

Jakob Kapeller
Claudius Gräbner
Philipp Heimberger

Economic Polarisation in Europe: Causes and Policy Options

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Summary

This study discusses the challenges that economic policy-makers in Europe have to cope with, in order to ensure an economically prosperous and institutionally stable community of Member States of the European Union (EU). At the analytical level, we not only document a process of multi-dimensional polarisation of EU countries, but also link the existing economic divergences with a central long-term problem, namely structural polarisation: differences in the institutional and legal embedding (e.g. in the areas of tax and corporate law, the labour market or the financial sector) and in technological capabilities are a major driver of divergence in living standards between some Member States. This polarisation, which started even before the financial crisis but has intensified over the last ten years, is due largely to the global and the European 'race for the best location'.

Without coordinated and cooperative intervention by economic policy-makers, a further drifting-apart of economic development paths seems unavoidable. The large differences in the production structures of the EU countries and the resulting highly unequal distribution of technological capabilities are self-reinforcing in nature, and will further intensify polarisation.

The present study provides proposals for a coherent European overall strategy that not only addresses existing problems and renders possible the often-promised upward convergence between EU countries, but also provides a potential basis for dealing with key future challenges (such as digitisation, ageing society, climate change or global trade) on the basis of common European objectives. The focus is on safeguarding and expanding European values and institutions, in order to deepen European integration at key points; and thus also to contribute, in the medium to long run, to a transformation of the global economic order from the European side. A central argument is that coordinated measures in various policy areas – especially in wage, monetary, fiscal and industrial policy – are of central importance in creating a long-term successful economic basis for the common European economic and monetary area.

Keywords: Europe, European integration, economic openness, competitiveness.

JEL classification: B5, F6, F45.

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^{*} University of Duisburg-Essen, Institute for Socio-Economics and Johannes Kepler University Linz, Institute for the Comprehensive Analysis of the Economy (ICAE), jakob.kapeller@uni-due.de.

^{**} University of Duisburg-Essen, Institute for Socio-Economics and Johannes Kepler University Linz, Institute for the Comprehensive Analysis of the Economy (ICAE), claudius.graebner@jku.at.

^{***} Vienna Institute for International Economic Studies (wiiw) and Johannes Kepler University Linz, Institute for the Comprehensive Analysis of the Economy (ICAE), philipp.heimberger@jku.at.

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1. Introduction: economic convergence or disintegration in Europe?

The temporary economic upswing in 2017 and 2018 created optimism in large parts of Europe. After years of recession and stagnation in several European countries, stronger economic growth and declining unemployment were reported (e.g. European Commission, 2017; IMF, 2018; European Commission, 2018; OECD, 2018). Even Nobel laureate in economics Paul Krugman of the USA, a critical observer of economic developments in Europe, expressed his optimism: 'It's important to be aware that Europe 2018 looks very different from Europe 2013. For now, at least, Europe is back as a functioning economic system' (Krugman, 2018).

The present study argues that the temporarily positive economic development in 2017-2018 only masked the deeper structural polarisation in large parts of the EU. This polarisation results, on the one hand, from *structural differences*, i.e. differences in the sectoral structure of the economy, in the production structures and the associated technological capabilities, and, on the other hand, from the different *institutional and legal embedding* (e.g. in the areas of tax and corporate law, the labour market or the financial sector) between the EU countries. Polarisation remains the greatest threat to long-term European cohesion, as it causes macroeconomic divergence in the current political framework.

Despite the short-term economic recovery over recent years, the *structural differences* between most EU economies are either relatively stable or are even increasing (Gräbner et al., 2017; Gräbner et al., 2018). However, the establishment of the eurozone as a common customs and currency area in 1999 was linked to the central political promise of an economic convergence process: the euro member countries would integrate further, the countries with lower levels of prosperity would orient themselves upwards and join countries such as Germany, the Netherlands and Austria (e.g. Gill and Raiser, 2012). However, the crisis and the subsequent economic experiences have shown that the convergence trend of the pre-crisis years was only superficial in nature, because economic growth – driven by rising private indebtedness, especially in the southern eurozone countries – came to a juddering halt with the outbreak of the crisis (e.g. Lane, 2012; Stockhammer, 2016; Regan, 2017; Mody, 2018).

Behind the façade, however, a polarisation process could already be observed in the pre-crisis period. This was particularly evident at the level of current account balances: on the one hand, countries such as Germany and Austria showed stable or even rising current account surpluses; on the other hand, countries such as Italy, Spain and Greece accumulated deficits in the course of the pre-crisis years. This points to the existence of different growth models in the pre-crisis phase, which enabled the Southern European eurozone countries to catch up in the short term, but which ultimately turned out to be unsustainable.

However, whether the promise of economic convergence between the eurozone countries can be fulfilled by catching-up growth in comparatively poorer countries ('upward convergence') is a question not only of political credibility, but also of the future viability of the single currency as such. After all, it has become clear in the years of the euro crisis that major economic disparities between the eurozone countries also lead to conflicts that have the potential to contribute to a political failure of the EU (e.g. Eichengreen, 2015; Frieden and Walter, 2017; Tooze, 2018).

The present study not only documents the process of macroeconomic polarisation of the EU countries in various relevant dimensions (see Section 2), but also links the existing economic divergences with a central long-term problem facing Europe – structural polarisation between the EU countries. Differences in the institutional and legal embedding – such as in the areas of tax and corporate law, the labour market and the financial sector – as well as in technological capabilities are a major driver of divergence in living standards between the Member States. The resulting political conflicts counter existing efforts to embed the European

Economic and Monetary Union (EMU) in a consistent common institutional framework in critical areas, such as fiscal policy and banking regulation (Lehner and Wasserfallen, 2019).

Technological capabilities, which play a decisive role in the individual countries' long-term economic development, continue to be very unevenly distributed among the eurozone countries (Section 3). As a result, companies in some countries (in particular, Germany) have been able to extend the market lead over international competitors that they already enjoyed at the time of joining the eurozone, while technologically less-advanced countries have continued to fall behind. These are self-reinforcing processes – past successes are the basis for future successes (Kaldor, 1978; Gräbner et al., 2017; Gräbner et al., 2018) – for which there are currently no compensating counterforces in the institutional set-up within the EU: because of the existing structural polarisation, EU Member States are on different – and at times sharply diverging – development paths. At the same time, important traditional compensation mechanisms are not available due to the eurozone-wide harmonisation of monetary policy, the limitation of fiscal policy measures by the Stability and Growth Pact and the impossibility of exchange rate adjustments in the monetary union (e.g. De Grauwe, 2018a; Heimberger and Kapeller, 2017).

Thus, a further widening of these already diverging paths is likely, although it contradicts the political goal of an economically stable EU, which should be characterised by upward convergence of its Member States. The process underlying this polarisation will continue, regardless of short- and medium-term economic development in Europe, unless coordinated countermeasures are taken in the areas of fiscal, financial market, wage and industrial policy. Section 4 therefore provides the starting points for a comprehensive discussion on appropriate economic policy measures to achieve upward convergence and create an economic basis for all Member States that will be successful in the long term.

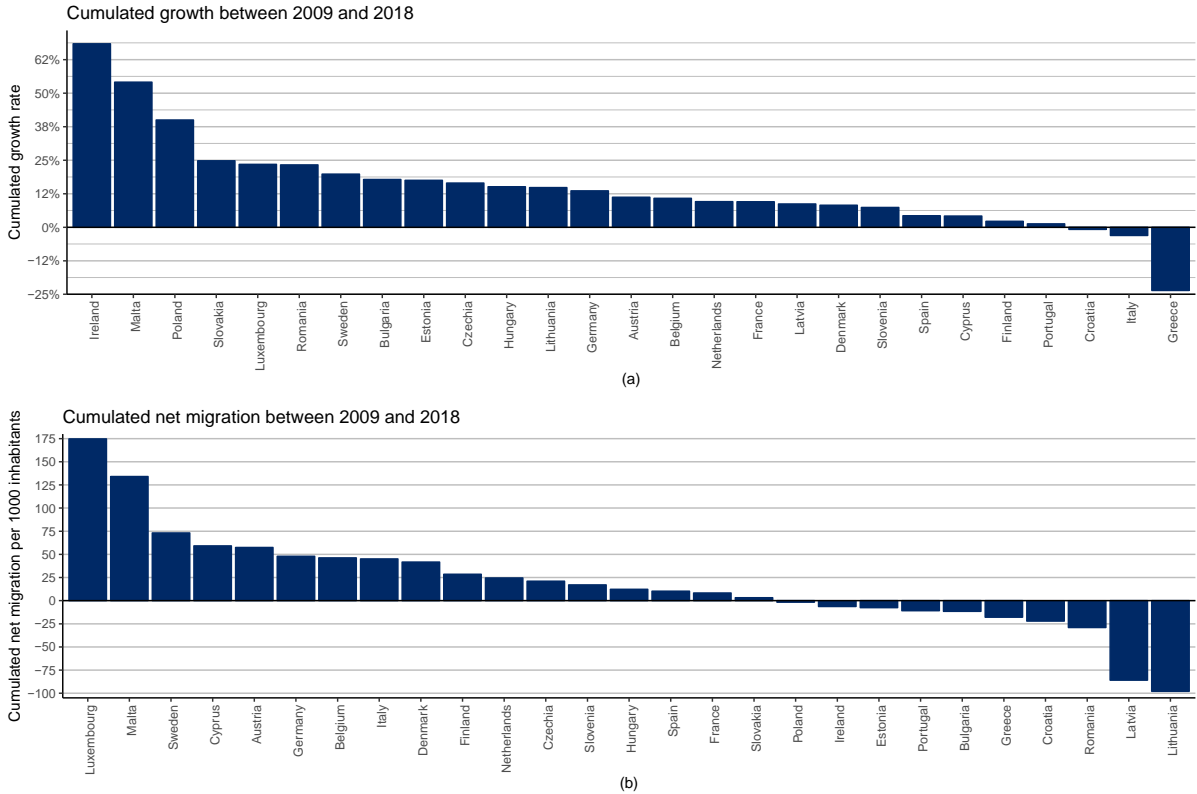
2. Macroeconomic polarisation in the EU

Some 20 years after the official introduction of the euro, and more than 10 years after the outbreak of the financial crisis in 2007/2008, socio-economic developments within the EU remain remarkably uneven (see Figure 1). Real economic output (measured by price-adjusted gross domestic product) in Germany, the economically and politically most important country in Europe, rose by 32.8% between 1999 and 2018. Germany thus stands in stark contrast to the southern eurozone countries, which are gradually falling behind economically: in 2018, real GDP in Italy, the third-largest European economy, was only 9.6% higher than in 1999. In the same period, GDP growth in Portugal was only 18.9%, while the Greek economy grew by just 7.7%, due to its deep crisis.¹ Although the level of GDP per capita (as a key indicator of an economy's level of development) at the time of euro introduction was significantly lower in Southern Europe than in Germany, the countries concerned – especially Italy, Portugal and Greece – have continued to lose ground over the past 20 years.

As Figure 1 shows, the past ten years represent a 'lost decade' for the southern countries of the euro area, as they experienced a devastating growth trend owing to the crisis. In terms of real economic growth, Germany and Austria were outperformed in the period 2009-2018 only by catching-up Eastern European economies and by relatively small countries, such as Malta and Ireland, which are anyway special cases due to their role as financial centres in the European competition between locations (see the Sections 2.2 and 3). And while Germany's unemployment rate has recently reached an all-time low, unemployment in large parts of the southern eurozone countries remains well above pre-crisis levels. In short, the last ten years have been characterised by large parts of the EU drifting further apart economically.

¹ Source: AMECO database (update November 2018); own calculations.

Figure 1: Economic growth and migration in the EU



Source: AMECO database, Eurostat; own calculations. The upper panel shows cumulated growth rates of real GDP. Ireland represents a statistical outlier: the very high growth rates are mainly due to statistical problems directly related to problems in the national accounting framework stemming from Ireland’s special role as an international tax haven (e.g. Linsi and Mügge, 2019).

Divergences within the EU are also manifest at the level of migration movements: in particular, Eastern European countries with low income levels and Southern European countries with weak or negative growth dynamics are experiencing a corresponding decline in population. In the long term, the net migration movements shown in Figure 1 also cause a widening of existing performance gaps and potentials between the European economies, since it is primarily people of working age and with higher education who prove to be internationally mobile (Galgoczi et al., 2016).

2.1 Convergence as a political promise of the economic integration process in Europe

Historically, the process of European economic integration has taken place in several stages (e.g. Baldwin and Wyplosz, 2015). The establishment of the eurozone can be seen as the (temporary) culmination of this economic integration process: at the time of the introduction of the euro, there had already been several decades of political efforts with the goal of creating a single European market in which goods, capital and people could move as freely as possible across borders (Mody, 2018). With the euro as the common currency, this tendency towards greater economic integration in Europe was further reinforced in certain areas. To date, 19 EU countries have become members of the eurozone; but the introduction of the euro has also been important for some non-eurozone countries, as they have pegged their currencies to the euro (Denmark and Bulgaria). The implementation of the eurozone at the end of the 1990s therefore serves as a central starting point for the analysis in this study, since the introduction of the euro can be understood as a selective deepening of European integration, and thus as an openness shock for the European economies. In addition, we will generally focus on a macroeconomic analysis of the member countries of the eurozone –

although we will also take into account developments in those Eastern European EU countries that are currently not members of the eurozone. There are three reasons for this specific focus. First, the eurozone now accounts for almost three quarters of EU economic output.² Second, the establishment of the eurozone was a key institutional step towards integration. Third, the establishment of the eurozone was linked to the political promise of economic convergence. This was based on the hypothesis that the common customs and monetary union would trigger a process of catching-up convergence for its Member States – i.e. the countries that were less rich at the time of entry would relatively quickly approach the higher levels of material living standards in the richest EU countries (e.g. Dauderstädt, 2014). However, this political promise has been fundamentally called into question by the reality of continued economic polarisation, as will be shown below. So long as there is no real convergence – defined as a catching-up in living standards – and so long as the institutional architecture of the eurozone is politically and economically incomplete, the eurozone (and thus also the community of EU Member States) will be susceptible to crises, raising doubts about the sustainability of Europe’s institutional architecture.

Currently, the eurozone is a customs and monetary union, but not a political or fiscal union (e.g. Iversen et al., 2016; De Grauwe, 2018a). There is therefore a lack of important economic policy compensation mechanisms to curb or correct imbalances and inequalities among the eurozone countries; likewise, the European economic architecture is only able to a limited extent to respond adequately to global challenges or locally occurring crises in individual countries or regions. This becomes particularly clear in the area of monetary policy: if there is a nationally independent monetary policy, a country can respond to falling demand in the private sector by making an interest rate cut, in order to boost regional economic activity again. By contrast, the European Central Bank (ECB) is guided by an overall evaluation of the countries in the eurozone, and this arrangement can also lead to interest rates being too high in member countries with rising unemployment, and too low in those with falling unemployment. This means that the ECB policy for the euro area as a whole often has a pro-cyclical effect from a local perspective: the ECB’s interest rate policy may aggravate the economic cycles of boom and bust at the national level, and can thus contribute to undesirable deviations in the inflation rate in cross-country comparisons, or to the emergence of significant trade imbalances between European countries, as the pre-crisis period showed (e.g. Enderlein et al., 2012; Vermeiren, 2017). Moreover, because exchange rates between eurozone members are fixed (e.g. Höpner and Lutter, 2018), these countries can no longer devalue their currencies in order to improve their exports or current account balances. Finally, the eurozone members de facto have no control over the currency in which they borrow, because the ECB is responsible for the monetary policy throughout the common currency area. In addition to the already mentioned restrictions on the classic monetary policy options at the national level, this also means that national fiscal policy interventions cannot be supported by the central bank, and that eurozone countries tend to be more exposed to speculative attacks, such as panic sales on government bond markets (De Grauwe and Ji, 2013).

