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Structural policies in the euro area

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Abstract

Structural policies in the euro area are of great interest for the Eurosystem, particularly as they can support the smooth functioning of the Economic and Monetary Union (EMU) and the effectiveness of monetary policy. This paper adopts a broad definition of structural policies, analysing not only the benefits of efficient labour, product and financial market regulations, but also emphasising the importance of good governance and efficient institutions that ensure high quality and impartial public services, the rule of law and the control of rent-seeking. The paper concludes that there are many opportunities for enhanced structural policies in EU and euro area countries which can yield substantial gains by boosting long-term income and employment growth and supporting social fairness, also via better and more equal opportunities. It provides empirical and model-based analyses on the impacts and the interactions of structural policies, highlighting synergies between growth and inclusiveness, while acknowledging that structural policy changes need to be country-specific to reflect national conditions and social preferences. Well-designed structural policies would also strengthen economic resilience and convergence of Member States, bringing the euro area closer to the requirements of an optimal currency area and improving the transmission of monetary policy. The paper also discusses the political economy causes of the sluggish implementation of socially beneficial structural policies and assesses ways to deal with possible short-term costs of reforms.

Keywords: structural reforms, institutional quality, governance, inclusive growth, economic resilience, political economy, euro area.

JEL codes: D60, E24, G28, H11, J08, 043, O47.

Non-technical summary

This paper discusses the **impact of structural policies** on output, employment, economic resilience, convergence and social fairness. It covers a broad range of structural policies, from labour market, product market and fiscal structural reforms to financial and institutional reforms.

The paper does not provide suggestions for country-specific structural policies and reform strategies. However, it presents substantial cross-country evidence which suggests that in important areas **many euro area countries lag far behind other European Union (EU) countries or global best performers**.

From the perspective of **monetary policy**, there are strong arguments for implementing comprehensive and credible national reform agendas – and with the ongoing expansion there is a window of opportunity that should not be missed. However, empirical evidence shows that major reforms are more likely to be decided and implemented in bad economic times, among other reasons because it is easier to overcome vested interests. Not taking advantage of the current favourable economic environment and further delaying reforms would mean that the social costs of the next recession would be higher than they would otherwise be. **Well-designed structural policies could yield substantial benefits** for euro area citizens via a stronger and more inclusive growth in employment and incomes. Such structural policies would also bring the euro area closer to the requirements of an optimum currency area and improve the transmission of monetary policy, thereby strengthening the economic resilience and convergence of Member States. **National policies** need to be complemented by **European initiatives** that provide stronger incentives for national reforms, integration of the market for services and cross-border financial risk sharing.

A key message of the paper is that there are ample opportunities in all EU Member States for structural policies that exploit synergies by simultaneously **strengthening conditions for long-term growth and ensuring desirable distributional effects**. Reforms that address rent-seeking (including rent-extraction, as in the case of monopoly profits) by strengthening product market competition and improving the quality of public institutions will often not only support growth but also enhance equity, social trust and social fairness. The same applies to policies that ensure more equal and better opportunities for education and life-long learning, improving skills, competences and job-matching. Such policies can lower unemployment, particularly in the case of more vulnerable groups, create higher-quality jobs and support social mobility and innovation.

The paper finds that measures which improve the **institutional framework** bring particularly strong long-term benefits. High-quality institutions, particularly those that ensure the efficient and impartial functioning of public administration, law enforcement (the rule of law) and a high degree of transparency and accountability, are also a prerequisite for reforms in other areas (in particular market regulation) to be effectively implemented and yield their full potential. In addition, well-functioning

institutions are essential for the effective control of corruption and tax evasion, and more generally as a means of restraining rent-seeking and socially unfair privileges enjoyed by specific groups.

With respect to **labour markets**, a growing body of evidence suggests that recent reforms in some euro area countries have made it easier to adjust wages and employment in response to changing economic conditions. Nevertheless, more can be done to ease the adjustment of relative prices and wages across Member States, reduce long-term and youth unemployment, increase female labour participation, improve the quality of jobs, and encourage investment in skills. It is particularly important to adjust regulations to allow workers and firms to benefit from the opportunities associated with rapid technological progress, while also addressing their distributional impact. New technologies (for example, digitalisation, internet services and robotisation) require a reassessment of the benefits and costs of existing regulations and adjustment of these regulations where needed. If labour regulations and active labour market policies (ALMPs) are not modernised – and education, training and life-long learning not enhanced – there is a risk that the more vulnerable groups will suffer from greater job insecurity and lower earnings. Recent research has shown that reforms which enhance labour mobility across and within firms, sectors and regions tend to support the diffusion of technology and the growth of more innovative and productive firms, thereby increasing aggregate productivity and real wages. Labour mobility can also be a key mechanism for balancing supply and demand across regions and countries, allowing workers increased access to employment opportunities. Structural policies that ensure better recognition of qualifications across Europe, portability of pension rights, enhanced knowledge of foreign languages, and increased flexibility and supply in housing and rental markets could support cross-border labour mobility.

In the long run, economic growth is largely driven by the ability of societies to innovate and adopt new technologies. In **product markets**, a more competitive environment would tend to increase the incentives to innovate and invest in human and physical capital, thereby boosting productivity. More efficient regulations – leading to less complex licensing procedures or lower administrative and market entry costs – would promote the creation of firms (including innovative start-ups), facilitating the restructuring or exit of unproductive firms, and would also remove obstacles that prevent firms from reaching their optimal size. Significant gains could additionally be achieved through further progress in establishing a fully fledged EU internal market for services. At present, many of the potential gains from a full implementation of the Services Directive[1] have yet to be realised.

Structural policies in the **financial sector** could strengthen the contribution of finance both to a more efficient allocation of savings and to enhanced private risk sharing across euro area countries. The findings of this paper highlight the importance of policies which address remaining bank weaknesses and facilitate the reallocation of resources from unproductive firms to more innovative and dynamic firms, most notably by providing incentives for banks to act more decisively on the

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[1]   Directive 2006/123/EC of the European Parliament and of the Council.

workout of bad assets and to diversify their asset holdings. A comprehensive banking union (BU) and capital markets union (CMU) would enhance opportunities for market-based cross-border risk sharing, in particular by fostering the creation of pan-European banks, by reducing incentives for home bias in asset holdings and by increasing the share of equity financing.

Fiscal structural policies support productivity and employment by making public finances more effective, reducing distortions and providing better services for the private sector. They can broaden the available fiscal space, which in turn could be a means of increasing the scope for stabilisation policies and for more growth-friendly fiscal policy measures, such as public investment. Reforms which improve the functioning of tax administrations are an example of how the quality of public institutions can be enhanced, leading to both increased efficiency and greater social fairness. Reducing the tax bias against equity financing can support the efficiency of financial markets and risk sharing across euro area countries. Shifting the tax burden away from labour can foster job creation. Finally, increasing the retirement age can support the long-term net income prospects of employees and in turn bolster aggregate demand.

In some cases, reforms may have **short-term costs**, including unwelcome distributional effects. These short-term costs are normally smaller if reforms are implemented during economic upswings. This provides an additional argument for implementing reforms in the current environment of growth. In addition, the credible implementation of reforms can bring forward future reform-driven income gains and hence mitigate or offset potential short-term costs. A number of studies have also advocated the careful coordination, prioritisation, sequencing and packaging of reforms to benefit from complementarities and synergies and therefore alleviate any possible negative short-term effects.

There can also be **synergies to be exploited from combining structural reforms with expansionary fiscal and monetary policies** in order to mitigate transitory adjustment costs, while at the same time recognising the need to preserve public debt sustainability and maintaining the focus of monetary policy on price stability. Under certain circumstances, fiscal incentives have been shown to improve the effectiveness of some reforms. In cases where reforms may have a short-term dampening impact on aggregate demand and prices, there may be synergies to be exploited for the benefit of the monetary union as a whole from the combined implementation of structural reforms, transitory fiscal expansion and monetary stimulus by the common monetary authority in line with the inflation objective.

Opportunities for beneficial reforms are numerous in all countries, but starting conditions and socio-economic contexts differ significantly. Consequently, while there are some general principles and evidence on best practices to be kept in mind when reforming, structural changes need to be **country-specific** and tailor-made to reflect the specific national starting conditions in terms of economic structures and institutions, as well as social preferences. Within those parameters, various combinations of country-specific institutions and policies can improve welfare.

For the large majority of structural policies in EU Member States, the **responsibilities are at the national (and regional) level**. In addition, European institutions have an important role to play in supporting and initiating reforms. For example, progress on the single market in services could give a boost to productivity and consumer welfare. A comprehensive BU and CMU would help to decrease the bank-sovereign nexus and make firms and households less vulnerable to financial shocks in individual countries.

Over the last two decades, structural policies in euro area countries have in general been insufficient in tackling economic and demographic challenges, not least in a context of rapid technological change. The literature on the **political economy of structural reforms** suggests that in many cases the sluggish implementation of socially beneficial structural policies is due to strong opposition from vested interests and from those who fear losing out from the reforms, often in combination with the ability of governments to temporarily hide the economic and social costs of inefficient regulation and delayed reforms. In this context, a high degree of transparency about political and administrative decisions, along with open access to reliable and detailed statistical and other public data, is of utmost importance for supporting structural policies. Experiences from countries undergoing successful reform processes suggest that a stable social partnership, efficient support for the unemployed (e.g. through ALMPs), an open public debate supported by transparency and clear accountability, a free press and trust in public institutions strengthen the ownership of reforms and help to overcome a fear of change. European institutions can additionally promote national reform processes by supporting European values in general, and specifically by providing (i) enhanced information about cross-country and cross-regional differences in policies and outcomes, (ii) a forum for in-depth analysis and discussion, and (iii) technical assistance and analytical support regarding the effective implementation and impact of structural policy initiatives.

1 Introduction and main messages

This paper looks at structural policies that improve the regulation of markets and the quality of institutions in EU Member States, with a focus on euro area countries. It provides an overview of the economic and structural challenges faced by EU Member States and presents evidence of the impact that regulations and institutions have on economic developments. The gains from structural policies are assessed on the basis of particular policy objectives, namely long-term income and employment growth, economic resilience, and inclusiveness and social fairness.

Structural reforms are of great interest for the Eurosystem, particularly as they can support the smooth functioning of Economic and Monetary Union (EMU) and the effectiveness of monetary policy. Implementing appropriate structural policies can make economies more resilient to economic shocks, for instance by facilitating the establishment of sufficient fiscal and capital buffers, by increasing price and wage flexibility, and by supporting the swift reallocation of resources within and across sectors and regions. The ability of each economy in a monetary union to adjust quickly to shocks in a way that minimises any output costs is essential for economic resilience and the effectiveness of monetary policy and reduces the risk of monetary policy becoming overburdened.

There is broad consensus in the literature that comprehensive reform efforts have the potential to yield substantial benefits for citizens, particularly by boosting long-term productivity growth. Structural reforms encompass a broad set of policies that can permanently alter the supply side of the economy and create an environment in which innovation can thrive. These policies lift potential output by strengthening incentives to increase inputs to production – the supply and quality of labour and the amount of capital per worker – or to ensure that those inputs are used more efficiently, thereby raising productivity (Draghi, 2015). Higher trend labour productivity growth allows for real wages to be raised without endangering employment. Many structural policies (e.g. policies aimed at tackling rent-seeking behaviour in product markets or addressing tax evasion) also improve the inclusiveness of growth by particularly benefiting groups at the lower end of the income scale (Draghi, 2017).

The countries of the euro area have significant assets that should allow them to adjust and thrive in a globalised and technologically sophisticated world. These include a well-educated workforce, good infrastructure, social security systems that promote a high degree of insurance, companies that are at the forefront in a variety of different fields, and interconnected economic systems. Those countries also have a shared commitment to human rights, the rule of law, open access to opportunities, social fairness, freedom of speech and of the press, and the market economy. Since the sovereign debt crisis, euro area countries have also seen a significant correction in their external and domestic imbalances, which in many cases – particularly in countries that have undergone official macroeconomic adjustment programmes – has been supported by structural policies.

Euro area countries still have substantial scope to further improve the functioning of their product and labour markets, as well as aspects of their institutional and financial frameworks. The nature and severity of economic vulnerabilities vary considerably across the euro area, but all countries face some of the following challenges: an ageing population, continued high levels of unemployment, considerable private and public debt, insufficiently inclusive growth, and a persistent decline in productivity growth over the past decades. One particularly worrying aspect is the large percentage of young people in many euro area countries who are not in employment, education or training. In addition, many countries face challenges when it comes to the quality of institutions.[2]

Beneficial structural reforms do not necessarily entail the introduction of additional laws. Indeed, they often involve streamlining bureaucratic processes, enhancing the efficiency of public administration, reducing red tape and removing inefficient market regulations. Many regulations appear reasonable when they are first introduced, but may create additional costs in the face of new developments and challenges, so that their net social benefits may become negative. Regulatory best practices which simplify administrative procedures (e.g. as regards occupational licensing and regulations governing investments) reduce constraints on business operations, open markets up to new firms, improve the allocation of resources and have the potential to benefit consumers by leading to better products and lower prices, thereby boosting households' purchasing power.

In the current European framework, structural policies are predominantly the responsibility of national and sub-national authorities. This gives national policymakers scope to set general framework parameters that determine the long-term welfare of their citizens on the basis of national preferences and conditions. At the same time, European institutions can provide valuable information supporting public discussions in Member States and encourage sound structural policies (e.g. by providing analysis, data, benchmarks, cross-country comparisons and recommendations, as in the context of the European Semester). European institutions and processes can also play an important role by providing a framework in which cross-country spillovers resulting from national economies' policies can be discussed from a European perspective, creating awareness of the wider benefits of reforms and opportunities for coordination (Praet, 2018). The ECB, with its primary objective of maintaining price stability in the euro area as a whole, has great interest in socially beneficial structural policies, as they support the effectiveness of monetary policy and the smooth functioning of EMU.

There is no one-size-fits-all model when it comes to structural policies. Structural policies need to be tailored to national preferences (e.g. in terms of social

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[2] While estimates differ as regards the precise quantitative impact of structural policies in terms of higher levels of employment or income and are surrounded by uncertainty (Gros, 2016), studies consistently show significant benefits (European Commission, 2013; Anderson et al., 2014; Cette et al., 2016 and Égert, 2018). For example, model-based simulations carried out by the European Commission suggest that closing 50% of the gap relative to the three best-performing EU countries on the basis of product and labour market indicators would increase GDP by between 1.5% and 6% after five years – and by up to 15% in the case of Greece (European Commission, 2013).The OECD (2014a) has indicated that "if countries were to move to best practice in product and labour market policy settings, aggregate output in the euro area could rise by more than 6% by 2025".

and labour protection) and to specific economic and social circumstances and challenges in each country, as well as to specific features of national and sub-national structures and institutions (which, even if they are sub-optimal, may still be difficult to change in the short term). Within those parameters, there are various combinations of country-specific institutions and policies that can foster long-term growth, economic resilience and inclusiveness (Praet, 2015).

This paper covers a broad set of structural and institutional policies. In the area of structural reforms, publications by Eurosystem staff have, in the past, focused predominantly on labour and product markets and on regulations aimed at ensuring financial stability. Such policies can have a direct impact on macroeconomic and financial developments (including inflation) and thus play a key role for monetary policy. This paper adopts a broader perspective and also analyses (i) the implications that reforms have for the smooth functioning of monetary policy and EMU more generally; (ii) the potential benefits of combining structural policies with macroeconomic support; (iii) fiscal structural policies such as reforms to public administrations, pension systems and taxation policies; (iv) the importance of efficient institutions; (v) the distributional implications of reforms; and (vi) political economy considerations.

In adopting that broader perspective, this paper takes account of the unique institutional environment in the euro area and the role that is played by the ECB and the Eurosystem within that framework. Monetary policy (since 1999) and direct responsibility for a significant proportion of microprudential supervision (since 2014) have been centralised, while fiscal and structural policies remain the responsibility of national and sub-national parliaments and governments. This has various implications for the Eurosystem and calls for the adoption of a fairly broad perspective when it comes to structural policies. First, policies that affect the smooth functioning and resilience of the euro area are of key importance for the effective and balanced transmission of monetary policy. Second, the interactions between structural, fiscal, financial and monetary policies in the euro area are particularly complex. The smooth functioning of the euro area depends not only on the establishment of efficient price and wage-setting mechanisms, but also on the quality of – and public trust in – a broad range of national and European institutions. Finally, the special institutional setting of a monetary union implies that political economy processes can be different from those observed in nation states with their own national currency. While the process of European integration is well advanced economically, most political news coverage and discussions remain national and are thus fragmented from a euro area perspective. In this special environment, national policymakers and interest groups may find it easier to blame the euro or European institutions for adverse regional economic outcomes that stem largely from national policies.

The smooth functioning of EMU and the effectiveness of monetary policy

For euro area countries, structural policies can have the important additional benefit of bringing the euro area closer to the requirements of an optimum currency area. Such policies can support the effectiveness of monetary policy and the resilience of the euro area and help to prevent monetary policy from being overburdened in the event of a major adverse development (Cœuré, 2017). Reforms that enhance the effectiveness of monetary policy could, in the long run, also lead to more public support for European institutions and the euro. From this perspective, it is also important to implement effective reforms that support cyclical convergence and foster real convergence via a catching-up process in less productive euro area countries. For such long-term benefits of reforms to be credible, it is important that they are anchored in a national context with strong ownership.

Structural policies can enhance the effectiveness of monetary policy in several ways. First, they can improve the transmission of monetary policy by enabling policy-induced changes in financial conditions to affect spending – and thus inflation – more effectively. Second, they can affect trade-offs between the stabilisation of output and inflation in the event of adverse shocks.[3] Third, they can improve the resilience and optimality of the currency area by facilitating the synchronisation of business cycles and helping to smooth the adjustment to asymmetric shocks across regions and countries via more flexible wages and prices. Fourth, they can support potential output growth, thereby raising the real equilibrium interest rate – which will in turn reduce the likelihood of the central bank being constrained by the effective lower bound (ELB) on nominal interest rates.

As the global financial crisis and the sovereign debt crisis revealed, euro area countries' ability to cope adequately with adverse shocks has also been constrained by rigid economic structures, inefficient institutions and/or sub-optimal economic policies. The ability to adjust to asymmetric shocks can be hindered by wage and price rigidities, weak institutions, low levels of cross-border risk sharing, and obstacles to cross-border labour mobility. While things have improved in recent years, the euro area still does not meet several of the key criteria defining an optimum currency area.[4] Reforms should remedy the euro area's vulnerability to asymmetric shocks by supporting swifter macroeconomic rebalancing and enhancing cross-border financial risk sharing. For example, reforms that address downward price rigidities will generally allow sectors and regions to experience lower economic costs (e.g. in the form of unemployment) in response to adverse shocks. Similarly, completing BU and CMU should help to improve conditions for cross-country risk sharing by private investors – e.g. by removing obstacles to cross-border asset diversification (particularly as regards equities and subordinated bonds), mergers and the consolidation of banks.

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[3] De Grauwe and Ji (2017), for example, show that the optimum flexibility of wages and prices depends on preferences regarding the volatility of output and inflation.

[4] Mundell's seminal work in this area lists the following four criteria: (i) free movement of labour and capital across regions, (ii) wage and price flexibility, (iii) a risk-sharing system, and (iv) synchronous business cycles (see Mundell, 1961).

Fiscal structural policies can help to create more fiscal space and promote larger equity capital buffers in the corporate and financial sectors. Fiscal structural policies can broaden the available fiscal space, which can in turn be used to build up fiscal buffers (particularly in countries with high levels of public debt) or increase the scope for stabilisation policies. Removing any tax biases and implicit subsidies that favour debt financing over equity financing can help to strengthen investment, innovation and cross-border risk diversification while reducing leverage. Where adverse shocks can be counteracted with fiscal policies or absorbed by private capital buffers (and thus by asset holders), they are less likely to degenerate into deeper financial crises with adverse bank-sovereign feedback loops and high costs imposed on more vulnerable persons.

Structural changes in the financial sector are also needed to improve the efficiency of capital allocation and the sustainability of private debt. High levels of private indebtedness (and in particular high levels of bad debt or non-performing loans, NPLs) are a hindrance to economic growth and reduce economies' resilience to shocks (Cecchetti et al., 2011; Chen et al., 2015; and Gebauer et al., 2017). The "evergreening" of loans to weak firms represents a problem in this regard: weak banks may seek to avoid recapitalisation by postponing the disclosure of losses in their accounts, instead gambling on resurrection (Andrews and Petroulakis, 2017; and Storz et al., 2017). Structural and financial policies can facilitate the transfer of resources to more productive firms, support equity financing, enhance firms' resilience to adverse shocks, discourage the excessive accumulation of debt and promote an orderly deleveraging process (Cœuré, 2014). The longer such policies are delayed, the greater the overall costs may be in the form of too little "good" credit supply (instead of evergreening and forbearance) and too much misallocation of labour and capital (i.e. too few resources shifted to more productive and innovative firms, keeping average productivity and wage growth low). Enhanced insolvency frameworks, stronger bank balance sheets and other reforms in the context of BU and CMU can help or incentivise creditors and borrowers to restructure weak firms, work out bad debt and strengthen capital buffers. Such policies can also increase opportunities for young and innovative firms to grow and diversify their funding sources, as well as strengthening incentives for banks to reallocate finance to more productive firms and workers.

Credibility, packaging and macroeconomic support

Ownership and a convincing longer-term strategy and communication policy are crucial for supporting the expectation that reform efforts will be sustained. Reforms must therefore be accompanied by efficient implementation and impartial enforcement at all levels of government. In such circumstances, most structural reforms can produce benefits at an early stage by bringing forward investments in human and physical capital and higher consumption. Careful packaging and sequencing of different structural policies can help to limit the possible negative short-term impact on demand that may be associated with some specific reforms. Such packaging of policies can help to overcome political resistance to reforms

and – to the extent that hysteresis effects are relevant – increase the long-term benefits of those reforms.

The time taken for the potential benefits of reforms to feed through will vary, depending on the type of reform and the initial circumstances. While some reforms are likely to have a tangible positive impact in the short term, in other cases it can take a significant amount of time for structural policies to have a visible positive impact on the economy. Uncertainty about the long-term implementation or benefits of reforms may limit their positive impact and in some circumstances lead to an undesirable effect on aggregate demand in the short run. The risk of any possible negative short-term effects on demand should, in the first instance, be addressed by means of measures that enhance ownership, public trust and packaging. If that is not sufficient, support from aggregate demand policies could be helpful, provided that there is sufficient space to implement such measures.

Complementarities between structural reforms and accommodative demand policies may be particularly relevant in a multi-country monetary union. In cases where reforms may have a short-term dampening impact on aggregate demand and prices (e.g. owing to the compression of margins or to increased labour supply), it might, in certain circumstances, be advisable to support reform efforts with expansionary macroeconomic policies. Some of the research gathered in this paper shows that in a monetary union where members differ, e.g. in terms of their fiscal situation or their reform needs, there may, in certain cases, be positive synergies to be exploited for the monetary union as a whole. Specifically, these synergies would come from the joint implementation of structural reforms, transitory fiscal expansion, and monetary stimulus by the common monetary authority in line with the price stability objective.

Efficiency, inclusiveness and social fairness

Both structural reforms and the lack thereof may result in the redistribution of income and wealth. Structural reforms tend to have a positive impact on the vast majority of citizens, but they can affect different groups in different ways. Such distributional effects are not unique to structural policies and can also stem from other developments such as technological changes, globalisation, rent-seeking behaviour and increases in firms' market power. An absence of policy changes in the face of structural rigidities or a lack of competition can result both in weak income and employment growth and in undesirable distributional implications.

Structural reforms can also exploit synergies between the pursuit of growth and inclusiveness. There is significant scope for reforms to produce positive distributional effects and support fairness. This can be seen, for example, where reforms (i) foster equal opportunities and access to good education for children or students from low or middle-income backgrounds, (ii) reduce long-term unemployment, (iii) support the integration and labour market prospects of vulnerable groups, or (iv) reduce firms' excessive market power and profit mark-ups. Most institutional reforms (e.g. measures aimed at making public administrations

more efficient or reducing tax evasion, corruption or other forms of rent-seeking behaviour) will tend to support both economic efficiency and social fairness. Rent-seeking behaviour generally benefits large firms, influential associations and other well-organised vested interests,[5] while the people who lose out as a result of rent-seeking behaviour and firms' excessive market power are typically the less well-off.[6] Similarly, reforms that contribute to increases in private capital buffers not only help to improve resilience but can also foster fairness and limit inequality in response to adverse shocks. The adjustment burden is then shifted towards shareholders and away from workers and ordinary taxpayers.

The above notwithstanding, some pro-growth reforms may potentially conflict with distributional objectives. For instance, there may be trade-offs between growth and equality in the case of some fiscal structural reforms, such as a shift from direct to indirect taxes, a reduction in marginal income tax rates or a reduction in compensation for the unemployed. Such negative distributional implications warrant the adoption of a broader-based approach to structural policies – e.g. by clustering reforms together (taking account of both growth and distributional objectives simultaneously) or by complementing reforms with ALMPs and welfare policies.

Quality of institutions

High-quality institutions are essential if regulations and reforms in labour, product and financial markets are to be implemented efficiently and have the desired positive impact.[7] Better institutions directly enhance social fairness by delivering a level playing field, an open-access society for all economic actors, and more equal opportunities. They also support sustainable long-term growth by ensuring the efficient allocation of resources[8] and provision of public goods and by making sure that people have strong economic incentives to invest in human and physical capital, innovate, save, and solve problems of collective action. Key ingredients of sound institutions include the rule of law (and thus a high degree of legal certainty), freedom of speech and freedom of the press, an efficient and impartial public administration and judicial system, and a high degree of

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[5] For example, a reform that facilitates market entry and strengthens competition will benefit most people by lowering prices and enhancing the quality of services but will also result in a decline in the rents (i.e. the monopoly profits) of incumbent firms. To the extent that these previously privileged firms used to share these rents with their employees, the reform also leads to reduced wage mark-ups for employees who previously benefited from higher rents.

[6] Furman and Orszag (2015) argue that there are two channels through which rents could play a role in increasing inequality: "The first would occur if rents themselves are rising – if, for example, increased concentration led to greater monopoly power in product markets and thus a greater ability to extract super-normal returns. Second, for any given level of aggregate rents, they could be divided increasingly unequally – for example, reduced collective bargaining coverage could have led to a shift in the share of rents generated in the labour market away from labour and towards capital, or from nonsupervisory labour to management."

[7] In this context, institutions are defined broadly as the formal and informal rules in society that "structure incentives in exchange, whether political, social, or economic" (North, 1990, p. 5). Institutions influence the level of social trust, which is, in turn, an important determinant of well-being and long-term prosperity.

[8] The quality of institutions can also be important for the efficient functioning of financial intermediation. In a recent study, Stanga et al. (2018) find that "better institutions – which improve judicial efficiency and make it easier for banks to enforce their rights – reduce the level of mortgage defaults".

transparency in public decisions and transactions. Such institutions are crucial in order to effectively control corruption and tax evasion, and to push back against the socially unfair privileges of specific groups and monopoly rents.

Sound institutions will help to reduce transaction and adjustment costs, thereby supporting long-term productivity growth and resilience. The crucial role that institutions play in explaining long-term growth was highlighted by several studies in the early 2000s showing that countries with weaker institutions find it harder to sustain growth and are more vulnerable to periods of crisis and stagnation. There is broad agreement in the literature that high-quality institutions have a positive impact on future long-term growth and well-being (Acemoglu et al., 2004; Helliwell et al., 2014). Empirical panel studies looking at a large number of countries (including emerging market economies) and using various indicators of good governance find a strong positive correlation between the quality of institutions and subsequent long-term income or productivity growth.[9] Some studies find that other factors, such as geography, also influence long-term growth via their impact on institutions. For example, Rodrik et al. (2004) conclude that "the quality of institutions 'trumps' everything else. Once institutions are controlled for, conventional measures of geography have at best weak direct effects on incomes, although they have a strong indirect effect by influencing the quality of institutions".

Regulations governing labour and product markets and pension systems

Euro area countries could achieve significantly stronger productivity growth by following some of the best practices of other EU Member States in terms of the regulation of various markets. Such reforms would improve the allocation of resources by fostering greater efficiency in product, labour and financial markets. A more competitive and business-friendly environment will also increase dynamic efficiency, as higher levels of competition increase incentives to innovate, thereby facilitating technological progress.

Rapid technological progress and globalisation will necessitate swift adjustments to outdated regulations, changes to education systems and greater flexibility in labour and product markets. Challenges such as digitalisation and automation have the potential to reinforce dualism in the labour market on the basis of skill or age. If countries do not reform and modernise labour and product market regulations, education systems, and life-long learning initiatives, workers who perform tasks that can easily be automated or have more problems reskilling may suffer from greater job insecurity and lower earnings prospects.

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[9] Kaufmann et al. (1999) find that a 1 standard deviation improvement in governance results in per capita income increasing by a factor of between 2.5 and 4. In their seminal paper, Acemoglu et al. (2004) show, using a number of historical episodes, how institutions are able to determine the incentives of, and the constraints on, economic actors and shape long-term economic outcomes. Acemoglu and Johnson (2005) argue that the "social, economic, legal, and political organisation of a society, i.e., its 'institutions', is a primary determinant of economic performance". See also the recent overview by Bennett et al. (2016).

In product markets, reforms can help to reduce firms' administrative costs, encourage innovative start-ups and facilitate the restructuring or exit of unproductive firms. Structural policies can remove obstacles that prevent firms from reaching their optimal size and help to foster the establishment of a fully fledged internal market for services in the EU. Empirical research cited in this paper shows that reducing product market regulation can increase business dynamism by facilitating firms' entry, restructuring and exit – which in turn boosts total factor productivity (TFP). Moreover, there is potential to achieve substantial gains in terms of both growth and inclusiveness by completing the single market for services, given that several key sectors are not covered by the Services Directive (Aghion et al., 2015, Jolles and Meyermans, 2018).

In labour markets, there is a growing body of evidence suggesting that previous reforms in a number of euro area countries have made it easier to adjust wages and employment in response to changing economic conditions. The evidence comes from the firm-level surveys carried out by the Wage Dynamics Network, as well as analytical work based on the EU Labour Force Survey (LFS). Indeed, the present paper features a study based on regression analysis using individual micro-level data from the EU LFS which shows that the responsiveness of worker flows to gross domestic product (GDP) growth has increased significantly in the aftermath of the crisis, particularly in a group of countries where major reforms have been carried out. This finding is supported by aggregate macro-econometric analysis showing that the employment-GDP elasticity has also increased – again, primarily for reforming countries. Reforms that enhance labour mobility across firms, sectors and regions tend to support the diffusion of technology, and help innovative and productive firms to grow more quickly, thereby supporting productivity and real wages more generally, even for less highly skilled workers.

Education policies play a key role in strengthening equal opportunities and human capital. In order to grasp the opportunities presented by technological change, EU Member States must remain close to the technological frontier by making their human capital more productive. Well-performing education systems are crucial (including vocational training which flexibly adapts to the evolving labour market), especially for low-skilled workers. At the same time, reforms supporting innovation and technological progress can also promote social mobility by helping to reduce barriers to firm entry and oligopolistic rents. Recent evidence suggests that intergenerational income mobility increases as the degree of entrepreneurship and innovation rises.

Fiscal structural reforms can support productivity by making public finances more effective and by reducing distortions. For example, a pension reform that raises the effective retirement age will tend to increase workers' expected incomes, thereby supporting their demand. The effect on demand can be strengthened by distributing some of the benefits of that higher retirement age to the current active workforce in the form of a reduction in social security contributions or labour taxes. A more employment-friendly tax system often implies shifting the tax burden from direct and labour taxes to indirect and property taxes. Fiscal structural reforms also appear to be necessary in the area of tax administration and compliance. For

example, the Center for Social and Economic Research (CASE) has calculated that VAT compliance gaps increased in most EU countries during the financial crisis and differ widely from country to country.

Political economy of reforms

There is extensive empirical evidence on the lack of reform momentum and the "status quo bias", and the various political economy arguments are well documented in this regard. It is often difficult to obtain political support for reforms, as the benefits and costs are distributed unevenly across the economy and over time, particularly if reforms seek to limit the rent-extraction opportunities or monopoly profits of politically powerful firms or vested interests.

Objections by groups that stand to lose out as a result of reforms often prevail, even if those groups make up a relatively small percentage of the total population or electorate. Even in cases where the vast majority of (ordinary) citizens stand to benefit from a reform, political support may still not be guaranteed, since groups that expect to lose out may have both strong incentives and significant means – including impact via the media – allowing them to prevail over a broad and diffuse majority (Olson, 1965; and Eleftheriadis, 2014). The reform benefits for each individual voter may well be small, and this – combined with information costs and asymmetries – helps corporations and other well-organised vested interests to continue extracting rents, exploiting the majority of citizens (on the ability of cooperations to influence consumers, see Akerlof and Shiller, 2015, Lustig 2017).

Insufficient transparency regarding political decisions and their consequences can also support rent-seeking behaviour and undermine reform momentum. Indeed, one important factor in this regard is governments' lack of transparency and their ability to hide the economic and social costs of weak regulation and delayed reforms from the general public. Consequently, there is a need for greater transparency regarding public decisions and transactions, including public guarantees and other contingent liabilities. More information and data could be made available to allow independent researchers to assess the costs and benefits of existing and proposed regulations. This could result in governments being put under more pressure from the public to implement reforms, thereby increasing the political costs of avoiding policy change.

A lack of trust in the government or a perception that measures could well be reversed at some point in the future will reduce political support for reforms. A lack of trust in political institutions will make it difficult even for well-intentioned politicians to convince voters of the benefits of reforms (Demertzis and Goncalves Raposo, 2018). A related challenge is that negative short-term distributional effects of some reforms can reduce the political support even for structural policies that would enhance both efficiency and social fairness.

Overall, a high degree of transparency about political and administrative decisions and a well-designed policy mix are of the utmost importance to ensure strong public support for reforms. In this regard, European institutions

can provide important support by fostering transparency and press freedom. In addition, the credibility of the overall policy approach can often be strengthened by measures that support inclusiveness and social fairness.

Important reform-related issues that are not addressed in detail in this paper

While this paper addresses a wide range of issues, a number of important areas are not covered or are only briefly touched on. Still, it seems important to draw attention to these issues and, where needed, encourage further research. For example, this paper does not go into detail regarding the impact that market regulations and the quality of public services and institutions have on the net benefits of digitalisation and new technology. Such benefits can be generated via new or cheaper services for consumers, increases in firm-level productivity and real wages, and better opportunities for European firms to be successful at a global level. Nor does the paper discuss the pros and cons from a European perspective of using structural, antitrust or regulatory policies to counteract the increasing market or monopoly power of large internet, social media and artificial intelligence firms.[10] In addition, the paper does not discuss the environmental impact of structural policies.[11]

In the long run, economic growth is driven largely by societies' ability to innovate and adopt new technologies. It is therefore essential to establish an environment that fosters technological innovations and their dissemination to a broad set of firms. While it stresses the importance of various policies that can help to enhance innovation, this paper does not go into detail as to whether, and if so why, EU countries seem to be falling behind in terms of their ability to produce global market leaders in some dynamic and innovative new fields, such as internet and data-based consumer services, artificial intelligence (AI), data analytics, AI-supported medical and healthcare services, etc. Although this paper does not seek to systematically investigate determinants of technological innovation and its adoption by firms, potentially relevant factors are discussed in various places and are briefly summarised in the paragraph below.

EU countries differ when it comes to weaknesses in the innovation climate, but a number of recurring patterns can be identified. First of all, rigid market structures and overregulation often prevent economies from adjusting to new conditions. One negative outcome discussed in this paper is a low churn rate,

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[10] Such policies have recently been the subject of some discussion from a social welfare perspective in view of (i) the potential for intensive use of the internet, smartphones or social media applications to result in "modern addictions" and associated health problems (e.g. Lustig, 2017), and (ii) the increasing market and political power of very large global firms that possess enormous amounts of private data relating to hundreds of millions of individual users. The paper also refrains from discussing property rights in respect of such private data (Arrieta Ibarra et al., 2017).

