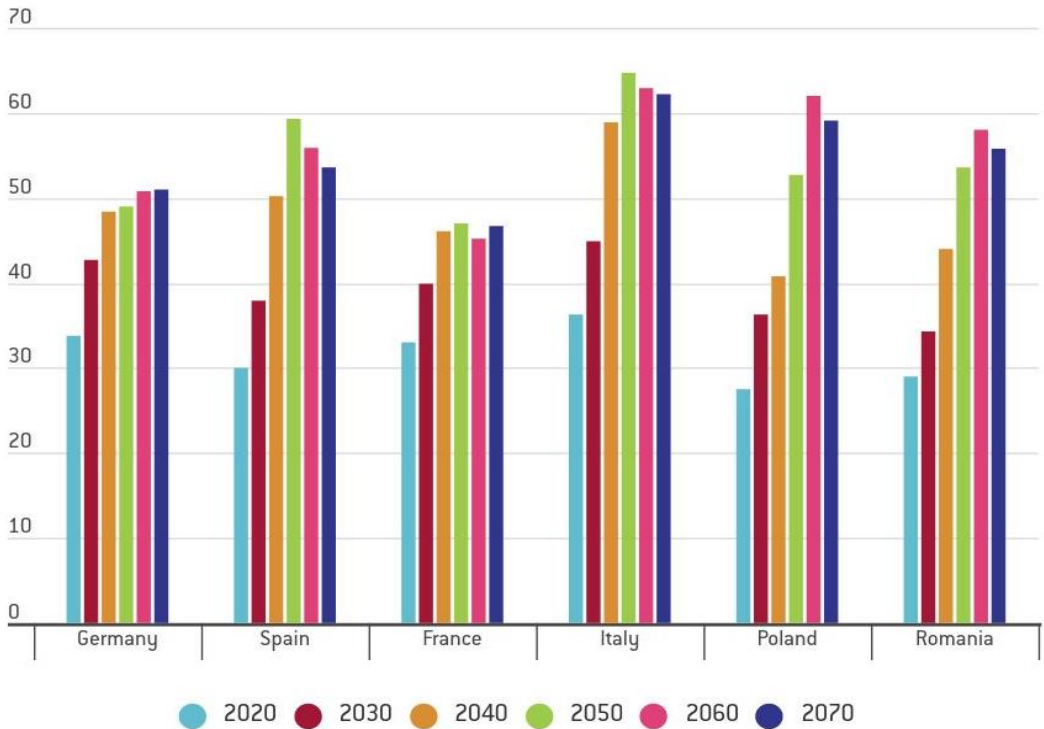
Since the 1960s, the European population has grown by a quarter, while world population has over doubled (EPRS). This global trend has continued while EU growth slows further, meaning that the EU will decline in overall world population percentage. Over the next half century, Europe’s total population will decline. So will the populations of China and Japan, while the U.S. population is projected to increase modestly. In contrast, Sub-Saharan Africa is projected to be the source of the biggest growth. In one or two generations, there could be 2.5 billion to 3 billion people living on the African continent, which will be a major shift in where the world’s population lives.

For Europe, these changes in our neighbor continent pose challenges such as the highly publicized boat migrants. But those travelers are only a small fraction of the interaction between Europe and Africa. Trade linkages mean that African development could be a huge opportunity for Europe, with possible benefits for stronger exports, more affordable imports and an improved workforce through traditional, regular migration channels.

Migrants entering the European Union tend to be of working age. According to the OECD, 77% of foreigners are between 15 and 64 years old, and 16% under 15. Of those originating from a non-EU country, only 55% are employed, a 4% decrease from 2008. Increasing employment will be important in supporting an aging population. Increased trade and economic activity would also help Europe’s tax base withstand its coming challenges.

Europe’s declining population will have huge implications for macroeconomic management and the welfare state that citizens have come to expect, which provides support to children, the elderly and those in economic distress.

**Figure 2. Projections of old-age dependency ratio**



Source: Bruegel on Eurostat (population 65 and over to population 15 to 64 years)

Figure 2 shows the number of people whose needs have to be taken care of by those who are currently in the workforce. A ratio of 50% means that for every two workers, there is one person in retirement.