Finally, Europe’s range of fiscal policy choices is very limited in essential respects by the lack of a budget instrument at the eurozone level – for example, with a view to the possibilities of short-term stabilisation policy (e.g. Andor, 2016). At the eurozone level, there are only inadequate fiscal compensation mechanisms available to stabilise economic growth and employment in individual eurozone countries (e.g. Farhi and Werning, 2017; Dullien, 2018). Furthermore, the space for fiscal manoeuvre at the national level is so limited by EU fiscal regulations that the member countries have too little leeway for economic stimulus measures in time of crisis, while they tend to be given more room to manoeuvre in boom times. This

² The share of the euro area in the real GDP of the EU was about 73% in 2018 (AMECO database; own calculations).

characteristic contradicts the standard tenets of anti-cyclical economic policy (Benetrix and Lane, 2013; Heimberger and Kapeller, 2017).

The eurozone is thus not only placed in a political straitjacket, but it is also vulnerable to speculative attacks (e.g. Saka et al., 2015). As a consequence, eurozone countries that come under pressure from panic sales on government bond markets are dependent on the 'goodwill' of other eurozone countries to provide financial aid (e.g. Sapir et al., 2014; Frieden and Walter, 2017).³ This is illustrated by the experience of Italy and Spain, which in 2011 and 2012 came under so much pressure on the government bond markets, due to sharply rising panic-induced interest premiums, that a self-reinforcing liquidity crisis threatened to arise. Italy and Spain were thus directly dependent on support from the other eurozone countries. Only after ECB President Mario Draghi, with the subsequent approval of the German government, had announced portentously ('whatever it takes') that the ECB would do everything in its power to ensure the cohesion of the eurozone – including emergency purchases of government bonds already issued by crisis-ridden countries – did the pressure from financial investors on Italy and Spain subside rapidly and sustainably (Mody, 2018; Tooze, 2018).

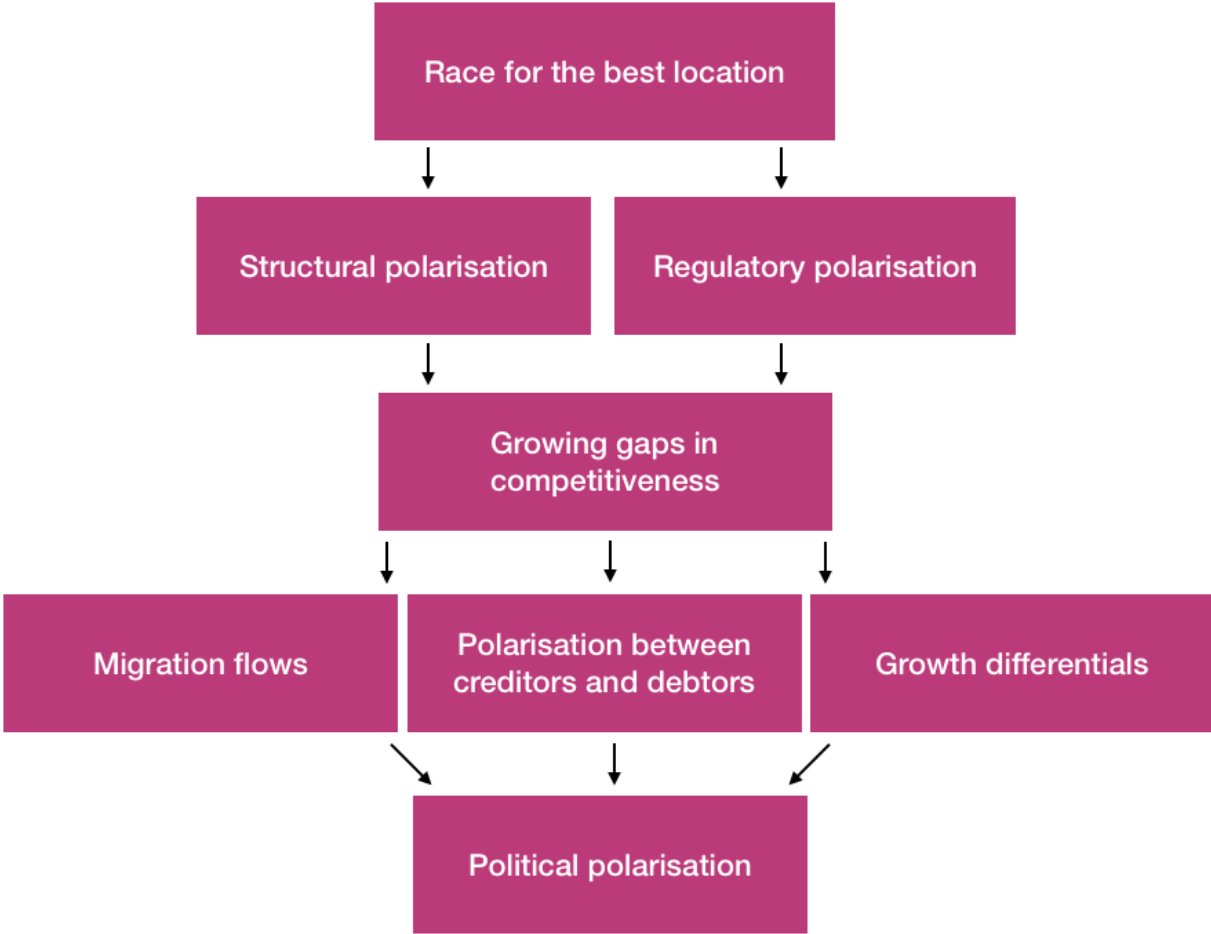
A further intensification of their economic and political dependence was experienced by countries such as Greece, Ireland and Portugal, which temporarily lost all access to the financial markets after the onset of the euro crisis and were thus dependent on the economically and politically more powerful eurozone countries, which were subsequently able to determine the conditions for financing support. For the crisis countries affected, this constellation implied further cuts in their national economic policy autonomy, which was largely subordinated to the fiscal austerity and 'structural reform' conditions of the creditor institutions (e.g. Sapir et al., 2014; Featherstone, 2015).

Against this background, the absence of economic convergence within the eurozone also consolidates the economic and political power position of the financial 'donor countries', and translates economic instability into political conflict potential that strengthens the centrifugal forces of disintegration. The disintegrative potential of such political conflicts between countries with unequal economic and political power positions has been demonstrated in recent years, not least by the intra-European disputes surrounding the crisis in the southern eurozone countries (e.g. Copelovitch et al., 2016; Frieden and Walter, 2017).

The various dimensions of socio-economic polarisation – from polarisation at the level of institutional-legal and technological prerequisites for production, through polarisation with a view to rising growth and current account differentials, to political shifts in power – are all connected and can be understood as the common result of a European and global competition between locations (see Figure 2). In this race for the best location for international investors, some countries – such as the German-speaking countries – succeed primarily because of their unique characteristics in the area of technological capabilities (which, for example, make it possible to produce also machinery and industrial goods, for which there is high international demand), while other countries try to achieve success in international competition by creating particularly favourable institutional 'location factors', for example in the areas of corporate taxation (e.g. Ireland), labour market policy (Eastern Europe) or financial services (Luxembourg, the Netherlands, Cyprus and Malta). By contrast, other EU Member States, particularly in Southern Europe, can only compete to a limited extent in this contest for the best location, and are therefore gradually falling behind in terms of both international competitiveness and material living standards.

³ The vulnerability to panic selling of government bonds is not present for EU countries with an independent monetary policy, as it is in the eurozone countries, because the national central bank in stand-alone countries such as the UK can credibly assure financial investors that, in emergencies, it will prevent defaults by the state as lender of last resort (De Grauwe, 2012).

Figure 2: Dimensions of polarisation in Europe



Source: own illustration.

This possibility of an increasing polarisation of Europe was fully recognised from the outset by some key players in European integration. In particular, the insight that convergence in the eurozone was necessary, but would not happen automatically, was already taken up by the Delors Committee in 1989, in a report on the economic and monetary union. It was postulated, for example, that ‘greater convergence of economic performance is needed’ because ‘monetary union without a sufficient degree of convergence [...] is unlikely to be durable and could be damaging to the Community’ (Delors, 1989, p. 26).

Reflections on economic and economic policy convergence between the eurozone countries were accordingly also incorporated into the Maastricht Treaty and the Stability and Growth Pact, two essential elements of the legal foundations for economic policy coordination in the European Union (e.g. Soukiazis and Castro, 2005; Larch and Jonung, 2014). More recently, the widely acclaimed Report of the ‘Five Presidents’ of the EU stated that ‘the notion of convergence is at the heart of our Economic Union: convergence *between* Member States towards the highest levels of prosperity; and convergence *within* European societies, to nurture our unique European model’ (Juncker et al., 2015, p. 7). However, the suitability of European fiscal rules for achieving convergence remains questionable: it is precisely those countries that would need more economic policy leeway (especially for public investment in infrastructure, research or education) in order to bring about economic change that are deprived of this leeway by the existing regulatory framework (e.g. Fitoussi and Saraceno, 2008; Barbiero and Darvas, 2014; Heimberger and Kapeller, 2017).

In the following, we will examine in more detail the economic dynamics in Europe since the creation of the euro area, focusing on a number of indicators that play an important role in the economic policy debate on convergence and divergence.

2.2 Diverging growth models in the EU

The need for policy action to counteract economic polarisation in the EU can be seen in a more detailed analysis of the reasons for the observed differences in national economic growth rates. This analysis suggests that the diverging developments in living standards are associated with the emergence of different, partly contradictory growth models in the EU member countries (e.g. Baccaro and Pontusson, 2016; Stockhammer, 2016; Regan, 2017). Since the development paths of EU countries are self-reinforcing in nature, it is highly unlikely that this constellation will change without political intervention.

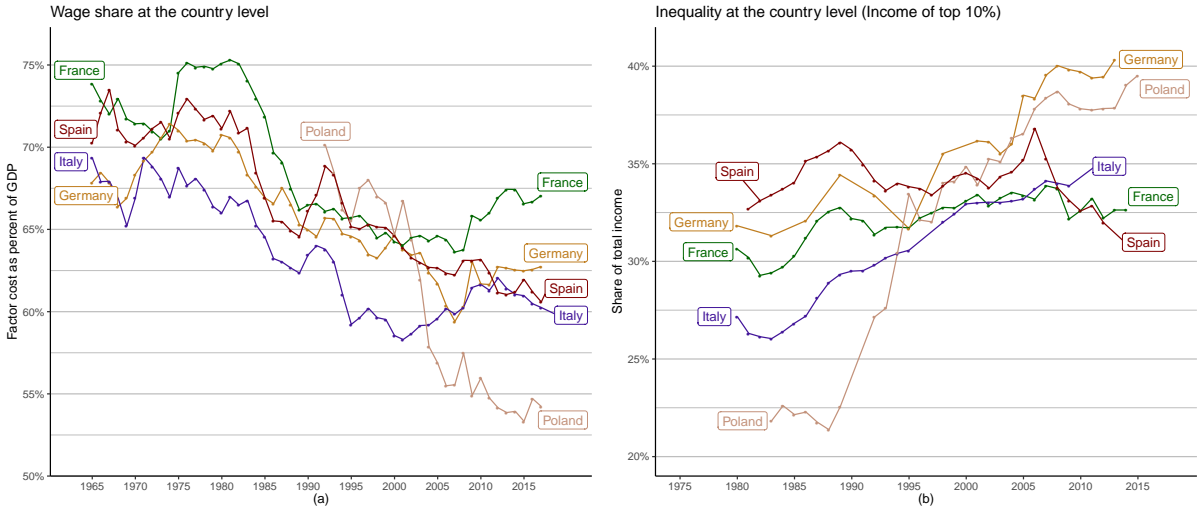
In the following, the evolution of the different development paths in the individual EU countries will be investigated, showing how the development of different growth models is related to economic developments in the pre-crisis and post-crisis periods. We argue that economic convergence in the EU is unlikely to come about by itself and that the courageous implementation of a new overall economic strategy is needed to overcome the current polarisation process in the long term.

Economic development in Europe is characterised by increasing inequality in key areas. In particular, the wage share – the share of wages in national income – has been declining across the (later) eurozone countries since the early 1980s (e.g. Stockhammer, 2013). Moreover, income inequality has risen markedly over the same period (e.g. Atkinson et al., 2011). Figure 3 shows the development of the wage share and the share of the top 10% of income earners in total income for the five most populous EU countries (excluding the UK).

Historically, most developed European economies had a wage-driven growth model after the Second World War, i.e. the most important growth component was wage growth, which resulted in strong household consumption and led to higher productivity growth (e.g. Lavoie and Stockhammer, 2013). However, a combination of factors – the institutionalisation of strict monetary policy, economic globalisation and capital market liberalisation, the establishment of a stronger shareholder value orientation and the diminishing strength of trade unions' organisational power – brought about a crisis in the wage-driven growth regime from the 1970s onwards. This crisis in turn led numerous European countries to search for alternative growth models in which real wage growth would no longer be the driving force (Baccaro and Pontusson, 2018).

Falling wage ratios, which are also increasingly unevenly distributed, reduce overall economic spending on goods and services, because wage developments are of central importance for purchasing power (e.g. Stockhammer, 2015; Behringer and van Treeck, 2018). This generally weakens the economic outlook, although the extent to which such a weakening actually translates into macroeconomic development depends on whether other components of aggregate demand can compensate for the decline in consumer spending resulting from the weaker development of wage bills (see Table 1).

Figure 3: Decreasing wage share and increasing personal income inequality



Source: AMECO database, World Income Inequality Database.

In principle, there are three ways to compensate for such a decline in consumer spending (see Table 1). First, an economy can compensate for the downward pressure on domestic demand by expanding exports and developing a so-called ‘export-driven’ growth model. Here, companies are substituting *foreign* demand for the lack of *domestic* demand. Germany is the most prominent case in Europe (e.g. Storm and Naastepad, 2015; Baccaro and Benassi, 2017; Hassel, 2017; Behringer and van Treeck, 2018; Höpner, 2019), but Austria and the Netherlands also operate with an export-based growth model.

The second fundamental possibility is to compensate for declining consumer spending on goods and services through expansive fiscal policy and an increase in public debt – a strategy that in the pre-crisis years was only pursued by Greece, and partly by Portugal (e.g. Lane, 2012; Baldwin et al., 2015).

Table 1: A summary of potential reactions to a decrease in effective demand

Mechanisms compensating for decreasing demand	Expansionary fiscal policy	Substitution of foreign for domestic demand	Stabilising demand via debt-led private-sector expansion
Requirements	Creditors (could be central bank)	Competitive advantage, foreign import demand, capital outflows	Sufficiently de-regulated financial markets, capital inflows
Main actor	Government	Firms	Households
Affected component of aggregate demand	Government spending (G)	Net exports (X-M)	Consumption (C)
Side effects	Increasing indebtedness of the national government	Net lending, currency re-valuation (not applicable in the eurozone)	Increasing indebtedness of private households
Examples in the EU	Legal institutions in the EU restrict this strategy	Germany, Netherlands	Spain, Portugal
Implications for current account	Negative	Positive	Negative

Source: Gräbner et al. (2017: p. 5).