[11] Reforms may contribute to more environmentally sustainable growth, natural resource efficiency and the transition towards a low carbon economy. For example, the absence of a price on carbon calls for policies such as cutting distorting fossil fuel subsidies or fiscal structural reforms incentivising economical use of natural resources (e.g. OECD, 2015a).

allow more productive firms to expand production and employment. Second, fragmentation of the internal market (particularly for services) lessens what would otherwise be a clear advantage for young and innovative companies, namely easy access to the largest domestic market in the world. Third, education systems and universities are often inefficient. Fourth, the young and the innovative are often constrained or disadvantaged by a lack of equal opportunities, insufficient investment in education, high levels of youth unemployment and high levels of sovereign debt (including future liabilities implicit in pension systems). And fifth, capital allocation in the EU has traditionally relied on bank credit, which is less suitable when it comes to financing some highly dynamic and risky undertakings in a new economic environment dominated by intangible assets that are difficult to use as collateral for loans (Cecchetti and Schoenholtz, 2018).

This paper does not look in detail at the various impediments to the proper functioning of housing markets, which may have important implications for labour mobility, income distribution and inclusiveness. A lack of adequate housing supply in areas of high productivity and labour demand can result in a section of the workforce having to accept either (i) a lower level of pay, (ii) high commuting costs or (iii) unemployment. From this perspective, regulations that constrain housing supply and contribute to high house prices or rents in productive metropolitan areas might constitute a barrier to inclusive growth, labour mobility and social mobility.[12]

The paper also refrains from discussing the question of why large and persistent – and, in some cases, increasing – regional productivity and unemployment differentials can be observed within individual euro area countries. Most euro area countries comprise political and fiscal unions that span various sub-national regions and that have been in existence for a century or more. In several cases, significant fiscal transfers have flowed from high to low-productivity regions for decades, without substantial real convergence being achieved. It would be important to understand the difference, in terms of structural policies and institutions, between the more successful regions and those where people are increasingly feeling left behind, and see which conclusions can be drawn in terms of reforms that improve mobility and opportunities for people currently living in less productive regions. The paper does not go into detail regarding the importance of sound policies at sub-national level (local authorities, city councils, etc.) and the questions of how sub-national authorities can address the growing urban/rural or regional divide. It does not, therefore, look at important local policies such as urban planning, the initiatives to support integration and inclusion of vulnerable and disadvantaged people, or the functioning of diverse neighbourhoods.

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[12] Hsieh and Moretti (2015) estimate that regulation and other factors constraining the supply of housing reduced aggregate US growth by 50% in the period from 1964 to 2009. While Europe has additional cross-border barriers that are difficult to overcome (such as cultural and linguistic differences), several factors suggest that there is also significant scope for improvement. For instance, Cheshire and Hilber (2008) estimate that the level of "regulatory tax" totals around 440% of marginal construction costs in Frankfurt am Main and 300% in Paris and Milan. See also Turner and Malpezzi (2003) for a cost-benefit analysis of rental regulations and Cuerpo et al. (2014) for an overview of the fairly diverse nature of rental markets across the EU.

Structure of this paper

This paper adopts a broad perspective, looking at various aspects of structural reforms. Figure 1 presents an overview of the structure of the paper and the interaction between those different aspects, with the boxes showing the various subjects that are discussed. The arrows show the main direction of impact from both an economic and a political economy perspective. This paper looks at structural reforms as a means of fostering overall economic well-being, considering a broad set of objectives in terms of outcomes, namely **growth** (i.e. increases in real incomes and employment levels), economic **resilience** (i.e. reductions in both the likelihood of suffering adverse economic shocks and crises and the costs of such episodes), and **inclusiveness and social fairness** (i.e. equal opportunities and limits on rent-seeking and rent-extraction behaviour, etc.). **Chapter 2** explains the main challenges facing European economies and provides some background information showing the importance of such reforms.

Chapter 3 considers the role that reforms play in strengthening the effectiveness of monetary policy, both in economies in general and in the euro area in particular. **Chapter 4** then looks at how the overall impact of reforms is affected by (i) the sequencing and packaging of measures, and (ii) interaction between reform measures and expansionary macroeconomic policies.

This paper looks at reforms both to institutions and to regulations governing specific markets. Structural reforms are thus defined in a broad manner, encompassing both (i) measures aimed at improving the functioning of market processes (such as product, labour and financial market reforms) and (ii) measures that seek to improve the quality of public and economic institutions (e.g. institutional reforms that enhance the functioning of public administrations, judicial systems or law enforcement, or that strengthen the rule of law, tackle corruption or combat tax evasion).

The benefits of efficient regulations governing markets are crucially dependent on the effectiveness of their implementation – and thus on the quality of institutions. For this reason, there is no arrow leading directly from regulations to final outcomes in Figure 1. In many cases, a high level of institutional quality (or good governance) is necessary for market reforms to be implemented in an effective manner and yield their full potential. For example, the introduction of modern insolvency legislation will not achieve its full potential if its application is impaired owing to inefficiencies in the judicial system. Consequently, as discussed in **Chapter 5**, market reforms often entail improvements to the institutional framework in order to achieve the best possible outcomes. **Chapter 6** looks at the impact of structural policies aimed at regulating contracts, transactions and processes in labour, product and financial markets, as well as selected fiscal structural reforms.

Finally, **Chapter 7** discusses other key determinants of the success of reforms, looking at political economy issues and their interaction with institutions. Key factors in the political reform process include the quality of public debate about reform needs, the independence of the media, the level of social trust, the influence of

interest groups and the willingness of key political players to communicate the rationale for reforms in order to build support among the general public.

Figure 1
The process of implementing structural reforms in EMU
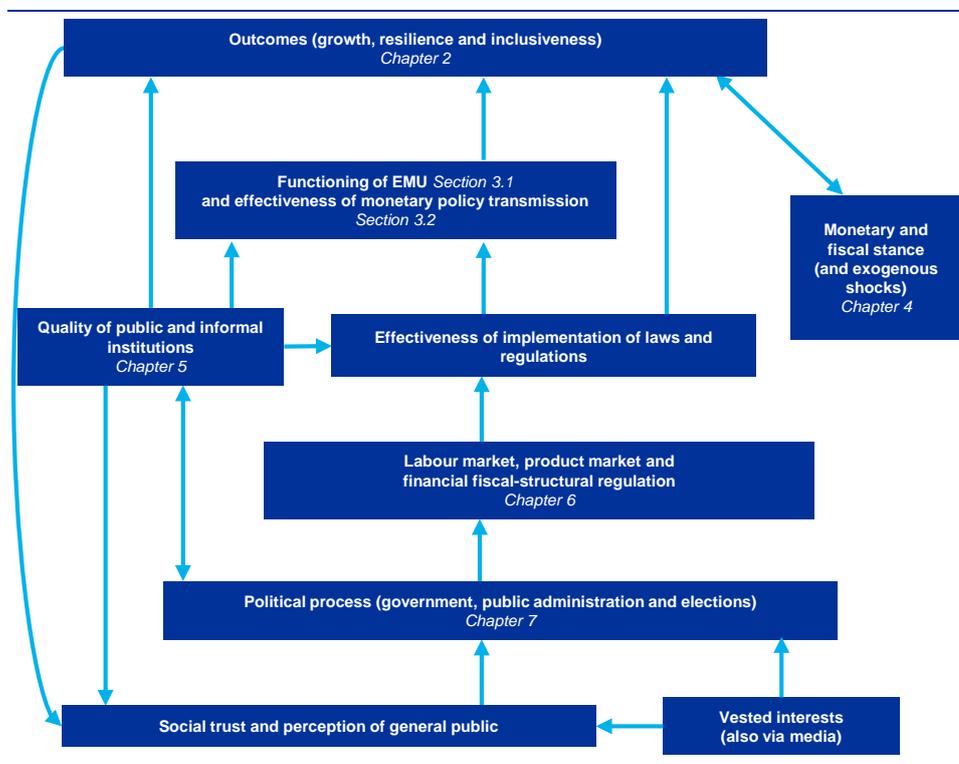
Source: ECB.

Various types of evidence are presented in this paper. The evidence is based on the following: (i) cross-country comparisons of outcomes (e.g. productivity or employment) and structural/institutional input indicators published by organisations such as the Organisation for Economic Co-operation and Development (OECD), the World Bank, the World Economic Forum (WEF) and the Heritage Foundation (mainly in Chapter 2); (ii) a broad overview of relevant literature on structural reforms; (iii) structural macro-models simulating the effects of the sequencing and packaging of reforms, as well as interaction between economic structures and fiscal and monetary policies (Chapter 4); (iv) cross-country studies linking institutional input indicators (mainly in Chapter 5) or microdata (Chapter 6) with subsequent outcomes; and (v) case studies estimating the impact of specific reforms in euro area countries (Chapter 6). In addition, in various places the paper illustrates cross-country correlation between various indicators using scatter plots, being mindful that correlation does not in itself constitute evidence of causality.

2 Challenges and reform opportunities

Over the last two decades, reforms of institutions and markets in euro area countries have been insufficient overall to deal with the economic and demographic challenges, despite good progress in some areas. The lack of reform impetus might play an important role for low productivity growth and weak resilience to adverse shocks. Structural rigidities and insufficient capital and fiscal buffers contributed to the economic and social costs of the financial and sovereign debt crisis, and in several cases resulted in distributional effects that were considered unfair by many citizens. An example is the relatively large share of the long-term crisis costs that in some countries had to be borne by the middle- or lower-income class, and in particular by the young generation, as compared with richer individuals and large investors. In the aftermath of the financial and sovereign debt crisis, and in particular during the period 2011-13, countries under a financial assistance programme led the way on good structural policy changes and introduced a number of important labour and product market reforms, aimed at supporting employment and productivity. However, reform momentum in the euro area has slowed again since then and in some cases has been largely lost. According to an ECB survey of large companies,[13] obstacles to further reform efforts are mainly attributed to political constraints and opposition from vested interests.

This chapter illustrates the gaps between EU countries on the one hand and EU or global best performers on the other in terms of institutional quality and market structure as measured by indicators developed by various institutions (Section 2.1), shows examples of where economic challenges are particularly acute (Section 2.2) and provides some considerations on well-being and inclusiveness (Section 2.3). Importantly, all indicators and rankings shown here carry caveats and thus are merely indicative. They cannot replace a thorough country-specific analysis of the impact of regulations and structural policy changes and should therefore not be seen as suggesting that there is a one-size-fits-all set of institutions for all countries.

2.1 Evidence from institutional and structural indicators

Most indicators on economic and institutional structures show large differences across euro area countries. Such benchmark indicators are sometimes surrounded by significant uncertainty as they are based on surveys and perceptions, and thus need to be interpreted with caution. Nevertheless, they provide useful indications for areas where countries may face inefficient regulations or weaknesses in administrative or judicial processes that need to be addressed.

Despite significant progress on product market structures in all euro area countries since 1998, there seems to be further scope for policies to improve.

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[13] For a full description of the results of the survey, see ECB (2017a). The survey was sent out in spring 2017.

Product market reforms are changes in "market institutions" with the objective of attaining better-functioning goods and services markets (Pelkmans et al., 2008). Efficient product market regulations allow prices to adjust quickly and production factors to be reallocated between firms and sectors, e.g. by facilitating the speedy entry of new actors and exit of inefficient firms. According to the **OECD Product Market Regulation (PMR) indicators** (Chart 1), some countries have made significant progress in improving product market structures by liberalising economic activity and enhancing competition in network industries, retail trade and regulated professions. Notably, several euro area countries are among the top global performers (according to the latest data, which are from 2013), even though most other euro area countries still tend to have a high regulatory burden and high mark-ups. Moreover, there is significant scope to address monopolistic rents, reduce administrative barriers to entrepreneurship, trade and investment, and remove unnecessary regulation of economic activities.

Chart 1

OECD – Product Market Regulation (PMR) indicators
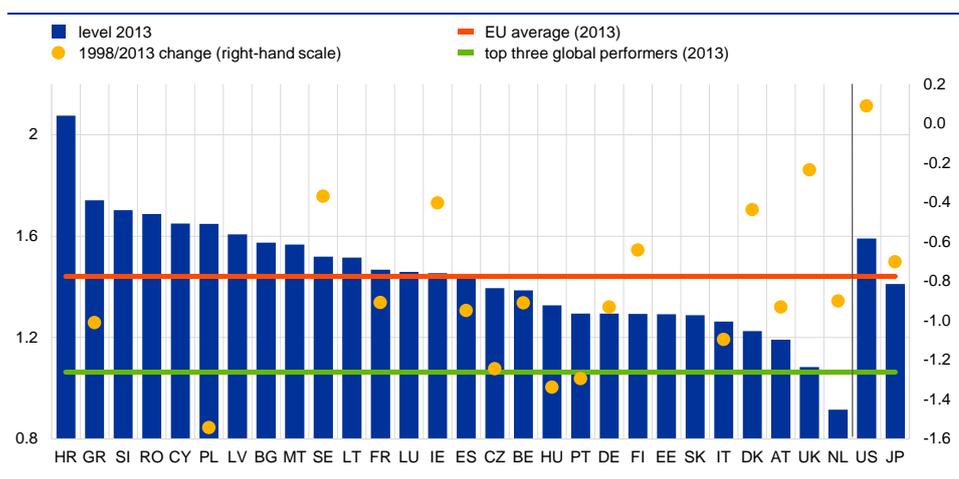
Sources: OECD PMR indicators and ECB calculations.
Notes: Countries are ordered by rank in 2013.
The OECD Product Market Regulation (PMR) indicators are a comprehensive and internationally comparable set of indicators that cover formal regulations in the following areas: state control of business enterprises; legal and administrative barriers to entrepreneurship; and barriers to international trade and investment. A higher value means stricter regulation. The index ranges from 6 (worst) to 0 (best).
The EU average is unweighted, and is obtained by averaging the available values for OECD countries that are also EU member countries.
Countries that are missing the yellow dot do not have data for 1998.
The top three global performers in order of ranking are the Netherlands, the United Kingdom and Austria.

According to the **World Bank Doing Business indicators** (Chart 2), some euro area countries are not far behind the global top performers, while many other countries are not even among the global top 30.

Chart 2

World Bank – Doing Business
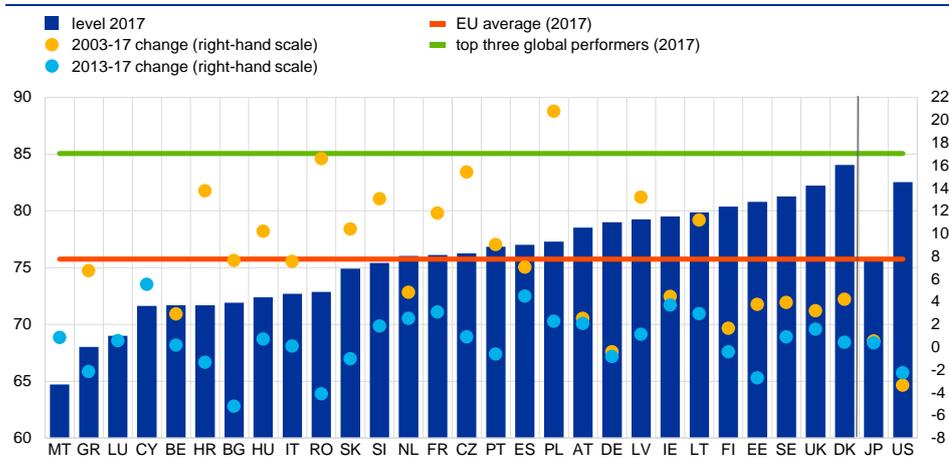
Elements of institutional quality, such as government effectiveness, regulatory
quality, rule of law and control of corruption, are covered by the **Worldwide
Governance Indicators published by the World Bank** (Chart 3).[14] While some
euro area countries are ranked among the top global performers for institutional
quality, a few euro area countries have deteriorated from already low levels relative
to the global average since 1998 (see Fernandez-Villaverde et al. (2013) and Challe
et al. (2018) for empirical and theoretical explanations of the decline in institutional
quality in some euro area countries).

Chart 3

World Bank – Worldwide Governance Indicators (WGI)

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[14]   See Kaufmann, Kraay and Mastruzzi (2010).

The new **Index of Public Integrity** (Chart 4), by contrast, is based not on perceptions but largely on quantitatively observable indicators.

Chart 4

Index of Public Integrity (IPI)
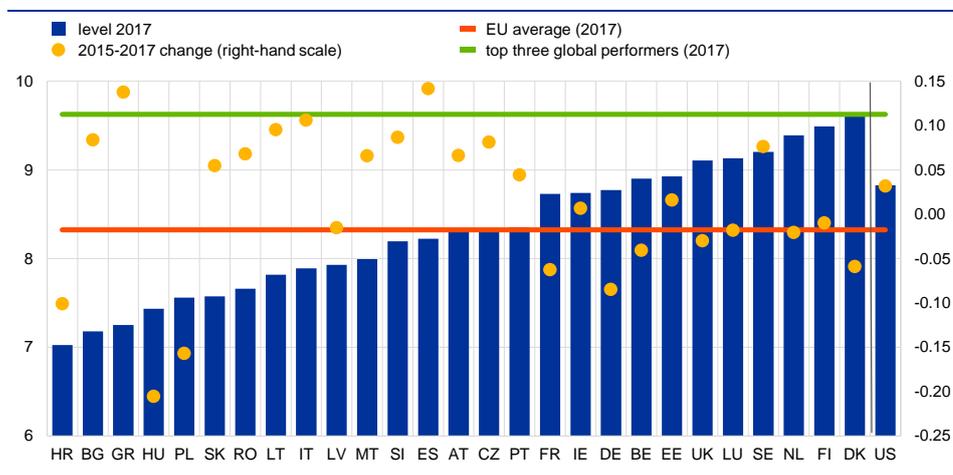
Sources: Index of Public Integrity. See Mungiu-Pippidi (2015) and ECB calculations.
Notes: The IPI is a composite index consisting of six components: judicial independence, administrative burden, trade openness, budget transparency, e-citizenship and freedom of the press. It aims to give an objective and comprehensive picture of the state of control of corruption in 109 countries. The six components of the IPI find their theoretical basis in the framework proposed by Alina Mungiu-Pippidi and her team at the European Research Centre for Anti-Corruption and State-Building (ERCAS).
The EU average is unweighted.
Index ranges from 1 (worst) to 10 (best).
The top three global performers in order of ranking are Norway, Denmark and Finland.

The **WEF Global Competitiveness Index** (Chart 5), which defines competitiveness as the set of institutions, policies and factors that determine the level of productivity of an economy, includes three euro area countries among the top ten global performers. By contrast, some other euro area countries are below the global average and have even deteriorated over the last decade.

Chart 5

WEF – Global Competitiveness Index
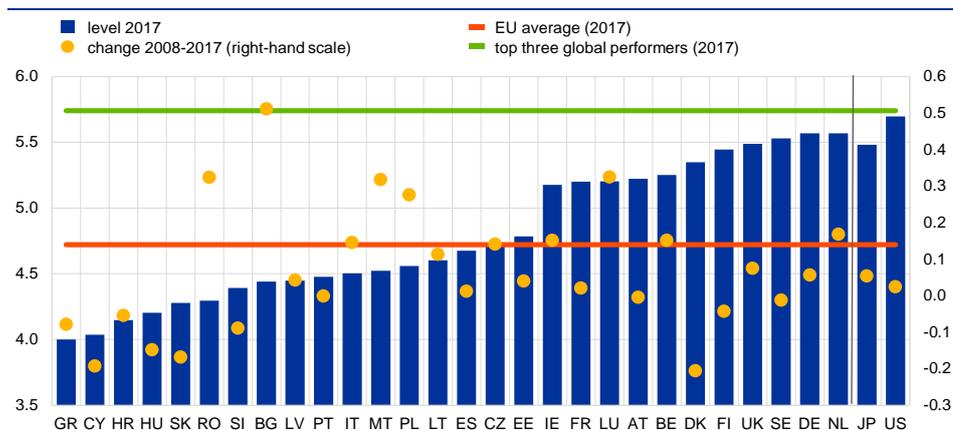
Source: World Economic Forum (Global Competitiveness Index dataset, 2016-2017).
Notes: The EU average is unweighted.
Index ranges from 1 (worst) to 7 (best).
The top three global performers in order of ranking are Switzerland, Singapore and the United States.

The **Index of Economic Freedom** (Chart 6) produced by the Heritage Foundation indicates that euro area countries are a long way behind the top global performers and suffer from significant binding constraints on economic growth. The index measures economic freedom on the basis of factors grouped into four broad categories, namely rule of law, government size, regulatory efficiency and open markets.[15]

Chart 6

Index of Economic Freedom
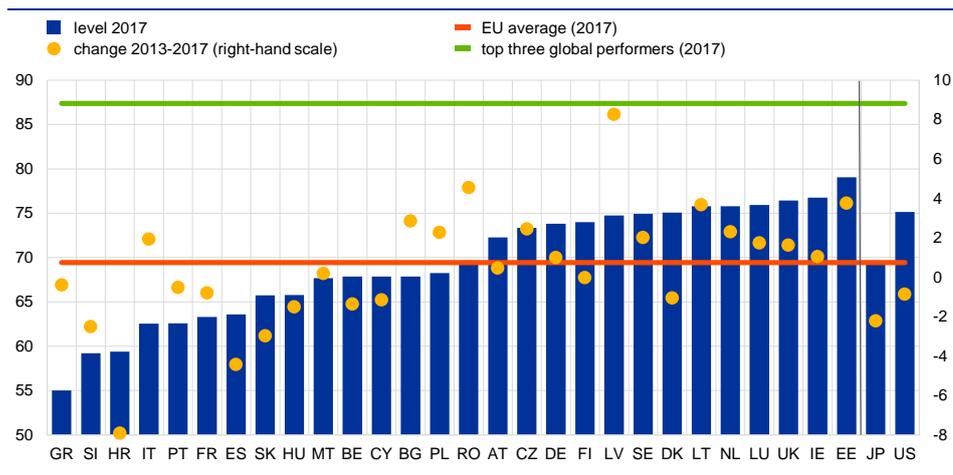
Source: Heritage Foundation.
Notes: The EU average is unweighted.
Index ranges from 0 (worst) to 100 (best).
The top three global performers in order of ranking are Hong Kong, Singapore and New Zealand.

2.2   Evidence on productivity, growth and employment[16]

Outcome-based indicators for key economic variables such as productivity, growth and employment broadly confirm that many euro area countries lag behind the best performers. While many benchmark indicators are partly influenced by cyclical factors, the often long-lasting nature of these cross-country divergences suggests that structural factors may play a large role.

Euro area productivity growth has been declining for several decades. While the long-term slowdown in euro area productivity growth in large part reflects a wider generalised trend across advanced economies,[17] for the last 20 years labour productivity growth in the euro area has generally been lower than in the United States and Japan (Chart 7).

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[15] The Index of Economic Freedom is sometimes criticised on the grounds that it is based on a purely formal definition of freedom which does not consider that personal freedom and equality of opportunity can also be supported by efficient government spending.

[16] Includes contribution by Valerie Jarvis (ECB).

[17] The post-crisis slowdown in euro area productivity growth is evident regardless of the metric-chosen (labour productivity per person employed, hourly productivity or TFP growth).

Chart 7

Total factor productivity

(percentages; five-year moving average)
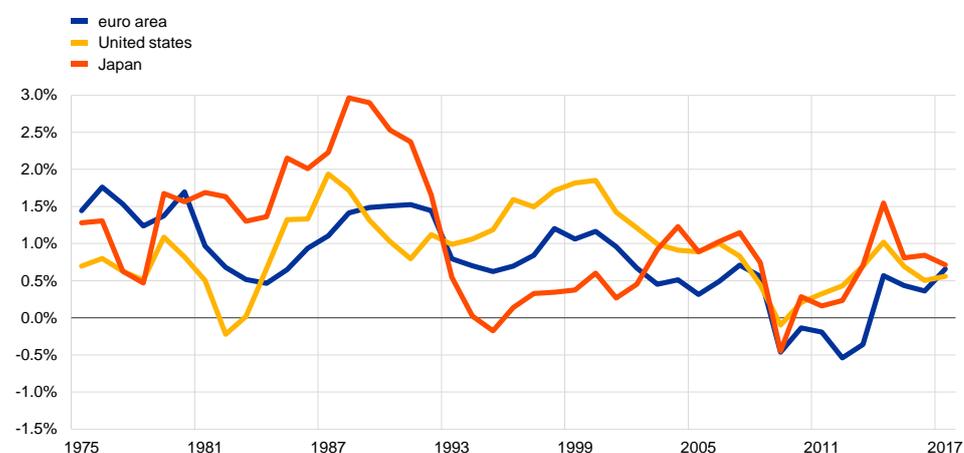
Source: Eurostat (AMECO). Owing to a lack of data, the euro area aggregate is a representation of a sub-sample of countries until 1995.

A number of Europe-specific factors may help to explain the long-standing productivity growth gap between the euro area and the United States. A variety of potential causes have been put forward to explain the Europe-specific slowdown in productivity growth, and TFP growth in particular. These potential causes include highly regulated product, labour and financial markets, legal and regulatory obstacles to sectoral reallocation, restrictive regulations that hinder innovations and investments in certain areas, and wider structural impediments, such as a lower prevalence of ICT-relevant skills.[18] In particular, regulation determines entry costs and the degree of competition between firms in the private sector, and more competition is typically associated with higher productivity.[19] TFP growth also varies widely across euro area countries, suggesting that cross-country differences in economic and institutional arrangements may play an important role in explaining variations in productivity performance within the euro area (Chart 8).

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[18] Nicoletti and Scarpetta (2003); Acemoglu, Aghion and Zilibotti (2006); Bloom, Sadun and Van Reenen (2012).

[19] See e.g. Aghion and Griffith (2005). Schivardi and Viviano (2011) show that in Italy the reduction of barriers to entry in the retail sector increased productivity of incumbent firms and fostered technology adoption.

Chart 8

Total factor productivity

(percentages; five-year moving average)
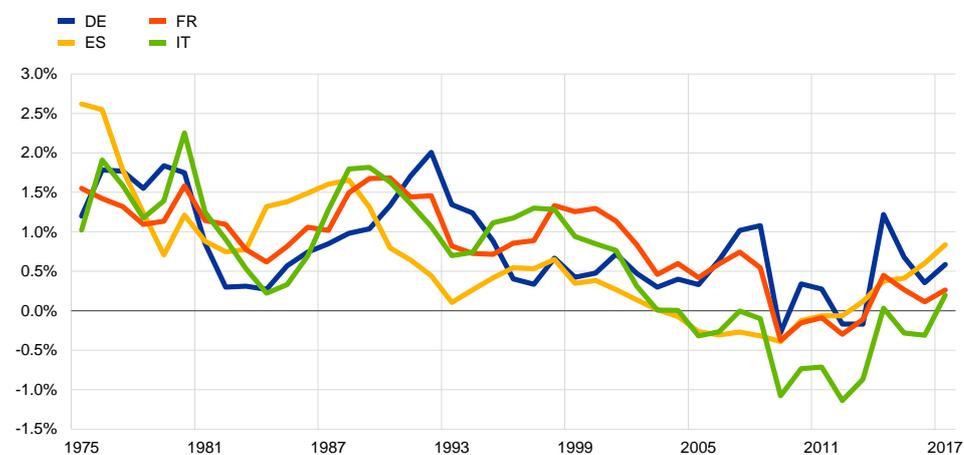
Source: Eurostat (AMECO).

GDP per working age population (adjusted for purchasing power) is lower in the euro area than in the United States and Japan (Charts 9 and 10). Income per working age person provides a better international comparison of a country's growth potential than income per capita since it is less dependent on demographic developments (for example, decisions on fertility and migration), which are partly outside the realm of policymakers. Real GDP per working age person grew substantially between 1996 and 2016 in most European countries. In particular, central and eastern European countries underwent a remarkable process of convergence in income towards the rest of Europe. However, income per working age population in the euro area is well below that in the United States and Japan, and a number of European countries have even seen a reversal of the catching-up process, partly as a result of the crisis and inadequate policies in the run-up to the crisis.

Chart 9

GDP per working age population

(PPS-adjusted, thousands)

- ■ level 1998 (left-hand scale)
- ■ 1998-2017, change in PPS (left-hand scale)
- ● 20-year growth
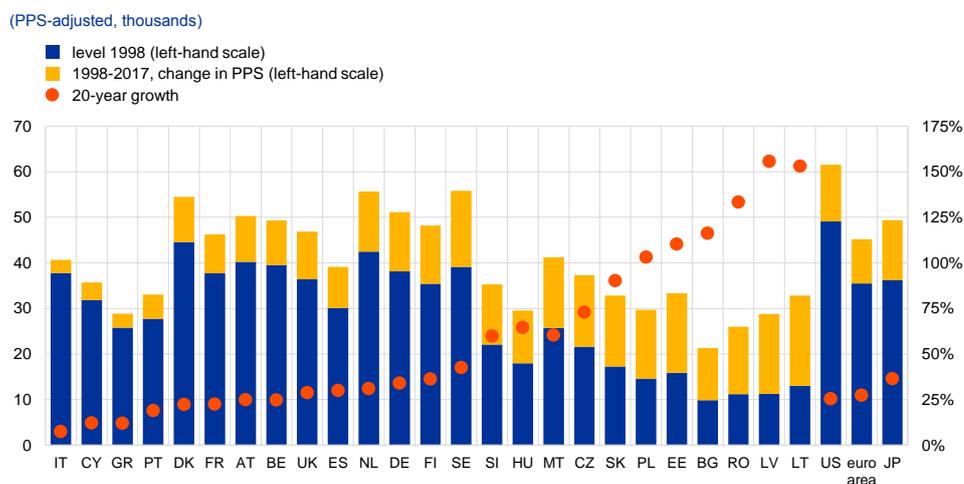
Sources: Eurostat and ECB staff calculations.
Notes: Working age population is defined as individuals within the age group of 15-64 years.
PPS stands for "purchasing power standard" and is an artificial currency unit that can theoretically buy the same amount of goods and services in each country. PPS is derived by dividing any economic aggregate of a country in national currency by its respective purchasing power parity (PPP). PPP can be interpreted as the exchange rate of the PPS against the euro.
Countries ordered according to 20-year growth rates. Luxembourg and Ireland are excluded for reasons of readability. For Ireland, GDP per working age population in 1998 was 37,314 PPS, and 77,303 PPS in 2017 (20-year growth of 107%). For Luxembourg, GDP per working age population was 76,212 PPS in 1998, and 98,253 PPS in 2016 (growth of 29%). Croatia is excluded because of missing data.

Chart 10

Potential GDP per capita – 2012 versus growth rate over 2013-2017

(x-axis: potential GDP per capita (2012); y-axis: potential growth rate of GDP per capita (2013-2017, five-years average))
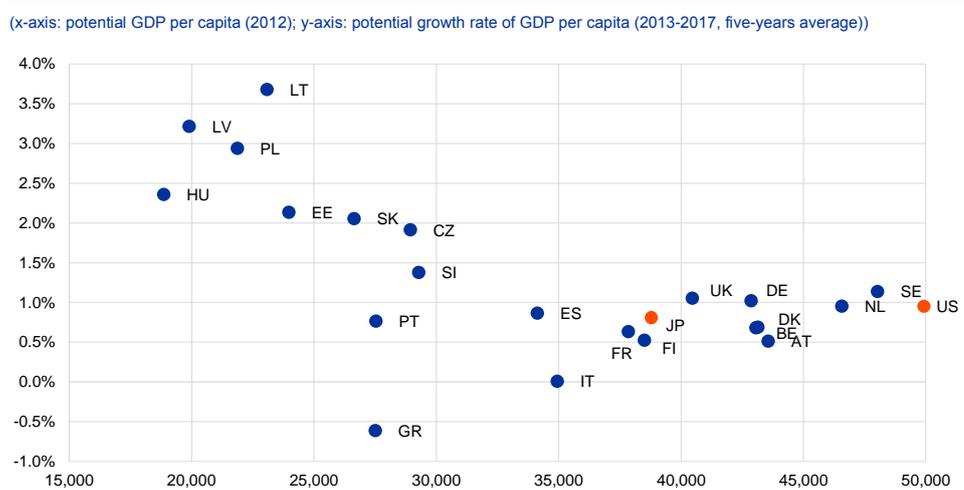
Sources: European Commission, IMF.
Notes: Potential GDP per capita is PPP-adjusted from 2012 in dollars (x axis) and potential growth per capita is averaged over 2013-2017 (y-axis). No data for Bulgaria, Croatia, Malta or Romania. Ireland excluded owing to bias in GDP growth figures for 2015, and Luxembourg for readability reasons.

Despite significant progress, labour markets in most euro area countries appear to suffer from considerable underutilisation. Employment rates have been growing in most euro area countries for the last 20 years. This trend reflects an

increase in labour market participation, due in part to past labour market reforms.[20] However, in several euro area countries the employment rate is still well below respective pre-crisis levels (Chart 11).

Chart 11

Employment rate

(percentages of working age population; 15-64 years old)

- ■ level 2016
- ● level 2006
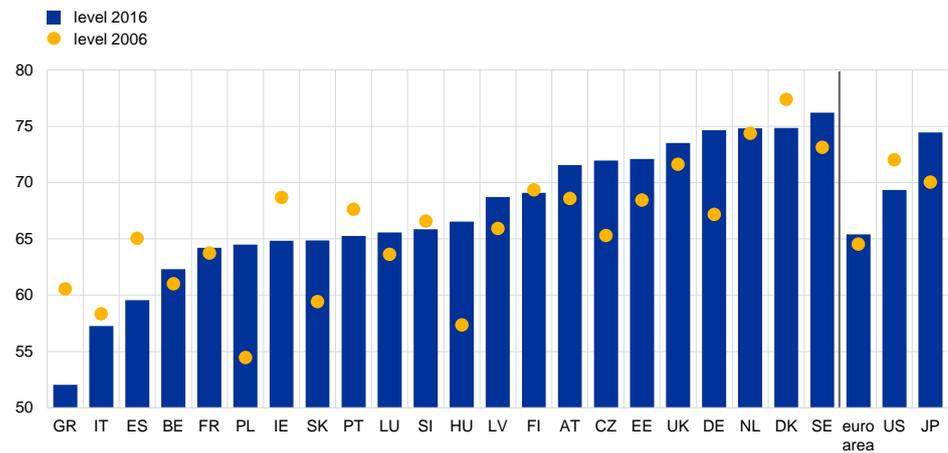
Source: OECD.
Note: No complete data available for Malta, Cyprus, Lithuania, Bulgaria and Romania.

Improved structural policies to address the high share of young people who are neither employed nor in education or training are necessary given the potential scarring effects of unemployment at the beginning of a professional career (Chart 12). In fact, long periods of unemployment at a young age can result in increased risks of future unemployment, human capital losses and lower earnings. Youth unemployment rates are normally higher than total unemployment rates, but large cross-country differences in the share of young people who are not in education, employment, or training (NEET) point to persistent structural problems with the functioning of the labour market in some countries.

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[20] This indicator does not take into account underemployment, defined as involuntary part-time work, which is estimated to pertain to 3% of the working age population in the euro area. See also Zidar (2015) and Lehmann, Lucifora, Moriconi and Van der Linden (2016).

Chart 12

Young people not in education, employment or training (NEET)

(age 20-24)

■ level 2016
● level 2006
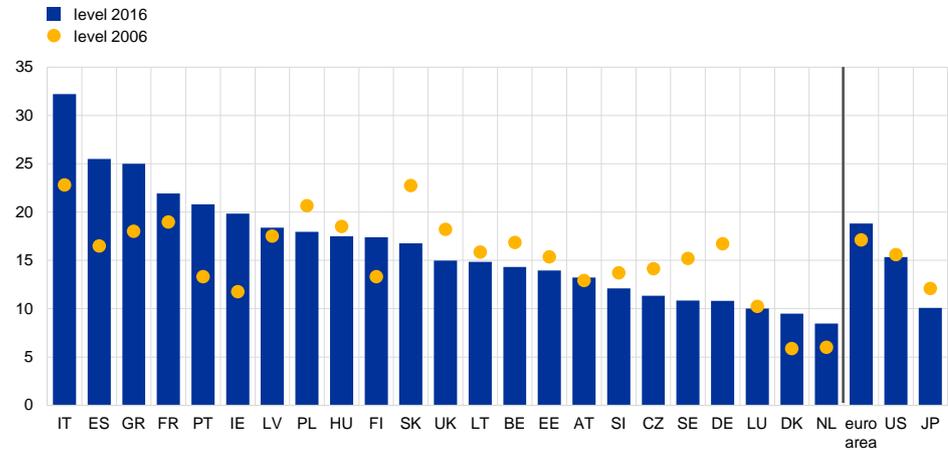
Sources: OECD and ECB staff calculations.
Notes: No data available for Cyprus, Malta, Bulgaria or Romania.
At the cut-off date there were missing data for 2016 for Ireland and Japan and for 2006 for Lithuania. These missing data are replaced in the chart with data for 2015, 2014 and 2005, respectively.
The euro area is obtained as a weighted average of the EA-17 (Cyprus and Malta not included).