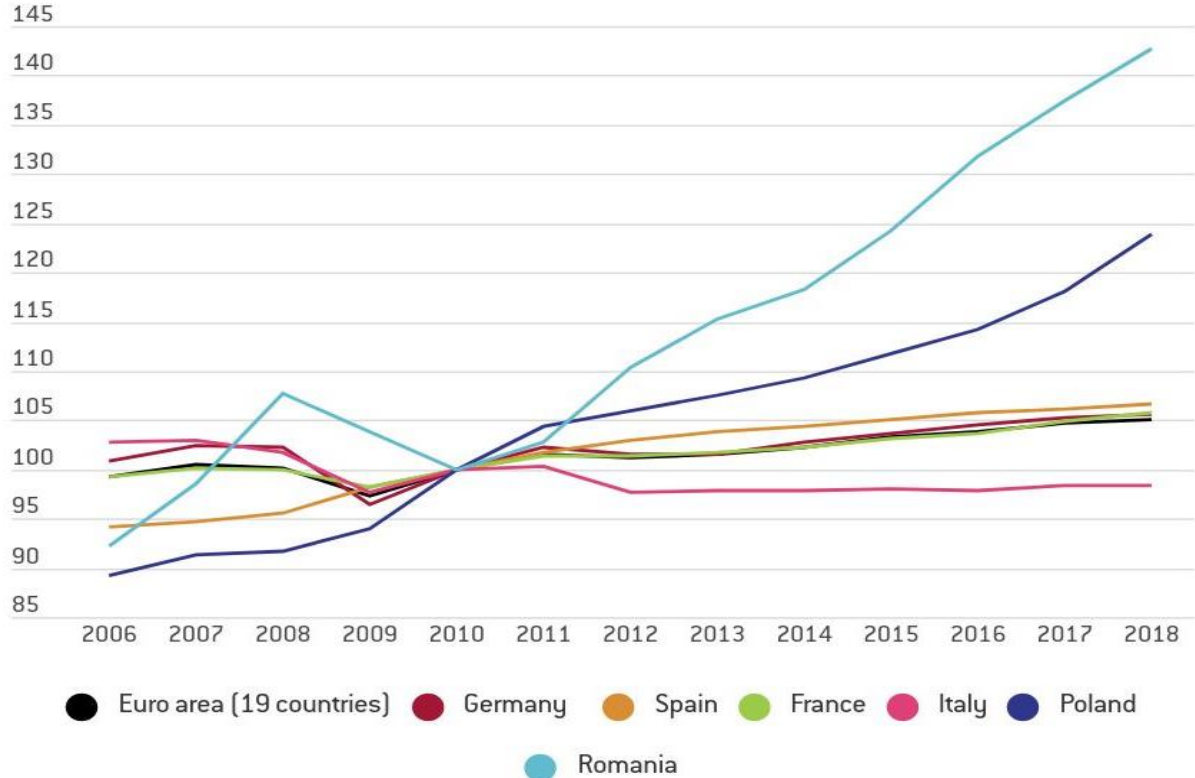
In 2020, Europe is closing in on 33% – meaning there is one person on a pension for every three workers. The coming shift will be dramatic. It will mean two people having to generate enough income to feed three, instead of three people working to feed four. It’s coming, and it’s unavoidable.

We will get older as societies and this will mean significant adaptation for all of us. The Survey of Health, Ageing and Retirement in Europe found that caregiving concerns also will play a central role in how populations adjust to growing older. As citizens live longer, their caregiving networks will be on duty for extended periods of time, perhaps even into the period when those providers will require care themselves. Policymakers will want to take this into account in terms of making care services available and helping more families voluntarily purchase long-term care insurance.

Research shows that individuals who expect informal care to be available are less likely to purchase private, voluntary long-term care insurance. These expectations are disproportionately placed on daughters. While volunteers sometimes report higher levels of happiness than those with fewer connections, research also shows that caregivers aged 50 and older feel lonelier than their peers who do not look after a dependent person.

Caregiving places substantial burdens on those expected to provide it on top of their other responsibilities. This can affect health and career opportunities of family members expected to provide informal care. In turn, this has implications for productivity at a time when workers’ ability to generate growth will already be stretched.