Third, the private sector in affected economies may be more willing to borrow. If the increased demand for credit in the private sector also meets a corresponding supply of credit, the actual increase in the private sector's indebtedness can at least temporarily compensate for the downward pressure on consumer spending resulting from rising income inequality. Following the introduction of the euro, large parts of the southern eurozone – which absorbed massive inflows of capital due to expectations of higher growth rates (Hobza and Zeugner, 2014) – showed a private-debt-driven growth model (Stockhammer and Wildauer, 2016).⁴

Overall, the EU economies have thus reacted differently to the downward pressure on consumer spending caused by falling wage ratios and higher income inequality. Some countries developed an export-driven growth model (Germany, the Netherlands, Austria), others a private-debt-driven model (e.g. Spain and Portugal). The increase in public debt as a compensation mechanism, however, only played an important role for Greece before the crisis. The pre-crisis constellation of export- and debt-driven growth paths is

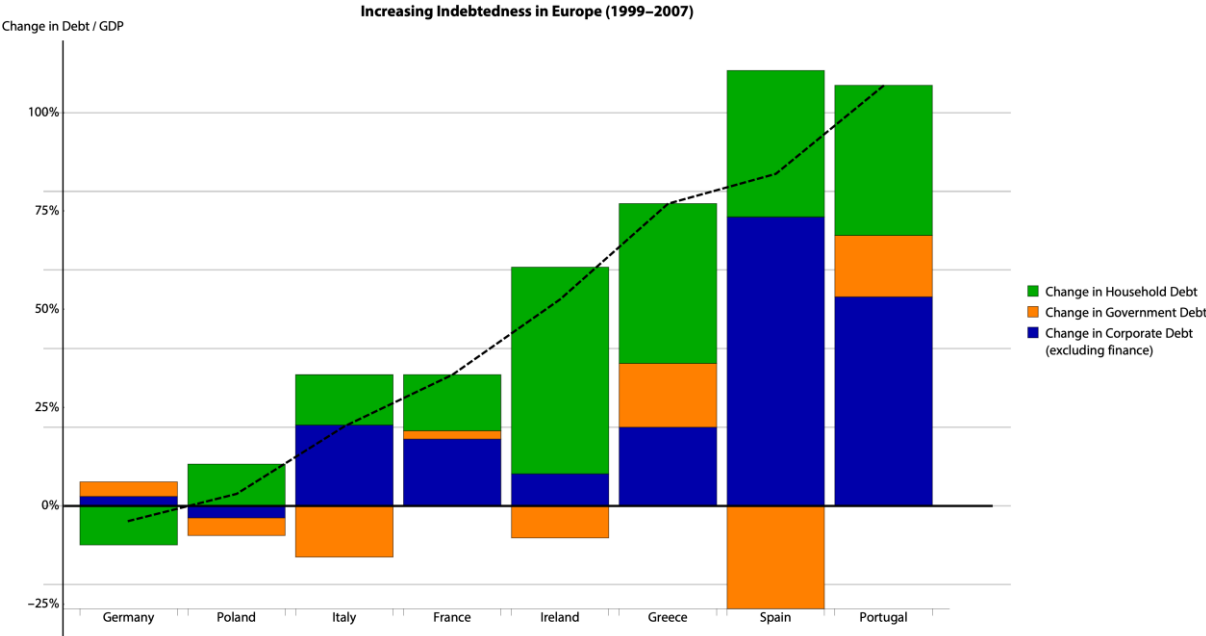
⁴ When those eurozone countries in which private-sector indebtedness had risen sharply in the pre-crisis years came under pressure on the outbreak of the financial crisis, private-sector debt was partly passed on to the state, particularly in the form of the budgetary costs of bank bailouts. The most extreme case is Ireland, which in 2010 issued a full guarantee on the liabilities of the six largest banks, leading to an enormous jump in the budget deficit and the public debt ratio (e.g. Allen et al., 2015). Spain's public debt ratio also roughly tripled in the course of the bank bailout (from around 30% to around 90% of GDP).

closely linked to the development of international imbalances in current account balances and external debt.⁵

These imbalances, in turn, are the main reason for the instability of the common currency area: after the crisis-induced escalation, countries with a debt-driven growth model, in particular, plunged into a deep crisis from 2008 onwards. It is therefore all the more remarkable that most economists and economic policy-makers largely overlooked the emergence of these divergent development paths in the pre-crisis period, or regarded it as unproblematic; on the contrary, as already indicated, the dynamics of the debt-driven growth models in the south of the EU were largely interpreted as an example of successful convergence (e.g. Blanchard and Giavazzi, 2002; Giavazzi and Spaventa, 2011).

The emergence of export-based and private-debt-driven growth models had major implications for the development of debt. Figure 4 shows the drastic increase in private-sector debt, in particular household debt, in southern eurozone countries, Ireland and, to a lesser extent, France.

Figure 4: Debt dynamics in Europe: pre-crisis period



Source: OECD; own calculations.

On this basis, the dynamics of debt-driven growth can also be illustrated: in Spain, which is regarded as a prime example of such a growth model, public debt fell relative to GDP in the pre-crisis period 1999-2007, while private household debt rose massively, as did corporate debt; the economic dynamism resulting from the increase in private-sector debt also led to a corresponding increase in government revenues, and thus

⁵ The political-economic factors behind the historical development of different growth models in Europe have not yet been sufficiently researched to provide a concise comparative presentation of European countries. For Germany and its export-driven growth model, however, existing research suggests that interactions of rising personal income inequality with the specific institutional system of industrial relations can explain the shifts towards a greater dependence of the German economy on the foreign sector that may be observed in recent decades (Baccaro and Benassi, 2017; Behringer and van Treeck, 2018). At the same time, Germany's diversified (and in some cases highly specialised) production structure is regarded as a key historical explanatory factor for Germany's strong role in foreign trade (Sorge and Streeck, 2018).

made it possible to reduce Spain's public debt in the pre-crisis period. In the other southern eurozone countries, too, there were drastic increases in private debt during the pre-crisis period.

By contrast, the rise in government debt was a problem only in Greece during the pre-crisis period (Lane, 2012): this fact debunks the dominant narrative, according to which the euro crisis was caused by excessive budget deficits and government debt (e.g. Schäuble, 2011). The rise in public debt from 2008 onwards was a direct consequence of bank bailouts and negative budgetary after-effects of the crisis (e.g. Shambaugh, 2012; Baldwin et al., 2015), which explain most of the increase in public debt after the crisis shown in Figure 6. Germany, on the other hand, already recorded high net export surpluses in the years before the financial crisis. This went hand in hand with capital outflows abroad, which in some places further fuelled unsustainable debt growth (Hobza and Zeugner, 2014). In Germany's domestic market, however, the prevailing export-focused growth model coincided with a slight decline in household debt up until 2007.

When the problematic debt development and the associated macroeconomic imbalances were recognised after the financial crisis, the economic policy assessment of the European institutions and economic policy-makers changed drastically. Even former pre-crisis 'poster countries', such as Spain, were suddenly reduced to problem cases – a move that was accompanied by a diagnosis of considerable 'need for structural reform', aimed in particular at deregulating the labour markets and lowering wages, with the alleged goal of reducing 'structural' unemployment (Heimberger and Kapeller, 2017). In fact, however, the policy of wage cuts and labour market deregulation contributed to a further exacerbation in the crisis of private-debt-driven growth models in the south of the eurozone, because the declining incomes of broad sections of the population further weakened consumer spending, and thus intensified the economic downward spiral (e.g. Armingeon and Baccaro, 2012; Stockhammer and Sotiropoulos, 2014; Koo, 2015; Varoufakis, 2017; Alvarez et al., 2019).

The (primarily) export-based growth model and the (primarily) private-debt-driven growth model represent two extreme forms⁶ in the European and global race for the best location. They are accompanied by further, sometimes less clear forms, such as (a) mixed forms of the export- and private-debt-driven growth model (e.g. France, see Gräbner et al., 2018); (b) models of catching-up growth and industrialisation in Eastern Europe that have emerged around the industrial core of Central Europe (Stöllinger, 2016; Bohle, 2018); and (c) models that are trying – to a more obvious extent (e.g. Luxembourg, Ireland, Malta) or on a less obvious scale (e.g. the Netherlands, Belgium) – to establish themselves as hubs for financial activities or corporate headquarters.

This last group includes countries that typically belong to the more industrialised and wealthier European countries (the Netherlands and Luxembourg), as well as countries that were characterised by a strongly private-debt-driven growth model before the crisis (Ireland) or were traditionally among the less wealthy European countries (Malta and Cyprus). What these cases have in common is that they attempt to attract international capital through favourable regulatory conditions, with both the intensity and the exact nature of this strategy differing from location to location (e.g. Gräbner et al., 2018). Ireland, for example, was able to assume the role of a central hub for the headquarters of multinational corporations (especially in the pharmaceutical and chemical industries; e.g. Barry and Bergin, 2012) due to very low corporate taxation, while Luxembourg represents a mix of a typical financial centre and a tax haven (Zucman, 2015). The

⁶ The two extremes show a certain complementarity – growing foreign assets of the export-oriented countries and growing indebtedness of the southern countries. In the pre-crisis period, this led to a relatively balanced current account overall between the eurozone and the rest of the world. However, this changed in the post-crisis years: when the private-debt-driven growth model failed, the southern countries affected slipped into a deep crisis. Due to the resulting decline in imports, the eurozone as a whole has since recorded a current account surplus.

Netherlands, on the other hand, tries to offer particularly attractive conditions for income from intangible property rights (such as patents) through special regulations.

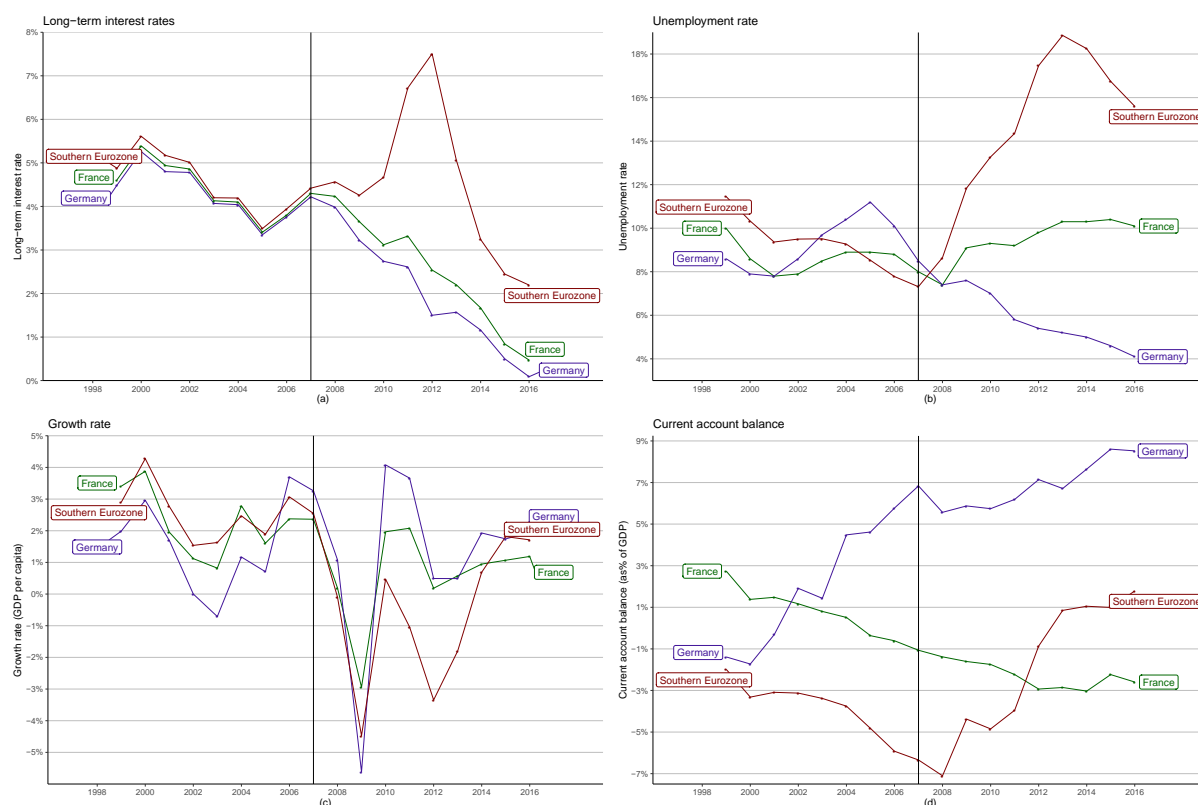
The Irish case, in particular, illustrates the dilemma of the lack of development prospects in the intra-European race for the best location: Ireland has transformed itself from a (private-debt-oriented) problem country to an export champion and 'poster country', but on the basis of a typical 'beggar-thy-neighbour' strategy.⁷ The observed export-driven recovery is based on regulatory and tax incentives (Regan and Brazys, 2018), which are clearly at the expense of other EU countries, which are experiencing a corresponding decline in taxes. This indicates that under the current European institutional framework, catching-up development paths can apparently only be achieved at the cost of undermining formerly shared regulatory and tax standards. This competition between member countries weakens the EU both politically and economically, especially in a global context.

2.3 Convergence and divergence in the EU: key macroeconomic indicators

In discussing the relative economic development of the EU Member States, it is helpful to draw a distinction between real and nominal convergence. *Real* convergence within the EU would mean that the living standards of the Member States become more similar over time. For country comparisons, data on GDP per capita in purchasing power parities are useful. These allow a comparison of living standards over time, but say nothing about the distribution of income. *Nominal* convergence implies that important underlying parameters of an economy become more similar. It is a collective term for different types of convergence, such as convergence in terms of the unemployment rate, GDP growth, inflation or labour market institutions (e.g. De Grauwe and Schnabl, 2005; Dauderstädt, 2014).

⁷ 'Beggar-thy-neighbour' policy refers to political measures that generate economic advantages for one country and disadvantages for other countries at the same time. Typical examples are the establishment of fiscal advantages ('tax havens') or a strong promotion of exports to generate domestic employment, at the expense of the employment levels of other economies.

Figure 5: Macroeconomic indicators in the eurozone



Source: AMECO database, Eurostat; own calculations. The time series for the southern eurozone is a population-weighted average. Southern eurozone: Greece, Italy, Portugal and Spain.

Before the crisis, the macroeconomic drifting-apart of the eurozone countries was hardly visible on the basis of conventional measures; this becomes obvious when we look at the macroeconomic indicators that are usually discussed prominently in the economic policy debate (see Figure 5). The announcement of the introduction of the euro and the associated political promise of convergence led to a rapid alignment of long-term interest rates on government bonds, as the credit default risk of the eurozone countries was considered to be essentially zero (e.g. Mody and Sandri, 2012). GDP growth and developments in unemployment and long-term interest rates indicated that the observed nominal convergence would also contribute to a convergence of real living standards. In the pre-crisis years up to 2007, the eurozone countries were becoming by and large more similar in terms of these three indicators, with the poorer countries of Southern Europe (on the basis of their private-debt-driven economic models) often growing even faster than the richer countries of the north. This also made it possible to reduce unemployment rates in Southern Europe, in some cases significantly.

However, in stark contrast to nominal convergence in macroeconomic growth, labour market and interest rate indicators, current account imbalances rose even in the pre-crisis years. The rising current account surpluses in Germany (and to a lesser extent in other eurozone countries, such as the Netherlands and Austria) and the increasing current account deficits in the southern eurozone countries pointed to a gradual polarisation of the eurozone even before the crisis. However, as long as a seemingly favourable financial market environment obscured the fragility that arose from the accumulation of private debt and increasing dependence concerning the financing of current account deficits, the emergence of macroeconomic

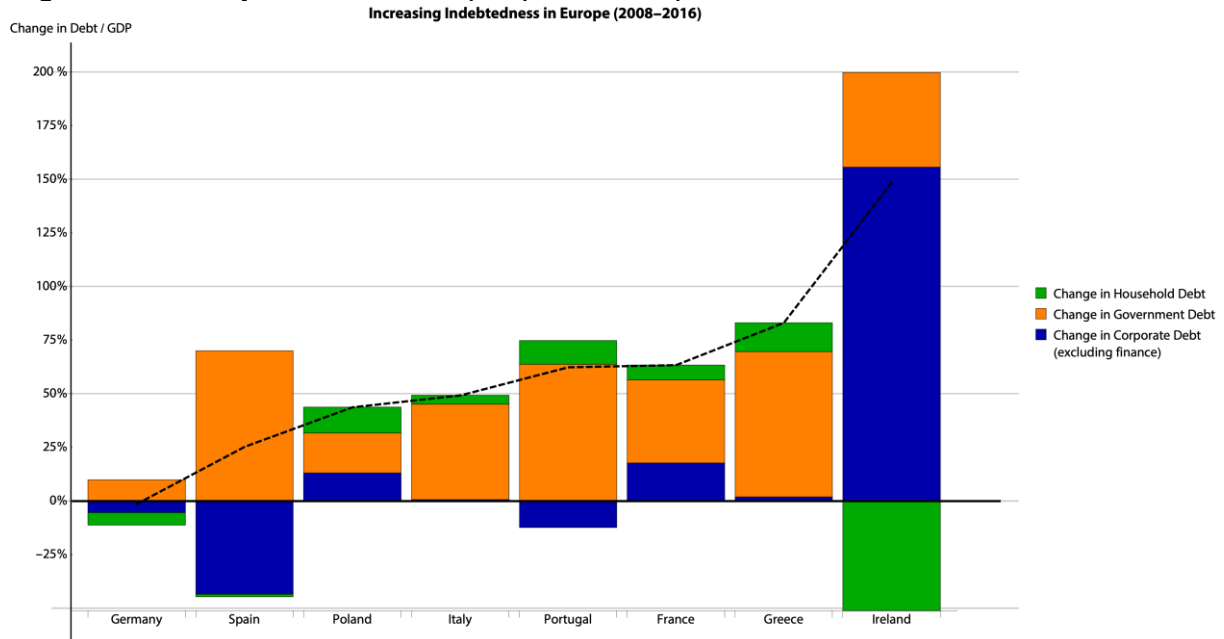
imbalances stimulated the real economy in large parts of the euro area. This in turn reinforced the false impression that the political promise of convergence could now be successfully fulfilled.