Population ageing will put the sustainability of the widespread pay-as-you-go systems under pressure. A rising share of pensioners will put pressure on the younger generations to finance current pension (and health care) expenditures. Public pension expenditures already amount on average to 25% of total public spending in the EU countries. The share is expected to rise further as the ageing process continues. Moreover, public revenues may come under pressure owing to a shrinking workforce. Based on the latest population projections by Eurostat, published in early 2017, the old-age dependency ratio in the EU countries is expected to increase on average from 31% in 2015 to above 57% in 2080 (Chart 13). This will pose challenges for fiscal sustainability in the long run, although it can be mitigated if people are going to be active in the labour force for more years, thereby also paying higher net contributions into the social systems.[21]

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[21] Increasing healthy life expectancy is a very positive outcome per se. In addition, it means that retirement age can also increase, as people may prefer longer careers.

Chart 13

Old-age dependency of EU countries in 2015 and increase until 2080
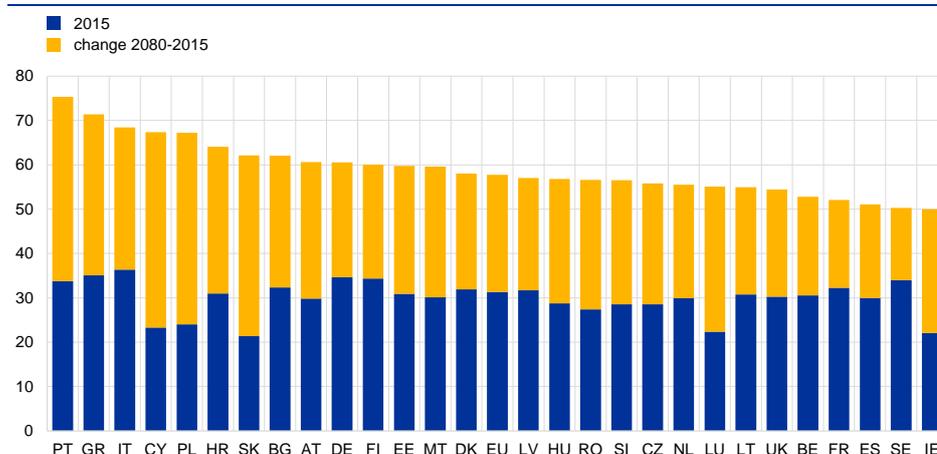
Source: Eurostat.
Notes: The old-age dependency ratio is the ratio of older dependents (people older than 64) to the working age population (15-64 years old). Data are shown as the proportion of dependents per 100 working age population.

Ageing is expected to have an adverse impact on economic growth in the long term. A slowdown in population growth contributes to lower labour supply and changes in the age profile. Under the assumption that older workers might be less innovative, ageing could also adversely affect labour productivity and TFP growth, although the adverse impact might be partly mitigated by more work experience as well as a higher degree of automation (Acemoglu and Restrepo, 2017). Recent research suggests that while demographic effects have so far had only a modest impact on euro area productivity growth, rates of workforce ageing over coming decades are projected to increase, with an effect equivalent to foregoing around one-quarter of projected productivity growth over the 2014-35 horizon (Aiyar, Ebeke and Shao, 2016).

2.3 Inclusiveness, education and well-being beyond income

The ultimate goal of economic policy is to increase citizens' well-being or welfare. A large part of the macroeconomic analysis is based on national accounts concepts such as GDP, the demand composition of GDP, and aggregate labour market indicators such as employment, unemployment, gross wages and total disposable income growth. There are good reasons for this focus. In many cases a policy that leads to higher GDP will increase general welfare. At the same time, national accounts and GDP per capita have clear limitations as a measure of overall well-being (Furman, 2017). First, GDP does not include the external costs and benefits of economic activities, nor does it properly take into account destructive activities or sustainability issues. Second, national accounts are ill-designed to assess the social benefits and costs of regulations. Third, some non-monetised economic activities are not included in national accounts. For example, users of internet platforms and apps "pay" the provider by sharing their own private data, whose value is not part of GDP, but which can – similarly to investment in software -

be used for future business. Finally, aggregate indicators such as GDP or consumption disregard distributional issues.[22]

Alternative measures of economic performance adjust GDP by income inequality and other welfare indicators (Jones and Klenow, 2016). Using this methodology, Brocek and Lalinsky (2017) conclude that the quality of life in most EU countries is higher than suggested by GDP per capita relative to the United States (Chart 14). This is mainly because, particularly compared with the United States, countries in the EU tend to have lower income inequality and longer life expectancy.

Chart 14
Income and welfare in the EU countries (2014)
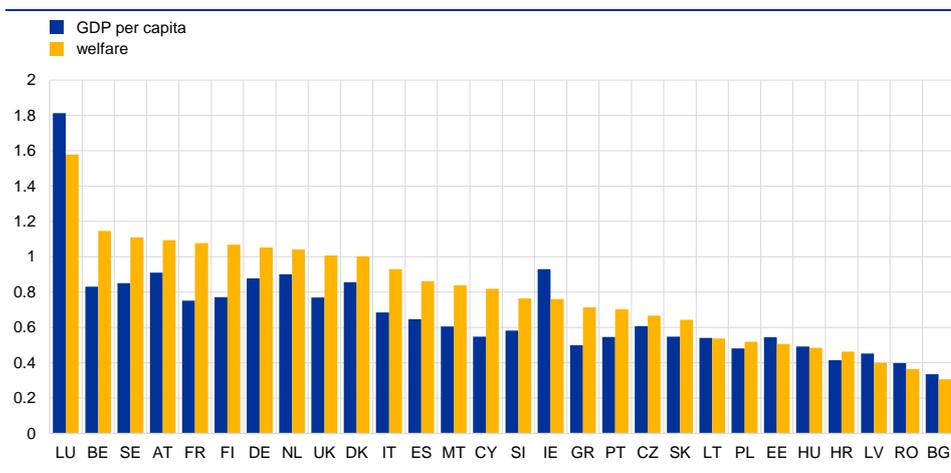
Source: Brocek and Lalinsky (2017), based on Jones and Klenow (2016).
Note: Scale normalised to US=1. Welfare is composite indicator of life expectancy, consumption, leisure, and income inequality.

The risk of reaching incorrect conclusions based on more standard data can also be illustrated with the example of health care. Higher spending on health in OECD countries – above a certain threshold of around USD 3,000 per capita – is not positively correlated with higher healthy life expectancy (Chart 15). For example, Spain and Italy have only about one-third of the health care expenditures of the United States, but the southern European countries achieve much higher healthy life expectancy than the United States. While the higher life expectancy in the southern European countries is probably also influenced by factors unrelated to the level of health expenditures and the efficiency of the health system, such as dietary habits or climate conditions, this example provides some tentative evidence that on the whole, best practices in overall policies and institutions that have an impact on healthy life expectancy, including health insurance and management, seem more likely to be found in Italy or Spain than in some northern European countries, and indeed the United States. Obviously, the amount of expenditures on health that are included in national income measures might not necessarily be closely correlated with quality of life as reflected for instance in life expectancy. High spending on health relative to life

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[22]   This can be illustrated with the following hypothetical example. Income per capita growth is EUR 700 in both of the following cases: (1) all citizens individually have EUR 700 higher income, and (2) the 10% richest persons have average income growth of EUR 9,700 per person, while 90% of the citizens have an income loss of EUR 300.

expectancy might reflect various factors such as poor public health management, adverse living conditions and dietary habits, and problematic market structures (e.g. in the form of rent-seeking in processed food industries or in health and pharma sectors) that may give rise to widespread inefficiencies and in some cases even health problems.[23] While it is difficult to disentangle the different determinants of the relationship between health expenditures and healthy life expectancy, it seems obvious that on the whole, structural policies in the United States have been less successful in ensuring high average life expectancy than is the case in many EU countries that spend much less on health.

Chart 15
Total health expenditure and healthy life expectancy in 2014

(x-axis: health expenditure per capita in PPP; y-axis: healthy life expectancy in years)
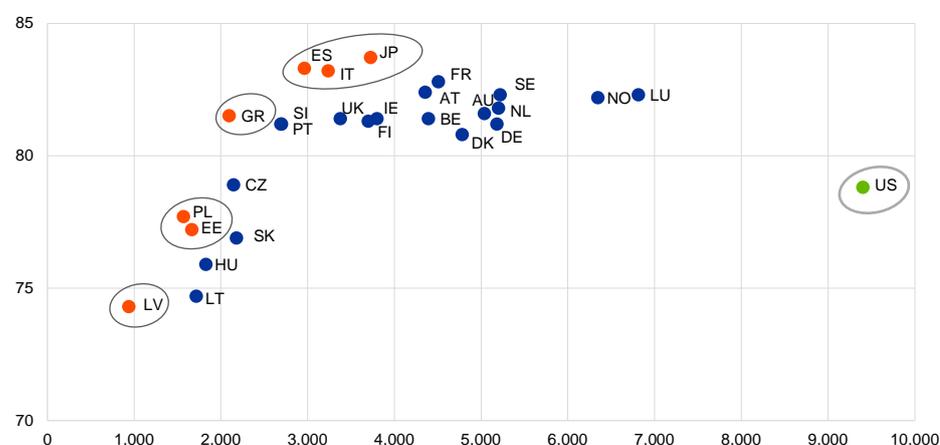
Sources: World Bank (health expenditure) and OECD (life expectancy).
Note: Countries in circles denote efficiency frontier.

The OECD has extended its Going for Growth framework to encompass inclusiveness as a policy objective alongside employment and productivity growth. This extension reflects the evidence that higher GDP per capita growth is not necessarily systematically associated with rising living standards for all groups of citizens. The OECD's approach defines inclusive growth as "economic growth that creates opportunity for all segments of the population, and distributes the dividends of increased prosperity both in monetary and non-monetary terms, fairly across society".[24] Inclusive growth has multiple dimensions, including a fair distribution of opportunities and benefits.

One challenge is to make inclusive growth operational for policy recommendations. Various attempts have been made to complement economic output variables with statistics that are more closely aligned with policy objectives. In the absence of an explicit welfare function, the OECD derives policy recommendations from a dashboard of inclusiveness indicators. This dashboard encompasses a number of income and non-income dimensions, such as inequality

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[23] For a recent study on causes of declining life expectancy for certain groups of US citizens, see Case and Deaton (2017). See also Lustig (2017).

[24] See the OECD's website on inclusive growth.

and poverty, job quantity and job quality, labour market inclusion of vulnerable groups, gender gaps, equity in educational opportunities, and health outcomes. Another example is the UN Human Development Index (HDI), which is a summary measure of average achievement in three key dimensions of human development, namely (i) a long and healthy life (proxied by life expectancy at birth), (ii) being knowledgeable (operationalised by mean of years of schooling for adults aged 25 years), and (iii) having a decent standard of living (measured by gross national income per capita). Chart 16 shows how the ranking of EU countries changes when moving from GDP per capita (in PPP-adjusted terms) to the HDI. In the chart, a positive value indicates an improvement when using the HDI. For example, Slovenia, with a comparative value of +4, improves three places in the rankings when measured according to the HDI instead of by GDP per capita.

An important consideration is the large burden on the young generation in many EU countries. Composite indicators such as the HDI have certain weaknesses. One problem with such an index is that its components and weighting can be seen as arbitrary. An alternative approach is therefore to construct indices that are more targeted at answering specific questions. The European Intergenerational Fairness Index[25] (provided by the Intergenerational Foundation, IF) shows how the young generation is faring in terms of opportunities across countries (Chart 17). The index has a higher value when intergenerational equality is estimated as being poor, which means that economic performance may be pursued at the expense of future generations. Finally, large cross-country differences also become evident in terms of educational performance (Chart 18 and Chart 19).

Chart 16
Comparison of UN Human Development Index (2015) and GDP per capita rankings
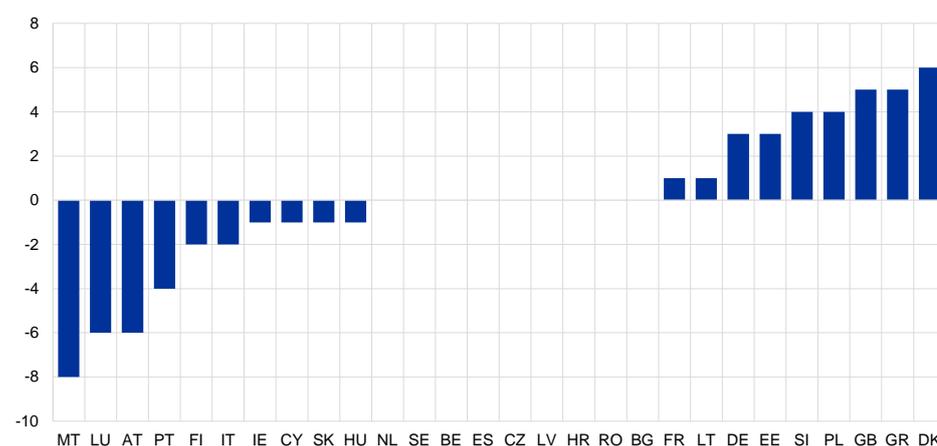
Sources: UN Human Development Index and AMECO.
Note: Positive (negative) values mean ranking among EU countries is higher (lower) in the UN Human Development Index than in GDP per capita.

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[25] The index is based on a set of 13 social and economic indicators, namely: Housing Costs, Government Debt, Spending on Pensions, Spending on Education, Health Services, Youth Unemployment, Democratic Participation, Incomes, Environmental Impact, Population Structure, Tertiary Education, Expenditure on R&D and Poverty & Social Exclusion.

Chart 17

European Intergenerational Fairness Index

Chart 18

Education, PISA score

Chart 19

Collaborative problem solving, PISA score

- ■ level 2015
- ▬ EU average (2015)
- ▬ top three global performers
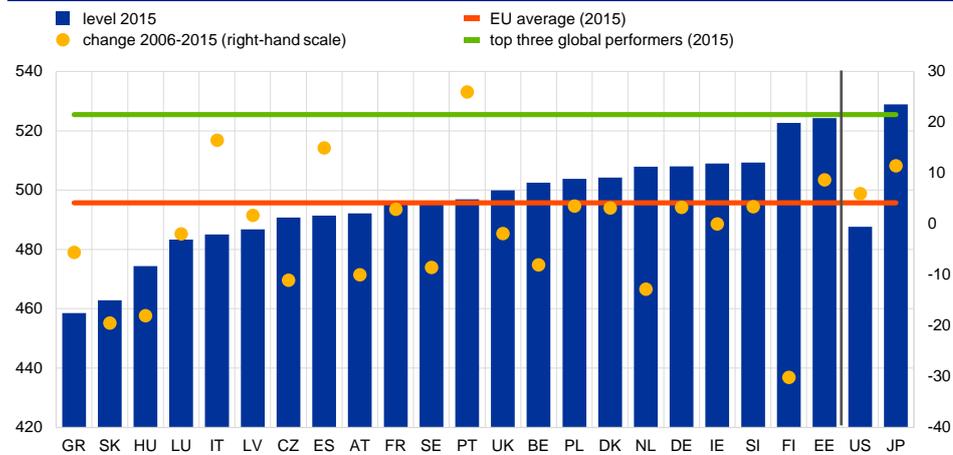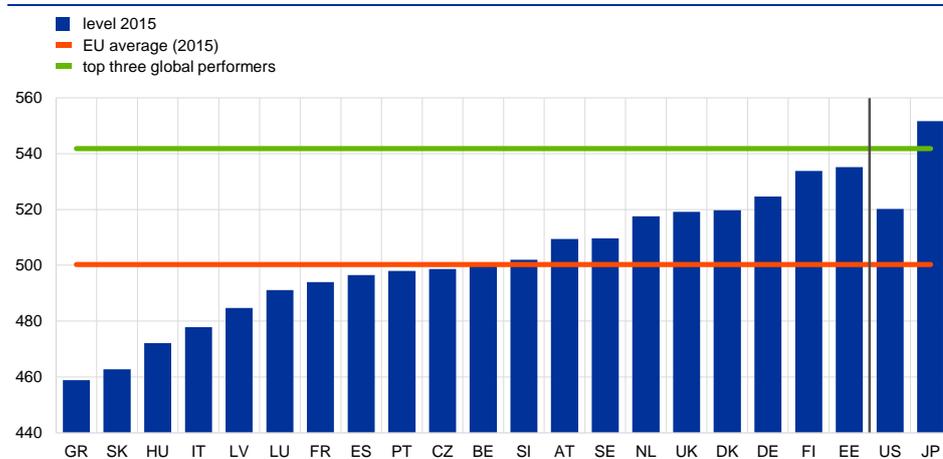
Source: OECD, Program for International Student Assessment (PISA), 2015.
Notes: The top three global performers in order of ranking are Japan, Korea and Canada.
Only EU countries within the OECD appear in the graph.

2.4 Structural reform needs in the euro area: insights from a survey of large companies[26]

An ad hoc ECB survey of leading euro area businesses finds that the recent structural reforms during the crisis have had a positive impact on their business operations. Positive assessments were mainly related to the effect of labour market reforms.[27] However, the pace of reforms over the period 2013-16 was characterised as "slow and fragmented" by over 60% of respondents.

Political constraints and vested interests were cited as the main obstacles to further reform efforts (Chart 20). Some 85% of companies surveyed suggested that reform implementation was principally hampered by political considerations. Opposition from vested interests and a lack of agreement among decision-makers also ranked highly as obstacles to reform efforts (at least 40% of respondents categorised these as "very important" obstacles).

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[26] For a full description of the results of the survey, see ECB (2017a). The survey was sent out in spring 2017. This section was written by Robert Anderton, Antonio Dias Da Silva and Valerie Jarvis (ECB).

[27] Respondents noted, in particular, the positive impacts of the 2012 reforms in Spain, which have improved labour market flexibility.

Chart 20

Barriers to reform momentum
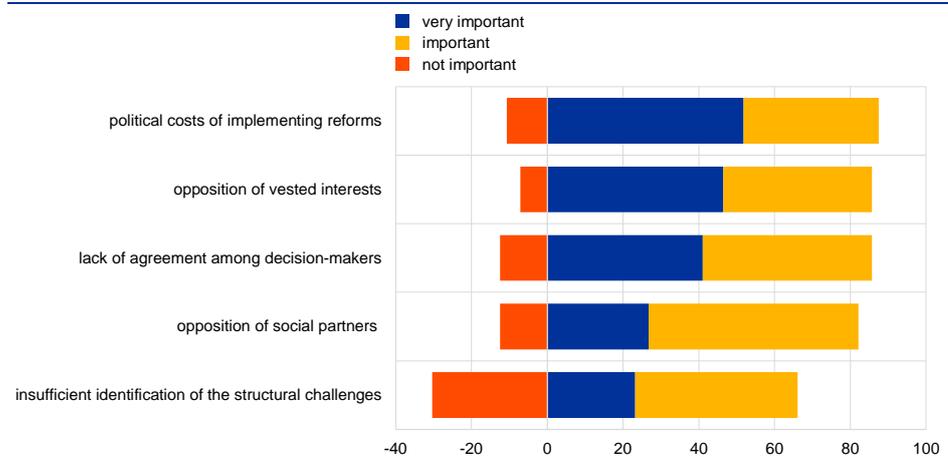
Sources: ECB Structural Reforms Survey and ECB staff calculations.
Notes: Based on responses to the question, "In your opinion, what are the most important barriers to the implementation of structural reforms across the euro area?". Negative percentages refer to respondents reporting elements as "not important".

Businesses consistently highlighted labour market reforms as the most pressing area for further action, while further reforms aimed at product markets and the broader business environment were also seen as important.
This finding reflects both consistently higher rankings of labour market variables, which are rated as "important" and "very important" in responses to standardised questions on reform needs in three different areas (completion of the Single Market, country-level business environments and labour markets). It also reflects responses to a more open question asking respondents to specify "the most pressing" reforms from their point of view.[28][29]

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[28]   For example, around 50% of respondents suggested that reforms aimed at enhancing workforce flexibility were likely to have the single greatest impact on business outcomes given their importance for regaining competitiveness and also because they would allow companies to better respond to growing volatility in demand and changing demand patterns.

[29]   The results are consistent with those of other ECB surveys of large firms, as reflected in previous issues of the Economic Bulletin. See, in particular ECB (2015a) and ECB (2016a).

3 Impact on monetary policy transmission and the functioning of the euro area

There are a large number of structural policies that could significantly improve the functioning of the euro area (Section 3.1). For some of these policies responsibility lies at the national level, while for others agreements at the euro area or EU level are needed. Increased product and labour market flexibility, including flexibility in the allocation of labour and capital across firms, sectors and regions, would make it possible to limit economic costs (e.g. in the form of higher unemployment or lower wages) arising from relative price or supply shocks. Progress on BU and CMU would enhance opportunities for market-based cross-border risk sharing, for instance by removing obstacles to the creation of pan-European banks and by reducing incentives for home bias in asset holdings and the creation of "national champions" in banking. This would help reduce the bank-sovereign nexus and make firms and households less vulnerable to financial shocks in individual countries.

Structural reforms can also enhance the effectiveness of monetary policy (Section 3.2) in several ways. First, to the extent that such reforms limit business cycle divergences across euro area countries, they allow monetary policy to become more effective in maintaining price stability in the whole euro area and less exposed to the criticism that "one size does not fit all". Second, structural policies affect the degree of trade-off between output and inflation stabilisation and can therefore limit employment losses and risks of protracted weakness in demand following adverse shocks. Third, structural policies can support potential output growth and thereby raise the level of the real equilibrium interest rate. This in turn reduces the likelihood of the Eurosystem being constrained by the effective lower bound (ELB).

In a low interest rate environment, the implications of the ELB for the propagation of price effects of some structural policies have been discussed in depth in the literature (Section 3.3). While the positive longer-term effects of reforms typically remain unquestioned, the debate about the short-term dynamics has been more controversial. Some authors have stressed that if reforms exert short-run disinflationary or deflationary pressure and monetary policy is not able to react sufficiently due to the ELB, the real interest rate will increase, which can dampen consumption and investment in the short term. Others argue that expected future increases in productivity may increase demand in the short term, particularly if reforms are credibly implemented and if, in the absence of reforms, solvency concerns are high. Importantly, as the experience of recent years has shown, monetary policy is also effective in reacting at the ELB. However, it can only address aggregate, euro area-wide price developments.

3.1 Strengthening the functioning of EMU – cross-border factor allocation, trade and risk sharing

The smooth functioning and resilience of EMU depend in part on the ability of countries to adjust to adverse shocks. Asymmetric shocks or asymmetric responses to common shocks may generate undesirable price level and output gap differentials in a currency union. In this respect, reforms that diminish price and wage rigidities or promote cross-border labour mobility can allow sectors and regions to limit economic costs (e.g. unemployment) in response to relative price or supply shocks. This is important, as rigid wages, which several studies have found to be related to labour and product market institutions, are considered to be a feature of several euro area member countries.[30]

Recent theoretical work has called into question the common view that enhanced wage flexibility is particularly desirable in a currency union by highlighting the real interest rate channel. Using a stylised small open economy framework, Galí and Monacelli (2016) argue that downward flexible wages may, under certain circumstances, be welfare-reducing in a currency union, particularly for small countries. In their analysis, in the wake of a country-specific drop in demand, wage declines do not stimulate labour demand but instead reduce marginal costs and inflation in the country in question. This drives up the regional real rate of interest, in turn reinforcing the slump in demand and harming employment further. In a currency union, this effect may be exacerbated, since the common monetary authority cannot react to developments in small individual member states. Relative to this "real interest rate channel", the "competitiveness channel" – the stimulation of exports by means of a concomitant improvement in price competitiveness – is modelled to be too weak to compensate for the effects of the higher real interest rates.[31]

However, when the real interest rate channel dominates, wage flexibility is more likely to lead to a welfare improvement if accompanied by price flexibility. Galí and Monacelli (2016) show that an increase in wage flexibility is more likely to be welfare-improving if accompanied by a simultaneous increase in price flexibility. This suggests that it is important to combine labour market reforms with product market reforms to ensure a pass-through of wages to prices.

Overall, the experiences of countries during the crisis tend to support the view that wage and price rigidities are not beneficial. The recent experiences of euro area countries during the crisis are difficult to reconcile with the view that nominal rigidities are beneficial. While countries that were characterised by a swift fall in prices relative to the euro area average (such as Ireland and Spain) recovered more quickly from the crisis in terms of GDP per capita, other European countries with

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[30] See Blanchard and Wolfers (2000); Babecký et al. (2010); Christoffel and Linzert (2006); de Ridder and Pfajfar (2016); Anderton and Bonthuis (2015); Anderton, Hantzsche, Savsek and Tóth (2016); Marotzke et al. (2016); and Sondermann (2016).

[31] In addition, the model does not allow for capital flows (e.g. FDI) to the country that reduced its labour costs. Overall, the adverse net effect on aggregate demand depends on the specific model structure and its parameterisation and has not been validated by data.

higher price rigidities, or with delayed price reaction, experienced deeper and more protracted output per capita losses (Chart 21).[32]

Chart 21

Nominal versus real adjustment in selected euro area countries

(x-axis: GDP deflator, y-axis: real GDP/capita;,difference in % versus euro area average, peak year = 0)
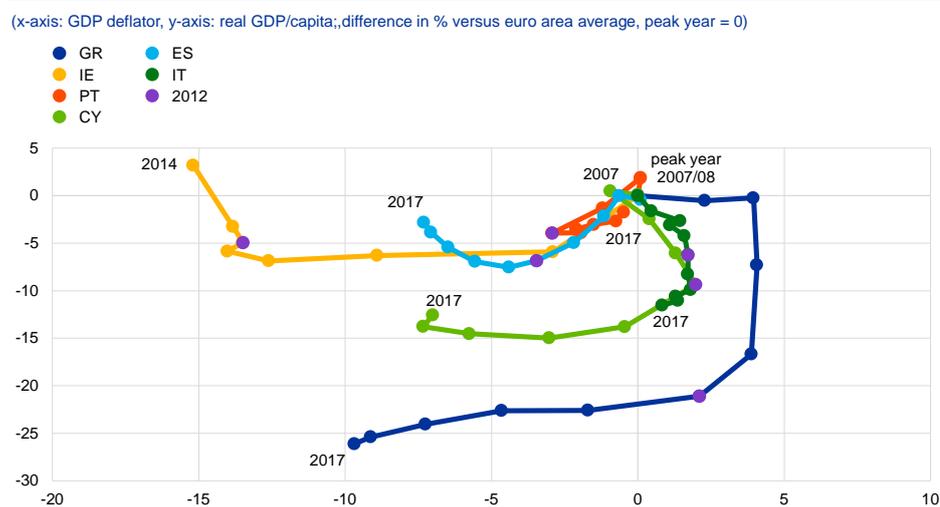
Source: Eurostat.
Note: GDP deflator and real GDP per capita refer to index numbers relative to the euro area since 2007. Given distortions stemming from to cross-border transactions partly related to tax-optimisation of international firms, the chart does not show data for Ireland for the years 2015 and 2016.

Price and wage rigidities can have particularly problematic implications in a heterogeneous monetary union. Under asymmetric shocks, nominal rigidities can lead to persistent inflation differentials across Member States (De Haan and Berger, 2010) and at the same time hinder or delay the necessary rebalancing (see, e.g. Belke, Schnabl and Zemanek, 2010). Delayed rebalancing can be costly for all members of a monetary union and may cause problems for the transmission of monetary policy to the whole area.

Other types of reforms that go beyond addressing nominal rigidities may also affect the transmission and effectiveness of monetary policy. For instance, Thomas and Zanetti (2009) use a model with labour market frictions estimated for the euro area to simulate the effect of reforms on inflation volatility via reductions in firing costs and unemployment benefits. They find that such reforms may go some way towards rendering inflation more stable by making marginal costs less sensitive to fluctuations in hiring and firing rates.

As regards the financial sector, reforms that promote cross-border asset diversification and market-based risk sharing can strengthen the smooth functioning of EMU.[33] For given labour and product market structures, the larger the degree of cross-border risk sharing via asset diversification, the smaller the output and employment losses of an adverse asymmetric shock tend to be. It is

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[32] In a quantitative analysis for the euro area, Bursian and Stähler (2017) find that increased wage flexibility would improve aggregate welfare.

[33] The following paragraphs heavily rely on the ECB's Financial integration in Europe report (2016b), in particular Special Feature A, "Financial integration and risk sharing in a monetary union".

therefore important to increase the incentives for banks and private investors to hold a diversified portfolio of assets, rather than having a large part of asset and risks linked to the domestic economy (home bias). These considerations emphasise the importance of the European Commission's CMU initiative and of attempts to reduce the debt bias resulting from various regulations (see also Sections 6.4 and 6.5). They also suggest that efforts should be increased to eliminate bottlenecks preventing further integration of capital markets in areas such as insolvency law, property rights and legal enforceability of cross-border claims.

Risk sharing would be supported by reforms that remove obstacles to cross-border mergers and consolidation of banks.[34] In the pre-crisis period, financial integration in the euro area mainly took the form of cross-border bank lending to banks, while cross-border bank lending to the non-bank sector increased much less. Therefore, firms – and in particular small and medium-sized enterprises (SMEs) – remained highly dependent on domestic banks for credit despite high levels of banking sector integration via interbank lending between euro area countries. The high dependence on domestic banks made firms, households and the sovereign vulnerable to domestic banking sector shocks during the financial crisis (Hoffmann and Sørensen, 2015). In this context, pan-European banks offer several advantages. First, they tend to be less exposed to asymmetric shocks hitting individual countries as they hold a more diversified portfolio of assets.[35] Second, a larger diversification of assets, including government bonds, helps disentangle sovereign and bank fragility (Schnabel and Véron, 2018). If banks were less dependent on assets issued or guaranteed by the national sovereign, this would have the additional advantage of reducing political pressure and interference in business decisions of banks at the national level. Third, a relative increase in direct lending to the real economy by international banks would make firms and households less vulnerable to domestic financial shocks but would require reliable information on borrowers for all potential lenders.[36]

The resilience of the euro area could also be strengthened by reforms that lead to more equity financing, which represents a means of automatic risk sharing. As debt is provided for a limited period only, it imposes rollover risks on the borrower, so that short-term debt in particular is prone to runs. By contrast, equity is provided by investors for unlimited periods and does not imply rollover risks. Moreover, pay-offs of equity are state-contingent and therefore provide a means of automatic risk sharing in the event of crisis. These theoretical considerations are also mirrored by the empirical literature, which finds that cross-border equity holdings are most beneficial from a risk-sharing perspective. Liquidity crises have typically been triggered by the sudden withdrawal of interbank loans and a sudden stop on the rollover of debt instruments, rather than by the withdrawal of equity-like forms of

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[34] For a broader discussion of how financial integration and capital market development can make a contribution to euro area cross-country risk sharing, see ECB (2016b).

[35] The existence of contagion from cross-border banking does not undermine the rationale for financial integration. While higher financial integration increases the exposure of domestic banks to shocks from abroad, portfolio theory suggests that the overall volatility of a more diversified portfolio will be lower than that of a purely domestic portfolio (Allen et al. 2011).

[36] A potential concern over pan-European banks could be the creation of large multinational banks which are "too-big to fail". However, cross-border banking is not necessarily reliant on very large banks.

finance (Gourinchas and Obstfeld, 2012). However, to reap the benefits of more equity financing, it is crucial to overcome potential information asymmetries, particularly in a cross-border context.

In principle, cross-border risk sharing could also be supported by EU transfers and/or a euro area budget, but public risk sharing also entails some challenges. Public cross-border risk sharing needs to be carefully designed to avoid the unwelcome side-effect of rent-seeking, soft budget constraints or lack of regional flexibility being subsidised. There is also the risk of creating false expectations as to what such transfers can achieve in terms of long-term regional income convergence. The evidence also shows that in the United States, regions pool risks more substantially through private capital markets than through public transfers.[37] When a negative asymmetric shock hits a member of a currency union, the non-residents will automatically share the costs with the residents, as holders of financial claims on regional assets located in different jurisdictions will see a decrease in the valuation of their assets and will carry part of the adjustment burden.

A European deposit insurance scheme (EDIS), if properly designed, could help strengthen the resilience of the euro area. If certain conditions were fulfilled,[38] such a scheme could in principle reduce the vulnerability of Member States and their banking systems to large local shocks, ensuring that the level of depositor confidence in a bank would not depend on the bank's location and reducing the link between banks and their sovereigns. Obviously, enhanced risk sharing via cross-border deposit insurance would have to ensure that incentives are not distorted in a way that could undermine the objectives of risk sharing. Otherwise, the existence of a guarantee for bank deposits might reduce incentives for depositors to exercise effective monitoring and market discipline, for bank managers to ensure proper risk management, and for governments to reduce the risks associated with the sovereign-bank nexus and improve framework conditions, such as bank regulations, insolvency laws and judicial systems. Therefore, in addition to a strong supervisory and regulatory framework imposing discipline on bank management,[39] incentive mechanisms limiting moral hazard – such as the premia to be paid by banks for deposit insurance properly reflecting the risks of the respective bank – should be included in the design of deposit insurance schemes.[40]

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[37] The United States has traditionally been characterised by a very high degree of income and consumption smoothing across regions. Early evidence for the period 1963-1990 suggested that 62% of state-specific shocks in the United States were smoothed through market transactions – almost five times the contribution of the federal government to income smoothing. See Asdrubali, Sorensen and Yosha (1996).

[38] This paper does not take a stance on details regarding EDIS, including the link between EDIS on the one hand and, on the other hand, issues such as addressing legacy risks in bank balance sheets and regulatory treatment of sovereign exposures.

[39] See for example Anginer, Demirgüç-Kunt and Zhu (2014).

[40] See for example Allen, Carletti, Goldstein and Leonello (2015). It seems also useful to consider how to address "moral hazard risks, which could arise if banks take excessive risks or if Member States implement economic policies that are unsustainable for their banks, relying ultimately on the mutualisation of some losses across banks or countries." See ECB (2017b).

3.2 Strengthening the effectiveness of monetary policy transmission[41]

Addressing nominal rigidities normally mitigates output losses in response to adverse shocks and supports monetary policy transmission.[42] In the event of adverse shocks, nominal rigidities cause output to react more than prices. This is associated with a higher sacrifice ratio, i.e. larger cumulative losses in output and employment for a given reduction in inflation. Conversely, the costs of adjustment during an adverse shock can be mitigated if prices are adjusted flexibly in order to rebuild competitiveness. The higher the degree of rigidity, the more aggressively monetary policy normally needs to respond to inflationary or deflationary shocks to restore price stability – especially if expectation formation is partly backward-looking. In the event of adverse supply shocks, the higher the degree of frictions in the economy, the greater the declines in output and employment (Woodford, 2003; Carlstrom et al., 2009). The existence of nominal wage and price rigidities can also result in high persistence in inflation rates, and the adjustment to exogenous shocks then takes longer. In cases where this effect is associated with protracted deviations from the monetary policy target, it may risk undermining the credibility of monetary policy.

The degree of flexibility may have non-linear effects on the trade-offs central banks encounter in their attempts to stabilise the economy. De Grauwe and Ji (2017) use a behavioural model where the business cycle is generated endogenously to analyse how structural reforms affect the capacity of the central bank to stabilise output and inflation. They find that in rigid economies, structural reforms that increase the flexibility of wages and prices create a "win-win" situation in that the volatility of both output and inflation decline with increasing flexibility. When the economy is sufficiently flexible, the central bank can achieve lower inflation without higher output volatility. Attempts by the central bank to stabilise inflation are therefore always welfare-improving. This effect weakens for higher levels of flexibility when the central bank again faces a trade-off between inflation and output stabilisation.