**Figure 3. Real labor productivity per person (2010 level = 100)**

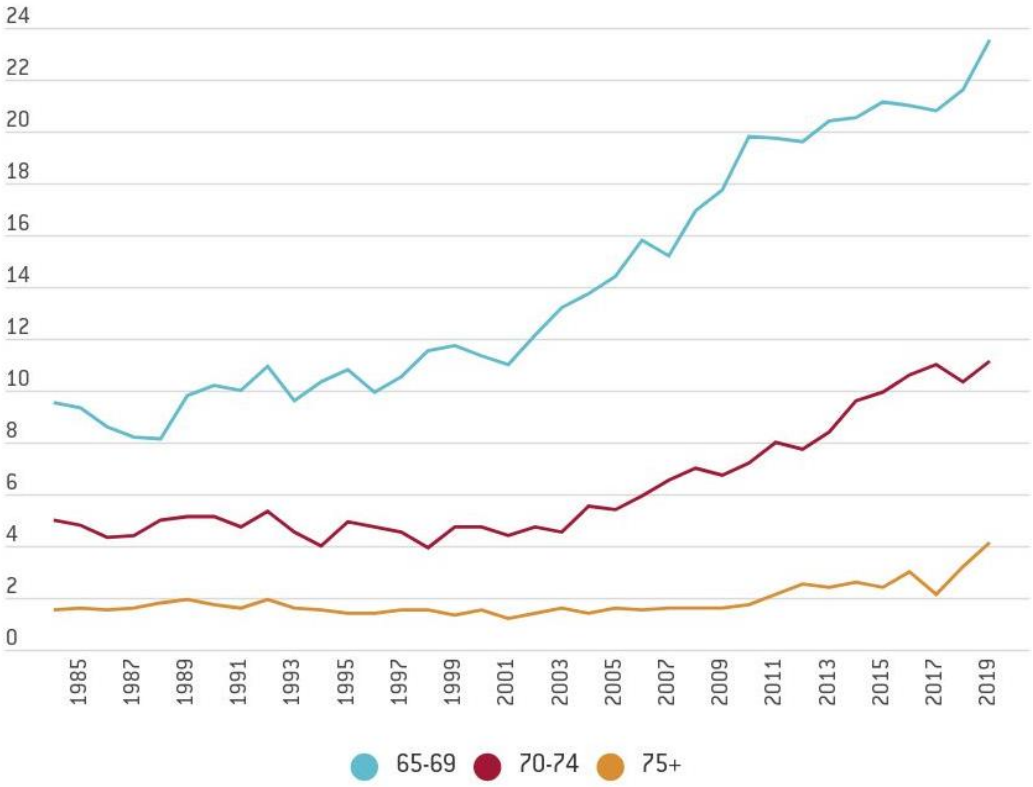


Source: Bruegel on Eurostat

The euro area, Germany and Spain have been experiencing modest productivity gains, with Italian productivity outright declining. In contrast, Poland and Romania have shown the strongest gains. This shows promise for Europe’s less-developed countries to catch up with their more established fellow member states, but it bodes poorly for the regions at Europe’s core that aren’t able to get their workforce operating optimally.

Older workers are staying in the workforce more and more, in keeping with projected longer life expectancy and economic uncertainty surrounding retirement. The figure below shows that in the last 20 years, the number of employed individuals over 65 has more than doubled. Studies vary on how extreme upcoming generations can expect to live, but it is clear that since the 1950s life expectancy has steadily increased.

**Figure 4. Percentage of people over 65 still working**



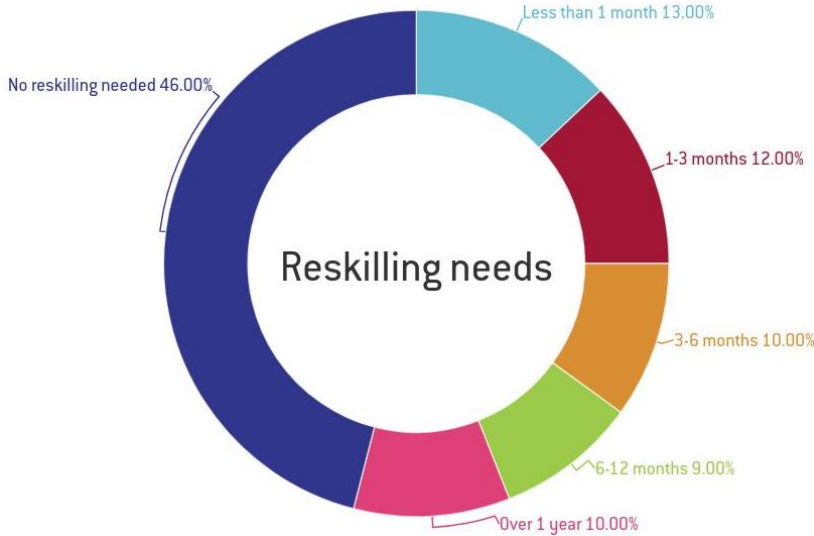
Source: Bruegel on Department for Work and Pensions, UK (2019)

Japan is the most vibrant example of how a country manages a rapidly increasing life expectancy and aging population. Retirement there can begin at age 60, while Japan also is frequently majorly cited as the country with the longest life expectancy in the world. As their population ages, they are seeing a shrinking workforce and have increasingly sought out technological ways to augment their workforce.