Many economists interpreted the accumulation of current account deficits in the southern eurozone countries and Ireland during the pre-crisis period as an expression of a 'healthy' convergence process, set in motion by the introduction of the euro (e.g. Blanchard and Giavazzi, 2002; Giavazzi and Spaventa, 2011). However, the euro crisis, which continues to this day to shape the economic, social and political problems of the eurozone countries, has its roots in this very development of macroeconomic imbalances between debtor and creditor countries: when the global financial crisis hit, current account imbalances proved to be a key catalyst for the crisis. The countries that had accumulated current account deficits were no longer able to finance them on the international financial markets. They suffered a sudden drying-up of capital inflows, followed by massive capital flight, which in turn necessitated a rapid reduction in current account deficits (e.g. Giavazzi and Spaventa, 2011; Shambaugh, 2012; Hobza and Zeugner, 2014; Baldwin et al., 2015).

When the crisis erupted, the debt-driven growth models suffered a break as the flow of credit – especially from abroad – came to a standstill. The reversal of capital flows initiated a process of debt deleveraging in the private sector in large parts of the eurozone (e.g. Koo, 2015; Glötzl and Rezai, 2018), caused corporate investment to collapse, and thus led to a drastic decline in economic growth rates and a sharp rise in unemployment rates. The latter happened first of all in the south of the eurozone, where the private sector was particularly forced to reduce investment and consumer spending, in order to push for debt deleveraging. At the same time, fiscal deficits and government debt rose as a result of the crisis, especially in the countries hit hardest (Lane, 2012), primarily because the public sector assumed the liabilities of the financial sector, which had grown disproportionately before the crisis.

Figure 6 illustrates the increase in public debt in the southern eurozone countries as a result of the crisis. However, in relation to the massive rise in private debt in the pre-crisis period (see Figure 4), it also becomes clear that corporate debt and household debt, measured in terms of GDP, could at best be only partially reduced. The problems in reducing the debt burden were largely a consequence of the persistent economic weakness, which resulted from the fact that businesses cut back on their investment and households held back on their consumption spending. Economic weakness led to deflationary pressures, which increased the real debt burden (e.g. Mastromatteo and Rossi, 2015; Koo, 2015). By contrast, Germany's export-based growth model, which produced increasingly higher net export surpluses in the post-crisis period (e.g. Priewe, 2018), enabled a more rapid recovery from the crisis, because trade with important trading partners outside the weakly growing eurozone quickly returned to its former level (Gräbner et al., 2017), thus facilitating an export-driven reduction in unemployment that went hand in hand with a slight decline in private-sector debt (see Figure 6).

Figure 6: Debt dynamics in Europe: post-crisis period



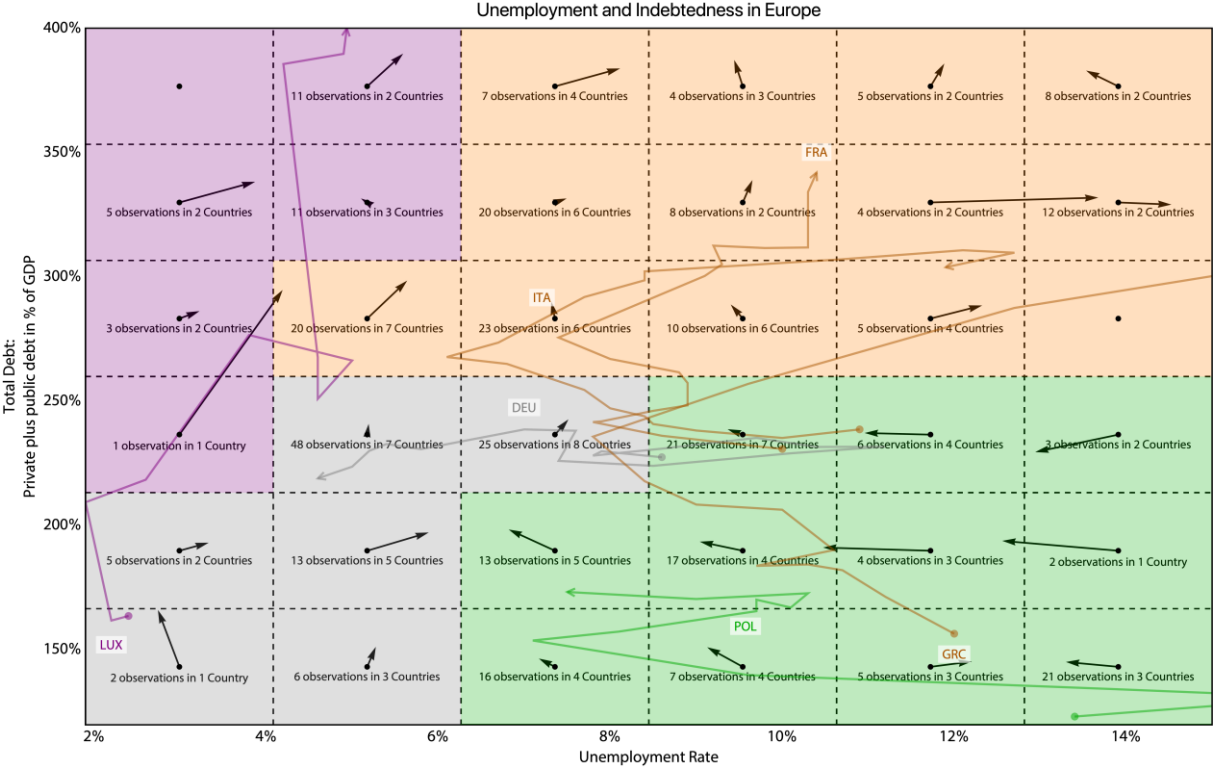
Source: OECD; own calculations.

In this context, it can also be explained why the growth models introduced above make a decisive contribution to understanding economic developments in Europe: those EU countries whose economic growth in the pre-crisis years was mainly driven by an increase in debt experienced a sudden break in their macroeconomic development dynamics, which was reflected in a drastic reduction in economic growth rates and rising unemployment rates. This macroeconomic development corresponded closely to the extent of the debt overhang in the private and public sectors in the respective countries (Gräbner et al., 2017). By contrast, those EU Member States which in the pre-crisis years had compensated for the downward pressure on consumer spending induced by the decline in the wage ratio and the rise in personal income inequality through an export-driven growth model were not only in a structurally advantageous position after the outbreak of the crisis (as their export-oriented growth models were less affected by the crisis-ridden development of the financial sector), but they also increased their political influence due to the asymmetric nature of international creditor-debtor relationships (Steinberg and Vermeiren, 2016).

The macroeconomic problems in large parts of the EU resulting from the unsustainable combination of different growth models can also be illustrated by Figure 7. It shows the economic development of European countries by looking at two key variables – total debt (excluding the financial sector) and unemployment – and shows the average development direction of European economies (depending on their starting position) over the period 1999-2016.⁸ The arrows in Figure 7 thus show the average direction of movement of all economies in the corresponding graphically separated fields. For further illustration, the ‘territories’ resulting from this representation are marked in different colours, and the development path of selected countries is shown.

⁸ For a more detailed description of the calculation methodology, see Heimberger and Kapeller (2017).

Figure 7: Economic development dynamics in Europe



Source: AMECO, OECD; own calculations.

Note: Black arrows represent the average change of all countries in the respective area (see Heimberger and Kapeller, 2017 for details); development dynamics of selected countries are also shown.

Looking at this representation, at least two central findings can be discerned. First, European economies as a whole tend towards rising overall indebtedness (many arrows point upwards; only one slightly downwards). Second, two clearly different paths can be distinguished in the right part of the figure, in which economies with high unemployment and low indebtedness (predominantly in Eastern Europe) are catching up, while countries with high unemployment and high indebtedness (predominantly in Southern Europe) tend to fall further behind, thus illustrating the economic polarisation of Europe analysed in this study. The countries acting as financial centres (e.g. Luxembourg, Ireland, the Netherlands) are mainly to be found in the upper left part of the figure, with the direction of the arrows clearly showing that the dominance of the financial sector in the race for the best location allows for relatively low unemployment (partly at the expense of other countries), but goes hand in hand with rising overall indebtedness – even outside the financial sector, which is not included here.

While Figure 7 illustrates that at least some European countries (particularly in Eastern Europe) can expect falling unemployment rates in the longer term, along with a slight increase in total indebtedness (see also Bohle, 2018), the situation is highly problematic for countries with a precarious economic development, especially in southern Europe. This raises the question of the long-term economic, political and social sustainability of an economically polarised EU. It is precisely those countries losing ground that – under the institutional and political framework discussed above – do not have enough policy space to escape the negative development dynamics shown in Figure 7. An essential component of a coordinated strategy to overcome polarisation would be to aim for an improvement in technological capabilities in the precariously situated countries; this issue will be investigated in the following section.

3. Uneven distribution of production capabilities in Europe: impact on macroeconomic polarisation?

The previous section documented the macroeconomic polarisation within the EU, with a focus on the eurozone countries. The main factors explaining this divergence are the unequal institutional and legal frame conditions – for example in the areas of the labour market, tax and corporate law or financial market regulation – and the different technological capabilities of the EU countries. The latter aspect is particularly important for understanding the divergence between the two growth models discussed above (export-based and private-debt-driven, respectively). Of course, in the short and medium term other influencing factors (e.g. cyclical fluctuations) must be taken into account: the impact of a single variable on the emergence of a particular development path should not be overemphasised. Nevertheless, the role of technological capabilities and the associated product quality and complexity (Hidalgo and Hausmann, 2009) seems surprisingly significant in view of the fact that southern eurozone countries, such as Spain and Italy, have also been characterised for decades by a large and efficient industry segment.

Our argument is based on the concept that firms with a technological leadership role benefit from current circumstances (e.g. through additional export opportunities to Asian countries wishing to acquire new technologies and capital goods), while firms with less technological specialisation face new challenges (particularly from Asian countries). This polarisation is based on path-dependent processes (Myrdal, 1958; Kaldor, 1970). From this perspective, over the long term, macroeconomic divergence in the EU is therefore linked to differences in such 'technological capabilities'.

It will be shown that the unstable co-existence of the two growth models in the EU – and thus the inevitable long-term polarisation of living standards – can be overcome either by a more equal distribution of technological capabilities or by other compensatory mechanisms. This, however, requires coordinated policy measures. At the same time, these could provide a possible basis for addressing key future challenges in the areas of automation, digitisation, climate change or global trade grounded on shared objectives.

3.1 Technological development and economic prosperity

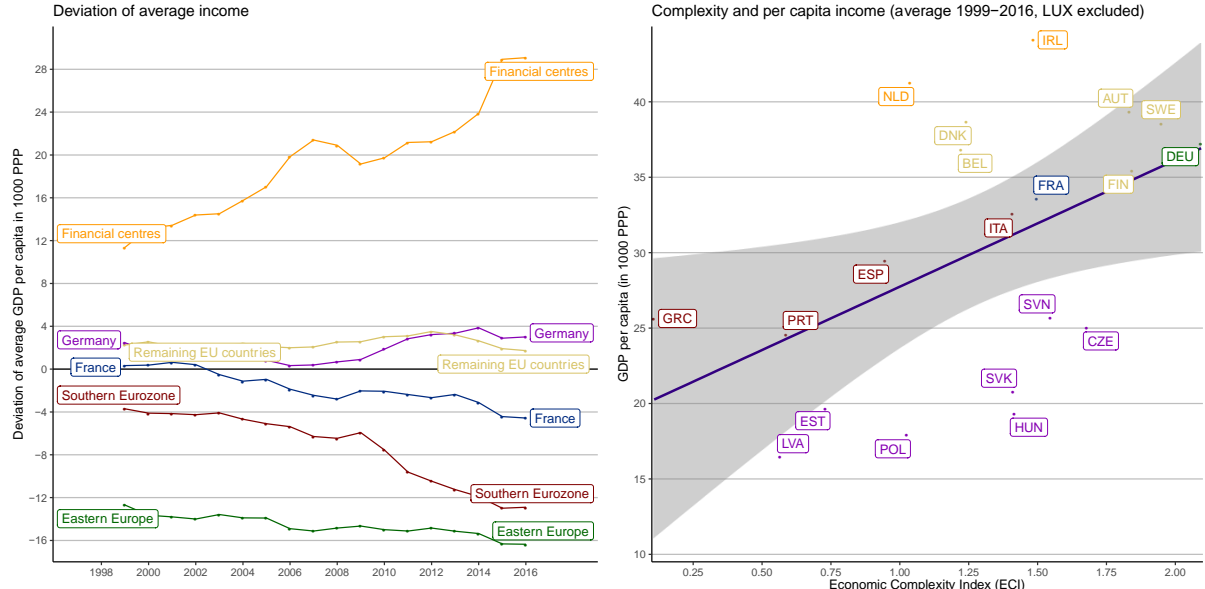
Why is the distribution of technological capabilities between EU Member States so relevant? The socio-economic development of a country can be linked to a collective learning process. In this context, empirical studies show that technological capabilities are strongly related to a country's long-term prosperity (Hidalgo et al., 2007; Hidalgo and Hausmann, 2009; Cristelli et al., 2015). The accumulated amount of such technological capabilities can be quantitatively determined by the ability to manufacture and export complex products, such as computer chips or medical products.

High technological capabilities are not the only way to international competitiveness. Currently, potential alternatives would be strong wage cuts (e.g. to the level of some Eastern European countries), the exploitation of natural resources (such as in Saudi Arabia) or the establishment of special regulatory frameworks (such as in Singapore). However, since these alternatives are either not feasible in the EU and/or would lead to an intensification of the race for the best location and would thus be politically destructive, technological capabilities remain the central factor for the long-term development of the EU Member States. In other words, especially for the EU countries – which are high-wage countries in a global comparison – technological capabilities and the associated specialisation and renewal of production processes represent the last remaining competitive advantage in a global perspective. Against this background, the question of the distribution of technological capabilities in the EU (see Section 3.2) is of

particular relevance: so long as this distribution is very uneven, it seems hardly plausible to assume a convergence of living standards.

Twenty years after the creation of the eurozone, the levels of prosperity within Europe still vary considerably. In fact, the chart on the left-hand side of Figure 8 shows that differences in GDP per capita have continued to increase over time. The countries of the financial hubs group, which act as centres for financial activities or as locations for corporate headquarters, thanks to low corporate taxes and/or a weakly regulated financial sector, show an increasingly positive deviation from the average GDP per capita in the group of EU countries. Since the financial crisis, Germany has also been able to increase its level of prosperity in relation to the average of the other eurozone countries, while France, the second-largest European economy, has fallen slightly behind. However, the picture is even more drastic for the southern eurozone countries, which have clearly lost ground. It is also evident that per capita income for the average of the EU countries in Eastern Europe has stagnated since the late 1990s in relation to the average of the entire group of EU countries (see Figure 8, left-hand chart).

Figure 8: The relationship between technological capabilities and income



Data: Eurostat; Atlas of Economic Complexity; own calculations. To avoid problems with the scaling of the figure, Luxembourg (LUX) was omitted in the right panel. Country groups are as follows: financial centres – Ireland, Luxembourg, Malta, Netherlands and Cyprus; southern eurozone – Greece, Italy, Portugal and Spain; remaining EU countries – Belgium, Denmark, Finland, Austria; Eastern Europe – Bulgaria, Estonia, Croatia, Latvia, Lithuania, Poland, Romania, Slovakia, Slovenia, Czech Republic and Hungary. In the right-hand panel, Romania, Bulgaria, Malta, Cyprus, Luxembourg, Lithuania and Croatia are omitted because of missing data for GDP per capita.