Structural polices can affect the equilibrium real interest rate through their impact on potential growth. According to the neoclassical core of today's macroeconomic models, the natural rate of interest, or the equilibrium real interest rate, reflects the marginal return on capital and is closely related to trend growth in TFP and to population growth. While benchmarks for the equilibrium real interest rates are notoriously difficult to identify empirically, given the wide range of available measures, most estimates point to a secular decline across advanced economies. Natural rate estimates by Holston et al. (2017), for example, suggest a downward trend over the last 50 years (Chart 22).

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[41] Contribution by Claus Brand (ECB).

[42] Faced with a negative demand shock, "a more flexible economy will tend to react by swiftly lowering prices, but agents will then expect inflation to rise again as the shock fades, ensuring a firm anchoring of inflation expectations. By contrast, an inflexible economy is more likely to adjust through higher unemployment, which exerts a more prolonged downward pressure on inflation and is therefore more likely to weigh on inflation expectations" (Draghi, 2015).

Chart 22

Natural rate estimates for various countries

Legend: euro area — Canada; United States — United Kingdom
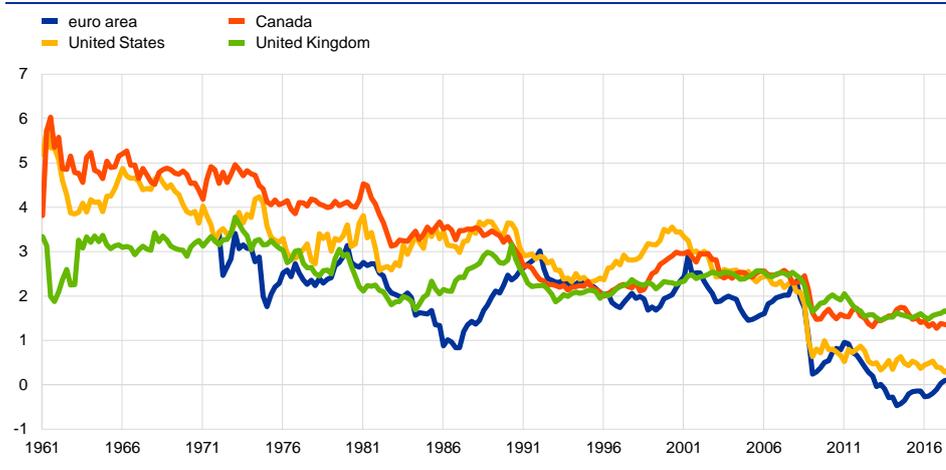
Sources: ECB AWM database, ECB, Eurostat..
Note: Natural rate estimates for US, CA, EA, UK as published by Holston, Laubach, and Williams (2017).

Monetary policy can be seen as having had to "shadow" the secular decline in equilibrium interest rates. For example, under a Taylor rule the appropriate short-term rate is pinned down by the natural rate estimate once output and inflation gaps are closed. Estimates of the real equilibrium rate were already on a downward path before the crisis. In the wake of the crisis they fell precipitously. This secular decline in the equilibrium real rate is mainly, though not exclusively, linked to factors depressing trend growth.[43]

Real interest rates and growth may exhibit diverging trends, but the correlation between the two has been relatively high for the last 30 years in the euro area. Divergences between growth and real interest rates may arise from saving-investment imbalances, for example as a result of demographic developments, or as a result of portfolio shifts due to factors such as rising demand for safe assets. Hamilton et al. (2016) demonstrate the difficulties of finding a reliable link between real interest rates and growth using an extensive range of historical observations. Chart 23 displays long-term trends in growth and real interest rates in the euro area and appears to confirm this phenomenon. However, a more positive correlation between growth rates and real interest rates emerges if one restricts the sample to the last 30 years (covering a period in which monetary policy became more effective in anchoring inflation developments).

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[43] Factors depressing both growth and inflation include demographic developments and global saving-investment imbalances related to investment weakness in advanced economies and weak productivity trends. Factors that may depress interest rates more exclusively, i.e. without directly affecting potential output growth, include portfolio shifts into "safe" assets, and both conventional and unconventional monetary policy. For an overview and for estimates of the impact of specific factors, see the IMF (2014a).

Chart 23

Natural rate, real GDP growth and real short-term interest rates in the euro area

- ■ trend GDP growth
- ■ short-term interest rate
- ■ natural real rate
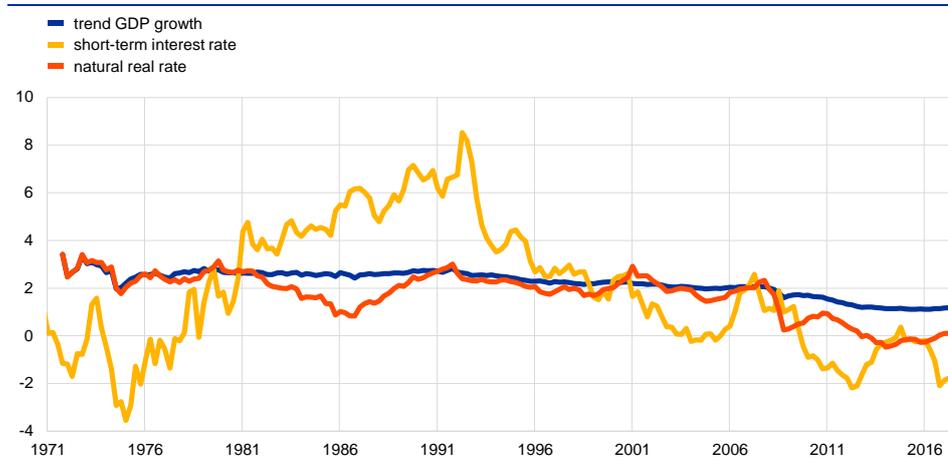
Sources: ECB AWM database, ECB, Eurostat.
Note: Natural rate estimates are based on the structure as in Holston, Laubach and Williams (2017).

The degree to which structural reforms and technological advances can reverse the downward trend of the natural rate will be among the factors determining how challenging it is for central banks to reach their objectives in the future. A low natural real rate increases the likelihood that policy rates need to turn negative or that non-standard measures need to be taken in response to adverse shocks. While unconventional policies have proven to be effective, some of them have also been met with some concerns, because of potential longer-term adverse side-effects.

As widely discussed in this paper, structural factors hampering growth remain in place. Equilibrium interest rates are further depressed by saving-investment imbalances, due in part to demographic changes,[44] and by portfolio shifts.[45] Structural policies can play a pivotal role in countering these forces by improving growth potential – in turn improving long-term income expectations – and by addressing these saving-investment imbalances.

The effectiveness of the transmission of monetary policy can be hampered by weak bank balance sheets. As discussed further in Section 6.3.2, banks burdened with a large share of non-performing assets risk tying up capital in unproductive firms by continuing to lend to their existing customers (Acharya et al., 2017; Schivardi et al., 2018; Storz et al., 2017; Andrews and Petroulakis, 2017). This may hinder the provision of new credit to more productive or innovative firms. These issues might be particularly pronounced if banks benefit from (implicit) public subsidies (e.g. owing to soft public budget constraints) or pursue politically motivated lending. In such

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[44] See, for example, Gagnon, Johannsen and López-Salido (2016).

[45] Some of the factors that are unrelated to trend growth and that currently depress equilibrium rates may reverse in the coming decades. Savings rates and the pace of reserve accumulation in the emerging economies may decline. As the Federal Reserve has started to normalise its policy stance, term premia are decompressing.

situations, standard expansionary monetary policy tools may be less effective (Altavilla, Pagano and Simonelli, 2016).

Structural policies aimed at strengthening the banking sector can therefore have important implications for monetary policy transmission. There are several reform possibilities that would help to address the issue of non-performing assets. For example, regulatory or supervisory changes that reduce the risk of high levels of NPLs being associated with weak economic capital and possibly a gap between regulatory and economic capital could help to increase banks' incentives and capacity to work out bad debt. In addition, more efficient insolvency frameworks would tend to result in a more efficient allocation of resources and enhance monetary policy transmission. Reforms enhancing the efficiency of the institutional framework – in particular of the judiciary system and the possibilities for out-of-court workout – can play an important role in this respect. CMU can also play a role in strengthening the financial sector in all parts of the euro area. Completion of this project will not only reduce fragmentation and cross-country divergences but also reduce the risk of overburdening monetary policy in the event of adverse financial sector developments.

3.3   Structural policies at the effective lower bound

The debate about the short-term impact of reforms against the backdrop of constrained monetary policy started with Fernández-Villaverde et al. (2014). In their paper, beneficial structural reforms are modelled as shocks to future productivity, which de facto lead to an increase in consumption. Therefore, the authors find that anticipated future increases in productivity boost demand in the present and can to some extent be a substitute for demand-side policies when the latter are constrained.

This conventional line of reasoning has been prominently challenged by Eggertsson et al. (2014). While these authors do not contest the beneficial effects of reforms on long-term growth, they argue that downward adjustments in prices and wages to restore competitiveness may in certain situations aggravate, rather than attenuate, output and employment losses in the short term. Their reasoning is that as nominal interest rates become constrained by their lower bound, those reforms that lead to lower price pressures in the short term imply higher real interest rates, which also may fuel expectations of prolonged disinflation or deflation, further depressing aggregate demand. However, Fernández-Villaverde et al. (2014), among others, have criticised the modelling approach of Eggertsson et al. on a number of aspects, the first being the timing of reforms. While reforms need to be announced credibly, their implementation usually takes some time, and monetary policy can already be out of the ELB constraint by the time they are implemented. Second, investment – possibly a very powerful forward-looking transmission channel for reforms – is not considered in the Eggertsson et al. (2014) model. Finally, solvency constraints in the euro area peripheral countries are also not accounted for. For example, increases in long-run productivity can diminish worries about debt sustainability, thus lowering risk

premia while boosting investment and short-run growth for a given monetary policy stance.[46]

Other authors have tried to address some of the limitations of the Eggertsson at al. (2014) model with more sophisticated modelling approaches. For example, Vogel (2014) uses the QUEST model, which has several additional transmission mechanisms, including investment, to study impacts of reforms at the ELB. While the author still finds some contractionary impacts on consumption, the order of magnitude is much lower than in Eggertsson et al. (2014). At the same time, these QUEST results do not support the idea that delaying the implementation of structural reforms for the foreseeable future would improve economic conditions at the ELB as was proposed by Eggertsson et al. (2014). Using the EAGLE model, Gerali et al. (2015) and Gomes (2014) show that even in the context of the ELB, service sector reforms increase GDP over the short to medium term, and that this effect critically hinges upon the response of investments. Gomes (2014) highlights the importance of reform coordination between euro area member countries for escaping the ELB constraint.

An additional channel through which reforms may be expansionary in the short term is an increase in asset prices and bank lending. Andrés, Arce and Thomas (2017) argue that even reforms which have a direct disinflationary impact and are undertaken during a private debt deleveraging process (such as the one currently affecting several euro area economies) can stimulate economic activity already in the short run. By favouring future economic activity, reforms can boost asset prices and hence the value of borrowers' collateral. Since the latter is a key determinant of borrowers' access to new credit, reforms can thus accelerate the end of the deleveraging process and hence the recovery in economic activity even at the ELB.

Some models highlight short-term-demand-boosting, inflationary effects. By assuming exogenous reductions in price and wage mark-ups, Eggertsson et al. (2014) model structural reforms of product and labour markets in a very stylised way. As emphasised by Cacciatore et al. (2016a), this modelling approach does not sufficiently capture reform dynamics that policymakers have in mind. For example, as the entry of more competitors and dismissals of fringe workers could entail higher factor costs, a more flexible labour market can give rise to general equilibrium effects of higher labour demand following a reform. In fact, the disinflationary impact of certain structural reforms can actually be reversed in a model with producer entry dynamics, search-and-matching labour market friction and the assumption that the implementation of the reform is credible.

The debate about the effects of reforms at the ELB is still open. The impact of reforms seems to depend on the particularities of the model used, its calibration, and frictions that are targeted with structural measures (see also European Commission, 2014a). Finally, Jacquinot and Savsek (2018) show that non-standard monetary policy measures or growth-friendly fiscal policies can support demand in the short term, making the ELB constraint much less binding.

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[46] In general, the solution method can also make a difference here. Boneva et al. (2016) have shown that the sign of the effect of a supply-side stimulus (cut in the labour tax rate) depends on whether one solves the log-linearised model equations (as is usually done) or the nonlinear model equations.

4 Interaction with macroeconomic policies and packaging of reforms

Under certain circumstances, careful packaging of various structural policies may bring benefits. In addition, combining reforms with complementary (expansionary) macroeconomic policies creates synergies which may be exploited in order to mitigate transitory adjustment costs. One explanation for the sluggish implementation of reforms in the euro area can be found in the political economy literature. Despite overall gains in the long term, certain reforms might entail transitory costs,[47] such as temporary negative demand effects, or unintended redistributions among segments of the population, at least for some time, possibly impeding a bold implementation process.[48] One possible approach to address these issues is a credible implementation of reforms which allows future reform-driven income gains to be brought forward, thus mitigating or offsetting potential short-term costs.[49] In addition, a number of studies have also advocated careful coordination, prioritisation and sequencing (or packaging) of reforms[50] as well as a simultaneous implementation of macroeconomic policies to benefit from complementarities and synergies and thereby alleviate unwanted side-effects which may arise.[51] This chapter discusses these considerations from a dynamic stochastic general equilibrium (DSGE) model perspective.

A practical example of the beneficial interaction of reforms at the national level is the sequence of reforms passed in Germany over the period 1999-2008 (Box 1). The centrepiece of these reforms consisted of a set of extensive labour market measures, which were accompanied by a raft of (structural) fiscal reforms, including several effective tax changes, and various measures to curb the rise in social security contributions. The model analysis in Box 1 finds that the fiscal policy components of the reform package helped to decrease inequality as the lower tax burden on labour more than compensated for the labour market reform-related losses of liquidity-constrained households. Empirical and theoretical evidence indicate that fiscal (structural) reforms will also remain effective even when implemented in a budget-neutral way. This is relevant, not least given that the scope for expansionary macroeconomic policies may be limited.[52]

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[47] While the quantification of short-term costs is primarily based on a DSGE model, results derived from richer models of the euro area turn out to be quantitatively quite diverse, ranging from rather small or negligible to having no adverse effects. For example, see Vogel (2017), and Arce, Hurtado and Thomas (2016).

[48] See Leiner-Killinger, Lopéz Peréz, Stiegert and Vitale (2007), and Parlevliet (2015).

[49] See Fernández-Villaverde, Guerrón-Quintana and Rubio-Ramírez (2014).

[50] See Cacciatore, Duval, Fiori and Ghironi (2016a), IMF (2016), and Gomes, Jacquinot, Mohr and Pisani (2013).

[51] See Papageorgiou and Vourvachaki (2017) on the short-run trade-offs and the long-run complementarities between structural reforms and fiscal consolidation strategies in the context of a DSGE model.

[52] See Bouis, Causa, Demmou, Duval and Zdzienicka (2012), and Anderson, Barkbu, Lusinyan and Muir (2014).

For countries without fiscal space, expansionary macroeconomic policy may not be able to support structural reforms, in which case international coordination between macroeconomic policy and structural reforms may be an option (Box 2). For some euro area countries, fiscal space is quite limited, so expansionary fiscal policy is not a realistic option for supporting structural reforms. In this context, Arce, Hurtado and Thomas (2016) argue that structural reforms in the "periphery" countries, fiscal expansion in the "core" countries and monetary stimulus for the euro area as a whole can reinforce each other,[53] unless fiscal spillovers are small, as suggested, for example, by Gadatsch et al. (2016). Andrés et al. (2017) discuss interactions between macroeconomic policy and structural reforms in the context of a two-country monetary union model. The model focuses on a specific subset of reforms, namely those that on impact lead to lower prices, e.g. because they compress price mark-ups. The results suggest that in the context of a monetary union where the members differ in their ability to implement fiscal stimuli, there may be some positive synergies to be exploited from the combined implementation of (i) specific structural reforms in those countries with limited fiscal space, (ii) transitory fiscal expansion in those countries with the necessary fiscal room for manoeuvre and (iii) unconventional monetary policy stimuli by the common monetary authority. At the same time, such discretionary coordination across Members States might give rise to complex political economy processes, possible incentive distortions for the actors involved and implementation problems.[54]

Countries in the euro area have a single monetary authority, the ECB, which has to assess its policy stance against economic developments in the euro area as a whole. The only case in which monetary policy would, ceteris paribus, tend to counteract structural policies with expansionary (or tightening) measures would be if the structural polices led to an excessively low (or high) inflation outlook for the euro area as a whole at the relevant horizon. Beyond this reaction aimed at maintaining inflation below, but close to, 2% over the medium term, monetary policy is not tasked with incentivising structural reforms.[55] Monetary policy can, however, indirectly support structural reforms by ensuring price stability in the euro area, which strengthens the signal functions of prices and improves the allocation of resources.

A combination of several different reforms can help to avoid the short-term costs associated with individual reforms. Some reforms, while supporting long-term growth, may lead to a decline in output or employment in the short run. For example, this can be the case if lower employment protection initially leads to more dismissals than new job creation. This is more likely to happen in times of recessions or insufficient aggregate demand and in the event of significant matching frictions. However, if such reforms are combined with other reforms, the overall package may prevent short-term costs. This beneficial result of reform packaging can be derived in models with producer entry dynamics and search-and-matching labour market

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[53] However, such reinforcement may be weak e.g. if fiscal spillovers are small, as suggested, for example, by Gadatsch et al. (2016).

[54] Such political incentive processes are difficult to include satisfactorily in an already complex multi-country DSGE model.

[55] See also Leiner-Killinger et al. (2007).

frictions that allow reforms to be calibrated in terms of changes in structural parameters rather than as direct changes in price or wage mark-ups (see e.g. Cacciatore, 2016b and Box 3 on simulations of impacts of packages of reforms). Combinations of reforms can result in higher growth, lower unemployment and higher prices in the short run (while long-run growth effects are significantly positive). Moreover, the effects of a comprehensive reform package can exceed the beneficial effects of the sum of the individual reforms. These findings are due to the synergies which arise from removing several rigidities at the same time.

Box 1
On the interaction of fiscal and labour market reforms in Germany[56]

The package of reforms passed in Germany over the period 1999-2008, although not a fully coordinated programme in the strict sense, provides a vivid example of reform sequencing, representing a gradual implementation of fiscal, social security and labour market reforms. A centrepiece of the reform agenda was a set of extensive labour market reforms – commonly known as the Hartz reforms – aimed at improving labour market matching efficiency and reducing the generosity of the unemployment insurance system. These were accompanied by a raft of fiscal reforms, including several effective tax changes, and various measures to curb the rise in social security contributions.[57]

A model-based simulation of the reform package gives a clear picture of the overall effect of the set of measures and makes it possible to evaluate the impact of the coordinated labour market and fiscal reforms on different socio-economic groups (household types). The impact of the reform package is simulated using a medium-scale two-region DSGE model calibrated to Germany and the rest of the European Monetary Union.[58] Besides standard ingredients of New Keynesian DSGE frameworks, the model features liquidity-constrained households, search frictions in the labour market, and a comprehensive fiscal block that makes it possible to mimic the respective policy changes in considerable detail (Table A). Reform steps and tax changes are not fully anticipated by agents ex ante but in most cases come as a surprise when implemented (or, when announced earlier, are anticipated by agents only about one year in advance).

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[56] By Oke Röhe and Nikolai Stähler (Deutsche Bundesbank) based on Röhe and Stähler (2018).

[57] While the subsequent analysis focuses primarily on the Hartz reforms, it is important to recognise that these reforms constitute only one part of an extensive labour market reform agenda. Specifically, during the German recession social partners reacted quite flexibly, focusing on safeguarding jobs, which also included the willingness to make concessions in wages. Moreover, several collective agreements that had previously been concluded provided for working time corridors, working time accounts and opening clauses for times of crisis.

[58] For a detailed description of the model, see Gadatsch, Stähler and Weigert (2016).

Table A

Reform instruments and timing

Year	$\Delta\tau_c$	$\Delta\tau^{sc}_{employee}$	$\Delta\tau^{sc}_{employer}$	$\Delta\tau^w$	$\Delta\tau^k$	Δk^p_e	$\Delta\vartheta$	Δrrl
1999	0.51 pp	-0.42 pp	-0.42 pp					
2000	0.22 pp	-0.15 pp	-0.15 pp					
2001	0.23 pp	-0.15 pp	-0.15 pp	-1.59 pp	-1.08 pp			
2002	0.22 pp	-0.15 pp	-0.15 pp					
2003	0.22 pp	-0.15 pp	-0.15 pp					
2004				-0.75 pp		10.00 %		
2005				-2.12 pp			11.67 pp	-8 pp
2006								
2007	1.45 pp	-0.35 pp	-0.35 pp					
2008					-0.64 pp			

Source: Röhe and Stähler (2018).
Notes: Table shows percentage (point) changes in fiscal instruments. To simulate the reforms, policy instruments and the timing of policy actions are chosen to closely match the actual scenario. From 1999 to 2003, Germany raised energy taxes (τ_c) in order to finance a reduction in social security contributions ($\tau^{sc}_{employee}$ and $\tau^{sc}_{employer}$). In 2001, Germany cut corporate taxes (τ^k), and from 2001 to 2005 labour taxes (τ^w. As regards labour market reforms, the implementation of Hartz III in 2004 is modelled as an increase in the matching efficiency (k^p_e) between unemployed workers and vacancies. Hartz IV, put in place in 2005, consisted of reducing the replacement rate for long-term unemployed (rrl) and merging unemployment assistance for the long-term unemployed into social welfare assistance (reduction of level and extended means test). In addition, as part of the Labour Market Reform Act (Gesetz zu Reformen am Arbeitsmarkt), the entitlement duration for unemployment benefits was reduced, which is reflected by a corresponding increase in the probability of becoming long-term unemployed (ϑ). In 2007, value added tax (τ_c) was increased. One-third of the revenue was used to reduce the effective tax burden on labour by lowering social security contributions ($\tau^{sc}_{employee}$ and $\tau^{sc}_{employer}$). Finally, in 2008 Germany decreased corporate taxes (τ^k).

By introducing liquidity-constrained households which consume their entire income each period (the share of such households is set to 40%), it is possible to assess the distributional effects of individual policy measures on two different household types: intertemporally optimising households and rule-of-thumb (RoT) consumers.[59]

Looking at the labour market reforms in isolation, the simulation results for Germany suggest an unambiguously favourable effect on the key macroeconomic variables, namely output, consumption, investment and employment. In addition, the Hartz reforms turn out to have noticeable positive spillover effects on the rest of the euro area (Table B).

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[59] Of course, an approach that takes only two household types into account can only give a rough approximation of the "true" dimension of household heterogeneity. Nevertheless, such an approach still serves as a useful shorthand for pointing out possible distributional effects.

Table B

Long-run effects of German reforms

Variable	Percentage (point*) deviation from initial steady state	
Germany	**Labour market reforms**	**Labour market and fiscal reforms**
Output	1.38	2.29
Aggregate consumption	1.41	2.18
Optimiser's consumption	2.47	2.86
RoT's consumption	-0.18	1.16
Investment	1.16	2.56
Unemployment*	-1.56	-1.60
Rest of the euro area		
Output	0.09	0.15
Aggregate consumption	0.20	0.33
Optimiser's consumption	0.30	0.49
RoT's consumption	0.05	0.08
Investment	0.18	0.30
Unemployment*	-0.04	-0.06

Source: Röhe and Stähler (2018).
Note: Table shows long-run effects of the reform scenarios in percentage (point*) deviations relative to the initial steady state of the selected variables.

However, a disaggregated analysis of consumption reveals marked differences between RoT consumers and optimising households. The simulated labour market reforms not only increase consumption inequality between these two groups but also lead to a Pareto-worsening of liquidity-constrained households by reducing their steady-state consumption level. This is explained by the fact that RoT consumers cannot derive the same type of benefit as optimising households from the improved labour market efficiency and the lower unit labour costs for German firms, since they do not receive dividends or capital income.[60] Hence, optimising households are able to overcompensate for the negative effect on consumption originating from the loss in real wage income, which itself is primarily a result of the lower fall-back position in the wage bargaining process between households and firms due to shorter entitlement duration and lower unemployment assistance payments.

Turning to the simulation of the full reform package (labour market plus fiscal reforms) implemented between 1999 and 2008, the direction of effects on the key macroeconomic variables remains unaltered, although the medium to long-run gains are larger in terms of deviations from the variable's respective pre-reform long-run equilibrium level.[61] From a distributional perspective, noticeable differences show up when simulating the gradual implementation of German fiscal and labour market reforms. Specifically, the consumption inequality between the household types decreases sharply in the course of the implementation process, implying a Pareto-improvement in the medium to long run compared with the pre-reform period for optimising households and RoT consumers alike. The main reasons for the decrease in inequality – measured in terms of relative

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[60] Besides having unrestricted access to capital markets, only optimising households are assumed to own firms and hence to be entitled to dividends.

[61] Although Germany ran a significant budget deficit in the reform period, it can be shown that the increase in the deficit was overwhelmingly focused on profit-related taxes (also due to changes in the enterprise tax code, which are not considered here). However, in a high-debt environment the implementation of fiscal reforms might place much higher demands on the design of such reforms if risk premia on sovereign debt are considered.

changes in consumption – can be found in the effective tax changes that reduce the tax burden on labour. In particular, this increases available income and affects the consumption patterns of RoT consumers owing to their inability to smooth consumption.[62]

Box 2

Interactions between monetary policy, fiscal policy and structural reforms in a monetary union[63]

This box assesses the potential synergies from monetary policy, fiscal policy and structural reforms, and the channels through which they may materialise, in the context of a DSGE model of a two-region monetary union developed in Arce, Hurtado and Thomas (2016). In the model, the two regions, which may be referred to as "V" and "NV" (for "vulnerable" and "non-vulnerable" respectively) feature monopolistically competitive product and labour markets, such that output and employment levels are inefficiently low. Firms and households borrow long-term subject to collateral constraints.[64] Monetary policy is conducted by the common monetary authority by means of a Taylor rule for the nominal interest rate restricted by a zero lower bound (ZLB).[65]

The model is used first of all to construct a baseline scenario that reproduces some salient features of the recent macroeconomic evolution in the euro area. A union-wide negative demand shock reduces euro area inflation by enough to push the nominal interest rate against the ZLB. Once inflation recovers sufficiently, the nominal interest rate exits the ZLB at an endogenous "lift-off" date. In addition, owing to a negative financial shock specific to region V, the private sector in that region is embarked on a "slow deleveraging" process from which it exits endogenously once collateral values recover sufficiently.

Against the background of this baseline scenario, consider the impact of three different policies. First, region V implements structural reforms, modelled as permanent reductions in monopolistic price and wage mark-ups.[66] Second, region NV, which is assumed to have some fiscal space, implements a fiscal stimulus consisting of a transitory increase in government purchases.[67] Finally,

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[62] In this context it is worth noting that the model features only a very limited degree of household heterogeneity, which should be taken into account in the evaluation of the distributional impact of the reform package. Among other things, RoT consumers should not be confused with low-income households, which in turn would most likely react less sensitively to the simulated effective labour tax changes.

[63] By Carlos Thomas (Banco de España).

[64] As explained in Andrés, Arce and Thomas (2017), the coexistence of collateral constraints and long-term debt gives rise to a double debt regime: when collateral values are sufficiently high relative to outstanding debt, borrowers obtain new credit, but when the opposite is true, new credit disappears and borrowers reduce their outstanding debt at the contractual amortisation rates (slow deleveraging regime).

[65] In line with the connotation in Arce et al. (2016), this box uses the term "zero lower bound" to describe the constraints faced by monetary policy when the short-term nominal interest rate reaches or nears zero. Other parts of this paper use the term "effective lower bound", which is lower than zero because of storage and transportation costs.

[66] Both mark-ups are assumed to be reduced by 1%, following Eggertsson et al., (2014).

[67] Government purchases are assumed to increase on impact by 1% of region NV's (ex ante) GDP. This stimulus is fully financed by an increase in lump-sum taxes.

the monetary authority implements a forward guidance policy under which it commits to keeping the nominal interest rate at the ZLB for longer than its Taylor rule would prescribe.[68]

The impact of each of these policies is explained in detail Arce et al. (2016). In particular, structural reforms are found to be expansionary in the medium and long run, as one would expect, but also in the short run. This is despite their deflationary impact, which, coupled with a temporarily binding ZLB, produces a transitory increase in real interest rates.[69] In this model, the latter contractionary channel of reforms is outweighed by a number of expansionary channels. First, the long-run gains of reforms foster short-run spending by (forward-looking) households and entrepreneurs.[70] Second, reforms improve the region's competitiveness vis-à-vis the rest of the monetary union. Third, by raising asset prices and collateral values, reforms bring forward the end of the deleveraging phase and increase credit flows once the phase is over.[71] Reforms are found to have a (slight) negative spillover effect on region NV, because their deflationary impact partly spills over to region NV's inflation, which raises real interest rates in that region while the ZLB binds.[72] Finally, reforms can be more expansionary when implemented simultaneously in both regions provided the ZLB constraint does not bind, while this may not be the case if such a constraint is binding.

Regarding the potential synergies from monetary, fiscal and structural policies, the question is whether each of these policies is more effective at stimulating GDP and inflation when implemented jointly with the others than when taken in isolation. Chart A shows the effect of the region-specific policy package (fiscal stimulus in region NV and reforms in region V) relative to two different reference scenarios: one in which the monetary stimulus (forward guidance) is already in place (orange lines), and another one in which there is no such monetary stimulus (blue lines). Clearly, the same regional policy package is more effective in both regions when implemented jointly with the monetary stimulus.[73]

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[68]　In particular, the central bank commits to keeping its nominal interest rate at zero for two quarters more than its Taylor rule would endogenously prescribe.

[69]　See Eggertsson et al. (2014) for a discussion of this contractionary channel of reforms at the ZLB.

[70]　See Fernández-Villaverde, Guerrón-Quintana and Rubio-Ramírez (2014) for a discussion of this long-run income channel of structural reforms.

[71]　See Andrés, Arce and Thomas (2017) for a discussion of the transmission of reforms, through their impact on collateral values and the length of deleveraging, when implemented in a debt overhang.

[72]　The spillovers to the non-vulnerable region are instead positive if the reforms are implemented in a context in which the ZLB does not bind, because in that case the central bank can accommodate their deflationary impact.

[73]　For instance, such a package stimulates the vulnerable region's GDP by 1.0% more during the first year, and by an accumulated 4.6% more during the first four years, when implemented in conjunction with forward guidance than when taken in isolation; the corresponding synergies for region NV's GDP amount to 1.6% and 3.3%, respectively. Arce et al. (2016) also compare the effect of forward guidance when the regional policy package is already in place with the effect in the absence of such a package, finding that the monetary stimulus is more effective when national authorities are simultaneously implementing their respective policy stimuli.

Chart A

Effects of regional policy package (structural reforms in V and fiscal stimulus in NV): taken in isolation vs jointly with monetary stimulus

- effects of structural reforms in Region V and fiscal expansion in Region NV when the baseline does not have forward guidance
- effects of structural reforms in Region V and fiscal expansion in Region NV when the baseline has forward guidance
- baseline no-policy scenario
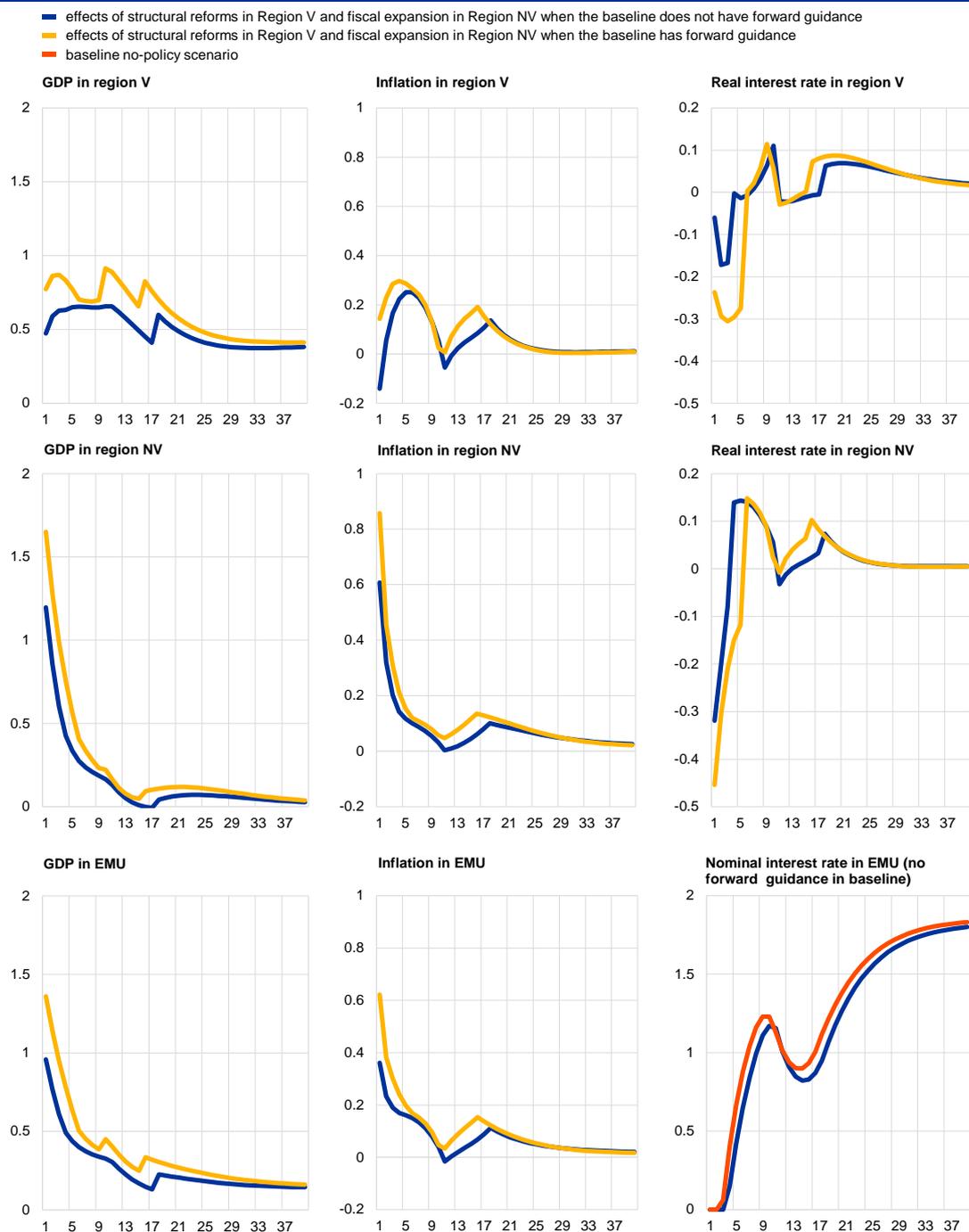
Notes: Horizontal axis in quarters; vertical axis in percent.
Deviations are relative to the respective baseline scenario, except for nominal interest rates, which are in levels.
Spikes are due to the endogenous effects of policies on the end-of-deleveraging dates.

Several channels are responsible for these positive synergies. First, the deflationary channel explained above, by which reforms raise real interest rates while the ZLB constraint remains binding, is mitigated if demand-side (fiscal and monetary) stimuli are implemented simultaneously, leaving only the expansionary channels of reforms. Second, inflationary fiscal expansions tend to

accelerate the exit from the ZLB, which mitigates their expansionary impact.[74] Thus, a forward-guidance policy that promises to keep nominal interest rates at the ZLB for longer than the inflationary path would normally prescribe undoes such a mitigating effect. Finally, the present discounted value of reform-driven gains in long-run activity is higher when the monetary authority promises to keep nominal interest rates low for longer, which in turn reinforces the impact of reforms on investment and asset prices.

Box 3
Simulations of effects of reform packages[75]

In order to explore the effects of structural reforms in the euro area, this box uses a model developed by Cacciatore, Duval, Fiori and Ghironi (2016b).[76] The advantages of this model are twofold. The structural reforms are captured via changes in structural parameters, such as workers' bargaining power or regulatory entry costs, and the set-up and mechanisms through which structural reforms affect economic outcomes are richer than in other DSGE models used in the literature on the effects of structural reforms, as they include both firm (entry-exit) and labour (hiring-firing) dynamics. The calibration of this model provides for a number of interesting findings.