Europe has strong potential in the coming years for to increase its use of technology and artificial intelligence growth. This will need to be monitored and regulated, to be sure it is used to improve and not hinder the working population. Societies also will need to take steps so that all workers – including the less educated, migrants, and older populations – are equipped with the skills that a technology dependent economy requires.

In the Future of Jobs Survey 2018 published by the World Economic Forum it is reported that in the next few years, an estimated 41% of employees will requiring at least one month of reskilling. Lower skilled workers are less likely to be given the opportunity to learn and increase their capacity as a worker (WEF).

**Figure 5. Expected average reskilling needs across companies, by share of employees, 2018-2022**

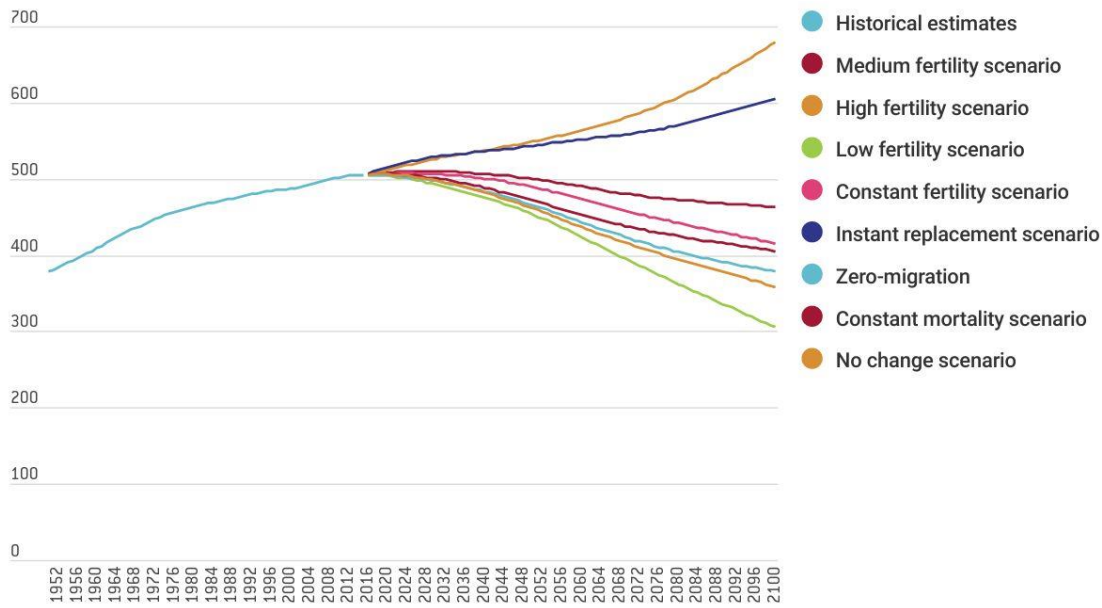


Source: Bruegel on WEF (2018)

Europe has so far been relatively successful in planning for pensioner needs. Based on the at risk of poverty or social exclusion (AROPE) statistic published by Eurostat, in the last ten years, poverty rates have declined for individuals over 65 from 24.4% to 18.2%. Ultimately, it is up to the member states themselves to manage their own pension systems, but the EU has previously aided in shaping reforms, including via country-specific recommendations.

In a recent presentation on demographic changes in the euro area, Axel Börsch-Supan calculates that a fertility rate of 2.1, the replacement level, would compensate for the currency union's old age dependency ratio beginning in 2037. He predicts that if the current rate were to continue, by 2050 the dependency ratio would reach 57 percent as opposed to the 50 percent that would result from replacement-level fertility. Fertility rates have fallen since the 1960s and remain low, with the highest of any member state of 1.92 in France, and the lowest of 1.34 in Spain and Italy, and a total European fertility rate of 1.57 (EPRS).

**Figure 6. Historical and projected EU-28 population (in millions)**



Source: Bruegel on EEA (2016)

Population projections show that by 2030, in Europe, the work force will shrink by 2% due to an aging population and slow overall growth. Nevertheless, economic output will continue to grow with an expected 1.4% increase in gross domestic product (GDP) per year (WEF). To keep up growth in the long term, migration trends might become a more important factor in maintaining both demographic and economic stability in the future. However, migration will not take place on a large enough scale to shift the demographic trends substantially.

Aging populations will force Europe to take a new look at how it manages financial relationships between workers, investors and those in need. Proper planning now can set the stage for future prosperity.

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