How do the technological capabilities of the EU Member States currently relate to their level of prosperity? To answer this question, we use the data on ‘economic complexity’ (Atlas of Economic Complexity) provided by a research group at Harvard University.⁹ The Economic Complexity Index (ECI) measures the

⁹ Current data can be retrieved at: <http://atlas.cid.harvard.edu/> (last downloaded 28.12.2018).

extent of technological capabilities accumulated within a country.¹⁰ In recent years, these data have gained in importance in various scientific research fields, not least because they have excellent predictive power for the future long-term path development of an economy, as in the long run 'countries tend to approach the levels of income that correspond to their measured complexity' (see Hidalgo and Hausmann, 2009, p. 10574).

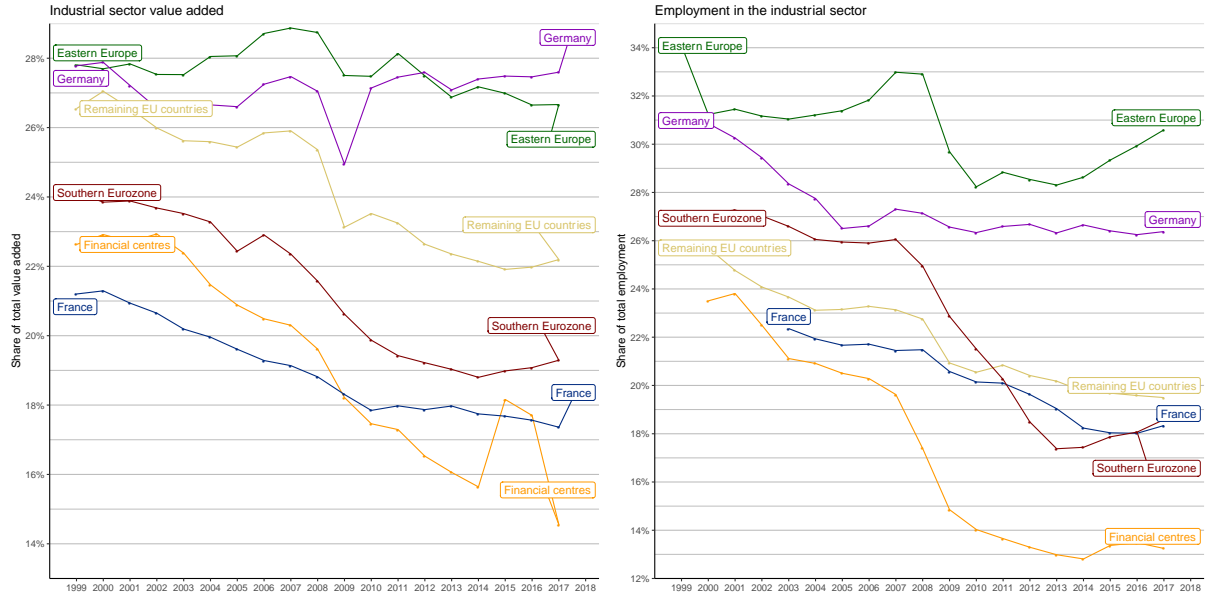
The chart on the right-hand side of Figure 8 shows the relationship between the Economic Complexity Index and the GDP per capita of the EU countries for the period 1999-2016. There is a significantly positive relationship between the level of technological capabilities on the horizontal axis and the GDP per capita on the vertical axis. Countries with high economic complexity also tend to have high levels of prosperity (and vice versa). It can be seen that Germany is at the forefront in terms of technological capabilities, and at the same time belongs to the group of European countries with the highest per capita income. The Southern European countries of Greece, Portugal and Spain, together with the Baltic countries of Latvia and Estonia, show the lowest technological capabilities within the EU. Interestingly, certain other Eastern European countries perform better in terms of economic complexity: Poland, Slovakia, Slovenia and Hungary, which, due to their relatively low wage levels and their geographic proximity to the industrial core of Central Europe, are home to important industrial production sites (Stöllinger, 2016).

The special role of the Eastern European EU countries (in particular Slovakia, the Czech Republic, Hungary, Poland) as – less highly specialised – 'workbenches' of the industrial core of Central Europe becomes even clearer when one considers that the share of the industrial sector in the total economic value added for the average of the Eastern European EU countries is almost as high as in Germany. The chart on the left-hand side of Figure 9 not only shows that the industrial sector plays a much smaller role in value added in the southern eurozone countries, in France and in the financial hubs; there is also a striking trend towards deindustrialisation, as the share of the industrial sector in the total value added has declined markedly in large parts of the EU since the early 2000s (exceptions are Germany and the Eastern European countries).

A look at employment in the industrial sector (see right-hand chart in Figure 9) also points to large differences between the EU countries: the share of industrial-sector employment in total employment has recently been around 30% in the Eastern European countries and more than 25% in Germany, while in the southern eurozone and France it is less than 20%, and in the financial centres is even well below 15%. In addition, there has been a sharp decline in the importance of industrial employment since the introduction of the euro in the late 1990s. This has been most drastic in the financial hubs, which have increasingly focused on providing attractive conditions for international capital and multinational companies in the intra-European race for the best location. However, France and the southern eurozone countries also appear to be undergoing structural change at the expense of employment in the industrial sector.

¹⁰ The index is derived on the basis of export data. An iterative procedure is used to analyse which countries export which products. Products exported by many countries are considered 'simple'; products exported by just a few countries are considered 'complex'. In a next step, countries that export many complex products receive a high ECI, while countries that export few complex products receive a lower ECI. The next step is to correct the country and product complexities: products exported only by countries with a high ECI get a still higher ECI; products exported by all countries get a lower ECI; etc. For a detailed description and derivation of the Economic Complexity Index, and an explanation of how it goes beyond existing measures of human capital or competitiveness, see e.g. Hausmann et al. (2013). It is shown that, in the long term, 'countries tend to approach the levels of income that correspond to their measured complexity' (Hidalgo and Hausmann, 2009, p. 10574), and current deviations are very good predictions of future growth dynamics.

Figure 9: Dynamics of value added and employment in the industrial sector



Source: KLEMS, AMECO database. Country groups are as follows: financial centres – Ireland, Luxembourg, Malta, Netherlands and Cyprus; southern eurozone – Greece, Italy, Portugal and Spain; remaining EU countries – Belgium, Denmark, Finland, Austria; Eastern Europe – Bulgaria, Estonia, Croatia, Latvia, Lithuania, Poland, Romania, Slovakia, Slovenia, Czech Republic and Hungary.

The following analysis considers the relationship between technological capabilities and the level of economic prosperity as an essential analytical starting point, and examines – inspired by the observed divergence in the development of the industrial sector – the influence of price factors (e.g. unit labour costs) and non-price factors (e.g. high quality, technological excellence) in international competition. We argue that the role of technology is of central importance when it comes to assessing the development potential of EU Member States in international competition.

3.2 Wage costs or technology: what determines the international competitiveness of EU countries?

A stronger focus on the technological capabilities of the eurozone countries is particularly relevant because the public debate on the euro crisis – especially that on the competitiveness of the southern eurozone countries – focuses primarily on wage costs, tax burdens and other factors of ‘price competitiveness’, while company characteristics, (increasingly global) production structures and technological capabilities are largely ignored. Following this logic, the policy measures pursued so far within the eurozone – in particular the policy of fiscal austerity and of wage cuts – have focused strongly on the ‘price competitiveness’ of the countries concerned and have set a corresponding reduction in unit labour costs and a flexibilisation of the labour markets as their primary goal (e.g. Trichet, 2009; Armingeon and Baccaro, 2012; O’Rourke and Taylor, 2013; Stockhammer and Sotiropoulos, 2014). This is problematic for three reasons.

First, in a global context, EU economies belong to the group of technologically relatively advanced economies, although there are still significant differences between countries. Empirical analysis shows that for comparatively highly developed countries, relative unit labour costs play a subordinate role in export performance. Rather, it is technological capabilities that are decisive (e.g. Carlin et al., 2001; Dosi et al., 2015). Second, it can be shown that the labour market performance of highly developed European countries is much more determined by macroeconomic factors than by the flexibility of labour markets

(Heimberger et al., 2017). Third, a reduction in unit labour costs means that the countries concerned are less attractive for the well-educated workforce, which makes a particularly sustainable contribution to technological capabilities building. This constellation means that it is precisely those sectors which are engaged in the production of more complex products and in which catching-up countries would have to step up their activities in order to increase their prosperity on a broad basis that face additional challenges. Policies aimed purely at reducing unit labour costs thus tend to reinforce existing path dependencies and make long-term positive economic development more unlikely for the countries concerned (e.g. Hidalgo and Hausmann, 2009; Cristelli et al., 2015).

Nonetheless, some analyses of the euro crisis stress the role of unit labour costs, particularly in the context of Germany's wage-restraint policy since the late 1990s, which has exerted downward pressure on unit labour costs: by putting downward pressure on wage growth, German companies are said to have obtained a decisive competitive advantage in gaining additional export market share (e.g. Bofinger, 2015; Flassbeck and Lapavistas, 2015). As soon as technological aspects are adequately taken into account, however, the importance of unit labour cost developments for the export performance of German firms appears to be much less decisive than frequently claimed, even though German exports seem to have become more price sensitive again in the recent past (Baccaro and Benassi, 2017).¹¹ Above all, however, German companies – in particular in the markets for technologically highly complex goods such as engines, production equipment or medical products – face global competition for 'quality' and product properties (Simonazzi et al., 2013; Storm and Naastepad, 2015). In this context, the positive impact of lower unit labour costs on companies' competitiveness is at best small.

Rather, lower unit labour costs in technologically advanced countries lead less to an increase in 'international competitiveness' boosting exports than to a weakening of domestic and import demand. The consequences of the weak development of unit labour costs were also relevant for Germany, as they were accompanied by an 'import deficit', which ultimately caused growing current account surpluses (e.g. den Haan et al., 2017; Priewe, 2018). In addition, in economic terms the expanding low-wage sector has led to rising inequality in the distribution of living standards within Germany, which in turn makes it necessary to compensate for the downward pressure on consumer spending resulting from wage dispersion by expanding exports. As a consequence, Germany has become more dependent on export-based growth.

The distribution of technological capabilities is also central to understanding the emergence of different growth models (see Section 2). Countries whose firms are unable to produce and export complex products in international competition cannot enter a path of successful export-driven growth: they cannot compensate for the downward pressure on consumer spending by expanding exports, because the companies lack technological capabilities for producing and exporting highly sophisticated products on the world market. In many cases, countries that are relatively weak in technological capabilities tend to develop a crisis-prone private-debt-driven growth model, as shown by the example of the southern eurozone countries. In the long term, however, an improvement in the price competitiveness of these countries does not promise an improvement in living standards: rather, these countries would have to be supported in the accumulation of technological capabilities (Gräbner et al., 2017; Celi et al., 2018; Gräbner et al., 2018).

So how are technological capabilities distributed among the EU countries? And what does this imply for the macroeconomic outlook? To answer these questions, data on 'economic complexity' can again be used to show that the production structures of the Member States differ considerably. In 2016, cars and car parts

¹¹ For the scenario of a dissolution of the eurozone and a reintroduction of national currencies, on the other hand, a considerable appreciation of the German mark would have to be expected; the resulting rise in export prices would also have a negative impact on German industry (e.g. Posen, 2011), above all because this increase would affect the entire value added and not – as in the case of rising wages – only parts of the value-added process.

accounted for around 17% of total German exports. In Finland, another highly developed eurozone country, cars accounted for only 3% of total exports, while refined petroleum accounted for 7.3%. Also, the southern eurozone countries have by no means completely identical production structures: Italy, for instance, has a substantial industrial sector in the north of the country, some of which specialises in the production of highly complex machinery export goods. Greece, on the other hand, produces hardly any high-end machinery, while (processed) raw materials account for well over a quarter of total exports (Atlas of Economic Complexity, 2018).

In the light of these qualitative observations, it is not surprising to note that the EU's ability to produce complex products is highly unevenly distributed. Accordingly, under the current institutional and policy framework (as described in Section 2) not all EU countries will be able to follow a path of sustained positive macroeconomic development. A central reason for this is illustrated in Figure 10, comparing the export and import baskets of the EU countries. The x-axis shows the degree of complexity of the goods produced. The Gini index on the y-axis is a distribution measure that is limited between 0 and 1, where 0 would mean that the production of the exported good is distributed completely equally, while 1 would mean that there is only one country that exports the produced good.

Figure 10 shows that the ability to produce products with very low and very high complexity is very unevenly distributed among the EU Member States. Almost all countries are able to export products of medium complexity, which is reflected in a low Gini index in the complexity range -1.0 to 0.5. However, exports of very simple products (Product Complexity Index (PCI) less than -1.0) and very complex products (PCI higher than +1.0) are highly concentrated. Not surprisingly, the inequality in the distribution of imported goods is significantly lower, as relative specialisation emerges in the area of supply (specialised production), but typically not in the segment of goods in demand. This asymmetry suggests that a high degree of technological capabilities also offers significant competitive advantages, because there are few competitors within the EU that also export highly complex products. Moreover, the emergence of economic polarisation, divergent growth models and macroeconomic drifting-apart is not surprising if, in a political-economic regime that is strongly oriented towards international competitiveness, the most important source of this competitiveness (namely technological capabilities) is so unequally distributed.

Figure 10: Distribution of export capabilities and import propensities according to product complexity in eurozone countries



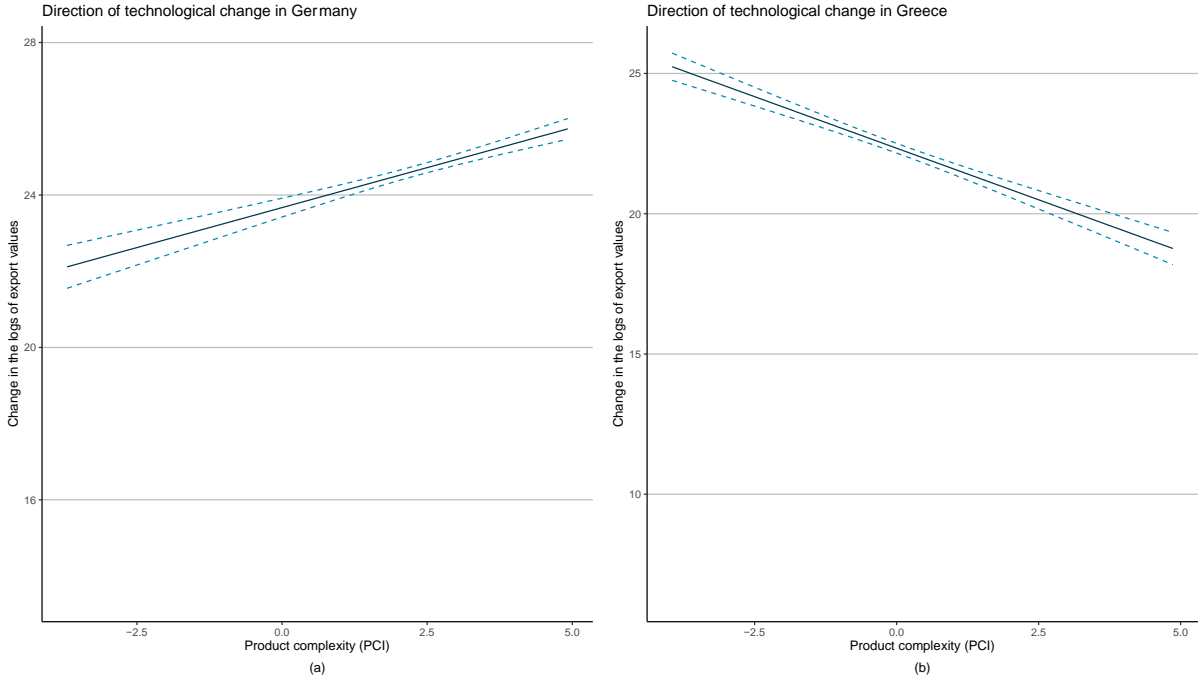
Source: Atlas of Economic Complexity (2018); own calculations. Inequality is measured by the Gini index, which is weighted by the total exports (imports) of the countries. A Gini index of 0 corresponds to complete equality; a Gini index of 1 equates to a situation in which all goods in the complexity corridor are exported (imported) by the same country. The x-axis shows the level of product complexity. Higher values for the PCI indicate higher complexity (and vice versa). The following EU countries are considered in the sample: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden.