First, both product and labour market reforms can result in significantly higher growth and lower unemployment in the long term (see Table A and Chart A). By contrast, the short-term employment and output effects depend on the type of the reform.[77] These conclusions are in line with much of the recent work on the effects of structural reforms, which suggests that while the short-term impacts may be qualitatively somewhat uncertain, the medium to long-term effects are unambiguously positive as regards employment and growth, with the precise magnitudes depending on reform type(s), timing and sequencing, the setting in which they are undertaken (cyclical and institutional factors), and their credibility.

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[74] See Erceg and Lindé (2014) for a thorough discussion of this issue.

[75] By Vincent Labhard (ECB).

[76] See Cacciatore, Duval, Fiori and Ghironi (2016b), and Cacciatore and Fiori (2016).

[77] Labour market reforms operate through lower cost of labour (which supports hiring) or by increasing incentives for workers to supply labour. In the very short run, lower wages translate into lower marginal costs, lower consumer prices and thus higher (price) mark-ups. Subsequently the lower costs induce renewed hiring of labour and lower unemployment, thus offsetting some of the initial reduction in marginal costs, while also stimulating supply and aggregate demand supported by higher private consumption. Product market reforms operate largely through the creation of new firms and increased productivity. Owing to compositional effects at the incumbent firms (where less productive workers are laid off due to increased competition) and, over time, the hiring of mainly higher-skilled workers by new firms, in the aftermath of product market reforms there is an increased share of high-skilled workers in employment, which pushes up wages and prices.

Table A

The effects of reforms on welfare-relevant variables

	Output 2Qs/20Qs		Unempl. 2Qs/20Qs		Cons. 2Qs/20Qs		Inflation 2Qs/20Qs		Interest rate 2Qs/20Qs		Mark up 2Qs/20Qs	
Reform package:	2.4	4.5	-2.6	-3.3	0.1	3.0	0.5	0.1	0.5	0.3	-1.2	-0.1
• employment protection (lower firing costs and lesser bargaining power of workers)												
• and unemployment benefits (lower unemployment benefit replacement rate)												
• and product markets (lower regulation entry costs)												
Individual reform:												
• employment protection (lower firing costs and lesser bargaining power of workers)	-0.2	0.1	0.2	-0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Individual reform:												
• unemployment benefits (lower unemployment benefit replacement rate)	1.5	2.4	-2.2	-2.9	1.3	2.0	0.0	0.0	0.0	0.0	0.0	0.0
Individual reform:												
• product markets (lower regulation entry costs) when the labour markets is rigid	0.6	1.5	0.0	0.4	-1.4	0.6	0.4	0.1	0.5	0.3	-1.1	-0.1

Source: ECB staff calculations based on Cacciatore et al. (2016b).
Notes: The table shows the effects in percentage points of the reform(s). In each case, the reform brings the relevant policy parameter from the average level prevailing across the euro area half way to the average levels prevailing across a group of non-euro area OECD countries characterised by more flexible market conditions, i.e. the best performers.[78] See also Figure 5, Cacciatore et al. (2016b).

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[78] The target for flexible product market regulation is constructed as an average of Australia, Japan, Denmark, Sweden, the United Kingdom and the United States. The target for unemployment benefits and employment protection includes Australia, Canada, Japan, Korea, New Zealand, Turkey, the United Kingdom and the United States. For further details see Cacciatore et al. (2016b), footnotes 31-32.

Chart A

The effects of a reform package
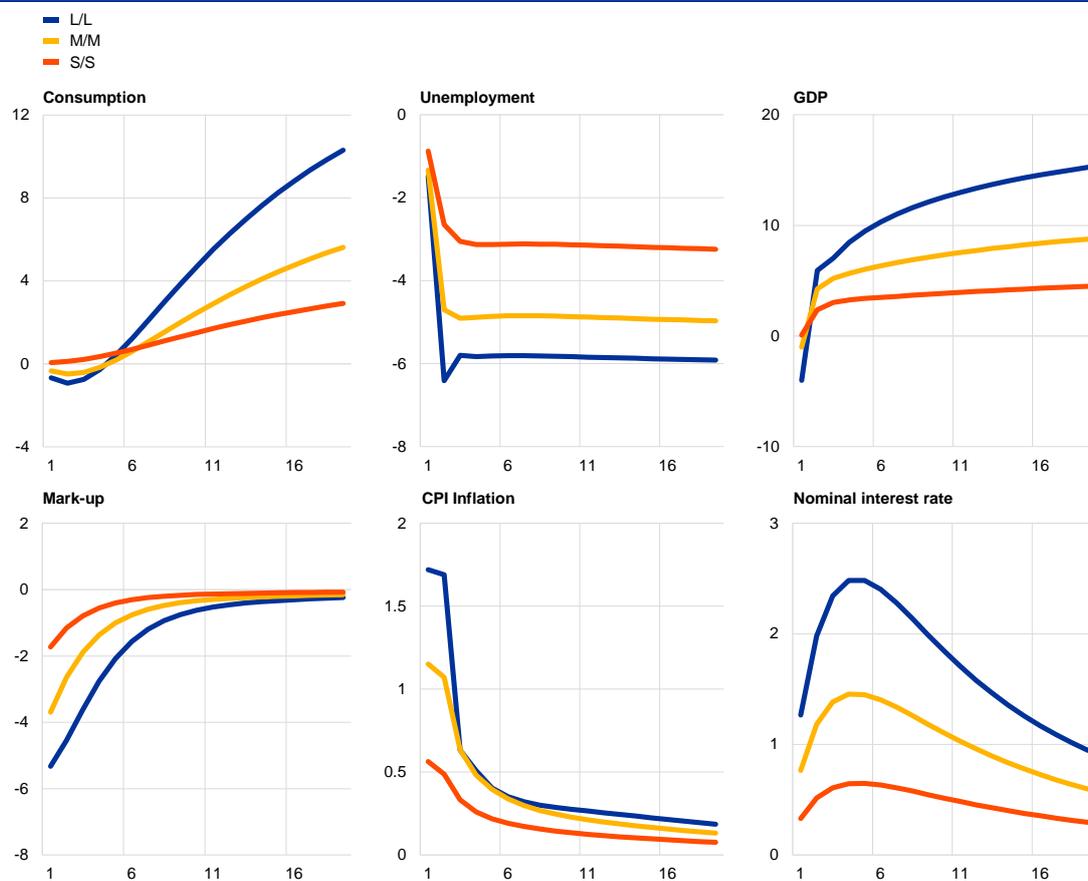
Source: ECB staff calculations based on Cacciatore et al. (2016b).
Notes: The plots show the responses of consumption, unemployment, GDP, mark-up, CPI inflation and the nominal interest rate. The reform size is labelled S (small reforms, i.e. 50% less than M, red line in the chart), M (medium reforms, i.e. the benchmark, yellow line), L (large reforms, i.e. 50% more than M, blue line). The medium reform M is a reform which brings the relevant structural parameter from the average level prevailing across the euro area to the average levels prevailing across a group of non-euro area OECD countries characterised by more flexible market conditions.

Second, labour or product market reforms do not have negative effects on inflation. This result stands in contrast to models that proxy reforms by "exogenous" shocks to mark-ups and find noticeable negative effects on inflation, such as Eggertsson et al. (2014). The difference in results arises because in the context of the model used here the adjustment to reforms is being driven to a large extent by expectations about long-run effects of reforms. This assumes that the lasting implementation of the reform is expected to be credible. In this setting, the effect on inflation, on impact, tends to be non-negative so that the ELB may not be an obstacle to the implementation of structural reforms.

Third, the effects of a comprehensive reform package can exceed the beneficial effects of the sum of the effects of individual reforms (see also Figure 5 in Cacciatore et al., 2016b). In particular, the implementation of the reform package avoids the negative short-term effects on output and employment related to an isolated reform that lowers employment protection. These findings are due to the synergies which arise by removing several rigidities at the same time. This difference is particularly striking in the case of the product market reform, which entails more output and employment in a package (when labour markets are more flexible) than individually (when they are not).

5 The role of high-quality institutions and good governance

This chapter provides an overview of the importance of good governance and high-quality institutions[79] for inclusive growth and resilience. There is substantial cross-country evidence that high quality of institutions is strongly correlated with subsequent long-term growth and well-being, after controlling for the level of income and thus catching-up potential. A wealth of theoretical and empirical literature suggests that the direction of causality predominantly runs from institutions (and other factors such as exogenous shocks, culture and geopolitical developments that may partly influence institutions) to long-term growth rather than vice versa.

Most available institutional and governance indicators show a high degree of heterogeneity across EU countries. Structural reforms that credibly enhance the quality of national governance and institutions (as measured e.g. by the rule of law or the prevalence of corruption) could therefore substantially boost longer-term growth and social welfare in EU countries. Importantly, well-functioning and impartial public institutions are needed to ensure that reforms of market regulations (Chapter 6) are efficiently implemented and thereby achieve their objectives.[80] Finally, as also mentioned in the Five Presidents' Report,[81] such reforms would at the same time support convergence towards more resilient structures and increase the effectiveness of monetary policy in EMU.

While an exhaustive overview of the debate on institutions and economic growth is beyond the scope of the paper, the following sections shed light on four aspects in particular: (i) rent-seeking and economic growth (Section 5.1), (ii) the impact of enforcement institutions on regulation and structural policies (Section 5.2), (iii) tax administration reforms (Section 5.3), and (iv) the links between institutions, public debt and economic growth (Section 5.4).

5.1 The costs of rent-seeking[82]

An important objective of institutional reforms is to limit and ideally avoid rent-seeking and rent-extraction. In this paper rent-seeking is broadly defined as the engagement of firms or industries with the public sector to support private interests

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[79] "Quality of institutions" refers to how well economic institutions are able to deliver a level playing field for all economic actors and to ensure that rent-extraction and waste of resources are limited, and that sound economic incentives are in place for encouraging people to invest, innovate, save, solve problems of collective actions and provide public goods. See Acemoglu et al. (2004).

[80] More generally, the impact of various structural reforms on productivity growth also depends on the institutional and structural starting conditions, including the level of economic development (e.g. Dabla-Norris et al., 2017).

[81] Completing Europe's Economic and Monetary Union, 2015.

[82] Includes contributions by Luc Dresse (Nationale Bank von België/Banque Nationale de Belgique), and Claire Giordano, Paloma Lopez-Garcia and Barbara Jarmulska (ECB).

(Aidt, 2016) at the expense of social welfare. It can comprise phenomena such as corruption, cronyism, or privileged and non-transparent access by a few selected firms to public information, resources and/or decision-making processes. Economic rents are the return to a factor of production exceeding those that would prevail if market-driven mechanisms were in force (Furman and Orszag, 2015). According to recent research (Cette et al., 2016, OECD, 2016), the increasing prevalence of rent-seeking may be one reason for the productivity slowdown in advanced economies, made possible by regulations and barriers to entry that protect or implicitly subsidise incumbents and low-productivity firms.[83] This can lead to too little innovation and/or to an inefficient allocation of production factors across firms and sectors.[84]

Weak institutional frameworks create rent-seeking opportunities (North, 1990).
Low quality of institutions can be a key determinant of rent-seeking behaviour. Examples include ineffective or partial rule of law, absent or weakly enforced property rights, and insufficient control of corruption (Van der Ploeg, 2011).[85] "Soft budget constraints" (Kornai et al., 1998) are also relevant. These occur where distortions (e.g. overinvestment in certain types of projects) in private investment decisions arise because enterprises can expect to extract a bigger subsidy ex post than was socially efficient ex ante (see also Challe et al., 2016).

Rent-seeking activities can be divided into (i) direct or indirect privileged transfers and (ii) privileged regulation. The first category includes targeted subsidies, the private use of public goods, policies that increase the demand for an interest group's services, tax burden reduction favouring special interests, and illegal forms of rent-seeking (e.g. corruption, blackmailing and illegal use of inside information). The second category comprises privileged legislation resulting in reduced competition, disguised transfers and privileged avoidance of regulation (Angelopoulos et al., 2009). In some cases rent-seeking takes place in a grey zone, where its legality is uncertain ex ante and can only be clarified – if at all – ex post in often time-consuming and costly legal processes.

Rent-seeking exerts a drag on socially beneficial production and innovation.
Time and energy devoted to rent-seeking hurts overall productivity by diverting resources away from more innovative pursuits (Furman and Orszag, 2015). A related channel is that of allocation of talent (Murphy, Shleifer and Vishny, 1991; Acemoglu and Verdier, 2000). When talented people become entrepreneurs, they improve the technology in their line of business, and overall productivity and income grow as a result. In contrast, when rent-seeking sectors offer higher incomes to talented people than productive sectors, growth is hampered. Since the effort to actively "seek" rents is socially unproductive, winners gain less than losers lose. Rent-seeking behaviour thus implies investing resources to "win" negative-sum games.

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[83] Implicit subsidies – such as the implicit guarantee of deposits and debt in (large) financial firms by the public sector – can reduce the incentive of firms to hold sufficient capital.

[84] Zingales (2017) argues that the ultimate causes of the productivity slowdown in Italy are familyism and cronyism, as reflected for instance in the lack of meritocracy in the selection and rewarding of managers.

[85] See also the "commodity curse" (Frankel, 2010).

Rent-seeking can be associated with overly complex or intrusive laws and regulations. Rent-seekers may use their influence on the legislative process to ensure that laws and regulations protect their rents. This might lead to overly complex regulations that can effectively provide an unfair advantage to specific firms or industries which are protected by the regulations and/or to those firms and groups that can afford highly qualified lawyers and experts able to make best use of complex regulations, including finding loopholes (Gratton et al., 2017). Ordinary citizens and smaller or younger firms that cannot afford to pay such highly qualified experts are at a relative disadvantage.[86]

Rent-seeking activities themselves exhibit increasing returns to scale. An increase in rent-seeking makes rent-seeking more attractive (Murphy, Shleifer and Vishny, 1993). In a seminal paper, Krueger (1974) argues that government restrictions, for example in terms of import licences, lead people to compete for rents. If society perceives that income distribution is the result of a lottery where economic success depends on skills in the rent-seeking game, a political vicious circle might develop. People perceive that the market delivers unequal income distribution because of rent-seeking and therefore demand more government intervention, which might, in turn, worsen rent-seeking competition.[87]

Rent-seeking undermines social fairness and trust. More generally, privileges connected to vested interests, along with corruption, can erode citizens' sense of fairness and trust in institutions and the government, hence weighing on social cohesion (OECD, 2016). Ultimately, the lack of effective control of corruption leads to even worse laws and regulations that undermine long-term growth and welfare.[88] However, complexity of law does not necessarily imply increased rent-seeking. In some cases, overly simplistic laws may allow for bribery or tax evasion. Rent-seeking also seems to increase the risk of poverty. Bosco (2016), using a macro panel of 31 European countries, estimates that a 1% increase in corruption results in around a 4% increase in poverty risk.

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[86] Cochrane (2016) discusses the problem of overly complex regulations in the United States as follows: "In many areas, however, the regulations are so vast, so complex, self-contradictory and so vague, that they basically give the regulators free rein to do what they want. In many cases, there is not a set of rules that you can read and comply with. You need to ask for pre-emptive permission from a regulator, who determines if your project can go ahead. […] Projects that cost millions cannot bear years or often decades of delay in getting approvals."

[87] Zingales (2012) describes this vicious circle as follows: "In response to the uncertainty stemming from today's populist backlash, companies have begun to demand special privileges and investment guarantees. [...] Such privileges and guarantees stoke the public anger that generated the populist backlash in the first place by confirming the sense that government and large-market players are cooperating at the expense of taxpayers and the small investors. [...] No longer certain they can count on contracts and the rule of law, legitimate investors then grow scarce. This, in turn, leaves troubled businesses little recourse but to seek government assistance, thereby reinforcing crony capitalism." On the vicious circle between populism and rent-seeking, see also Aligica and Darko (2015), who refer to Zingales (2012).

[88] Gratton et al. (2017) propose a dynamic theory of the interaction between legislation and the efficiency of bureaucracy and argue that incompetent politicians have an incentive to produce many complex laws. They argue that when bureaucracy is inefficient, the effects of politicians' legislative acts are hard to assess. Incompetent politicians thus have strong incentives for passing laws so as to acquire the reputation of skilful reformers. But a plethora of often contradictory laws can itself lead to a collapse in bureaucratic efficiency.

Rent-seeking tends to affect innovators and young firms more negatively than established producers. Innovators and young entrepreneurs may often lack strong lobbies. Innovators are also often more credit-constrained, since human capital or intangibles are poor collateral.

It is very difficult to measure rent-seeking. Some empirical studies have, for example, used the number of lawyers (Laband and Sophocleus, 1988; Murphy, Shleifer and Vishny, 1991), public sector employment (Brumm, 1999; Cole and Chawdry, 2002) and the number of registered lobbyists (Mork, 1993; Rama, 1993) as a proxy of these activities. Other studies have instead employed institutional features that can define rent-seeking as an inverse proxy of those features. Such indicators include the extent of democracy (Iqbal and Daly, 2014), the degree of regulation (Holcombe and Boudreaux, 2015) and freedom of the media (Ahrend, 2002; Brunetti and Weder, 2003). For example, there is evidence of a clear positive relationship in the EU between the freedom of the press and the ease of doing business on the one hand, and control of corruption, on the other (Charts 24 and 25).

Chart 24
Freedom of the press and control of corruption

(x-axis: freedom of the press, average 2005-2015; y-axis: control of corruption, average 2005-2015)
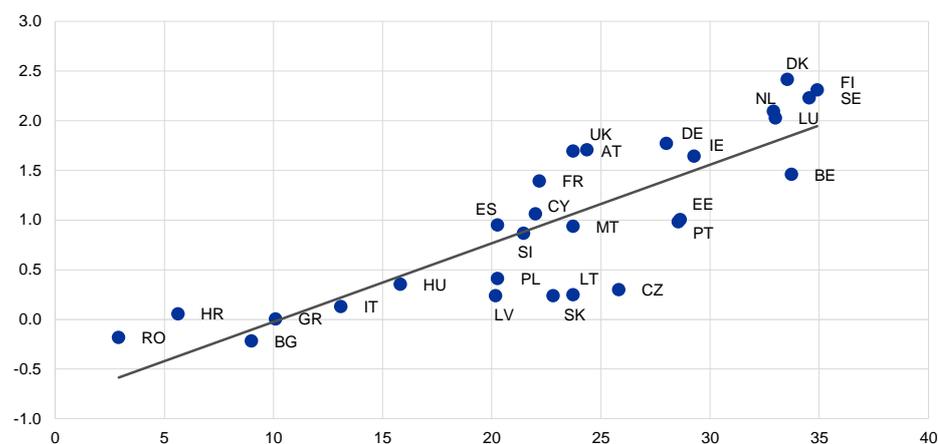
Sources: Freedom House, World Bank Worldwide Governance Indicators.
Notes: An increase in the "control of corruption" indicator signals a decrease in corruption.

Chart 25

Ease of doing business and control of corruption

(x-axis: DBI, average 2005-2015; y-axis: control of corruption, average 2005-2015)
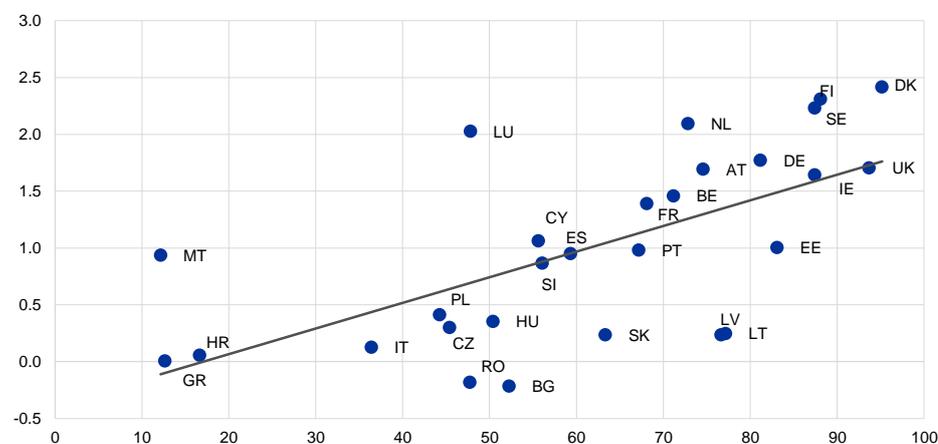
Sources: World Bank Worldwide Governance Indicators and Doing Business indicators.
Notes: DBI is the World Bank Doing Business indicator. Index ranges from 1 to 100, with 100 being the most business-friendly environment. An increase in the "control of corruption" indicator signals a decrease in corruption.

A number of studies suggest that rent-seeking brings substantial welfare costs. While measuring the costs of rent-seeking is a significant undertaking (see Box 4 for a discussion of measurement issues), some estimates are available. Mueller (2003) and (Angelopoulos et al., 2009)[89] point out that the welfare costs of rent-seeking can be substantial. Estimates of the corruption costs in the EU as a whole range from EUR 120 billion per year (European Commission, 2014b) to between EUR 179 billion and EUR 900 billion per year (study by the RAND Institute published by the European Parliament, 2014). Aghion et al. (2016) use an endogenous growth model calibrated to match US state-level data and conclude that limiting corruption and making the government more efficient have positive growth effects that exceed those associated with optimal tax calibration.

In conclusion, both the protection of incumbents and poor governance contribute to rent-seeking behaviour. Reforms improving governance have great potential to reduce the economic and social costs associated with various forms of rent-seeking. They can support innovation-related activities and entrepreneurship. Well-balanced innovation and competition policies are key. For example, intellectual property rights are warranted in an increasingly knowledge-based economy, but require complementary pro-competition policies.

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[89] Angelopoulos et al. (2009) use a DSGE model to compute the social cost of rent-seeking in Europe. They find that significant proportions of GDP are extracted as rents. The also find that rent-seeking costs differ significantly across individual euro area countries.

Box 4
Corruption and productivity growth[90]

This box focuses on one form of rent-seeking, namely corruption, which can affect aggregate productivity growth via two channels. First, corruption can affect individual firms' productivity (within-firm productivity growth) by either favouring or constraining its productive activities. Second, corruption may condition the degree of efficiency with which production factors are allocated across firms (allocative efficiency or its inverse, input misallocation), again by either diverting or channelling resources from the most to the least productive units.

In particular, bribes act as an arbitrary and highly uncertain tax on the paying firms' profits, which may lead entrepreneurs to expand less rapidly and to organise production to minimise the need for public services, thus resulting in the size of their firm being sub-optimal (Murphy, Shleifer and Vishny, 1991; 1993). In contrast, better-connected firms, which successfully pay bribes to obtain government services, survive in the market regardless of their efficiency (García-Santana et al., 2016). Without strong control of corruption, potentially corrupt bureaucrats and politicians have an incentive to create inefficient, costly regulations that guarantee them high income from bribery and other forms of corruption.

Framework conditions affect the corruption-growth link. The first wave of studies on the corruption-aggregate growth link generally employed standard linear growth regressions. In particular, the seminal paper by Mauro (1995) finds a negative association between corruption and investment in a vast sample of advanced and emerging economies.

More recent studies based on firm-level data show that bribery and corruption seem detrimental to productive or allocative efficiency. In macroeconomic studies it is generally difficult to determine separately the impact of corruption on each of the two components of aggregate productivity growth mentioned earlier, namely firm productivity growth and allocative efficiency. The recent availability of firm-level survey data has made it possible to assess the link between a narrower definition of corruption (bribes) and each of these two components. Focusing specifically on central and eastern EU countries, both De Rosa, Gooroochurn and Görg (2010) and Hanousek and Kochanova (2015) find a negative link between bribes and firm performance. Bribery – used as a means of circumventing given institutional deficiencies – does not emerge even as a second-best option for achieving higher firm productivity. For these same countries, Gamberoni et al. (2016b) show that corruption growth is associated with a rise in both capital and labour misallocation, although the size of the impact depends on several framework conditions.

In conclusion, the introduction and/or enforcement of sound anti-corruption frameworks in EU countries has the potential to result in significant productivity gains via two channels. These gains may materialise both by enhancing individual firms' performance and by reducing input misallocation across firms. However, owing to relevant non-linearities at play, the link between corruption and productivity is conditional on the geographical, institutional and political setting. This implies that targeted action against corruption should be embedded in a more comprehensive strategy of institutional reform. In addition to the other positive spillovers driving inclusive growth, complementary structural reforms aimed at improving both regulatory and institutional quality are indeed key for achieving these productivity gains (e.g. by boosting social trust and fairness).

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[90]   By Claire Giordano and Paloma Lopez-Garcia (ECB).

5.2   How enforcement institutions can shape the effects of structural polices[91]

Enforcement institutions are an important determinant of the effects of regulations and other structural policies. The central institution in charge of the enforcement of private contracts and public regulations in any developed economy is the judicial system. An important role is also played by public administrations that are responsible for monitoring and ensuring the application of laws and regulations. The economic literature has enquired why, in the presence of similar regulations, the effects of structural policies markedly differ between comparable countries or even regions (within a specific economy). One of the answers is that the set of "informal institutions" (according to the classification in North, 1990[92]) varies. In other words, customs and social norms vary across countries (Acemoglu and Jackson, 2017). Another explanation is that regulation and structural policies, even under the presence of similar "informal institutions" are implemented, or "executed" (or "enforced"), differently by public administrations and/or the judicial system.

If the "enforcement institutions" fail to function efficiently, or if they operate in an extortionate fashion, legal uncertainty may increase, and many investments or production activities may not take place. The efficient functioning of an economy requires not only contracting, but also undertaking the inspection needed to ensure that the terms of the contract are being observed (Coase, 1960; North, 1990). Similarly, this can be said about the law and its enforcement. It has been well established that the protection afforded to property rights and private contracts is directly related to economic development (Acemoglu et al., 2001; Rodrik et al., 2004; Acemoglu and Johnson, 2005).

Not surprisingly, some studies have found the design and efficacy of judicial systems to have specific impacts on economic performance at the international and regional level (see Palumbo et al., 2013, or Mora-Sanguinetti, 2017 for a survey of these studies). At the international level, Djankov et al. (2008) provide evidence that better debt enforcement (which they measure as the cost, time and percentage of credit recovery in insolvency procedures or in bankruptcy) enhances the development of debt markets. Exploiting cross-country differences, different studies (Bae and Goyal, 2009; Qian and Strahan, 2007, among others) find that improved contract enforcement induces credit suppliers to lengthen loan maturity, reduce loan spreads and increase loan size.[93] Mora-Sanguinetti et al. (2017) analyse how differences in the availability of credit and the evolution of NPL ratios (at the local level) may be partially explained by regional variations in the quality of loan contract enforcement in Spain.[94] They conclude that a rise in the clearance rate of executions (i.e. when a judge enforces the repayment of a debt)

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[91]   Contribution by Juan S. Mora-Sanguinetti (Banco de España).

[92]   North (1990) stressed that enforcement mechanisms were the main difference in the institutional structure between the Third World and the developed economies (and not regulation or the law per se).

[93]   Demirgüç-Kunt and Maksimovic (1998) showed that better contract enforcement increased firms' use of external financing to fund growth.

[94]   See also Jappelli et al. (2005) for Italy, Shvets (2013) for Russia and Fabbri (2010).

increases the ratio of total credit to GDP at the local level.[95] Furthermore, in provinces where declaratory procedures are more efficient, less credit is declared as non-performing (the latter effect, however, is only observed after the onset of the "Great Recession" in 2008).[96]

Partially as a result of the distortions suffered by the financial markets, firms have difficulty growing in an environment where enforcement institutions are of low quality. At the international level and using firm-level data, Kumar et al. (2001), analyse evidence for 15 European countries, finding that more efficient judicial systems are associated with larger firms and that this effect is more pronounced for low capital-intensive firms.[97] The authors explain this observation by the fact that a more sophisticated legal system is necessary to protect intangible assets, such as reputation or client relationships.[98]

Judicial efficacy seems to have a positive impact on firm size (as in the case of Mexico: see Laeven and Woodruff, 2007). Giacomelli and Menon (2016) study the case of Italy and suggest that reductions in the length of Italian civil proceedings would increase the average firm size. García-Posada and Mora-Sanguinetti (2015) find that greater efficacy of the judicial system at the local level seems to increase the growth and size of Spanish companies, while also encouraging the entry of new firms.[99]

The functioning of the labour market is also affected by inefficient judiciaries (see Ichino, 2003, or Berger and Neugart, 2011). This effect is especially important in the case of the Spanish economy. Jimeno et al. (2015) point out that judges are "active" decision-makers when interpreting the law in a dismissal conflict in Spain. They therefore suggest that it is important to analyse the characteristics of judges

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[95] However, the declaratory stage of the procedure (i.e. when a debt is first verified by a judge) does not seem to be statistically significant. A possible explanation to this finding is that, throughout the economic cycle, a relevant proportion of the defaults that take place are strategic (i.e. defaults by a solvent debtor).

[96] In addition, the real estate markets can be distorted by inefficient enforcement institutions. More specifically, if a landlord perceives insecurity in expelling a tenant who does not pay the rent or does not comply with the rest of conditions of the lease, he or she will most likely decide to remove the dwelling from the rental market; this will lead to a shift towards owner-occupancy, which does not rely on contract enforcement. The impacts have been studied at the international level (Casas-Arce and Saiz, 2010) or for the specific case of Spain (Mora-Sanguinetti, 2012). Johnson et al. (2002) showed that timely contract enforcement fostered competition by encouraging buyers to enter into transactions with sellers lacking an established reputation. As a result, entry barriers are reduced.

[97] Inefficient judicial systems and poor contract enforcement can lead to sub-optimal use of technology and resources, which hinders growth. Ferguson and Formai (2013) show that this disadvantage also depends on the extent to which the firm can vertically integrate to compensate for the lack of contract enforcement. In a similar vein, Nunn (2007) shows that a shorter length of trials fosters specialisation in industries where relationship-specific investments are most important.

[98] Beck et al. (2006) analyse the largest industrial firms in 44 countries and find that firm size is positively related to institutional development (including judicial efficacy) and to the development of financial intermediaries.

[99] If the firm entry rate is broken down by type (that is, if we differentiate between the legal type of the company: limited liability –sociedades anónimas and limitadas – unlimited liability and entrepreneurs, for example), a decrease in the efficacy of justice only reduces the entry of new entrepreneurs, but does not have a significant impact on larger firms with limited liability structures (García-Posada and Mora-Sanguinetti, 2014). This result can be explained by the fact that the lack of judicial efficacy can be considered a fixed cost to be paid by the companies that litigate and, like any fixed cost, is a proportionally higher for a (small) entrepreneur than for a large company.

when analysing the differences between "legal" and "de facto" dismissal costs (i.e. the compensation actually paid in Spain to the dismissed employee).[100]

5.3   Tax administration reforms[101]

Effective tax collection is of fundamental importance for ensuring a fair nature of any taxation system. Unpaid taxes reduce the pool of resources available to the government and place an unfair burden on compliant taxpayers, affecting the efficient allocation of resources.[102] In addition, lack of discipline in fulfilling tax obligations may hinder the effectiveness of economic and social policies. Finally, a perception of unfairness among taxpayers may lead to overall social discontent with political implications. In this context, ensuring high tax compliance is a major priority for any government. Tax administration reforms are often a necessary step towards achieving this objective.

Tax compliance appears to have worsened markedly during the recent economic crisis, leaving considerable scope for improvement. Gauging the effectiveness of tax collection is inherently difficult. VAT gap estimates for EU countries[103] (see Chart 26 for 2014), made by CASE, point to an increase in VAT compliance gaps for most of the countries from 2006-2007 to 2010-2011, but a decrease thereafter, presumably due to higher detection probability.[104] This is consistent with evidence that tax evasion increases during economic downturns, partly owing to gambles for resurrection in an attempt to avoid bankruptcy (see Brondolo, 2009 and the literature quoted therein). Alstadsæter, Johannesen and Zucman (2017) combine microdata leaked from financial institutions in tax havens with randomised audit, amnesty data, and population-wide registry data to study the size and distribution of tax evasion. They find that the income and wealth that are subject to tax evasion are highly concentrated among the rich. This suggests that tax evasion considerably exacerbates the rise in inequality. The authors also find that a reduction in tax evasion by means of a tax amnesty does not result in an increase in legal tax avoidance among tax evaders. This result suggests that fighting tax evasion can be an effective tool to collect more tax revenue from the wealthy.

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[100] The results indicate that judges seem to be sensitive to local market conditions (such as the unemployment rate) and not only to legal provisions. In fact, the Spanish labour market reforms of 2010 and 2012 have slightly reduced the association between the unemployment rate and the likelihood of a dismissal being declared inadmissible by a judge.

[101] Contribution by Krzysztof Bankowski (ECB).

[102] Almunia and López Rodríguez (2017) analyse the effects of firm size-dependent tax enforcement on firms' tax compliance and find that firms strategically bunch below the eligibility threshold in order to avoid stricter tax enforcement.

[103] The VAT gap is the difference between the theoretical tax liability under tax law and revenue actually collected. It can be interpreted as an indicator of VAT compliance. For time series data see CASE (2016) and CASE (2013).

[104] CASE (2016) contains VAT gap estimates for the period 2010-14 calculated consistently with the ESA 2010 standard. The total amount of VAT lost across the EU-27 in 2014 (the latest available year) is estimated at EUR 159.5 billion (14% of the total expected revenue).

Chart 26

VAT gap estimates in 2014

(percentage of the theoretical tax liability)
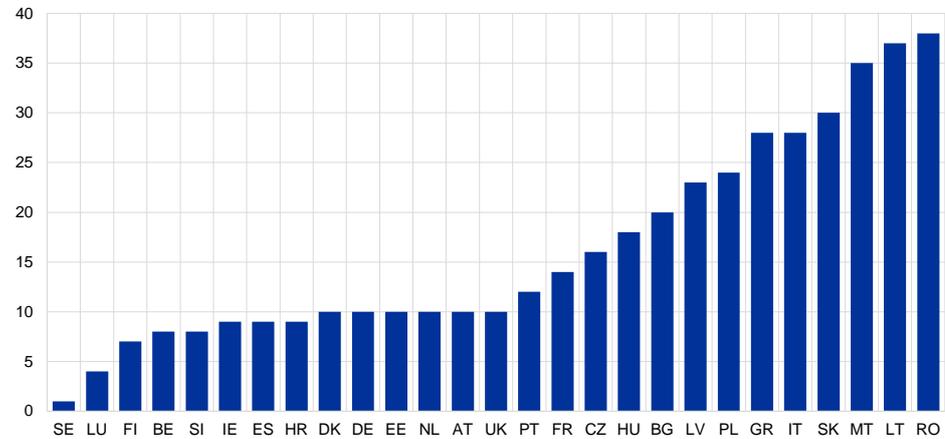
Source: CASE (2016).
Note: VAT gap is defined as the difference between the expected VAT revenue and the amount actually collected.

Tax avoidance strategies and inefficient tax systems have a national and supranational dimension. Inefficiency typically has to do with the complexity of tax systems. An excess of tax breaks and exceptions to regular tax rates introduces a wedge between the theoretical tax system and its actual ability to collect revenues. Another example concerns tax avoidance strategies that exploit gaps in national tax rules to artificially shift profits to low or no-tax locations, a practice known as base erosion and profit shifting. Tørsløv, Wier and Zucman (2017) estimate that 45% of multinationals profits are artificially shifted to tax havens, and as a result the EU loses around 20% of its corporate tax revenues (Chart 27). Institutional factors and financial developments also seem to play a role. Papadia and Zylberberg (2017) note that tax compliance responds in a strongly negative way to changes in tax rates. The decrease in tax compliance following a tax hike is particularly pronounced for countries where tax enforcement is weak and firms at the margin of informality constitute a large share of the economy.

Chart 27
Lost corporate tax revenue due to artificial profit shifting

■ profits shifted to EU tax havens
■ profits shifted to non-EU tax havens

Turning a blind eye to non-compliance amid an economic downturn is not an effective countercyclical strategy. Revenue authorities may be tempted to deliberately relax compliance procedures and introduce other measures, such as tax amnesties and moratoria on audits, to help smooth the downturn. However, such actions are strongly inadvisable, as they pose a risk of deterioration in enforcement credibility and entrenchment of non-compliance.[105] In this context, rule-based measures that preserve a level playing field and are aimed at easing the financing conditions of taxpayers are strongly preferable. Such measures include extensions of payment deadlines and reductions of tax advancements, coupled with reforms aimed at boosting the capacity of the tax administration to deal with a crisis and increasing non-compliance.