3.3 Technology, export performance and structural change in the EU

Technological capabilities were already very unevenly distributed among EU countries at the time of the creation of the euro area (in 1999). However, as will be shown in this section, polarisation has become more entrenched since the crisis year of 2008 and poses a central threat to Europe’s long-term economic and political cohesion. This analysis of the technological component can be expanded to include a dynamic perspective by establishing a direct relationship between technology and the export performance of the countries under consideration. To this end, export growth can be broken down by sector over time and combined with information on product complexity. This makes it possible to analyse how increases in exports are related to technological capabilities.

Figure 11 provides an initial illustrative comparison of Germany and Greece, clearly showing that the sectors in which exports have grown particularly strongly in Germany are typically characterised by a high degree of economic complexity. In other words, Germany tends to increase its exports of products of higher complexity – a fact that points to the high competence of German companies in the technological field. For Greece, however, the opposite correlation becomes apparent: increases in Greek exports are negatively correlated with technological complexity – a development that is also due to the fact that Greece, because of a lack of other options, has increasingly developed into a producer of processed primary goods (above all, refined oil) since the crisis. These results in turn point to path-dependent processes in the EU, as Germany, which is already equipped with better technological capabilities, continues to expand its technological pioneering role in export goods, while Greece continues to fall behind. The period is chosen so as to compare the average composition of export baskets before (1979-2000) and after the introduction of the euro in Greece (2001-2016).

Figure 11: Product complexity and export dynamics – Germany and Greece (1979-2000 vs. 2001-2016)



Source: Gräbner et al. (2018). Data come from the Atlas of Economic Complexity (2018); own calculations. The size of the bubbles represents the share of the product in the export basket of the respective country.

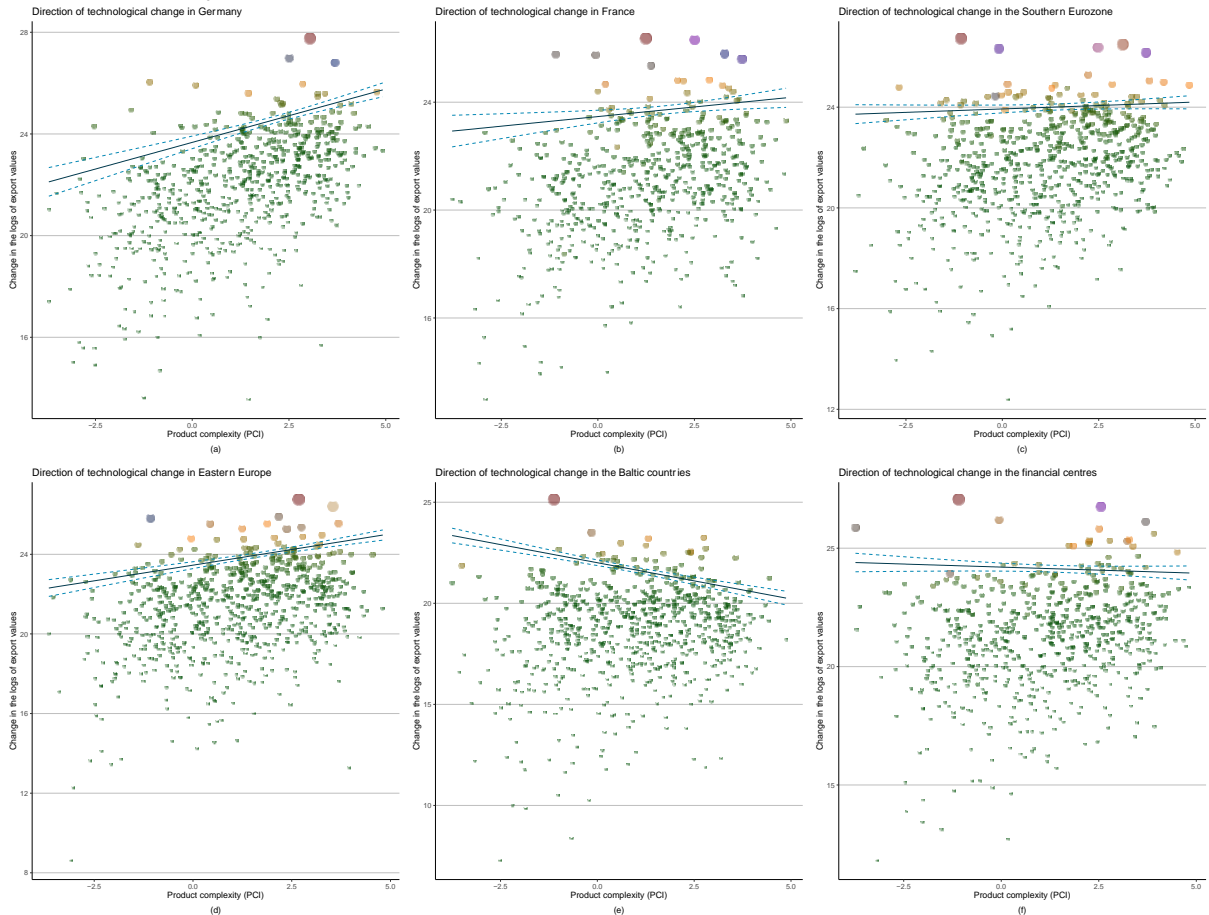
From a methodological point of view, the slope of the regression lines shown in Figure 11¹² can be understood as a relative measure of the technological development dynamics of national economies: if export growth is disproportionately reflected in sectors that manufacture products of relatively high complexity, the measured correlation is positive, and vice versa. Values close to zero indicate that the

¹² The underlying data points in Figure 11 result from a comparison of country exports at product level (here: at the 4-digit SITC-V2 level). For those products with an increase in exports, the differences were logarithmised. The change was then regressed, within the framework of a weighted least squares estimate, to the product complexity of the products, with the weights resulting from the share of these products in the total exports of the country. Accordingly, the slope of the resulting regression line can be interpreted as a measure of the country's technological development. An exact derivation of the measure can be found in Gräbner et al. (2018).

relative technological capabilities of the country in question remain largely constant. If this procedure is applied to selected countries/country groups in Europe, the overall picture now reveals a polarisation at the level of economic structures, sectoral specialisation and the associated technological capabilities. This structural polarisation explains a substantial part of the development dynamics; it also explicitly links the advantages and disadvantages of individual Member States in the race for the best location with the development of different growth models, as discussed in Section 2.

This application is extended in Figure 12: the chart shows the technological development between the pre-crisis period (2001-2008) and the post-crisis period (2009-2016) for different European countries and country groups, and allows a more precise assessment of how different European countries developed after the crisis. Specifically, it can also be asked whether (dis)continuities in the area of growth models are also reflected in the development of technological capabilities. This reveals a number of significant similarities with the previous presentation, since both Germany, as a leading export-oriented nation, and Eastern Europe (excluding the Baltic states), which is in the process of catching up economically, are showing a positive technological development. In the Southern European countries and France, on the other hand, technological potential tends to stagnate (relative to the rest of the world). A decidedly negative dynamic with regard to technological capabilities has emerged in the financial hubs, since these generally do not require high technological capabilities (understood as the ability to manufacture complex products) in order to be able to exploit their advantages within the EU in the race for the best location. The Baltic countries are also showing a negative dynamic, which illustrates their inferior competitive position compared to the other Eastern European countries.

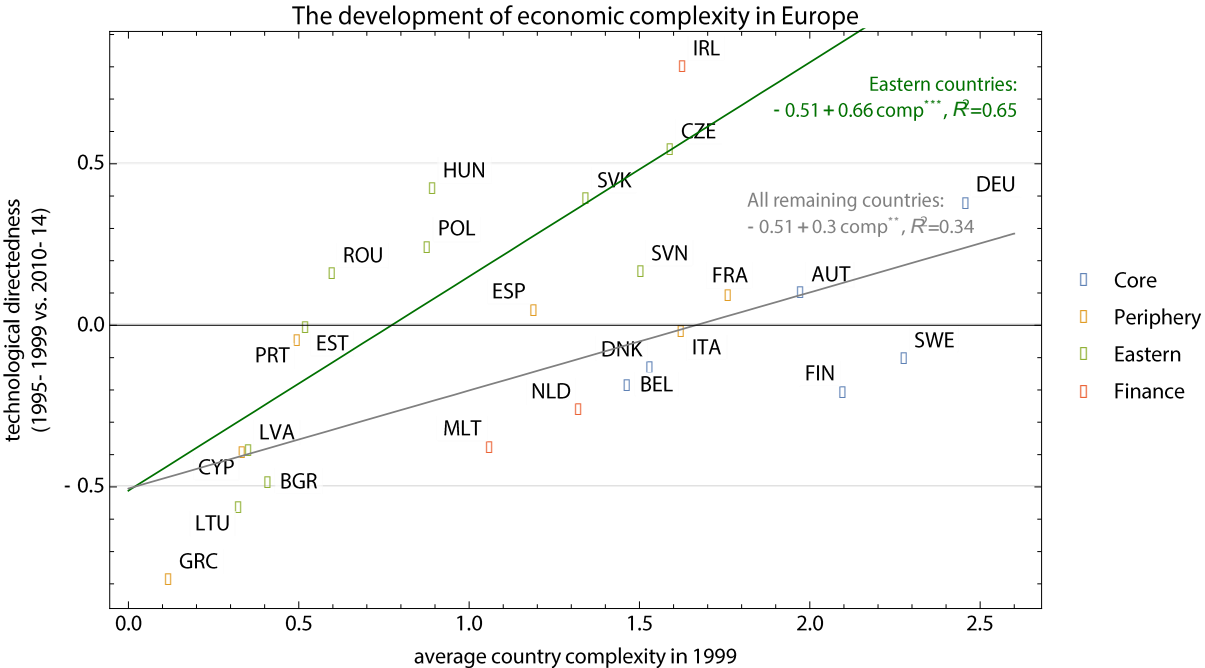
Figure 12: Product complexity and export dynamics – EU-wide sample (2001-2008 vs. 2009-2016)



Source: Gräbner et al. (2018). Data come from the Atlas of Economic Complexity (2018); own calculations.

How do the technological development dynamics outlined above relate to the starting level of technological capabilities at the time the eurozone was set up? Figure 13 shows that those EU countries that had a better technological starting position in 1999 tend to show a more positive technological development dynamic. In any case, there is no sign of a technological catching-up process, because the countries with a worse starting position have not been able to catch up systematically with technological pioneers such as Germany, Sweden or Austria. This result is compatible with the existence of self-reinforcing, path-dependent processes (Kaldor, 1980), for which compensatory counterforces would be needed: the corresponding policy instruments – such as currency devaluations, interest rate adaption or the compensatory use of fiscal and industrial policy measures – are no longer available, or only available to a very limited extent. For these reasons, eurozone countries with a relatively poorer starting position in terms of technological capabilities can currently only take insufficient economic policy measures to counteract their competitive disadvantages vis-à-vis countries with a better starting position. In contrast, the examples of Luxembourg or Ireland indicate that, in the case of poor or worsening initial technological conditions, economic prosperity can be achieved above all through a policy undermining regulatory standards in the areas of taxation or financial market (de)regulation, which is at the expense of other EU Member States. Such policies are aimed at gaining individual institutional advantages in the European race for the best location, and thus represent a vivid symbol of Europe’s political and economic disintegration.

Figure 13: Technological path dependency in Europe



Source: Gräbner et al. (2018). The data come from Eurostat and the Atlas of Economic Complexity (2018); own calculations. For more details on the computation of the measure for technological directedness, see Gräbner et al. (2018).

In detail, the results shown in Figure 13 can be interpreted in a more nuanced way. Four points can be highlighted. First, Germany’s exceptional position becomes clear again, as it already had the best starting position in terms of technological capabilities in 1999 and has been able to further expand its dominant role. Second, the special institutional embedding of the Eastern European countries in the European race for the best location and its implications for the direction of the development of technological capabilities is evident: while the Visegrád countries (Hungary, Poland, Slovakia, the Czech Republic) have also gained in

economic complexity in their role as the ‘workbench’ of the industrial core of Europe, Bulgaria and the Baltic countries of Latvia and Lithuania have continued to fall behind; at the same time, technological capabilities in Romania and Estonia have remained largely constant since 1999. In other words, the economic catching-up process in Eastern Europe has not necessarily been accompanied by a technological catching-up process, since this correlation has been significantly influenced by the role of the respective Eastern European country in the European race for the best location.

Third, not a single southern eurozone country with a significantly positive technological development dynamic can be found in Figure 13. Greece has fallen behind massively, while Portugal, Spain and Italy have largely stagnated. Fourth, the role of the financial hubs as ‘centres’ for foreign capital or multinationals is also mirrored by their technological development. Ireland’s role as a tax haven for companies (e.g. Zucman, 2015) is reflected, for example, in substantial technological upgrading (Regan and Brazys, 2018). On the other hand, the Netherlands and Malta – two other financial centres, but with different financialisation strategies from Ireland – show a negative technological development dynamic within the more general deindustrialisation process. These results show that, for those countries that seek to attract capital through specific regulatory conditions, the long-term technological outlook is directly dependent on the chosen policy measures to ensure attractiveness in the race for the best location.

These results make it clear that there is currently no uniform convergence dynamic in the area of technological capabilities in the EU. While some countries in Eastern Europe (in particular the Czech Republic, Poland and Slovakia) may succeed in catching up, others (such as Bulgaria or the Baltic countries) will most probably not be able to catch up in the technological field. There are also no indications of catching-up dynamics in the Southern European countries. This is problematic, because technological capabilities have excellent predictive power for the long-term economic development potential (Hidalgo and Hausmann, 2009; Cristelli et al., 2015). A continued divergence of economic development paths would, in turn, entail considerable risks with regard to the political cohesion of European countries. Since the development dynamics of technological capabilities are path-dependent processes that would be reinforced by the ‘free play of market forces’, economic policy interventions aimed at convergence are needed. The areas in which measures could be taken to ensure a long-term crisis-proof and prosperous EU are discussed in the following section.

4. Economic policy stimulus for a prosperous Europe

The levels of prosperity and some institutional and legal conditions in the EU countries were already highly unequal when the common euro area was established at the end of the 1990s. The political promise that the ongoing institutional integration process would be accompanied by economic convergence has not been fulfilled. On the contrary, since the economic and financial crisis of 2008/2009, economic polarisation has become increasingly apparent, particularly in a comparison between Germany and the countries of Southern Europe (see Section 2).

The economic policy response to the crisis has exacerbated this polarisation: government austerity measures (in the form of tax increases and cuts in government spending, in particular public investment and social spending) have reduced economic growth and increased unemployment during the crisis by reinforcing the economic downward spiral of declining incomes and lack of demand for goods and services. Paradoxically, in some countries the resulting intensified economic slump has even led to an increase in the real debt burden (e.g. Koo, 2015; Mastromatteo and Rossi, 2015; Heimberger, 2017). The policy of labour market deregulation, which was pushed especially in the southern eurozone countries in the form of cuts in unemployment benefits and minimum wages, decentralisation of wage negotiations, etc. after the outbreak

of the crisis (e.g. Hermann, 2017; Manasse and Katsikas, 2018; Afonso 2019), also exacerbated the crisis through its negative impact on consumer spending and the increased deflationary pressure (Eggertsson et al., 2014; Stockhammer and Sotiropoulos, 2014; Alvarez et al., 2019).

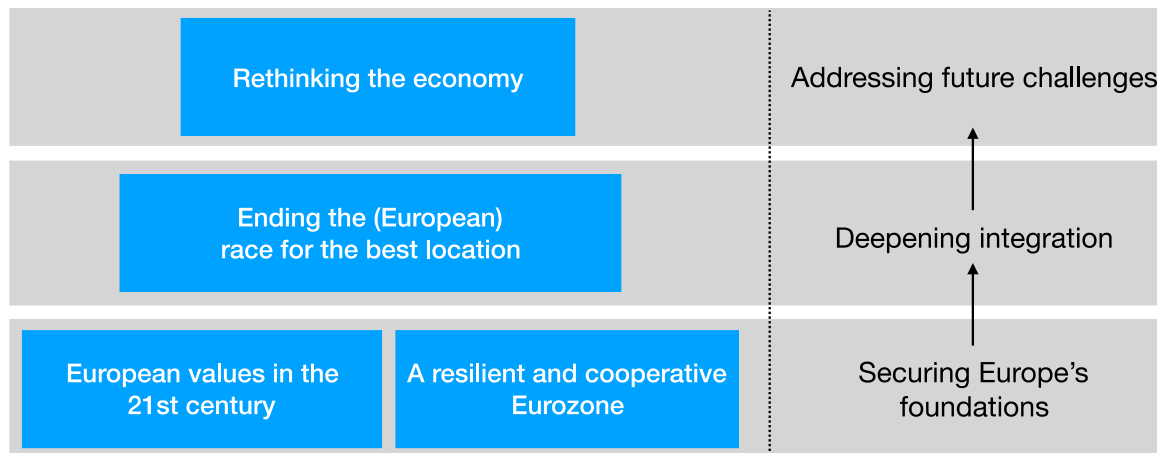
The fiscal policy response to the crisis, characterised by the austerity policy pursued in large parts of the EU, has thus had a counterproductive impact. But even if the ECB had more successfully used its monetary policy to combat the crisis, if the fiscal austerity measures in the individual countries that aggravated the crisis had been largely avoided and if important labour market institutions in the southern EU Member States had not been dismantled, this would by no means have guaranteed a long-term strengthening of the EU's cohesion. Although a more successful economic policy response to the crisis could have cushioned a substantial part of the economic and social problems arising from the crisis, it would not have contributed to the reduction or compensation of the structural polarisation of the EU Member States documented in this study, which had already started in the pre-crisis period.

The problems of macroeconomic polarisation in the EU run deeper: they are largely due to the special institutional embedding of European countries in the race for the best location, and are also related to the highly uneven distribution of technological capabilities. The existing problems are path dependent, and there are currently no compensating economic policy counterforces within the framework of the European economic and monetary union; on the contrary, the current situation generates incentives for individual countries to undermine previously broadly established regulatory standards, such as in the areas of labour market regulation, tax and corporate law or financial market regulation, in order to gain advantages over other countries in the European race for the best location.

Against this background, a further deepening of the diverging growth paths in the EU can be assumed; the deep-rooted problems became acute in the course of the crisis, and as a result of the economic policy response that aggravated the crisis. However, the causes of those problems would not have been fundamentally eliminated by a more expansionary economic policy. The process underlying the polarisation of production structures and income opportunities between Member States will continue, regardless of short- and medium-term cyclical fluctuations, unless coordinated countermeasures are taken.

In addition, the competition between locations for investments, jobs and tax revenues also limits Europe's political capacity to act, and thus makes it more difficult to successfully address key challenges for the future (automation, digitisation, ecologically sustainable development, global convergence, etc.). The economic and social problems in the EU, especially within the eurozone, are not due to inadequate compliance with existing European regulations, but are a result of the rules and the institutions themselves (e.g. Stiglitz et al., 2019). In what follows, we therefore provide suggestions aimed at restoring and expanding Europe's political and economic capacity to act, so that the EU and the eurozone can be turned into a prosperous and future-oriented economic area in a democratically legitimised way. The following proposals form a coherent overall strategy that focuses on safeguarding or expanding existing values and institutions, in order to deepen European integration at decisive points, and thus also to contribute, from the European side, to a transformation of the global economic order in the medium to long term. The sketched suggestions contain further references to individual proposals; a more precise operationalisation of the individual aspects and a more detailed design of the package of measures should be subject to democratic debate (see Figure 14).

Figure 14: Elements of a new economic policy strategy



Source: own illustration.

4.1 Securing European values

Prosperity and freedom in Europe are based on the fundamental values of the Enlightenment: human dignity, moral and technical rationality, mutual respect, and the attempt to find a socially viable balance between cooperation and competition based on these values. The institutional and political safeguarding of these values is currently hampered by various developments, with three factors being of particular importance from an economic point of view: first, the intra-European economic polarisation, which causes rifts in the European integration process, as already shown in the first sections of this study; second, globalisation and the international race for the best location, which put the traditional European prosperity and social model under pressure; and third, increasing income inequality, which questions the legitimacy of existing political and economic structures.

#1 Together, not alone: the question of international competitiveness

As was shown above in Section 3, in the area of technological capabilities – which is of central importance to Europe's international competitiveness – there is an increasing polarisation between global pioneers (e.g. companies in Germany and Austria) or their suppliers (large parts of Eastern Europe, excluding the Baltic states) and those who, at least in some areas, are losing out to international competition (particularly in the southern eurozone and the Baltics). Along these lines, systematic differences emerge, leading to increasing divergence in prosperity or labour market-driven migration movements, which in turn further intensify existing differences, for example through the brain drain associated with migration.

In order to stop this path-dependent process, at least three measures are of relevance. First, industrial policy programmes and measures that contribute to a more even distribution of technological capabilities within Europe are needed to enable a better distribution of economic prosperity (see also Section 4.3). Second, those countries that benefit most from the current constellation should contribute to a stronger European domestic economy by promoting a) high wages and social standards, b) programmes of public investment in relevant infrastructure sectors and c) greater intra-European solidarity. Third, an alternative catalogue of economic policy objectives is needed that goes beyond the vision of being the 'most competitive economic area in the world', as stated in the EU's Lisbon Strategy (e.g. Borras and Radaelli, 2011). In contrast, it is necessary to define attractive economic policy objectives apart from export surpluses and high growth rates. The latter is anyway a requirement of the times in an environment that is increasingly faced with qualitatively new economic policy challenges – such as digitisation, which leads to greater

inequality, especially in the labour market (e.g. Suedekum, 2018), or climate change, which brings new restrictions on political and economic processes into play (e.g. Rezai and Stagl, 2016).

#2 Civilised trade and the export of European values

For a long time in the history of European trade policy, considerations of development and solidarity played an essential role. Only in the last two decades has a more one-sided strategy that focuses on the interests of the export industry been able to assert itself, which strategically places the potential profits of the said export industry above alternative objectives, such as the promotion of human rights or the facilitation of global convergence (Siles-Brügge, 2014). However, this strategy also implies that, at the level of trade policy, Europe is no longer making significant contributions to the spread of European standards in the areas of human rights, workers' rights, environmental protection or tax policy. The consequences, in turn, are also disadvantageous for Europe as a whole, as global competition can thus exert more downward pressure on the comparatively high social and environmental standards in Europe.

In order to counter this trend, we propose that Europe's strong role as a big internal market should be exploited to a greater extent: in case of ethically relevant concerns related to companies exporting to Europe, these companies should be gradually persuaded to comply with higher standards, by threatening possible import restrictions (Rodrik, 2018). Such a project can either be integrated within the framework of the already steadily growing bilateral trade agreements or implemented unilaterally. It would not only reduce the competitive pressure on European living standards in the long term, but would also add a global perspective to the efforts to harmonise social and ecological regulation within Europe (Kapeller et al., 2016). For an effective implementation of such a project, it would also be advisable to fundamentally question the internal competition between EU Member States for the best location, especially in the area of tax policy.

#3 Securing a more even distribution of income

The increasingly unequal distribution of income (and wealth) in the European countries jeopardises their internal social cohesion, their political capacity to act, and thus ultimately also the process of European integration. There are a number of policy proposals and historical models for creating a more even distribution of income (and wealth), including, for example, a (sharp) increase in top marginal tax rates to curb income concentration at the upper end of the income distribution (as undertaken in the United States in the 1930s) or the introduction of higher minimum wages to strengthen the relative position of lower-income groups (as in several European countries after the Second World War) (e.g. Piketty, 2014; Atkinson, 2016).

Furthermore, a Europe-wide collective-bargaining law (e.g. EurWORK, 2017) and a Europe-wide coordinated wage policy (e.g. Watt, 2017) could contribute to a more even international distribution of incomes and the closer international alignment of workers' rights, and would also help strengthen attempts to accelerate existing convergence processes (e.g. in Eastern Europe) and combat economic polarisation. The introduction of differentiated minimum wages in the individual EU countries and the actual pursuit of a productivity-oriented wage policy (e.g. Onaran and Stockhammer, 2016) could serve as pillars for setting common standards and coordinating wage policies. Further potential measures to reduce inequality of income (and wealth) include increasing (and harmonising) corporate and capital gains taxes, and introducing a European financial transaction tax (Schulmeister et al., 2008) as well as a European wealth tax (Piketty, 2014).

4.2 Thinking the eurozone through

The current monetary and fiscal architecture of the euro area is a result of historical compromises and offers a number of considerable advantages for a united Europe in a globalised economy (e.g. Baldwin and Wyplosz, 2015; De Grauwe, 2018a). German companies, in particular, are benefiting greatly from the

present constellation, as the euro is securing relatively favourable export prices and, in the form of the common economic area, is making it easier for German firms to access a number of important sales markets for German products within Europe.

From a pan-European perspective, the euro improves the efficiency of intra-European transactions by providing a common means of payment and by strengthening Europe's position in the global financial market. In addition, the current constellation offers at least a realistic prospect for regulating financial markets more effectively than at the national level – even if the corresponding potential for action in this respect is certainly not fully exploited at present, especially since the political interests of powerful financial actors all too often prevail in questions of regulatory design (e.g. Ertürk and Gabor, 2017; Braun, 2018; Kapeller et al., 2018). Nevertheless – or precisely for this reason – it is important to focus on the dysfunctionalities of the current *modus operandi* in financial market and banking regulation, in order to identify the right strategies for future reform processes – such as the inadequate regulation of the shadow banking sector (e.g. Stiglitz et al., 2019, pp. 85-88), and the open question of how too-big-to-fail European banks can be regulated within the framework of an unfinished banking union and supported in the event of a crisis in order to prevent systemic distortions (e.g. Benassy-Quere et al., 2018, pp. 5-9). The effective implementation of a common and coherent economic policy strategy in the euro area is hampered by: existing deficits in the ECB's room for manoeuvre, in particular the one-sided orientation of the monetary policy mandate towards price stability (e.g. Braun, 2017; Stiglitz et al., 2019, pp. 36-51; Tooze, 2019); existing legal conditions that counteract the fulfilment of the central bank function as lender of last resort (e.g. Giavazzi et al., 2013; De Grauwe, 2015); shortcomings in the field of financial market regulation (e.g. on the effective regulation of 'too-big-to-fail' banks, see Stiglitz et al., 2019, pp. 84-87); as well as problems of regulation and taxation of financial market transactions (e.g. Schulmeister, 2018, pp. 326-327).

#4 For a common monetary and fiscal policy

The instruments of European economic policy for combating or mitigating economic distortions and crises are currently very restricted: the primary focus of the ECB's monetary policy is on questions of price stability (keyword 'inflation targeting'), while in the area of fiscal policy there is only limited capacity for action at the European level (e.g. Dullien, 2018). In addition, the existing fiscal framework means that the Member States have too little scope for economic stimulus measures in times of crisis, while they tend to be given more scope in boom times (Heimberger and Kapeller, 2017). This implies that the economic steering capacity of the eurozone falls far short of its potential, and the possibilities for cushioning economic problems in individual countries are restrained (e.g. Farhi and Werning, 2017). At the same time, the focus on monetary policy measures – which naturally always affect the entire eurozone and therefore always represent a 'one-size-fits-all' policy of intergovernmental compromises that regularly bypasses the actual requirements of individual countries (e.g. Vermeiren, 2017) – means that it is not sufficiently possible to geographically target economic policy measures.

Ultimately, this constellation implies that the eurozone lacks an instrument for targeted economic policy action in times of economic downturn. Moreover, the absence of a quantitatively relevant eurozone budget¹³ also severely limits the possibilities of supporting Europe's long-term convergence processes by fiscal means. In any case, institutional reforms of the eurozone architecture should aim to strengthen the democratic legitimacy of economic policy measures at the European level (Braun and Hübner, 2019), through clear political responsibilities (e.g. through the introduction of a eurozone finance minister

¹³ The political agreement reached in December 2018 on the implementation of a budget instrument for the eurozone within the framework of the EU budget (e.g. Funke et al., 2019) falls short, in the form discussed so far, of the actual requirements for a eurozone budget – in particular, because the eurozone budget is likely to be far too small and will have an inadequate focus on convergence and investment. The discussion about a suitable budget instrument for the eurozone should therefore be continued.

responsible for the eurozone budget, or through a strengthened role for the European Parliament, see e.g. Piketty and Vauchez, 2018). An adequately designed European unemployment reinsurance could be part of a fiscal capacity at the eurozone level and would have the potential to improve the stability of the eurozone (Dullien et al., 2018).

At the same time, a strengthened fiscal capacity could enable eurozone Member States to increase public investment, in order to address those challenges that are of particular relevance for societal development (e.g. climate change, digitisation, ageing). A clever public investment initiative could also promote the renewal of the economic structures of technologically lagging Member States (e.g. Mazzucato, 2013; Pianta, 2015). To this end, the currently existing EU budget rules, which restrict fiscal policy leeway at the national level, would have to be changed (Heimberger and Kapeller, 2017). Greater scope for public investment could be achieved, for example, by introducing a 'golden investment rule' that excludes deficit financing of the public capital stock (e.g. deficit-financed public investment in social and ecological infrastructure) from the relevant deficit calculation (Truger, 2015).

#5 Facilitating a prosperity-oriented monetary policy

In addition to building fiscal capacity at the eurozone level, a reform of the ECB's economic policy priorities seems necessary, in order to respond more decisively to key challenges of the twenty-first century. This includes: (1) an expansion of the ECB's mandate in terms of strengthening the role of labour market developments relative to the inflation target; (2) measures to strengthen the democratic legitimacy and accountability of the ECB;¹⁴ (3) the institutionalisation of measures to counteract speculative activities and to stabilise financial markets in the sense of Mario Draghi's 'Whatever it takes' (e.g. De Grauwe, 2013; Saka et al., 2015); (4) the creation of a common 'safe asset' to stabilise the bond markets in the euro area (e.g. De Grauwe and Ji, 2018); and (5) the development of financing capacities for public projects in association with, or in a similar way to, the European Investment Bank (EIB).

The EIB, alongside the European Research Council (ERC), is one of the key building blocks and models for the establishment of a pan-European governance structure for infrastructure, research and services of general interest (e.g. Pianta, 2015; Mazzucato and Penna, 2018). An improved governance structure would also help to address key challenges of the future beyond economic growth, such as digitisation, ageing society, climate change and environmental protection, through the development of further specialised institutions along the lines of the ERC and the EIB. Such an approach would therefore provide for a stronger role of public institutions in the European financial system, and would stand in stark contrast to currently pushed strategies for the 'completion' of the European capital market union, with the latter implying a stronger role for a market-based financial system, thus raising further financial regulation problems (Braun and Gabor, 2018). The future challenges that can be addressed with the alternative strategy proposed here are partly recognised by some ECB monetary policy-makers (e.g. Cœuré, 2018), but can at best be transformed indirectly into practice-relevant policies – for example, via the detour of financial market regulation, as in the Network for Greening the Financial System (NGFS, 2018).

#6 Taming the financial markets

Since the financial crisis of around ten years ago, a number of reforms have been undertaken, particularly in the area of banking regulation, in order to sustainably strengthen the resilience of key financial market players. While these steps towards improved financial market stability are largely to be welcomed (e.g. Guttman, 2016), other reforms of the financial sector – such as the introduction of a financial transaction tax to weaken the propensity to speculate (e.g. Schulmeister et al., 2008), the re-regulation of international

¹⁴ For a comprehensive analysis of the ECB's mandate and a discussion of useful ways to enhance transparency and accountability, see Braun (2017).

capital flows (e.g. Gallagher and Tian, 2017), the problem of 'too-big-to-fail' banks (e.g. Hardie and Macartney, 2016), the fight against tax havens (e.g. Zucman, 2015) or the containment of the shadow banking sector (e.g. Adrian, 2014) – have so far not been pursued with sufficient consistency. Nevertheless, the elements mentioned – speculation, international capital flows, politically powerful financial institutions, tax avoidance and shadow banks – are central sources of economic and political uncertainty, and thus have the potential to undermine the European integration project.