Many EU Member States have undertaken material reform efforts to improve the efficiency of tax collection. In many cases, actions have been focused on amending the institutional set-ups of revenue organisations by consolidating them, increasing their degree of autonomy, restructuring them around functions (e.g. monitoring, collection, audit) rather than types of tax and assigning more importance to headquarters. Measures in this area have also included the creation of specialised units focused on the management of specific taxpayer segments that are particularly relevant for maintaining high compliance (i.e. large taxpayers and wealthy individuals).[106] The experiences with these reform initiatives could be helpful for those countries that still need to improve the efficiency and fairness of their tax administration.

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[105] While the IMF admits, for instance in IMF (2015), that increased tax non-compliance may act as an automatic stabiliser, it also argues that the approach is economically unadvisable.

[106] Countries have also enhanced processes and methods to make revenue collection more efficient. In particular, they have introduced risk-based techniques, strengthened tax debt collection procedures, increased the role of IT-based automated procedures and facilitated the exchange of information used for cross-checking with other stakeholders.

Despite progress made in recent years, large challenges to effective tax collection remain. The reform effort in the area of tax administration should be continued or even stepped up. Weak tax administrations and legal vagueness or complex regulations still cause significant losses to public revenues in many countries, with negative consequences for social trust. While many of the actions introduced recently have already brought benefits, the long-term character of tax administration reforms requires continuous resolve. Only comprehensive and consistent strategies have a chance of influencing the tax payment culture of a society, which in the end remains of paramount importance as a determinant of compliance. Recent experience suggests that increasing the use of cashless transactions may hold considerable potential for improving further tax compliance and collection.[107]

Recent research[108] **shows that tax evasion and corruption seem to increase output losses from revenue-based fiscal consolidation, particularly in the longer run.** Both corruption and tax evasion imply that larger increases in tax rates are needed to achieve a given fiscal consolidation target. Pappa, Sajedi and Vella (2015) find that in the presence of corruption and tax evasion, revenue-based consolidation is particularly detrimental for employment and investment, and much less so for consumption. However, in the presence of tax evasion and corruption, consolidation based on spending cuts seems to be associated with larger welfare gains. This has two policy implications. First, reforms that address corruption and tax evasion are particularly important in cases of high tax rates and future consolidation needs. Second, in terms of other reform priorities (and all else being equal), in countries with weak control of corruption and tax administration, policies that reduce expenditures (and thus the future tax level) seem more promising than reforms that increase revenue needs.

5.4 Institutions, public debt and economic growth[109]

Institutional reforms which enhance the quality of governance may have substantial long-term benefits in terms of income and well-being. There are several studies which show that the quality of national or regional institutions in a large sample of countries, including EU countries, is positively related to subsequent growth, well-being and inclusiveness. While most of the early studies focused on

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[107] Hondroyiannis and Papaoikonomou (2017) find that in the case of Greece, the accelerated growth in VAT revenue since the end of 2015 is associated with the intensified use of card payments, following the imposition of restrictions on cash withdrawals in July 2015. It is estimated that a 1 percentage point increase in the share of card payments in private consumption results in approximately 1% higher revenue through increased compliance.

[108] Pappa, Sajedi and Vella (2015) introduce tax evasion and corruption into a New Keynesian model with search and matching frictions and endogenous labour force participation. They argue as follows: "The consolidation plans for all Southern European countries have increased tax evasion. […] The fiscal packages were similar in all countries in terms of spending cuts and tax revenue increases, yet the high debt levels in Italy and Greece, together with the extended degree of corruption in those countries, required much bigger sacrifices that, according to the model, resulted in higher output losses and increases in unemployment." Dellas et al. (2017) argue that the size of fiscal adjustment in Greece and the drop in economic activity could have been milder had the informal sector been smaller or curtailed at the beginning of the consolidation programme.

[109] Includes contributions by Beatrice Pierluigi (ECB).

developing and emerging economies, more recently a number of studies have also analysed more closely the possible impact of institutional quality among EU countries (see Table 1 and Helliwell et al., 2014).

Table 1
Estimates of the long-run effects of standardised structural policy changes on productivity and employment

Policies	Impact of reforms on per capita income	
	within	between
QUALITY OF INSTITUTIONS		
Government effectiveness	8.2%	55.2%
Rule of Law	5.5%	47.4%
Political stability	6.7%	28.3%
Corruption	6.8%	45.8%
PRODUCT MARKET REGULATION		
PMR - overall	--	10.4%
PMR - barriers to entry	--	7.2%
PMR - barriers to trade&investment	--	15.5%
PMR - scope of state control	--	10.5%
LABOUR MARKET REGULATION AND POLICIES		
EPL -OECD regular contracts	--	0.9%
EPL -Cambridge indicator	0.8%	3.1%
Labour market regulation (EFW)	2.9%	7.5%
BUSINESS REGULATION		
Cost of starting a business	9.8%	16.9%
Cost of contract enforcement	1.4%	13.5%
Time insolvency procedures	6.6%	17.4%
FINANCIAL DEVELOPMENT		
Banking sector	9.1%	23.0%
Financial markets	8.1%	17.2%

Sources: OECD calculations based on Égert (2018).
Notes: The change in the indicators is defined as one standard deviation in the data. Columns named 'within' show that the change in the policies are based on the within dimension (variation over time). Columns named 'between' show that the changes in the policies are obtained from the between (cross-section) dimension. The effects are calculated following the methodology set out in Box 1 in Égert and Gal (2016). Cells filled with "--" indicate that regression analysis was not possible for the particular variable and dimension (PMR indicator over time). The coefficient estimates used to calculate the effect are the average of the minimum and maximum coefficient estimates.

The quality of institutions (combined with the level of public debt) helps to explain long-term growth performance in EU countries. A recent ECB staff study (Masuch, Moshammer and Pierluigi, 2016) links countries' long-term growth (average annual real GDP per capita growth over 15 years) with the initial level of the quality of institutions, government debt and an interaction term between these two explanatory variables. It finds that a combination of high debt and low institutional quality is particularly negative for growth.[110] The main results are shown in Table 2. The institutional delivery indicator (defined by the Worldwide Governance

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[110] The sample period includes the EU and other OECD countries over the period from 1995 until 2017. Government debt enters as a dummy variable which takes the value of one when government debt is above 60% of GDP.

Indicators) is significant and positive, meaning that stronger quality of institutions is correlated with subsequent higher long-term GDP per capita growth. The debt ratio dummy, with the threshold set at 60%, is negatively significant. The interaction term is positive and highly significant. Looking at the debt dummy and interaction term jointly, one can conclude that in the presence of high debt, an improvement in institutions is associated with higher growth potential (and vice versa).

Table 2

Determinants of long-term real per capita growth

	EU (27)	EU + other OECD	Fixed ER	Flexible ER
Log GDP (PPP)	-0.589***	-0.551***	-0.634***	-0.402***
	(0.039)	(0.047)	(0.048)	(0.074)
Institutional delivery	0.095***	0.090**	0.124**	0.008
	(0.032)	(0.039)	(0.047)	(0.077)
(Debt>60)	-0.039*	-0.072**	-0.051	-0.090
	(0.012)	(0.030)	(0.032)	(0.052)
(Debt>60) x institutional delivery	0.131***	0.114***	0.133***	0.087
	(0.028)	(0.041)	(0.043)	(0.069)
Constant	2.127***	2.032***	2.237***	1.657***
	(0.099)	(0.118)	(0.121)	(0.186)
Observations	208	246	160	86
R-squared	0.911	0.849	0.880	0.834

Source: Masuch et al. (2016).
Notes: Robust standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1.
Other OECD: Canada, Iceland, Japan, Norway, Turkey, United States.
Flexible ER: Czech Republic, United Kingdom, Hungary, Poland, Romania, Sweden, Canada, Iceland, Japan, Norway, Turkey, United States.
Fixed ER: early euro area joiners, fixed exchange rate countries and late euro area joiners, i.e. Cyprus, Estonia, Lithuania, Latvia, Malta, Slovenia, Slovakia, Bulgaria, Denmark, Croatia.

These findings support the view that the quality of institutions has been an important growth determinant. The results seem particularly important for countries where institutional delivery is below or around the EU average and initial public debt is above the threshold of 60% of GDP. To the extent that causality indeed runs from institutions to subsequent growth, such countries could experience significantly higher GDP per capita growth if their institutions were improved.[111]

The presence of sound institutions appears to be able to offset the detrimental effect of high debt on long-term growth. While this result needs to be treated carefully as it is based on only a small number of observations, it might suggest that debt thresholds are not the same across countries, but could be endogenous to the quality of public institutions. A possible narrative consistent with these findings is that sound institutions may help alleviate the debt problem via various channels. For example, good institutions may (i) allow for a better (potentially growth-enhancing) use of government expenditures (e.g. the Scandinavian example); (ii) promote

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[111] While reverse causality in principle cannot be excluded, the fact that the institutional variable enters the equation as the initial condition to explain the subsequent 15-year average GDP per capita growth tends to alleviate this concern. Moreover, a number of robustness checks, which inter alia use legal origin dummies as instruments for institutional delivery, corroborate the robustness of the findings. The results are also economically significant, pointing to potential annual growth increases of above 1 percentage point as being associated with lower initial debt and better institutional delivery.

stronger growth via sound structural policies; (iii) promote social fairness and allow for more efficient tax administration, thereby reducing the economic and social costs associated with high debt; and/or (iv) ensure that episodes of large increases in debt are followed by sufficiently strong consolidation policies in subsequent years.

Box 5

Quality of economic structures and foreign direct investment

Foreign direct investment (FDI) has grown strongly as a major form of international capital transfer over the past decades. It is considered a key element for a country's economic integration and represents an important source of funding for capital investment (Campos and Kinoshita, 2008). After strong FDI inflows during the 1990s ahead of the creation of the monetary union and with the creation of the single market, the euro area has been losing importance as an investment destination. This decline in direct investment in euro area countries has led to calls to make the euro area a more attractive investment destination. Having well-functioning institutions and markets in a host country can encourage capital transfers into that country, as such transfers are exposed to less investment risk. Well-functioning institutions and markets can also generate real benefits to foreign investors, as they affect the key parameters upon which the decision to invest in a foreign country is taken.

Dellis, Sondermann and Vansteenkiste (2017) use a new measure for FDI inflows, which for the first time cleans FDI data of statistical artefacts, in particular financial round-tripping (see also Blanchard and Acalin, 2016). They find strong support that a higher economy-wide quality of institutions tends to be associated with higher FDI inflows (Table A). According to the analysis, it also seems of great importance for the country to inherit stable political institutions, as this ensures low corruption and good rule of law. This is also confirmed in particular by the World Bank's enforcing contracts indicator (in line with Blonigen, 2005). The estimates suggest that the more a country is able to ensure an efficient and credible judicial system, the more foreign investors are ready to invest. At the same time, the functioning of the labour market institutions is also highly important. Both the Global Competitiveness Index (GCI) and the (reversely scaled) OECD Employment Protection Legislation (EPL) indicators suggest that higher-quality labour market institutions can promote more FDI inflow. These findings are in line with Bénassy-Quéré et al. (2007).

Table A

The impact of economic structures and institutions on FDI

	OLS	IV GMM	System GMM
Structural headline indicators			
Global Competitiveness Index	0.465**	0.526**	0.572**
	(0.035)	(0.034)	(0.014)
Heritage Economic Freedom Index	0.025*	0.036**	0.027
	(0.068)	(0.026)	(0.120)
Frazer Economic Freedom Index	0.521**	0.782***	0.744***
	(0.014)	(0.002)	(0.005)
Product market			
OECD Product Market Regulation	0.259	0.322	0.525**
	(0.112)	(0.132)	(0.029)
GCI Product market efficiency	0.617**	0.725**	0.769***
	(0.011)	(0.012)	(0.003)
Framework conditions			
WB DB indicator on enforcing contracts	0.019**	0.026***	0.025***
	(0.013)	(0.005)	(0.000)
WB DB indicator on starting a business	0.014	0.022*	0.017*
	(0.108)	(0.061)	(0.054)
Labour market			
GCI Labour market efficiency	0.328*	0.373**	0.406**
	(0.052)	(0.046)	(0.050)
OECD Employment Protection Legislation	-0.303***	-0.414***	-0.412**
	(0.004)	(0.000)	(0.015)
Quality of political institutions			
Overall quality of governance	0.302	0.430*	0.511**
	(0.124)	(0.068)	(0.038)
Regulatory efficiency	0.456*	0.591*	0.565
	(0.077)	(0.052)	(0.113)
Rule of law	0.270	0.404*	0.430*
	(0.131)	(0.063)	(0.057)
Corruption	0.182	0.250*	0.287*
	(0.113)	(0.066)	(0.067)

Notes: Panel dataset from 2005 to 2014 for 21 OECD countries. Dependent variable is country-specific natural logarithm of the FDI inflows. Regressions conducted adding one individual structural variable at a time. The table supresses some of the control variables for ease of readability, *** denotes significance at 1% level, ** at 5% and * at 10%. p-values are shown in brackets. For details see Dellis et al. (2017).

Their results further suggest a greater sensitivity of FDI inflows to both labour costs and the quality of institutions for euro area countries (compared with the full OECD sample), underlining the importance of having adaptable economic structures for countries in the monetary union. It could be argued that foreign investors are, ceteris paribus, warier of higher labour costs and lower-quality institutions in euro area countries, as these factors gain relative importance as an adjustment channel if a country is not able to react to shocks through other channels such as setting national monetary policies or using exchange rate changes as a means of adjustment.

Box 6

Which structural reforms matter for long-term growth in the EU?[112]

This box uses Bayesian model averaging (BMA) techniques to determine the main drivers of long-term growth performance in EU countries. BMA techniques seem to be a useful approach given that model uncertainty is a well-known problem in the empirical literature on economic growth (see for instance Rockey and Temple, 2016). The findings suggest that several components of the GCI are consistently associated with higher potential GDP per capita growth. In particular, labour market efficiency (proxied by the flexibility of wage determination and the efficient use of talent), the quality of education and healthcare systems (proxied respectively by the quality of maths and science education, and by child mortality), the quality of investments (proxied by the degree to which FDI brings new technologies into the country), the degree of regulation (proxied by FDI rules), a stable macroeconomic environment and prudent fiscal policies (reflected by the third pillar of the GCI), a low incidence of organised crime, and strong investor protection are found to be important in shaping the pace of economic development.

Although the country-specific factors (not included properly in the GCI) cannot be denied, the BMA model above accounts for almost two-thirds of cross-country growth differential within the EU. In particular, using data for 2005, the model flags Greece and Italy among possible low-growth countries during the 2006-15 period (Chart A).

Chart A

Actual and predicted annual GDP per capita growth

(percentages; 2006-2015 average; x-axis: predicted GDP per capita growth; y-axis: actual GDP per capita growth)
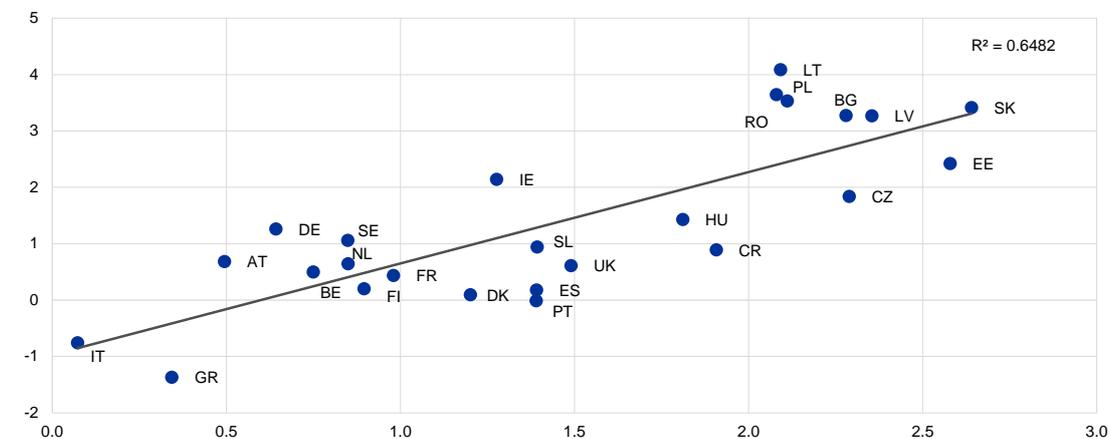
Source: Krasnopjorovs (forthcoming).
Notes: Cyprus, Luxembourg and Malta not included owing to missing data for GCI in 2006/2007.

The gap to best institutional practices was likely to slow annual economic growth in the EU by about 1 percentage point during the recent decade. This implies that EU countries would be about 10% richer in 2015 if institutional convergence to the EU best performers had been achieved in 2005. Applying the BMA coefficients to the most recent GCI still suggests significant room for further structural reform implementation. Closing the gap to best performers could spur annual growth by more than 0.8 percentage points during the subsequent years (Chart B).

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[112] By Olegs Krasnopjorovs (Latvijas Banka).

Chart B

Drag on potential annual GDP per capita growth from structural deficiencies

(2006-2015 average)
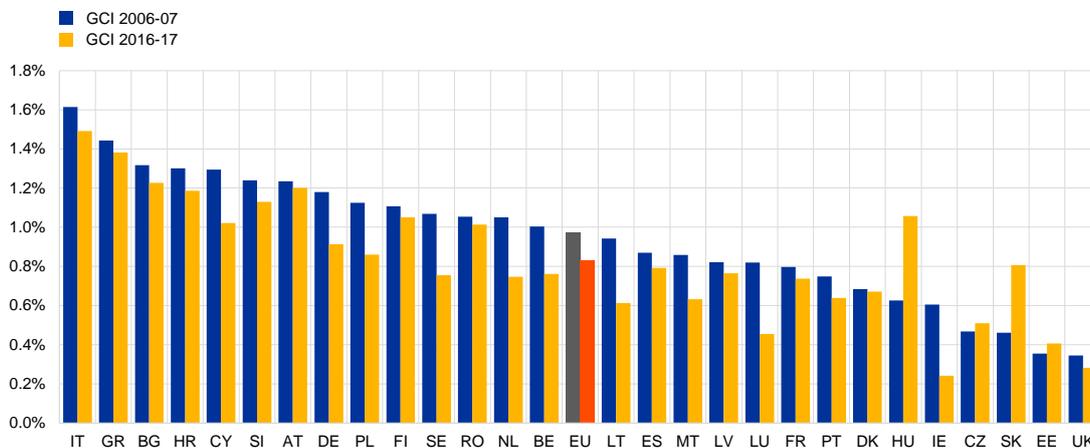
Source: Krasnopjorovs (forthcoming).
Notes: Structural reform implementation is defined as the gap in a GCI sub-index between a country's performance and the average of the EU top three. The potential growth dividend was calculated by applying posterior mean coefficients (unconditional on variable inclusion) from Bayesian model averaging analysis to each particular gap.

The shown estimates are aimed at providing a rough guide of the magnitude of the impact of structural reforms on growth. Several caveats – such as effectively controlling for endogeneity – should be kept in mind before extrapolating the results of this exercise to the future.[113] The bottom line is that successful implementation of structural reforms may indeed have significant potential to accelerate growth.

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[113] In particular, the caveats refer to the following. First, several methods to control for possible endogeneity of reform variables are employed in the literature (for instance, see Moral-Benito, 2016), without offering a perfect solution. In the present set-up, cross-sectional data are used, ensuring that past economic growth has no impact on current values of institutional quality. Second, a standard disclaimer applies regarding the use of GCI data as a proxy for the actual institutional quality in a country (Funke, Isakova and Ivanyna, 2017). The latter is hardly observable while available hard data are based on legislation, which, for some – in particular low-income – countries might not be appropriate. For instance, rigid employment protection legislation might not be enforced in the private sector if trade union density is low. However, one can argue that institution perceptions are exactly the indicator on which economic agents ground their decisions. Third, the above exercise follows the mainstream literature by assuming a homogenous and linear impact of institutions on growth, which might not necessarily be the case.

6 Reforms in key markets

To boost longer-term income and employment growth in the euro area, there is a need for structural reforms aimed at (i) incentivising innovation and investment in human and physical capital, (ii) removing barriers to the flow of production inputs from the least to the most productive firms, and (iii) enhancing competition.

In labour markets, it is important to adjust to the challenges of globalisation and rapid technological progress while also addressing their distributional impact. Digitalisation and robotisation could reinforce dualism in the labour market on the basis of skill and age. If labour regulations are not modernised, and training and life-long learning are not enhanced, the persons that have the greatest difficulty in re-adapting their skills might suffer from greater job insecurity and lower earnings. Recent research has shown that reforms which enhance labour mobility across firms, sectors and regions tend to support the diffusion of technology and faster growth of more innovative and productive firms – and thus of productivity and real wages. Cross-border labour mobility can also be a key mechanism for equilibrating excess supply and demand across euro area countries, but further reforms are necessary, such as better recognition of qualifications and portability of pension rights across EU countries. At the same time, it seems necessary to consider how to strengthen incentives for governments and firms to invest in education, training and life-long learning, not least because labour mobility can have a negative side-effect on the cost-benefits balance for those financing such investments in human capital. On the positive side, a growing body of evidence suggests that recent reforms in some euro area countries have made it easier to adjust wages and employment in response to changing economic conditions. This evidence comes from the Wage Dynamics Network firm-level surveys, as well as empirical work showing that worker flows have significantly increased in euro area countries where reforms have been carried out. Nevertheless, more reforms are necessary to reduce youth unemployment, increase the participation of women and encourage investment in skills.

In product markets, a more competitive and business-friendly environment would tend to increase dynamic efficiency. Higher levels of competition (coupled with strict implementation) reduce rents and thus increase the incentives to innovate (rather than exploiting market power and investing in rent-seeking activities), in turn facilitating technological progress. Reforms can help to lower the administrative costs for firms and promote the creation of innovative start-ups, facilitating the exit of unproductive firms and removing obstacles that prevent firms from reaching their optimal size. Empirical work shows that reducing product market regulation can increase business dynamism by facilitating firm entry and exit, which in turn boosts TFP. Significant gains could also be achieved by making further progress in the establishment of a fully fledged EU internal market for services.

The section on the financial sector discusses which reforms could strengthen the contribution of finance to the efficient allocation of savings and more generally to long-term growth. It also discusses possible resource misallocation due to continued

lending to "zombie firms" (distressed firms which are too unproductive to profitability exist) and considers some reforms that could help to address this problem. It generally appears that having sufficient economic capital buffers is a key condition for ensuring a positive contribution of banks to resource allocation and long-term growth.

6.1 Labour markets

6.1.1 Macroeconomic evidence of the impacts of reforms and institutions on employment and wages

Labour market institutions in Europe remain heterogeneous in the aftermath of the crisis, and the one-size-fits-all approach seems not to be particularly suitable. There is robust evidence for the importance of specific interactions between particular institutions and policies directed at the labour market (Blanchard et al., 2014). Therefore, it is important to take country-specific characteristics into account when implementing labour market reforms. However, tackling rigidities (e.g. in wages and employment) in Europe is crucial to delivering better employment and wage outcomes.[114]

Labour market rigidities in Europe seem to be a significant impediment to market clearing, resulting in high and persistent unemployment.[115] Blanchard and Katz (1999) produced a seminal paper on delayed responses of wages to the unemployment rate, which they interpret as wage rigidity. This led to further research in the area of wage rigidities. Arpaia and Pichelmann (2007) and Babetskii (2007) provide evidence for significant wage rigidities across euro area countries. The impact of institutional rigidities is analysed by Bassanini and Duval (2006), who show that high and long-lasting unemployment benefits, high marginal tax wedges and stringent product market regulation increase structural unemployment and decrease employment.

In principle, there are a number of policy measures to improve labour market functioning. These include (i) improving the quality and labour market relevance of education; (ii) ensuring a well-functioning and responsible wage setting system, and reducing hiring and firing costs for both individual workers and collective dismissals where appropriate; (iii) designing public employment services and providing ALMPs to support the unemployed during labour market transitions and to increase their employability; and (iv) increasing working time flexibility in order to facilitate a

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[114] See Anderton et al. (2012) for suggested broad policy recommendations for euro area labour markets.

[115] A phenomenon called "Eurosclerosis" was observed earlier by Herbert Giersch (Giersch, 1985), who argued that European countries became too rigid to cope with severe shocks, especially owing to wage rigidity. More recently, Anderton and Bonthuis (2015), Anderton et al. (2016), and Marotzke et al. (2016) linked wage rigidities to labour market institutions, finding that, especially in downturns, these wage rigidities are associated with high union density, centralised collective bargaining and strict EPL. However, see also OECD (2017a), which argues that centralised collective bargaining was associated with higher firm-level employment growth in the wake of the Great Recession.

combination of work and education and to ease the transition from education to employment in the labour market. Reforms are also important to reduce labour market segmentation and dualism, resulting inter alia from the excessive use of non-permanent contracts that involve a lower level of protection and large employment fluctuations for such workers, in contrast to workers under permanent contracts with much higher employment protection.

It can take a long time for the full effects of labour market reforms to be realised. Bordon et al. (2016) suggest that labour and product market reforms have positive, but lagged, impacts on employment creation. Much depends, however, on the type of reforms. Viviano (2008) shows that reducing entry barriers in retail trade can have quite a rapid impact on employment in that sector. Sestito et al. (2016) show that reducing labour costs and firing costs can have an immediate impact on job creation.

European institutional labour market structures are evolving in response to the changing economic environment of globalisation, new technologies and EMU, for instance with the flexicurity model. European institutional labour market structures differ to some extent across countries. However, one common feature of these structures, developed to varying degrees, is the notion of "flexicurity", whereby the need for labour flexibility on the employers' side is balanced with the need for worker security.[116] The rapidly changing economic environment of globalisation, new technology and EMU membership means that the flexicurity model needs to develop and evolve in line with an increasing need for flexibility, while workers feel an even greater need for job and income security, supported by a universal system of unemployment benefits. However, the unemployment benefit system must be consistently designed in order to avoid creating disincentives to job-seeking and should be supported by ALMPs. Many countries, such as Denmark for example, have responded by shifting from very generous and passive labour market policies to a more active focus on job search and activation measures, including a tightening and a shortening of the duration of unemployment benefits. More recently, other countries – particularly euro area members – have adopted policies to increase the flexibility of wages and employment adjustment, along with pension reforms to help increase labour supply and contain public expenditure. Important challenges remain on how to move forward with the extra dimension of labour flexibility required in the modern economy and within EMU while maintaining an adequate social welfare safety net which also provides sufficient incentives to work and at the same time ensuring the sustainability of public debt.

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[116] Flexicurity is an integrated strategy for enhancing, at the same time, flexibility and security in the labour market. It attempts to reconcile employers' need for a flexible workforce with workers' need for assurance (confidence) that they will not face long periods of unemployment.

6.1.2 Some evidence from past reforms[117]

In recent years, several euro area countries have implemented reforms to enhance labour market flexibility and reduce labour market duality. In particular, euro area countries reacted to the crisis by increasing the number of reforms[118] back in 2010, although the intensity of reforms peaked in 2012. These reforms were concentrated in southern European countries (Portugal, Italy, Spain and Greece) although other euro area countries, such as the Netherlands, France, Belgium and Slovakia also implemented labour market reforms, mainly affecting job protection legislation.[119] These reforms have increased the flexibility of the euro area labour market.

Wage Dynamics Network (WDN) survey results show that firms in previously stressed countries reported increased flexibility of labour markets between 2010 and 2013, partly owing to reforms.[120] A large majority of firms perceived labour market flexibility as unchanged, but a significant number of firms felt that flexibility had increased, particularly in previously stressed countries such as Portugal, Spain, Greece and Cyprus (see Chart 28).[121] Firms were also asked[122] what the main drivers of those changes were. Labour market reforms seem to be the most important factor behind them, especially in Greece and Spain (see Case study – Greece, and Case study – Spain, in the section below providing country case studies on structural reforms).[123] [124]

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[117] By Mario Izquierdo (Banco de España).

[118] Most reforms introduced changes in job protection legislation, although changes in wage setting mechanisms were also frequent.

[119] Information from the third wave of the WDN survey provides a similar picture about the distribution of reforms in euro area countries over this period. See Izquierdo et al. (2017a).

[120] The recent wave of the WDN surveyed around 25,000 firms across the 25 participating NCBs and asked them whether they perceived labour markets to be more flexible at the end of 2013 or in 2010.

[121] A majority of firms in some countries also said that it became harder to adjust employment and wages in 2013 compared with 2010. These tend to be countries which did not implement reforms during the crisis and may have been more affected during the early phases of the crisis. For example, countries who were temporarily affected by the global trade downturn in the early phases of the crisis may have found it easier to adjust employment and wages in 2010 when the economy was under pressure compared with 2013 when economic conditions had improved.

[122] This was a non-core question, and this evidence is therefore available only for a subset of countries.

[123] For more information, see ECB (2016c).

[124] For a detailed list of reforms implemented across EU countries during 2010-13, See Annex 2 in Izquierdo et al. (2017a).

Chart 28

Perceptions regarding labour market flexibility
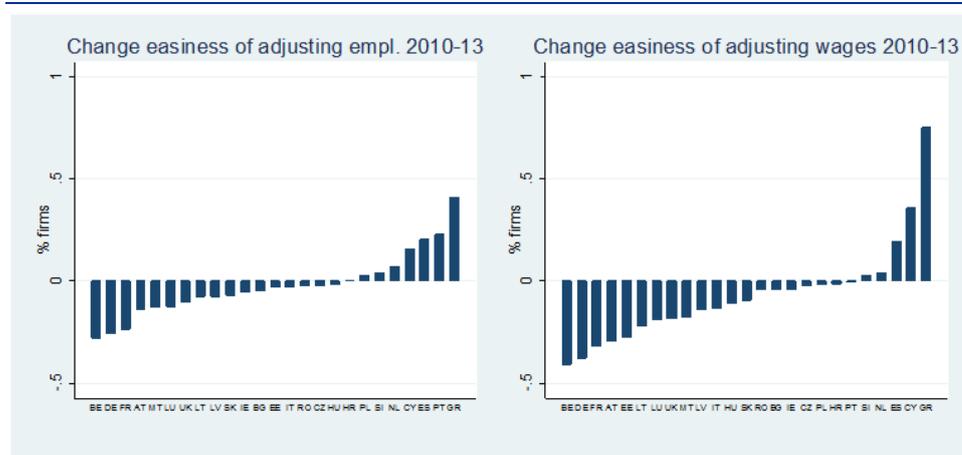
Analysis of wage developments may be consistent with the view that reforms have made the labour markets more flexible. In Chart 29 we plot the wage residuals of a simple wage equation where we relate the year-on-year rate of growth of compensation per employee in the private sector to the evolution of the unemployment rate, productivity growth and inflation.[125] These wage residuals may be interpreted as the wage evolution between 2012 and 2015 that is not explained by the traditional determinants of wages. They could therefore also be associated with the implementation of reforms over this period. Chart 30 seems to indicate that reforms had an impact on wages in euro area countries, as those countries which implemented reforms in wage setting mechanisms over this period (measured using the European Commission's Labour Market Reforms (LABREF) database) tend to show more negative wage residuals in the period between 2012 and 2015.[126] This also seems to be the case for job protection reforms, as wage residuals across euro area countries seem to be associated with decreases in the OECD EPL indicator for regular contracts (Chart 31).[127] Of course, in addition to reforms, there are many other reasons why wage developments may be below those predicted by standard wage equations. These reasons include non-linearities in the relationship between wages and labour market slack, changes in inflation expectations, and employment compositional effects.[128] Chart 32 shows that unemployment residuals[129] are also associated with changes in the EPL indicator. The latter is also consistent with other evidence showing that recent reforms have helped to boost employment, which

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[125] The country regressions are based on information from the period between the first quarter of 2001 and the third quarter of 2016. Compensation per employee is measured using the labour cost index published by Eurostat.

[126] A very similar picture is observed when using WDN indicators on the easiness for firms of adjusting wages over the 2010-2013 period.

[127] Again, this link is similar when using other reform indicators as the LABREF measure or the WDN indicator on the ease of adjusting employment.

[128] For further details, see ECB (2017c) and ECB (2017d).

[129] Computed after estimating an Okun´s Law relationship between unemployment and GDP growth over the period from the first quarter of 2001 to the first quarter of 2016.

shows in turn that increases in employment-GDP elasticities during the current recovery are primarily associated with countries which have recently implemented labour and product market reforms.[130]

Chart 29
Wage residuals

(average 2012-15)
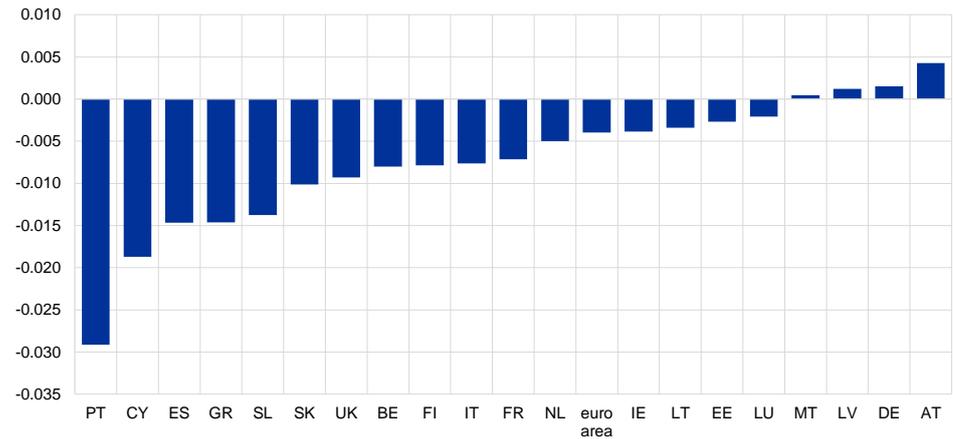
Source: MPC Task Force calculations.
Note: Wage residuals taken from a wage equation where the year-on-year rate of growth of compensation per employee in the private sector is explained by the evolution of the unemployment rate, productivity growth and inflation.

Chart 30
Wage residuals and LABREF indicator of reforms

(x-axis: wage residuals; y-axis: LABREF indicator)
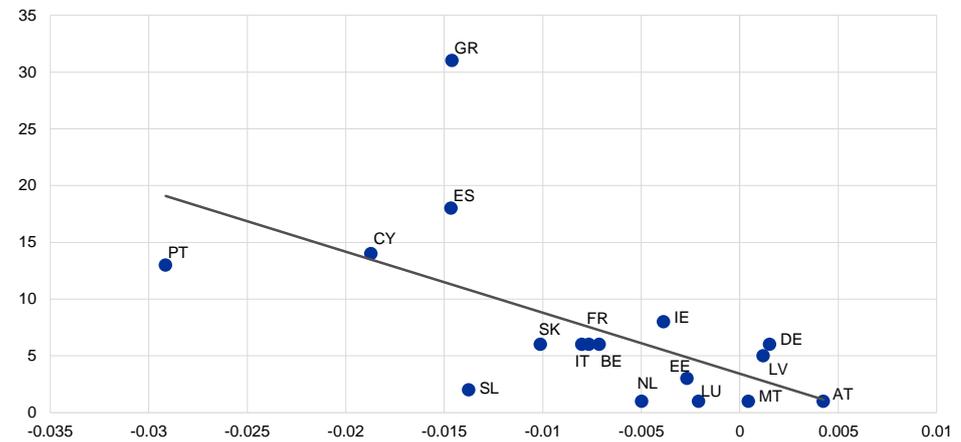
Source: LABREF database.
Note: Wage residuals taken from a wage equation where the year-on-year rate of growth of compensation per employee in the private sector is explained by the evolution of the unemployment rate, productivity growth and inflation.

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[130] See ECB (2016d).

Chart 31

Wage residuals and change in EPL indicator for regular contracts

(x-axis: EPL indicator; y-axis: wage residuals)
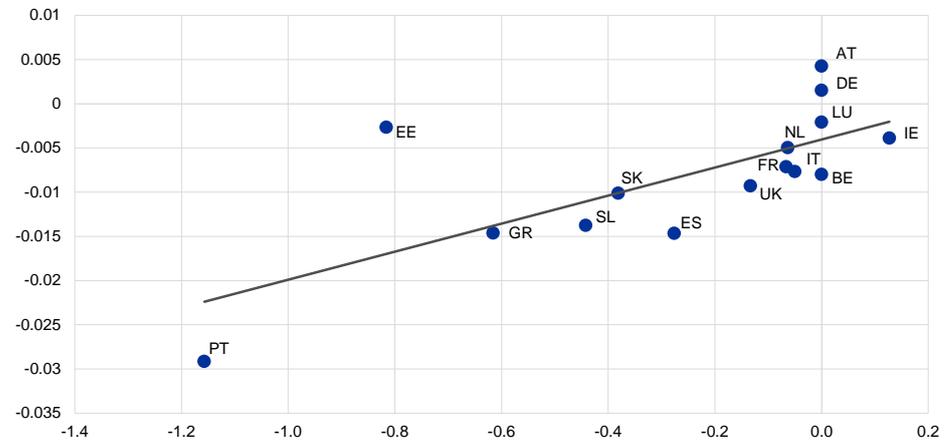
Sources: OECD EPL indicator and MPC Task Force calculations.
Note: Wage residuals taken from a wage equation where year-on-year rate of growth of compensation per employee in the private sector are explained by the evolution of the unemployment rate, productivity growth and inflation.

Chart 32

Unemployment residuals and change in EPL indicator for regular contracts

(x-axis: EPL indicator; y-axis: unemployment residuals)
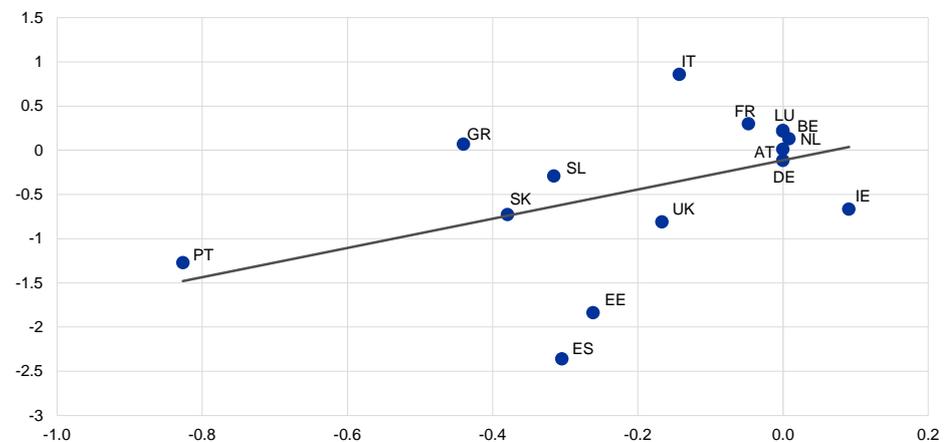
Sources: OECD EPL indicator and MPC Task Force calculations.
Note: Unemployment residuals computed from an Okun's law relationship between unemployment and GDP growth over the period from the first quarter of 2001 to the first quarter of 2016.

6.1.3   Case study – Germany[131]

In the late 1990s and into the early 2000s the German economy was characterised by low GDP growth, a deteriorating labour market situation, relatively weak profitability in the export sector and increasing public debt.

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[131]   By Oke Röhe (Deutsche Bundesbank).

This triggered a broad public and political debate that resulted in the implementation of a comprehensive package of reforms.

A centrepiece of the reform agenda was a set of extensive labour market reforms commonly known as the Hartz reforms which were introduced in the early 2000s. The reforms included improving employment services and redesigning active labour market measures so as to activate the unemployed, reduce unemployment benefit duration and introduce more flexible arrangements for marginal employment arrangements.

From a purely descriptive point of view (Chart 33), despite some short-term transitional costs the post-reform period was characterised by the remarkable performance of Germany's labour market. Exit rates from unemployment into jobs rose substantially, employment increased significantly, principally affecting jobs subject to social security contributions, and labour force participation went up notably, particularly among older persons. However, the strong post-reform performance of the labour market can be attributed to a host of different factors.[132] In particular, in the years immediately following the implementation of the labour market reforms, it was challenging to disentangle structural change from the cyclical labour market component.[133] In this context, the generally good and efficient cooperation between the social partners certainly played a significant role in the strong performance of the German labour market from the mid-2000s. In addition, discretionary labour market policy measures, introduced to stabilise the German labour market during the 2008-09 recession, were extensively used.[134] Following the introduction of these measures, employment soon resumed its upward trend. Most of the discretionary labour market policy measures had expired by the end of 2011, but the ongoing rise in the German employment rate suggests that the robustness of the German labour market has indeed improved substantially since the implementation of the labour market reforms.[135] According to the traditional interpretation, the observable inward shift of the Beveridge curve in the period 2007-08 (Chart 34) – which captures the relationship between unemployment and the job vacancy rate – further supports the perception of a significant structural improvement in the German labour market since the implementation of the Hartz reforms.[136]

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[132] For example, several collective agreements had previously been concluded to increase the flexibility of the German labour market, including arrangements such as working time corridors and working time accounts. See Deutsche Bundesbank (2004). See also Burda and Hunt (2011).

[133] See Deutsche Bundesbank (2014).

[134] Specifically, during the German recession social partners reacted quite flexibly focusing on safeguarding jobs which also included the willingness of trade unions to make concessions on wages. Employers, in return, allowed inter alia for temporarily larger negative balances of employees' working time accounts.

[135] See Deutsche Bundesbank (2010).

[136] Klinger and Weber (2016) confirm a substantial structural improvement after the German labour market reforms by employing an unobserved components framework to disentangle permanent and transitory effects on the Beveridge curve.

Chart 33

Employment trends

(seasonally adjusted differences)

- employment from 2008Q1, thousands
- employed subject to social security contribution from 2008Q1, thousands
- employed in government subsidised jobs from 2008Q1, thousands
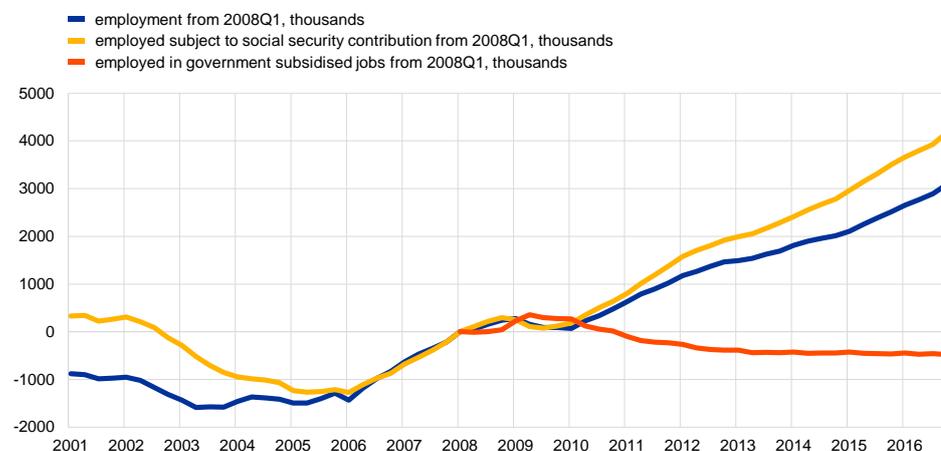
Source: Deutsche Bundesbank.

Chart 34

Germany: Beveridge curve

- 1992Q1-2000Q4
- 2001Q1-2008Q3
- 2008Q4-2016Q4
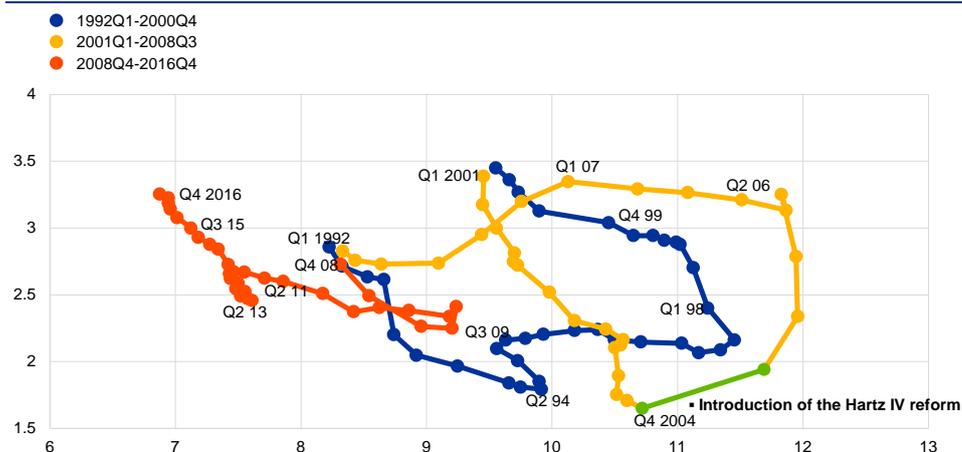
Source: Deutsche Bundesbank.
Notes: The time period in which the Hartz IV reform was introduced is displayed in green.
Job vacancy rate: number of non-subsidised vacancies in relation to the labour force based on the Institute for Employment Research (IAB) Vacancy Survey. There is limited comparability of data before the fourth quarter of 2005 and after the fourth quarter of 2010.
Unemployment rate: number of employed according to the broad definition of the Federal Employment Agency and persons in job creation measures in relation to the labour force.

A wide range of macroeconomic studies indicate that the labour market reforms in 2003-05 played a significant role in the structural improvement of Germany's labour market conditions.[137] In particular, macroeconomic analyses assessing the consequences of the reforms that were aimed at improving job matching (Hartz I–III) generally confirm a substantial increase in labour market matching efficiency.[138] A permanent positive impact on the labour market is also

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[137] See, for example: Krebs and Scheffel (2013); Deutsche Bundesbank (2014); Stephan and Lecumberry (2015); Adhikari, Hu, Loungani and Duval (2016); and ECB (2015b).

[138] See Fahr and Sunde (2009), Klinger and Rothe (2012), Hertweck and Sigrist (2013), and Klinger and Weber (2016).

indicated by macroeconomic research evaluating the effects of the overhaul of the unemployment benefit system, although the results turn out to be quantitatively more diverse, ranging from strong to medium to rather negligible decreases in the long-term unemployment rate.[139] Notwithstanding this positive assessment, it is important to recognise that these labour market reforms only represented one element of an extensive reform agenda, implying, in part, the existence of significant interaction effects.[140]

6.1.4 Case study – Greece[141]

From 2010 to 2012, Greece undertook major reforms in its labour market institutions in line with international best practices. These reforms included changes in minimum wages, a shift away from sector-level agreements to firm-level agreements, the promotion of flexible forms of employment (part-time and intermittent employment) and lower employment protection for regular contracts. The most important reforms were introduced in 2012.

Initially, the impact of the labour market reforms was mostly channelled through labour cost adjustment. According to evidence from the third wave of the WDN survey (WDN3), Greek firms considered it easier in 2013 to adjust their labour costs across a wide range of channels compared with the situation in 2010.[142] In particular, 63% of firms reported that it was easier to lower the wages of incumbents, while 80% of firms reported that it was easier to offer new workers lower wages. Half of the firms indicated that it was easier to lay off employees individually, to adjust working hours and to hire employees. Importantly, when Greek firms were asked about the factors that made the adjustment of labour input and wages easier, by far the most frequently cited reason across most of the adjustment margins was the reforms in labour laws (Chart 35).

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[139] See Krause and Uhlig (2012), Krebs and Scheffel (2013), and Launov and Waelde (2013).

[140] See Box 1 on the interaction of fiscal and labour market reforms in Germany.

[141] By Evagelia Vourvachaki and Theodora Kosma (Bank of Greece).

[142] See Kosma, Papapetrou, Pavlou, Tsochatzi and Zioutou (2017).

Chart 35

Factors behind labour market adjustment channels in Greece between 2013 and 2010

(percentage of firms)

■ reforms of labour laws   ■ union behaviour
■ enforcement of laws   ■ individual behaviour
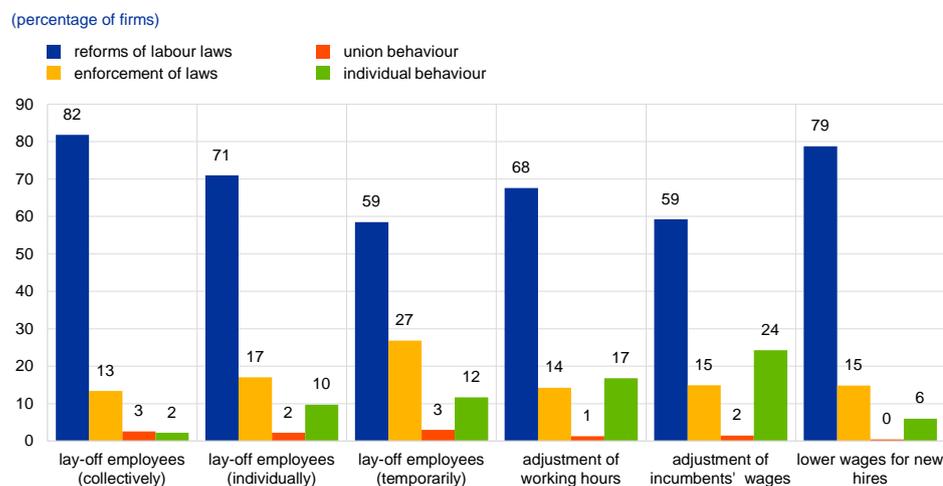
Sources: WDN3 survey database and ECB calculations.
Note: The percentages are derived from the weighted answers to questions to reflect overall employment and are rescaled to exclude non-response.

By making it easier for firms to reduce their labour costs, the labour market reforms contributed to the significant wage moderation and labour input adjustment in the Greek economy during the period 2010-2013. According to WDN3 survey evidence, Greek firms adjusted their wage bills by changing both their labour input and their wages. In particular, labour cost reduction during the crisis was largely accommodated by the decentralisation of the wage-setting system (the percentage of workers covered by a collective pay agreement was reduced to 71.4% in 2013 from 91% in 2007), the availability of lower-level wage agreements that largely served as a means of freezing or reducing private sector wages, the statutory reduction in minimum wages by 22% (32% for workers under 25), and the growth in flexible forms of employment.[143]

Labour market reforms have increased Greek labour market flexibility and resilience and are conducive to a job-rich recovery. Part-time employment as a share of total employment increased from 6% in 2008 to 10% in 2016 (LFS data). The growth in part-time employment drove the return to positive employment growth in 2014 and supported job creation thereafter (accounting for around 40% of the increase in employment between 2014 and 2016).[144] In addition, while economic

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[143] According to Bank of Greece estimates, "from end-2011 to end-2013, some 29% or more of employees in the business sector saw wage reductions as part of firm-level and individual employment agreements, 27.5% as part of industry- and occupation-level collective agreements, and an additional 8.4% as a result of the conversion of full-time contracts into part-time or short-time work contracts" (see Bank of Greece, 2014 and 2013, Annual Report). Ioannou and Papadimitriou (2013) also report sizable wage reductions through firm-level agreements.

[144] The euro area has been characterised by a long-term decline in average hours worked which, since 2008, is largely explained by a rise in part-time employment (which also reflects a higher share of service sector employment). More than half of this rise in euro area part-time employment reflects voluntary decisions as workers willingly took advantage of part-time opportunities, while almost a half is due to a rise in underemployment as workers involuntary accepted part-time work. For further details, see ECB (2016e).

activity virtually stagnated in 2015-2016, and despite further negative shocks in 2015 (e.g. the imposition of bank holiday and capital controls), total employment grew by 2% on the back of strong job creation in the private sector. The unemployment rate declined over the same period, although it remains high (20% in the third quarter of 2017).[145]

6.1.5   Case study – Spain[146]

In 2012, Spain introduced significant labour market reforms. These comprised changes to the collective bargaining system which allow firm-level collective agreements to prevail over industry-level agreements. They also included measures to increase the scope of firms to adjust labour costs in the presence of negative shocks and to limit employment protection for permanent workers in order to reduce high duality between permanent and temporary contracts.

There is a broad consensus about the impact of the 2012 labour market reforms on wage moderation. Banco de España (2013 and 2016) found negative wage residuals after the introduction of the reforms, accounting for 0.9 percentage points in the year-on-year rate of growth of compensation per employee in the private sector in the two years following implementation (see Chart 36).[147]

Chart 36
Wage equation residuals

Source: Banco de España (2013 and 2016).

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[145] These developments point to an increased elasticity of employment with respect to GDP over the recent years, which also reflects the impact of the 2010-2012 reforms. A simple econometric model looking into the employment-GDP relationship confirms positive residuals for employment growth on average after 2013. The increase in underlying estimated elasticity after 2013 is statistically significant.

[146] By Mario Izquierdo and Aitor Lacuesta (Banco de España).

[147] Although the negative wage residuals may reflect other factors and not necessarily be due to the reforms, the negative residuals are in line with other studies evaluating the reforms, such as OECD (2014a), where a reduction in unit labour costs of around 1.2 percentage points is estimated as a result of the reform. Similarly, Doménech et al. (2016) estimate that the reform induced a negative real wage shock of 0.9 percentage points in 2012-13 using a structural VAR approach.

According to the WDN3 survey, around 25% (33%) of Spanish firms said it was easier in 2013 to adjust wages of newly hired employees (incumbent employees) compared with the situation in 2010. Among these firms, around half attributed this easiness to the different legislative changes regarding labour reforms approved in 2012.[148] This higher wage flexibility seems mostly due to the different reform measures to increase internal flexibility at the firm level (opt-out clauses and other flexibility measures[149]), since the structure of collective bargaining has not yet changed towards a higher share of firm-level agreements.[150] Regarding employment and unemployment developments, the 2012 reforms significantly reduced the employment protection of regular contracts in Spain. As in the case of wage flexibility, the WDN3 survey results indicate that reforms played a decisive role in these developments. In fact, according to 47% of firms, the major factor behind the increase in the ease of wage adjustments is the reforms of labour market laws between 2010 and 2013 (Chart 38). In the study conducted by Izquierdo and Jimeno (2015), almost half of Spanish firms declared it was easier to lay off employees for economic reasons in 2013, with the main reason (75%) being the legislative changes approved in 2012. Despite this decrease in dismissal costs, job destruction flows did not increase after the approval of the reform, and in the case of open-ended contracts they have already fallen to pre-crisis levels (Chart 37). This seems to be closely related to the fact that after the Spanish reform, firms had greater scope to adjust labour conditions in response to bad economic situations,[151] thereby reducing the need to adjust headcount employment. However, labour turnover of temporary contracts remains quite high, and duality remains a concern for the future.[152]

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[148] See Izquierdo and Jimeno (2015) for further details.

[149] According to WDN survey results, around 17% of Spanish firms used these flexibility measures in 2013.

[150] Latest data from Ministry of Employment do not show any increase in the share of firm-level agreements, which remains below 10% of total workers covered by collective agreements.

[151] In this respect, Font et al. (2015) find higher wage elasticity to unemployment in the second phase of the crisis.

[152] In this area, however, other results are slightly more positive, as they tend to find the reform could have contributed to some increase in the share of permanent employment in new hires (OECD, 2014a), while García-Pérez (2016) finds that the reform appears to have slightly increased the exit from unemployment into permanent employment

Chart 37

Job destruction rate of permanent contracts and GDP

(percentages)

- ■ GDP (right-hand scale)
- — outflows from permanent employment
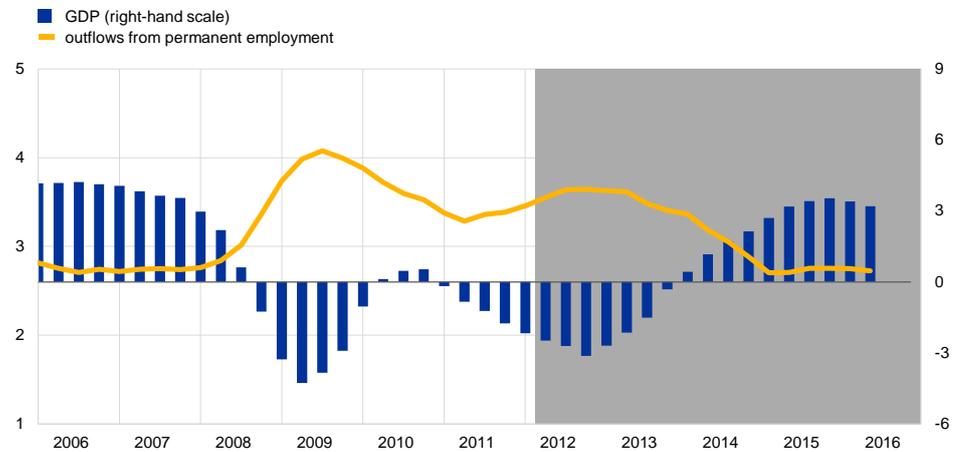
Note: Last observation is second quarter of 2016.
Source: Eurostat.

Chart 38

Factors behind labour market adjustment channels in Spain between 2013 and 2010

(percentage of firms)

- ■ reforms of labour laws
- ■ enforcement of laws
- ■ union behaviour
- ■ workers' attitudes
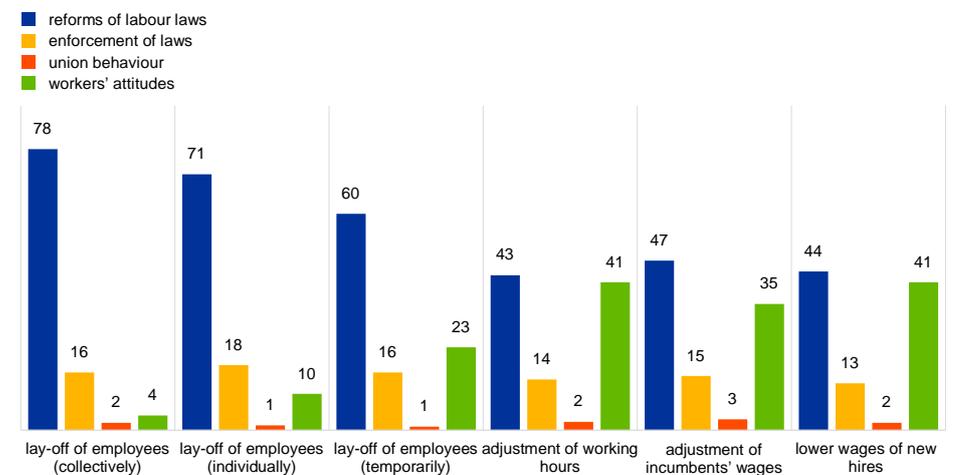
Sources: WDN3 survey database, WDN3 country report for Spain and ECB calculations.
Notes: Firms with fewer than five employees are excluded from the calculations. The percentages are derived from the weighted answers to questions to reflect overall firm population and are rescaled to exclude non-response.

All in all, recent employment and unemployment developments show the continuation of strong employment creation in the Spanish economy over the last three years of the period under review, with around 1.4 million jobs created since the end of 2013, and a marked decreased in the unemployment rate, from 26.9% in the first quarter of 2013 to 18.6% at the end of 2016, fuelled by the strong GDP recovery over this period. A simple Okun's law relationship would point to

positive (negative) residuals in employment (unemployment) over this period which may be linked to the intensification of the wage moderation process.[153]

6.1.6   Case study – Italy[154]

The problems of the segmentation of the Italian labour market into permanent and fixed-term workers became evident during the economic and financial crisis. As in other EU countries, dualism in the labour market arose at the end of the 1990s, when the government progressively introduced different types of fixed-term contracts to increase flexibility in the use of labour. Higher flexibility, however, was not accompanied by changes in firing costs for permanent employment contracts. Italy lost around 1 million jobs over the 2008-14 period. The job losses were mainly concentrated among people holding fixed-term employment contracts.

Reforms during the crisis were aimed at reducing dualism in the labour market. The aim of the Fornero reform in 2012 was to reduce dualism by rebalancing the degree of protection among the various types of contracts and by strengthening the unemployment benefit system. A deeper intervention along the same lines was undertaken in 2015 with the Jobs Act, which further enlarged the coverage of unemployment benefit, rationalised the various existing measures to support the unemployed, launched a national agency to coordinate ALMPs and reduced firing costs for permanent workers. The reform of firing costs applied to all new permanent employment contracts signed after March 2015 (grandfathering) to avoid an increase in firing due to the reduction of firing costs in the presence of slack. To foster the adoption of the new contract the government introduced a generous but temporary hiring subsidy for firms taking on workers under the new permanent contract.

Thanks to the combination of the two policies, the number of people hired under a permanent employment contract reached the pre-crisis level in 2015. The impact of each of the two policies (reduction in firing costs versus reduction in labour costs) can be identified separately on the basis of a small difference in their timing (from January 2015 for the hiring subsidy, from 7 March 2015 for the new firing costs) and some differences in the population targeted by the two policies.[155] Sestito et al. (2016) find that around 48% of net permanent hires with a permanent employment contract in 2015 occurred because of the subsidies, whereas 4% can

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153 For instance, Banco de España (2016) provides a simulation of the impact of a reduction in wage mark-ups on employment and GDP. This exercise shows an increase of 1.2 and 1.8 in GDP and employment respectively two years after the implementation of the labour reform, following a decrease in the wage mark-up that would produce a decrease in compensation per employee like the one estimated in the wage equations mentioned previously.

154 By Eliana Viviano (Banca d'Italia).

155 Subsidies were paid to firms of any size, while the new firing cost regulation applies to firms with at least 15 employees; the subsidy applied only to workers without permanent contracts in the previous six months, while the previous status of the worker is irrelevant for the application of the new firing costs.

be attributed to the new firing regulations (Chart 39).[156] The contribution of the two policies to total net job creation was equal to 23%. Although small in absolute terms, the results for firing costs show that a reduction in these costs had a direct, positive, short-term effect on firms' hiring. Sestito et al. (2016) also shed some light on the impact of the two policies on firms' willingness to hire untested workers on a permanent basis. First, the reduction in firing costs introduced by the Jobs Act slightly increased the willingness of firms with more than 15 employees to hire workers who had never worked for the firm before. Second, the fact that the hiring subsidies also applied to permanent contract conversions led to an increase in temporary hiring too, as many firms took the opportunity of testing workers through a temporary position that could be converted later into a permanent position (and thus received the full amount of the subsidy).

Chart 39

The effects of reform policies on job flows – Net flow to permanent employment
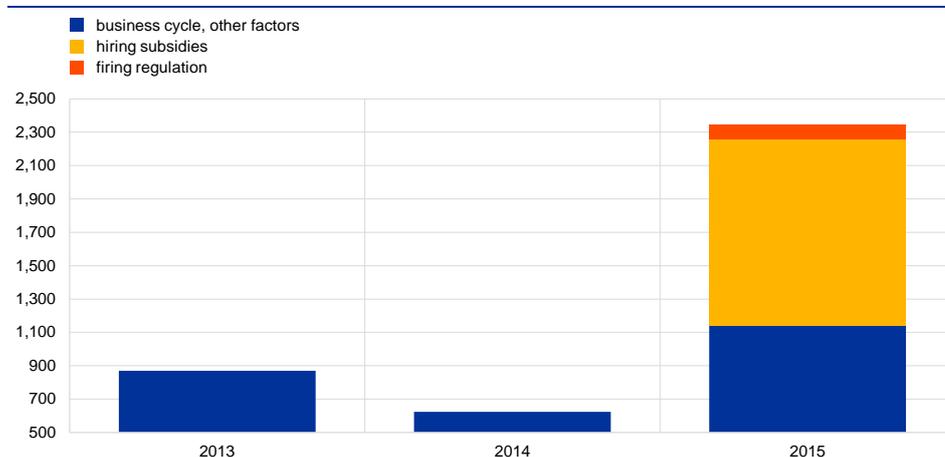
Source: Sestito et al. (2016).
Notes: The chart numbers refer to the Italian region of Veneto.
Estimates control for individual unobservable characteristics and individuals' past working conditions (determining the subsidy eligibility status from 2015).

The positive impact of the combination of two policies on the conversion rate from temporary to permanent positions also emerges in administrative microdata on a sample of Italian workers observed from 2009 to the first semester of 2016. Chart 40 shows the monthly probability of a temporary employment contract being converted into a permanent one within the same firm. The chart confirms the large increase in the monthly probability of a contract conversion in 2015 and a decrease in 2016, when hiring subsidies were reduced. However, even if the probability of a contract conversion was lower in 2016 than in 2015, it remained significantly higher than before 2015.

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[156] Sestito and Viviano (2016) use administrative microdata for the Veneto region (a large region located in the north of Italy) covering the universe of workers and firms, which allows them to reconstruct the previous status of workers in the labour market (and the eligibility for the hiring subsidies after 2015), to match firms to workers and to identify firms' size (important for identifying the effect of firing costs).

Chart 40

The effects of the policies on job flows – Probability of conversion

(monthly)

6.1.7 Case study – Portugal[157]

The economic downturn initiated in the last quarter of 2010 turned out to be long-lasting and created conditions for persistent employment destruction. The unemployment rate continued an upward trend, reaching a historical maximum of 17.5% on the first quarter of 2013 (Chart 41).[158]

Chart 41

GDP, employment and unemployment in Portugal
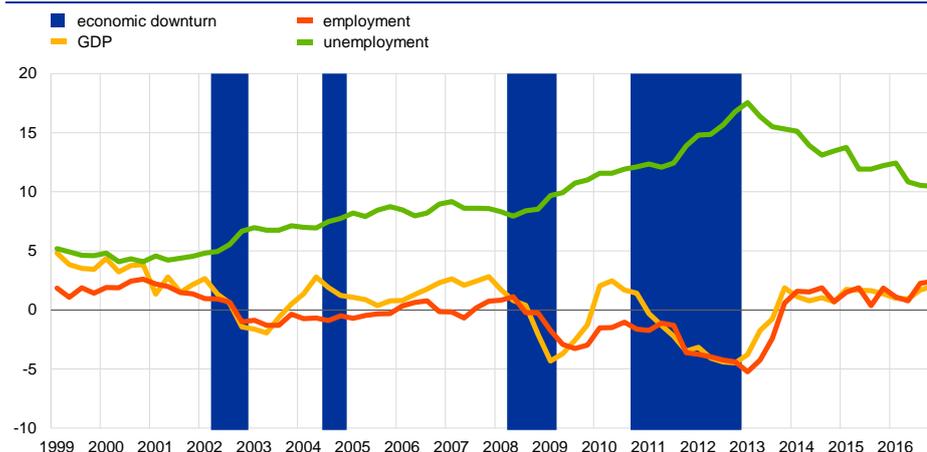
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[157] By José R. Maria (Banco de Portugal).

[158] The relative importance of trends and cycles in unemployment was analysed by Centeno, Maria and Novo (2009), and by Maria (2016).

The economic and financial assistance programme of 2012 included reforms favouring competition and high-quality institutions, with positive implications for the reallocation of productive factors towards the tradable sector. One of the most visible reforms was focused on labour market legislation with the aim of creating jobs and reducing segmentation. Key reform laws still in place in 2016 included those that (i) reduced severance payments (towards EU standards); (ii) facilitated individual dismissals; (iii) reformed the unemployment benefit system, reducing the replacement rate, and shortened the duration of unemployment benefits; and (iv) increased working time flexibility ("bank of hours"). After the reforms, labour market flows over the period from 2011/12 to 2016 were primarily marked by a decreasing trend in exits from employment resulting in falls in unemployment.

Box 7
Labour and product market regulation, worker flows and output responsiveness[159]

During the crisis, many euro area countries showed very different output-unemployment responses,[160] which may indicate that unemployment is driven by country-specific policies, institutions and types of shocks (Izquierdo et al., 2017a). Since the onset of the recovery in 2013, a considerable reconnection between output and employment has been observed, with a seemingly employment-rich recovery in some euro area countries, suggesting a possible structural change in their underlying relationship. Building on previous work using macro data, which showed that employment-output elasticities increased for many reforming countries during the crisis (ECB, 2016d), this box uses micro (individual-level) data to investigate whether flows from employment to unemployment, and from unemployment to employment, also indicate structural changes, particularly for reforming countries.

Building on previous literature studying the employment dynamics of different subgroups of the population (Boeri and Jimeno, 2015; Casado et al., 2015), we analyse worker flows,[161] and how their responsiveness to output (GDP) changed after the crisis (by comparing parameters for the period 2000-2007 with those for the period 2008-2015), using individual-level data of euro area countries from the LFS. On average, our results (Table A) show that the responsiveness of worker flows to GDP in the euro area[162] increased after the crisis,[163] especially for flows into employment. In particular, our estimates show that for individuals flowing from unemployment to employment (U-E) it increased by 0.3 percentage points, while for individuals flowing from employment to

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[159] By Robert Anderton, Benedetta Di Lupidio and Jon Piqueras (ECB).

[160] For example, during the recession, in Ireland and Spain the unemployment rate increased by about 7.5 percentage points, despite the fact that output dropped by more than 8% in Ireland but by only half as much in Spain. Moreover, although Germany suffered an output drop of about 7%, its unemployment rate actually decreased.

[161] The study focuses on flows both from unemployment to employment and from employment to unemployment.

[162] In our exercise, we compare the results obtained before and after crisis. Given that we are interested in the impact of reforms, and that most of them were implemented in the second period, our assumption is that the change in GDP responsiveness after the crisis may be the result of such reforms. Since Germany followed a different pattern (Hartz reforms were implemented in the first period), it is excluded from the group of euro area countries.

[163] Given the sharp downturns in GDP during the crisis, and the associated, rather volatile responses of employment and unemployment, we include an intercept dummy variable where GDP growth is negative during the crisis as well as an interaction of this dummy with GDP growth.

unemployment (E-U) it rose by 0.1 percentage points. When the sample is restricted to selected reforming countries,[164] the change in responsiveness is more evident, again with larger changes in the case of job creation flows, increasing by 1.9 percentage points for U-E[165] flows and by 0.4 percentage points for E-U flows.[166] These overall results also hold when several robustness checks are conducted such as in Table B, (columns 1,2) which shows that – when an alternative specification is estimated over the whole sample period and the GDP variable is interacted with a dummy variable for the pre-crisis period – the U-E and E-U flows are more response to GDP growth in the second period. Similar outcomes for U-E flows are confirmed when the model is estimated for permanent contracts only and for a restricted country sample (i.e. in order to have a balanced panel in both the pre- and post-crisis period).Overall, consistent with the approach and results in ECB (2016d) and Jimeno et al. (2015), we observe a higher responsiveness to GDP for both euro area and reforming countries when we compare the parameters in the pre-crisis (2000-2007) period with those in the 2008-15 period. The findings for the selected reforming countries are also in line with the results shown in previous sections of the paper,[167] which suggested that the reforms implemented had a positive impact, contributing towards higher employment and towards wage responsiveness and flexibility.

Table A

Responsiveness of worker flows to GDP growth

	EA countries				Reforming countries			
	2000-2007	2008-2015	2000-2007	2008-2015	2000-2007	2008-2015	2000-2007	2008-2015
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	U-E	U-E	E-U	E-U	U-E	U-E	E-U	E-U
GDP growth (t-1)	0.006807***	0.009986***	-0.001125***	-0.002565***	0.01010**	0.02841***	-0.0007692*	-0.004961***
	(0.0019)	(0.0012)	(0.0002)	(0.0002)	(0.0039)	(0.0049)	(0.0004)	(0.0010)
N	124999	165528	1290148	1514868	51608	65700	490094	383067
R-sq	0.0456	0.0665	0.0126	0.0214	0.0771	0.0615	0.0126	0.0244

Notes: Linear Probability Model pooled over different groups of countries. The dependent variable is, depending on the model, the worker flows from unemployment to employment (U-E) or from employment to unemployment (E-U). It is a dummy variable which is equal to 1 if the individual flows in the specific year and 0 if she remains in the origin group. The specification also includes: the following dummies for individual characteristics, i.e.: male, education, age, .plus an intercept dummy variable where GDP growth is negative during the crisis as well as an interaction of this dummy with GDP growth. Time and Country FE are included. Group of euro area countries excludes Germany because of the different pattern of reforms. The group of reforming countries includes Spain, Greece and Portugal. GDP growth (t-1) is measured in percentage points. Robust standard errors are shown in parentheses: * p<0.1, ** p<0.05, *** p<0.01.