At the same time, the underlying causes of these phenomena are mainly to be found at the international level, and therefore have to be addressed by joint European action anyway. Not only would the European Union benefit from tighter financial market regulation (because it would result in greater economic stability and a forced stronger focus on the real economy), but the European institutional level is actually the authority that is best placed to effectively address the underlying questions and problems in connection with a strongly growing and powerful international financial sector.

4.3 Stemming the competition between European countries for the best location

Over the past decades, competition for the best location has become a central characteristic of the European integration process. At the same time, essential elements of this intra-European competition – such as the systematic wage restraint in Germany and Eastern Europe, the implementation of particularly business-friendly policies in Ireland, Slovenia and Luxembourg, or the systematic classification of countries into 'winners' and 'losers' in international competition – stand in the way of a genuine European integration process, as conflicts of interest between different countries are repeatedly fuelled anew. Reducing (or even putting an end to) this intra-European race to the bottom in regulatory standards appears to be a central prerequisite for a unified European political approach in the field of economic and geopolitical policy.

#7 Promoting sustainable industries through an active and targeted industrial policy

Although a coordinated and welfare-oriented fiscal and monetary policy, as outlined above, is essential for the future of the EU, it cannot sufficiently address the structural polarisation between individual Member States (especially with regard to technological capabilities). A common and coordinated industrial and structural policy is therefore indispensable in two respects: on the one hand, sustainable industries, particularly in structurally weak regions, must be specifically promoted. Without economic policy countermeasures, there will be more and more industrial concentration in wealthier clusters and deindustrialisation of the poorer regions, accompanied by welfare losses. The polarising implications can be observed not only across countries, but also within individual countries at the regional level (e.g. Dauth et al., 2014; Rodriguez-Pose, 2018).

On the other hand, a coordinated European industrial and innovation policy must aim to promote sustainable industries that are compatible with the EU's social and environmental values. Rather than establishing new coal-processing companies, it would be important, for example, to position the EU countries in the field of sustainable electromobility. The fact that state actors can successfully set the course for the future is illustrated by examples such as the Global Positioning System (GPS), the touch screen or machine speech recognition, which are largely government-sponsored innovations (e.g. Mazzucato, 2013). Above all, such a targeted funding policy would also permit the appropriate inclusion of ecological indicators, which are insufficiently taken into account in purely market-based competition.

The measures mentioned here can be specifically supported by further strengthening the European education and research infrastructure, or used in the sense of a wider regional distribution of production activities and innovation systems.

In any case, there is a need to move away from the current *horizontal* European industrial policy, which excludes all selective funding, towards a *vertical* approach that allows targeted support of socio-economically desirable technologies (e.g. Pianta, 2015; Peneder, 2017; Celi et al., 2018; Landesmann and Stöllinger, 2018).

#8 Coordinated tax policy and combating tax avoidance

As already described in Sections 2 and 3, several EU countries are pursuing a strategy of deliberately undermining previously higher and jointly shared regulatory (minimum) standards, in order to gain advantages in the competition for the best location, at the expense of other Member States. Those countries that attract multinational companies or foreign capital through particularly favourable regulatory conditions (e.g. Ireland, Malta, Luxembourg) create incentives (mostly through very low tax rates) for companies or particularly wealthy persons to relocate their business and financial assets to their territory. However, the additional tax revenues and jobs generated in the countries operating as financial hubs as a result of this targeted undercutting of regulatory standards cause considerable damage to the remaining countries in the medium and long term. In particular, they promote a tax race to the bottom that has a negative impact on the national revenue base, and thus also makes the financing of public goods and the welfare state more difficult (e.g. Sinn, 2002). In addition, it increases the tax burden on median-income earners (Egger et al., 2019).

The race for the best location also undermines the primacy of politics, since national governments are increasingly aligning the design of regulatory conditions and welfare state arrangements with the (supposed) interests of companies and financial investors. Competition in the area of tax rates between EU countries also contributes to questionable developments in terms of democratic policy, because it increases the pressure to consolidate budgets through lower government revenues (e.g. Streeck, 2017). The European countries concerned can counter this bias towards lower regulatory standards by pursuing a coordinated tax policy that, for instance, provides minimum standards in the area of corporate income and profits taxes. The development of a substantial common fiscal capacity in the eurozone could also be co-financed by common European taxes.

In order to lead the EU into a prosperous future, a determined fight against tax avoidance is needed as well. The EU is losing an estimated EUR 60 billion in tax revenue each year because international corporations move their profits to tax havens. Germany alone suffers a revenue loss of about EUR 17 billion (Zucman, 2017). On the one hand, EU countries should join forces to exert pressure on tax havens to raise tax standards that are far too low, and to impose harsher penalties on companies and countries that make tax avoidance possible – or even encourage it. On the other hand, EU countries should raise transparency standards on financial assets in a coordinated manner, in order to prevent the possibility of tax avoidance and to facilitate the investigation of such activities.

#9 Finding the golden mean: on avoiding current account imbalances

As a result of the unsustainable co-existence of different growth models, the EU suffers from persistent current account imbalances, particularly within the euro area. As part of its increasing dependence on export-based growth, Germany has recorded an average annual current account surplus of 7.3% of GDP since the financial crisis (2009-2018); the Netherlands and Ireland are also developing rising current account surpluses. In addition, even in large former current account deficit countries such as Italy and Spain, current account balances have 'improved' significantly, due to weak growth and the corresponding decline in imports. As a result of these developments, the eurozone as a whole has been running

substantial current account surpluses for several years; in 2018, the surplus amounted to EUR 418 billion, or 3.6% of eurozone GDP.¹⁵

This entails an increasing dependence on export-based economic growth and temporarily masks weakening domestic demand. However, not only do such current account surpluses pose a problem for the eurozone in the medium and long term: the surpluses are problematic at the global level as well, since other economic areas are running corresponding current account deficits and have to finance these through foreign loans. This, in turn, leads to growing global fragility in the event of turbulence on the financial markets, as the question of the sustainability of the debt of deficit countries arises. For several years, therefore, there has been considerable international pressure on Germany to take measures against its high current account surpluses (e.g. Tooze, 2018).

A package of economic policy measures could help to reduce excessive current account surpluses. The countries concerned would not have to export less (hardly a viable course of action, given the advantage in terms of non-price competitiveness of countries such as Germany); rather, measures to stimulate import demand would make much more sense. Higher wage increases for middle and lower earners would not only address the problem of income inequality, but would also reduce dependence on export-based growth by strengthening domestic demand (e.g. Gräbner et al., 2018). An expansion of public investment would support this process, and could at the same time address key long-term challenges for the future, for example through targeted investments in education, health, social affairs and ecological transport infrastructure – a path suggested not only by the IMF (2014), but also by numerous other internationally recognised economists, such as Olivier Blanchard and Paul De Grauwe (Blanchard, 2019; De Grauwe, 2018b).

There are currently no institutional mechanisms in the EU to actually commit countries with high current account surpluses to economic policy countermeasures: while the EU fiscal rules require countries with budget deficits classified as ‘excessive’ to implement austerity measures, and threaten to impose financial sanctions in the event of non-compliance with the criteria (e.g. Heimberger and Kapeller, 2017), there are no directly comparable rules for ‘excessive’ current account surpluses. Although the Macroeconomic Imbalance Procedure introduced in 2011 sets an upper limit for current account surpluses of 6% of GDP, there are no effective sanction mechanisms: since 2011, this threshold has been exceeded every year by Germany and the Netherlands, but a procedure for ‘excessive imbalance’ has never been initiated. The EU should therefore also discuss rules according to which current account surpluses exceeding a certain threshold (e.g. 4% of GDP) trigger an obligation for the country concerned to take countermeasures.¹⁶

4.4 Rethinking the economy: a question of progress

In view of the complex challenges at the beginning of the twenty-first century – such as digitisation, automation, ageing of society, migration, global competition, or climate change and environmental protection – political courage is needed to understand these challenges also as central questions of

¹⁵ Source: AMECO database (May 2019).

¹⁶ Back in the 1940s, John Maynard Keynes argued that in a stable international monetary and financial system, countries with current account surpluses should be subject to the same pressure to reduce their macroeconomic imbalances as countries with current account deficits (Keynes, 1942; Davidson, 2004; Greenwald and Stiglitz, 2010). To ensure this, Keynes proposed a kind of ‘surplus recycling’ mechanism (Varoufakis, 2011): excessive current account surpluses would have to be reinvested in trading partner countries. In the long term, this would also benefit the surplus countries, since the investments would promote the economic development of regions that have fallen behind and thus also secure future export sales markets. Rules based on the idea of ‘surplus recycling’ could also be discussed in the EU. This would reduce the tendency towards dependent export-based growth models, enable more balanced growth, strengthen financial stability, and could potentially also help to promote the convergence process and overcome polarisation.

economic policy design. By setting such a conceptual course, these challenges can be addressed in a way that is consistent with the European tradition of resolving socio-economic challenges through an interplay of democratically legitimised public action and private initiative. This means raising the old European success model of a mixed economy – in which the state or corporatist institutions consistently take action where market-based arrangements only lead to sub-optimal results – to a new and sustainable level, in order to respond better to the complexity of contemporary challenges.

#10 Progress instead of GDP: new concepts of prosperity

Regardless of the fundamentally undisputed historical and current relevance of economic growth for a prosperous society, there is a need for multi-dimensional target systems, especially in view of the diversity of the socio-economic challenges, in order to grasp the different dimensions of individual well-being, social progress and ecological sustainability (e.g. Stiglitz et al., 2009). In this context, it is not only possible to link up with traditional elements of the European post-war consensus, in which multi-dimensional target systems – so-called ‘magic polygons’ (e.g. Rothschild, 1998) – played an important role, but also to include current pioneering work (e.g. in the form of the UN Human Development Index, the OECD’s Better Life Index or new ‘magic polygons’ that take account of the dimensions of social and ecological sustainability), in order to arrive at differentiated instruments for assessing socio-economic progress.¹⁷

Central elements of European intellectual history – from Aristotle’s concept of Eudaemonia, to the progress debates of the Enlightenment, to the classical question of the welfare of nations – point out that happiness, progress and prosperity are not one-dimensional quantities, but instead depend on the rational assessment of, and the right balance between, different individual and social objectives. This essential insight could be taken into account by broadening the current catalogue of objectives of economic growth, knowledge intensity and competitiveness, thus arriving at new forms of policy design and evaluation. This would also open up new ways to capture the existing polarisation process and to address it in various fields with adequate countermeasures.

#11 Europe as an archetype: world champion in quality of life?

In order for politics, state institutions and civil rights to remain intact even as technological progress and the process of globalisation continue, political and private actors must proactively face the relevant challenges and join forces. This requires not only a broader catalogue of target dimensions to take account of societal changes, but also a new willingness on the part of the public sector to take risks, in order to create regulatory, technological and infrastructural foundations. In doing so, existing strengths in these areas should be emphasised, but new and innovative paths should also be pursued (Mazzucato, 2013).

If increased public-sector initiatives in areas of key future challenges (such as automation, digitisation, ageing societies or climate change), as well as in existing European strengths (such as the density of the social safety net, public transport infrastructure or non-profit housing), are matched by an appropriate response and willingness of private actors to participate, there could be new prospects for a strong Europe in the global economy. Thus, in addition to its contribution in the form of technological innovations, Europe would once again become a model for social innovation and policy-making.

#12 A new relationship of welfare in time and welfare in goods

An essential element for a new understanding of individual and societal prosperity is an appreciation of the resource of time. In the middle of the twentieth century, Europe experienced a tremendous modernisation surge, which manifested itself in the form of a massive reduction in the average number of hours worked

¹⁷ For concepts of such new ‘magic polygons’, see e.g. Dullien (2017), Feigl (2017).

(e.g. Pecchi and Piga, 2010). This development contrasts with the trend of the last three decades, according to which the average working time per employed person has tended to stagnate, or even rise again in some countries. While a certain participation of employees in the general progress of productivity is ensured in terms of remuneration, by adjusting salaries to the inflation rate, there is no such automatic mechanism in the area of working time. On this point, social progress is rather dependent on the political will of the policy-makers.

In the medium term, Europe should build a new narrative of progress and emancipation, more oriented towards liberation from material necessities and with a focus on the factor of time welfare (e.g. Keynes, 1935). This would not only be attractive from an ecological and health policy perspective – since it goes hand in hand with a reduction in material consumption and improves the overall health of workers (e.g. Hayden and Shandra, 2009; Schor, 2010) – but would also offer completely new options for action in times of automation and digitisation, in order to cushion, at least in part, the socio-economic consequences of labour-saving innovations.

5. Concluding remarks

The process of economic disintegration of the EU – particularly the way Germany and a number of other rich Member States are drifting apart from the southern Member States of Greece, Portugal, Spain and Italy, – remains an unresolved structural problem, regardless of temporary business-cycle developments. This problem will have to be tackled by economic policy-makers, particularly if the common customs and monetary union (the euro) is to survive. As for the case of Eastern Europe, several countries are continuing their convergence process; nevertheless, it cannot be expected, under the current institutional conditions, that all countries will be able to join the richest EU Member States in terms of development prospects.

Three options are typically presented in the context of the debate on the future of economic policy. The first option is the dissolution of the eurozone, which would in all likelihood also have disintegrative effects on the EU. If the eurozone were to be dissolved, Germany and other rich eurozone countries would likely have to reckon with a considerable appreciation of their newly introduced national currencies, with the resulting rise in prices having a negative impact on the export industry. Within the framework of its (export-oriented) growth model and its special position as the economically and politically strongest eurozone country, Germany has benefited greatly from its membership of the eurozone (e.g. Posen, 2011; Petersen et al., 2013; Wolf, 2010; Dany et al., 2015; Sandbu, 2015; Iversen et al., 2016); therefore, Germany in particular should have a considerable economic interest in avoiding a break-up of the eurozone.¹⁸

The second option discussed in the context of possible economic policy strategies basically consists in 'muddling through'; the associated economic policy implications are often confined to requiring the 'laggard countries' to make stronger reform efforts (in the sense of consolidating public budgets and deregulating product and labour markets).

¹⁸ Against the background of the problematic macroeconomic developments in recent years, particularly in the southern eurozone countries (such as Greece and Italy), debates on the advantages and disadvantages of a possible exit from the euro are increasing (see e.g. Varoufakis, 2017; Bagnai et al., 2017; and Schneider, 2017 for political and economic positions on the exit issue for southern eurozone countries). However, a comprehensive consideration of economic and political factors shows that it is unlikely that even the southern eurozone countries, which have recently been negatively affected by their euro membership, would benefit from a euro withdrawal in the current situation, as such a withdrawal would be fraught with considerable uncertainties (e.g. Eichengreen, 2010).

The third option is a reform of the relevant European institutions, in connection with a fundamental economic policy change. The present study is based on this third strategy and tries to show that far-reaching reforms are needed to achieve convergence and sustainable development. The extent and direction of a reform of European economic and monetary policy is very much a question of political courage to ask the right questions and to take the answers – arrived at on an analytical basis – politically seriously. The only currently realistic alternative to the courage of the decision-makers is to continue to rely on the capacity for suffering of the populations concerned – a strategy which, in view of the political developments of recent years, seems to have been unsuccessful in large parts of the EU, thus jeopardising the social, economic and ecological sustainability of the community of European countries. Against the background of the documented economic polarisation, this study provides an impetus for a broad public debate on the institutional and economic policy decisions to be taken in the EU in general and in the eurozone in particular.

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Institute for Socio-Economics
University of Duisburg-Essen

Lotharstr. 65
47057 Duisburg
Germany

uni-due.de/soziooekonomie
wp.ifso@uni-due.de



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