To assess whether reforms or changes in the institutional environment influence the flows, we study the behaviour of some policy variables which potentially reflect institutional rigidities in both the labour and the product market, in the euro area, and for different groups of reforming countries (Table B, columns 3-10).Most of the institutional variables in Table B are statistically significant and

[164] The group of reforming countries comprises Spain, Greece and Portugal. This selection was made by taking the three countries with the largest changes in the EPL and PMR indicators between 2008 and 2013. The larger increase in responsiveness for this group, compared with the euro area as a whole, is not observed when including other countries which implemented less intense reforms, such as Slovakia or Italy.

[165] The increase in the responsiveness for the U-E flow is not driven by the higher share of individuals hired under a temporary contract after the crisis, as confirmed by the econometric results when the analysis is performed for individuals flowing to employment under a permanent contract.

[166] The change between the two periods is statistically different from zero.

[167] One issue relates to a possible structural break in 2011 EU-LFS data for Portugal. In the annual flows we computed from the anonymised cross-sectional EU-LFS data, a structural break is not evident for Portugal. Therefore, Portugal is included in the analysis conducted over the period 2000-2015 as done by Jimeno et al. (2015) for 2006-2012. Nevertheless, the dummies included in the specification would capture the structural break in 2011, since Portugal was in a recession period.

negatively signed indicating that higher employment protection, higher product market regulation and a higher degree of centralisation of wage bargaining tend to reduce worker flows. Therefore, reducing these rigidities can enhance labour market flexibility by decreasing excessive employment protection and/or making wage adjustments more responsive to the economic cycle, influencing the probability of flowing to and from employment and unemployment. In addition, product market deregulation also seems to be associated with a higher probability of worker flows in both directions,[168] by encouraging the creation of new companies and the expansion of existing ones, or making profit margins more responsive to the cycle.[169] Besides the potential impact of reforms on flows, certain subgroups of the population are still more likely to flow to employment or unemployment after the crisis. The econometric results lead to the conclusion that on the one side, conditional on being unemployed, the young and highly educated people are still the individuals with the highest probability of finding a job. On the other side, being young and low educated shows the highest probability of flowing to unemployment, conditional on already having a job.

Table B

Changes in responsiveness of worker flows to GDP growth after the crisis (alternative specification) and impacts of institutional rigidities on worker flows.

					Reforming countries (1)		Reforming countries (2)		Reforming countries (3)	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	U-E	E-U	U-E	E-U	U-E	E-U	U-E	E-U	U-E	E-U
GDP growth (t-1)*precrisis	-0.008417***	0.0007389***								
	(0.0015)	(0.0002)								
EPL (t-1)			-0.1263**	-0.08276***	-0.1402	-0.1332***	-0.3272***	-0.06687***	-0.3272***	-0.06687***
			(0.0519)	(0.0075)	(0.0885)	(0.0201)	(0.0531)	(0.0094)	(0.0531)	(0.0094)
PMR (t-1)			-0.01866***	-0.001651***	-0.03282***	-0.0002555	-0.02622***	-0.003735***	-0.02055***	-0.001358**
			(0.0044)	(0.0005)	(0.0119)	(0.0015)	(0.0064)	(0.0008)	(0.0045)	(0.0006)
Centralisation of Collective Bargaining (t-1)			-0.07741***	0.006126***	-0.06965***	0.007592***	-0.08574***	0.009403***	-0.07559***	0.009148***
			(0.0057)	(0.0006)	(0.0104)	(0.0018)	(0.0082)	(0.0013)	(0.0076)	(0.0013)

Notes: Linear probability model pooled over different countries. The dependent variable is, depending on the model, the worker flows from unemployment to employment (U-E) or from employment to unemployment (E-U). It is a dummy variable which is equal to 1 if the individual flows in the specific year and 0 if she remains in the origin group. EPL (t-1) refers to Employment Protection Legislation for regular contracts from the OECD. PMR (t-1) refers to the OECD indicator of regulation in energy, transport and communications (ETCR). The degree of centralisation of collective bargaining index was developed by the Fraser Institute and has been flipped to make it consistent with the other policy variables (i.e. the higher the index the lower the flexibility in wage setting). The specification shown in columns 1 to 2 includes the following variables: GDP growth (t-1), GDP growth (t-1)*pre-crisis, pre-crisis, male, education, age, time fixed effects and country fixed effects. GDP growth (t-1)*pre-crisis is an interaction term capturing the flows' responsiveness to GDP in the pre-crisis period relative to the post-crisis period. The specification in columns 3 to 10 is the same as in Table A in this Box: GDP growth (t-1), GDP growth (t-1)*crisis, crisis, male, education, age, time fixed effects and country fixed effects. All euro area countries included (columns 1 to 4). Columns 5 to 10 refer to different groups of reforming countries: (1) Greece, Spain, Portugal; (2) Greece, Spain, Portugal, Cyprus, Italy; and (3) Greece, Spain, Portugal, Cyprus, Italy, Slovakia, Estonia. The policy variables in columns 3 to 8 are estimated one at a time. The estimation is conducted over the period 2000-2015. Robust standard errors are shown in parentheses: * p<0.1, ** p<0.05, *** p<0.01.

Overall, the finding that worker flows are more responsive to cyclical conditions after the implementation of reforms implies that firms can better adjust employment to changes in the

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[168] An increase in the PMR ETCR index compiled by the OECD is associated with a decrease in the probability of flowing both to employment and unemployment. The index ranges from 0 to 6 and has a standard deviation of 0.78.

[169] These results are consistent with Haltiwanger et al. (2014), who also find that stricter regulations reduce the pace of job creation and destruction using firm-level data for several countries.

economic environment. This will enable firms to become more efficient and profitable and therefore more likely to create more net jobs than they otherwise would.[170]

6.1.8   Labour mobility[171]

Labour mobility plays an important role in job matching and therefore in productivity. Labour mobility also helps to limit employment losses and wage cuts in response to asymmetric shocks, as people can move from relatively hard-hit regions with excess supply of labour to regions with excess demand.[172] Finally, it may also serve as a catalyst or incentive for reforms and better policies more generally, as well as improvements in working conditions (for example, policymakers or firms in regions losing (skilled) workers who move to other places may have a stronger incentive to reform and improve working conditions in order to remain attractive for workers). The Five Presidents' Report makes the case for "deeper integration of national labour markets by facilitating geographic and professional mobility, including through better recognition of qualifications, easier access to public sector jobs for non-nationals and better coordination of social security systems".[173] [174]

Despite the benefits, challenges remain with the distributive consequences of immigration (Borjas, 2003), and with the effects on the public finances of countries facing emigration (see Borjas, 1994, and Kerr and Kerr, 2011, for a survey). Indeed, both the distributive consequences and dynamic, aggregate effects of immigration will depend on the skill composition of migrants because productivity developments might counterbalance the shock to the labour supply (see Izquierdo, Jimeno and Rojas, 2007). It seems also necessary to consider how to strengthen incentives for governments and firms to invest in education, training and life-long learning. This is a challenge, as outward labour mobility of well-trained workers can have a negative side-effect on the cost-benefits balance for those financing such investments in human capital.

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[170] On the finding of increased flows from employment to unemployment, a counter-argument could be that this could lead to higher unemployment during downturns. However, the interpretation of the results in this box is that a more efficient labour market which generates greater flows from unemployment to employment and vice-versa will allow firms to be in a better position to increase overall employment in the longer-run.

[171] Contribution by Vincent Labhard (ECB) and Aitor Lacuesta (Banco de España).

[172] In an economy without rigidities (see LaLonde and Topel, 1997), the increase in employment as a consequence of a decrease in wages due to increased immigration would raise total output and per capita income. The more rigid the market, the lower the effect in the home economy. Despite the benefits, challenges remain with the distributive consequences of immigration (Borjas, 2003) and the effects on public finances. Indeed, both the distributive consequences and the dynamic aggregate effects of immigration will depend on the skill composition of migrants, because productivity developments might counterbalance the shock to the labour supply (see Izquierdo, Jimeno and Rojas, 2007). Population inflows could also help in the accommodation of asymmetric shocks across countries (as in the seminal contribution of Mundell, 1961).

[173] See Juncker et al. (2015).

[174] Labour mobility may also be inhibited by the high cost of housing in job-rich cities and metropolitan areas, which may be related to zoning, housing and construction regulations, or to rent-extraction by powerful players.

Population movements tend to be cyclical, with inflows in countries registering a boom, and outflows during recessions. Izquierdo, Jimeno and Lacuesta (2016) show that Spain went from a regime of strong immigration to a regime of strong emigration following the economic cycle. Byrne and O'Brien (2017) show that migration has played an important role for labour force participation in Ireland since 2004, when Ireland opened its labour market to intra-EU migration. Importantly, they show that a substantial part of labour force participation has been cyclical.

In the programme countries (here: Greece, Cyprus, Ireland, Portugal and Spain) the contribution to population growth from immigration started falling in 2008 at the onset of the financial crisis (Chart 42), before stabilising somewhat at slightly negative values during the short recovery following that crisis, falling further during the 2012-13 sovereign funding crisis and, in the most recent sample, becoming more neutral again.[175] In the other countries (Chart 43), by contrast, the contribution to population growth from immigration picked up somewhat in late 2007 and early 2008, and then fluctuated mildly, picking up slightly again in 2016, at the very end of period. These trends clearly show how labour mobility across the euro area can help to balance the supply and demand of labour in the euro area countries where labour imbalances may arise owing to cyclical or demographic (population ageing, etc.) forces. However, the quantities are relatively small, and policies which encourage further labour mobility, such as the recognition of qualifications across borders and the portability of pension rights, would be essential policies in this respect, because highly skilled migration is particularly sensitive to cyclical developments, as shown by the recent experiences of "sending countries" such as Greece and Spain.

Chart 42

Population growth and contributions, programme euro area countries

(annual percentage growth)
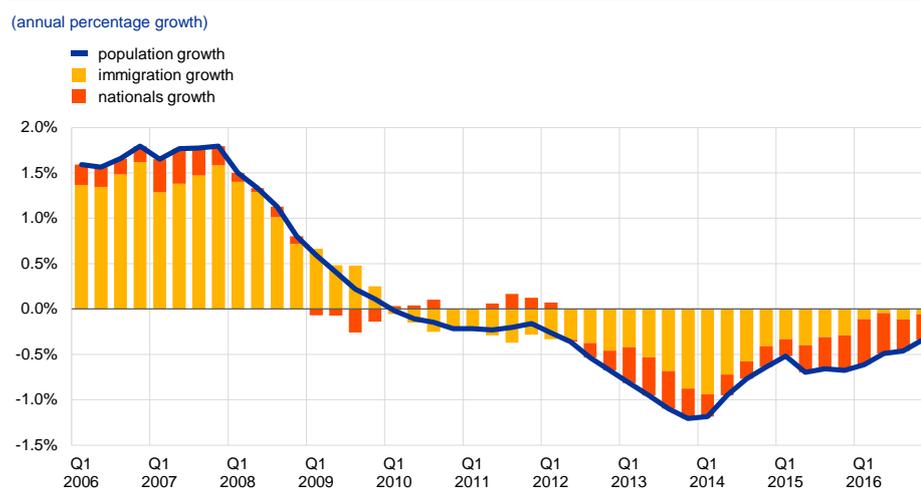
Sources: Eurostat and ECB staff calculations.

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[175] Izquierdo et al. (2016) analyse the impact of cyclical factors in emigration and immigration flows in Spain over the recent period. They find that, apart from the impact of GDP growth, other factors as the creation of networks of nationals abroad play a significant role in explaining migration flows.

Chart 43

Population growth and contributions, other euro area countries

(annual percentage growth)

- population growth
- immigration growth
- nationals growth
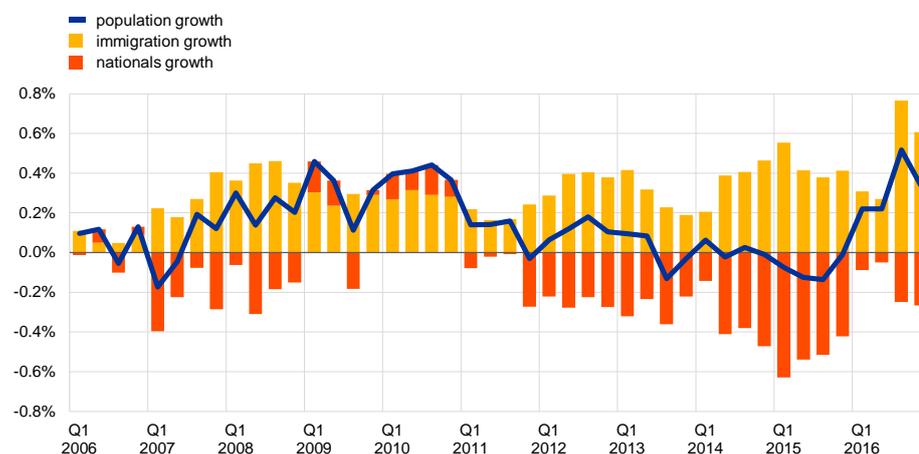
Sources: Eurostat and ECB staff calculations.

6.1.9 Female participation[176]

Although progress has been achieved, gender gaps are still large in many countries, both in terms of labour force participation and earnings. Expanding access to quality childcare (including for minorities, immigrants and refugees), removing taxation and benefit disincentives, improving parental leave policies, and aligning the official retirement ages of women and men are all policy recommendations which could stimulate greater gender equality in the labour market (OECD, 2017b).

Raising the female participation rate is crucial from both a social equality and an economic perspective. Despite the improvements registered across all European countries in the last decade, the gap between male and female participation rates in the EU are still substantial. By 2015, the participation rate for males aged 20-64 in the EU-28 stood at 78.3%, 11.5 percentage points higher than that of females, with large variations across different countries. In addition, due to the high proportion of females that work on a part-time basis, the gap in participation rates in full-time equivalents is even higher.

There is ample evidence that a high gap between male and female participation rates leads to significant macroeconomic losses. For instance, the OECD (2012a) estimates that closing the gender participation gap could raise GDP by 12% over the next 15 years through an increase in the labour supply. The European Commission (2015a) and the IMF (2012a) also stress the importance of raising the

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[176] Contribution by Brian Micallef and Noel Rapa (Central Bank of Malta).

female participation rate as a means of counteracting the effects of a shrinking working age population in most European Member States. In addition, Elborgh-Woytek et al. (2013) argue that promoting the employment of women on an equal basis ensures a more efficient use of an economy's talent pool, leading to positive potential growth implications.

Reforms aimed at raising women's participation in the labour market are key to raising potential output and to promoting economic stability and resilience to adverse shocks. Some of the factors contributing to the low female participation rate, such as cultural attitudes, cannot be directly addressed through policy reform. However, the policymaker can still help to eliminate a number of distortions that contribute to excluding from the labour force women who are both capable of working and willing to do so. For instance, the introduction of flexible working time arrangements, the removal of tax distortions that discourage part-time work and are disadvantageous to second earners in married couples, and increased support to families with young children are measures that could help in this regard. In more general terms, economies with fewer rigidities tend to be associated with higher female employment (Chart 44).

Chart 44
Ratio of female to male employment and ease of doing business.

(x-axis: Doing Business Index, 2016; y-axis: female employment/male employment, 2016)
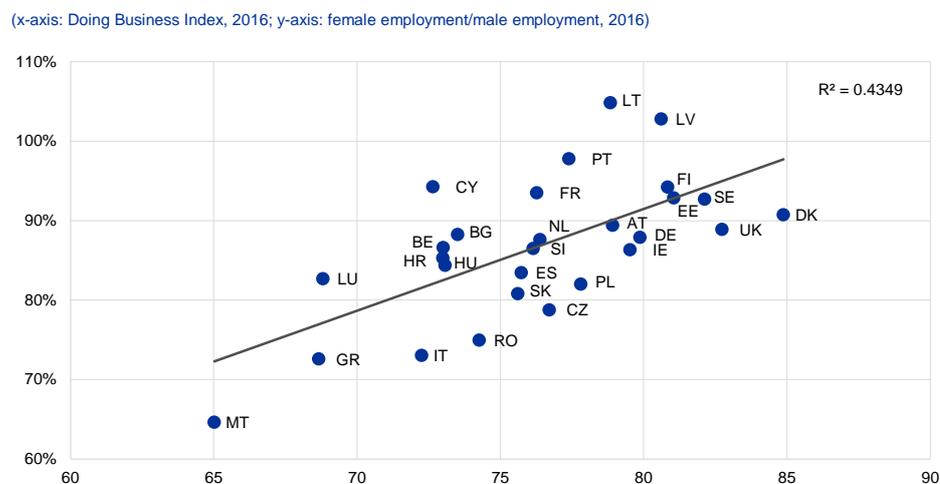
Sources: LFS, World Bank Doing Business indicator (DBI).
Note: We consider above only the working age population (15 to 64 years old).

6.1.10 Labour market status and well-being[177]

Besides contributing positively to production and income generation in the economy, being employed plays a crucial role in an individual's well-being and promotes inclusiveness. Through their labour earnings, the employed share in the benefits of economic growth. Working gives access to social protection during and

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[177] Contribution by Luc Dresse and Flore De Sloover (both Nationale Bank von België/Banque Nationale de Belgique).

after active life. Moreover, having a job can affect social mobility. A large body of literature[178] has shown that people in employment (i) are less represented at the lower end of the income distribution and less affected by poverty, and (ii) are generally in better health and have better social connections.[179]

The gap in the poverty risk between the unemployed and employed amounted to 38 percentage points in the EU in 2015. Moreover, this gap has been growing since 2005. Even in rich societies, living in at-risk-of-poverty households remains a handicap for achieving success at school, in the workplace and within family life (Cantillon, 2011).

Developing human capital is key for individuals' labour market outcomes. It is essential to have access to qualitative learning opportunities from early on in life, as research shows that the skills developed at this stage provide the basis for future achievements. Adequate ALMPs can help to (re-)insert individuals into the labour market. They can ensure a better match between skills demanded and offered, limit the risks of long-term unemployment and poverty, and help to prevent people from dropping out of the labour market.

Particular attention should be paid to a number of vulnerable groups in the labour market, such as low-skilled, foreign-born workers (particularly those outside the EU), young people and women. Their participation and employment rates are significantly lower than those of other groups in a number of European countries. In addition, the young, the low-skilled and those on temporary contracts suffer from higher labour market insecurity (Hijzen and Menyhert, 2016). Considering the direct link between participation and employment on the one hand and well-being and economic growth on the other, raising the participation and employment rates of these vulnerable groups should take priority.

Improving the integration of immigrants, refugees and minorities in the labour market remains a challenge, particularly in a context of large migration flows. This could be achieved through the provision of language acquisition support, improved training programmes, recognition of skills and qualifications, the streamlining of immigration processing, and the improvement of visa programmes (OECD, 2017c).

Very high youth unemployment rates in several European countries and the large number of young people who are neither in employment nor enrolled in education or training are major sources of concern. Youth unemployment should be tackled with structural reforms because it is strongly correlated with poverty and creates scarring effects which reduce future job and income opportunities. It also has a detrimental impact on personal well-being and on social trust. Increasing labour market flexibility while ensuring a quick and smooth transition to work is important, as evidence has shown that the negative effects associated with graduating during a

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[178] See, for example, De Moortel et al. (2014), Garda (2016), Hijzen and Menyhert (2016), Islam (2004), and OECD (2017c).

[179] Here, the implied causality is that being in employment improves health, but it may be the other way around in that bad health may prevent individuals from working.

recession are much more persistent in a rigid labour market than in a flexible one (Cockx and Ghirelli, 2016). The experience of countries such as Germany, Austria and Denmark shows that vocational education and training and apprenticeship systems can be successful in this respect.

Not only is it important for people to be in work, but the characteristics of the job also play a significant role. Productivity-enhancing reforms can ensure that real wages increase, helping to prevent people from falling into the category of "working poor". There is also a need to tackle dualism. In particular, reducing the gap in protection between permanent and temporary contracts could help to increase equality in opportunities and the functioning of the labour market. Employers should also be vigilant with regard to job stress so as to avoid the fall-out from the associated physical and psychological problems (De Moortel et al., 2014).

Governments should also help protect those who are unable to participate in the labour market. Strengthening social policies can help in attaining a certain level of fairness and can increase trust in the institutions. The priorities should be adequate minimum income protection and the reinforcement of the redistributive capacity of social programmes (Cantillon, 2011). Social policies should also provide incentives for greater participation in the labour market.

6.1.11 Social mobility and its link with income and educational mobility[180]

Lack of social mobility is detrimental both to well-being and to growth. Some level of inequality of outcomes is inevitable and acceptable when equal access to high-quality education, other public goods and services, finances or entrepreneurship is ensured. However, inequality of opportunity undermines social mobility, making it more difficult for innately talented people from low-income backgrounds to rise above their origins.

Intergenerational social mobility refers to the relationship between the socio-economic status of parents and the status their children will attain as adults. When it comes to measurement, intergenerational transmission of social status is usually measured by income, wage or educational mobility. Parents-children's earning elasticities, children's wage premiums due to parent's education attainment, and intergenerational educational persistence across countries differ along the various dimensions, depending on the characteristics of the schooling system and skill-wage premia, etc (see Table 3 for an overview on social mobility in European countries).

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[180] Contribution by L. Dresse and Fl. De Sloover (both Nationale Bank von België/Banque Nationale de Belgique).

Table 3

Social mobility in European countries: summary of selected results

	High persistence	Low persistence
Intergenerational earnings elasticities[1]	UK, IT, US, FR	DK, AU, NO, FI, CA
Intergenerational wage persistence: wage gap due to father's educational attainment[2]	PT, UK, IT, ES	AT, EL, DK, FR, FI
Intergenerational educational persistence:		
• **Influence on students' achievement in secondary schools**[3]	US, FR, BE	IS, FI, NO, KO, CA
• **Post-secondary education achievement**[2]	LU, IE, IT, ES	FI, FR DK, AT
• **Below upper-secondary education achievement**	PT, IT, ES, IE, LU	AT, SE, FR, FI, UK

Notes: 1. D'Addio (2007). Coverage: selected OECD countries, i.e. Sweden, Germany and Spain in addition to the countries mentioned above. 2. Causa and Johansson (2009). Coverage: European OECD countries (EU-SILC database 2005). 3. Causa and Johansson (2009). Coverage: OECD countries (OECD-PISA database 2006).

Reforms supporting innovation and technological progress could also promote social mobility insofar they lead to a reduction in barriers to firm entry and a reduction in incumbents' power. Indeed, recent evidence suggests that intergenerational income mobility increases with the degree of entrepreneurship and innovativeness in the economy (Aghion et al., 2015).[181]

Education and investment in human capital are key to efficiently making use of the talent pool. Parents' socio-economic status strongly affects their children's opportunities for upward educational mobility and influences successful labour market insertion through the transmission of social norms or the legacy of social networks.

6.1.12   Education and strengthening human capital

Globalisation, robotisation and technological progress require enhanced education and training, along with flexible product and labour markets. Otherwise, new technologies could reinforce dualism in the labour market between the high and low-skilled, with the low-skilled receiving fewer opportunities and suffering from greater insecurity and lower earnings.[182] To counteract this danger, advanced economies must remain close to the technological frontier and invest more in increasing skills and in better skill matching, not least for those whose current jobs are likely to be replaced by new technologies.

At the individual level, education allows people to build the capacities to adapt to a permanently evolving labour market with increasing requirements and new

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[181] Aghion et al. (2015) also show that innovation is positively associated with top income inequality. However, such increases in inequality do normally not violate perceptions of social fairness, if they are associated with higher profits derived from socially beneficial innovation (e.g. as opposed to rent-seeking). Moreover, in a dynamic sense, innovation can be associated with upward social mobility. The authors also argue that the relationship between innovation and income inequality depends upon institutional factors. For example, to the extent that lobbying activities help incumbents prevent or delay entry of new firms, places with higher lobbying intensity are also places where innovation has lower effects on social mobility. In this respect, policymakers are responsible for ensuring that economic structures are such that innovations are associated with upward social mobility.

[182] See, for example, Goos, Manning and Salomons (2014), who find that new technologies have resulted in the phenomenon of job polarisation and the disappearance of middle-skill jobs.

challenges (digitalisation for example). It facilitates participation in the labour market (inclusiveness), increases potential earnings and reduces employment insecurity. Firms benefit from better-educated workers who can make better use of existing capital, and who can support innovation and the adoption of new technologies.

At the society level, better education increases growth through the provision of additional and/or more productive human capital, leading the economy closer to the production frontier. For instance, education supports innovation through research activities: Ciccone and Papaioannou (2005) show that countries with high-quality education are more successful in adopting knowledge-intensive technologies.[183] When unemployed, skilled workers also have high probabilities of quickly re-entering the labour market, thereby relying less on public subsidies and transfers. The literature indicates that targeting primary education can bring greater social benefits: empirical evidence (Doppelhofer, Sala I Martin and Weeks, 2005; Heckman and Masterov, 2007) suggests that larger gains (and lower efficiency/equality trade-offs) come from targeting spending on younger age groups.[184] Also it seems crucial to foster on-the-job learning since there is evidence that returns from experience are significant, especially for low-skilled workers (Jimeno, Lacuesta, Matute and Villanueva, 2016).

Ensuring fair education opportunities and improving equity in the outcomes of the educational system are prime determinants of inclusive growth; initiatives targeting disadvantaged people (at the earliest stage possible) contribute to improving fairness and social inclusion.[185] Women receive higher returns on their schooling investments than men (Psacharopoulos and Patrinos, 2004), making it possible for optimal public intervention to target gender inequality without compromising efficiency. Finally, higher investment in education increases international convergence (Psacharopoulos, 1994), as the social and private returns on education are superior in countries with lower per capita income.

From a European perspective, education can also contribute to the removal of psychological, cultural and linguistic barriers to the movement of citizens and workers. Fostering temporary cross-country mobility of teachers could contribute to the spreading of best practices in education. A higher emphasis on linguistic education would lessen the existing barriers to the mobility of workers and increase overall efficiency in labour markets: the fact that more than half of Europeans have not mastered a second language still constitutes a strong obstacle to mobility.

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[183] By increasing the probability of employment, education and training reduce the social costs related to unemployment and inactivity: in 2015, the employment rate in the OECD was 74.4% for university graduates and 83.8% for upper secondary graduates, compared with a less satisfying 55.8% for less educated persons.

[184] Beside initial education, continuous training is key in the context of ageing societies. It improves the employability of all workers (including soft skills, adaptability and skills related to new needs of the labour market), in particular for those belonging to more vulnerable groups (low-skilled, foreigners, older workers).

[185] Some specific measures can be particularly effective: according to the OECD, the goal of increasing equity via access to education should focus on early initiatives targeting disadvantaged students and their schools. These initiatives should be aimed at improving scientific education and increasing financial literacy. This would benefit society at a time when the individual is made responsible for financial choices about the future (for example via the progressive introduction of second-pillar and third-pillar pensions).

6.2   Product markets

Product market reforms comprise a wide range of policies. These policies include liberalising or deregulating the professional services, retail trade and network industries, primarily by reducing barriers to entry and international trade and through the privatisation of network industries and other state-owned enterprises, as well as through improvements in the business climate. They also include strengthening competition policies and harmonising EU laws. There is substantial evidence that such product market reforms are associated with higher future productivity and growth.[186]

Far-reaching product market reforms have been implemented in many of the post-communist transition economies. Widespread market liberalisation, the deregulation of prices and trade, the opening of markets to international trade, and the privatisation of state-owned enterprises were key elements of the reforms implemented in the transition economies, in particular in the first half of the 1990s. Overall, there is ample evidence that these reforms have contributed to strong trend growth and substantially higher real incomes (Roaf et al., 2014).[187] There is also some evidence that early and fundamental reforms – as implemented in the Baltics and in particular in Estonia – were more sustainable and successful in the long run than gradual approaches (Åslund, 2015).

Recent evidence, including from firm-level data, suggests that the productivity slowdown in the euro area is also related to rising resource misallocation.[188] According to a number of studies, low-productivity firms that would typically exit a competitive market are instead kept alive, hindering an efficient allocation to more productive firms. This may weigh on aggregate productivity and crowd out growth opportunities for more productive firms.[189] Gopinath et al. (2017) provide empirical and theoretical evidence that the significant decline in the real interest rate in parts of what is now the euro area, both in the run-up to and following the introduction of the euro, led to a decline in TFP as capital inflows were misallocated towards firms that had a higher net worth (or better collateral) but were not necessarily more productive. Fernández-Villaverde et al. (2013) argue that strong capital flows to southern European countries shifted the allocation of capital towards activities in the non-tradable sector. This worsened the allocation of capital and led to persistently

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[186]   See inter alia Égert (2018), who shows strong positive impacts of various product and labour market reforms on multifactor productivity and employment for OECD countries.

[187]   "The past 25 years have seen a dramatic transformation in Europe's former communist countries, resulting in their reintegration into the global economy, and, in most cases, major improvements in living standards. But the task of building full market economies has been difficult and protracted. Liberalization of trade and prices came quickly, but institutional reforms—in areas such as governance, competition policy, labor markets, privatization and enterprise restructuring—often faced opposition from vested interests. […] Initial conditions and external factors played a role, but policies were critical too. Countries that undertook more front-loaded and bold reforms were rewarded with faster recovery and income convergence" (Roaf et al., 2014).

[188]   Dias et al. (2016) estimate that deteriorating allocative efficiencies may have shaved up to 1.3 percentage points off annual GDP growth in Portugal during the 1996-2011 period: "Capital distortions emerge as more important than labour and output distortions in explaining potential value-added efficiency gains, especially in the service sector" (Dias et al., 2016, p. 48). A similar observation was made by Reis (2013).

[189]   See Adalet McGowan, Andrews and Millot (2017b); Schivardi, Sette and Tabellini (2018); Dias et al. (2016); Andrews and Petroulakis (2017); and Storz, Koetter, Setzer and Westphal (2017).

lower growth. García-Santana et al. (2016) show that the misallocation of resources was especially strong in those industries where the influence of the public sector is more important to success.[190]

6.2.1 The link between resource allocation, business churning and productivity[191]

In order to enhance long-term growth, euro area firms and policymakers should improve the diffusion of technology to all firms, especially in the service sectors. The following would support this objective: (i) incentives to invest in human capital, managerial ability and intangibles; (ii) competition; and (iii) structural measures aimed at removing product, labour, and financial market distortions that prevent productivity-enhancing reallocation of capital and labour across firms.

Looking at firms at the technology frontier during the period 2010-13, euro area firms had lower productivity growth than firms in other OECD countries. The gap is particularly large in the service sectors. In such sectors, the average labour productivity growth of euro area frontier firms during the 2010-2013 period (the most recent period for which data are available) was 1.1 percentage points lower than that of OECD frontier firms (Chart 45).[192]

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[190] García-Santana et al. (2016) note that resource misallocation was particularly severe due to corruption and crony capitalism.

[191] Contribution by Paloma Lopez-Garcia and Ettore Dorrucci (ECB) – based on previous work by Paloma Lopez-Garcia, Elisa Gamberoni and Claire Giordano – and Francesco Manaresi (Banca d'Italia).

[192] Following OECD (2015b) the global technology frontier is defined as the 100 most productive firms (in terms of the level of labour productivity) each year in each two-digit sector according to the NACE Rev. 2 classification, based on data for OECD countries from the ORBIS database (see Gamberoni, Giordano and Lopez-Garcia (2016a). To proxy the technology frontier in the euro area, the authors look instead at the 100 most productive firms each year in each narrowly defined sector across 13 euro area countries with information in the Amadeus database (Bureau van Dijk). Information is only available for the period 2010-13. Technology creation, in turn, is defined as the average labour productivity growth of firms at the technology frontier. Note however that the productivity growth of this set of firms could also be driven by reasons other than technology creation, such as idiosyncratic demand shocks. The use of labour productivity growth, instead of TFP growth, is driven by data availability for OECD countries. Note, however, that according to Andrews et al. (2015), results are robust to the use of TFP, instead of labour productivity, and also to alternative definitions of frontier firms (top 10% productive firms instead of top 100 productive firms, for example).

Chart 45

Annual labour productivity growth

(average 2010-2013)
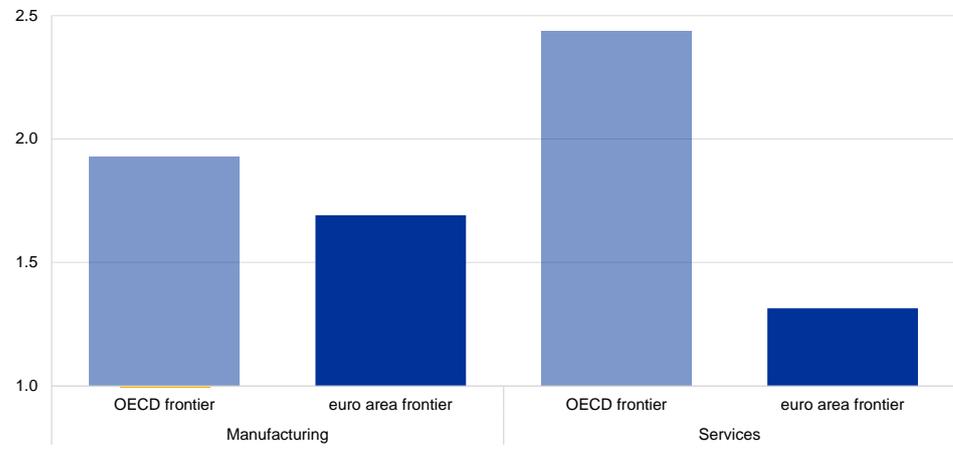
Source: Gamberoni, Giordano and Lopez-Garcia (2016a), based on OECD and Amadeus.
Note: Sample is based on firms with more than 20 employees in 13 Euro area countries (Austria, Belgium, Germany, Estonia, Finland, France, Italy, Latvia, Lithuania, Portugal, Slovenia and Slovakia).

Within the euro area, frontier firms are on average larger, more capital-intensive, and invest more in intangible and human capital than non-frontier firms operating in the same sector. Again, this is particularly the case for frontier firms operating in the service sector, where, on average, firms invest 100% more in intangible capital and 50% more in human capital than non-frontier firms operating in the same narrowly defined sector (see Charts 46, 47 and 48 for an overview of labour productivity growth of frontier and non-frontier firms).

Chart 46

Ratio of frontier to laggard firms for each variable

(average 2010-2013)
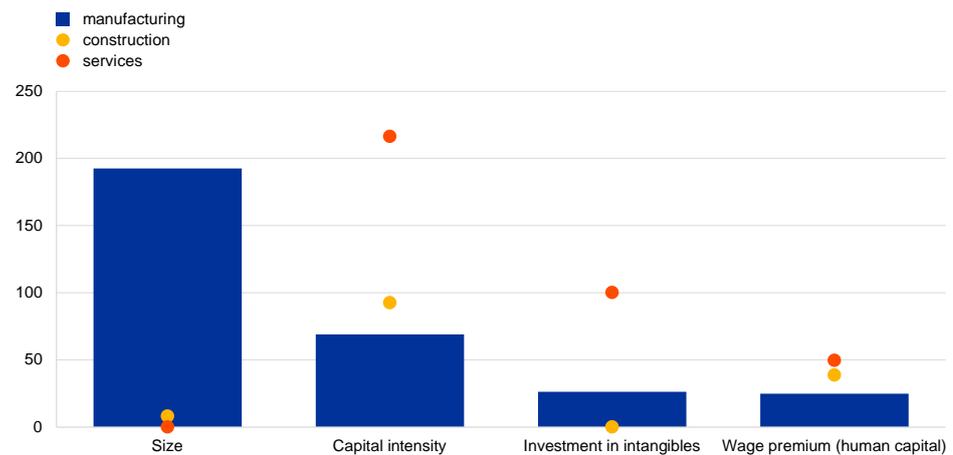
Source: Gamberoni, Giordano and Lopez-Garcia (2016a), based on OECD and Amadeus.
Notes: Regression at the two-digit industry level where each of the variables above is regressed on a dummy=1 if frontier firm and =0 if laggard.
Country, year and sector fixed effects are controlled for. Frontier firms are defined as the top 100 most productive firms in each two-digit sector.
Services, aggregated with value added weights. Sample is based on firms with more than 20 employees in 13 euro area countries (see note to Chart 45).

Chart 47

Cumulative labour productivity growth of frontier and non-frontier firms– Manufacturing
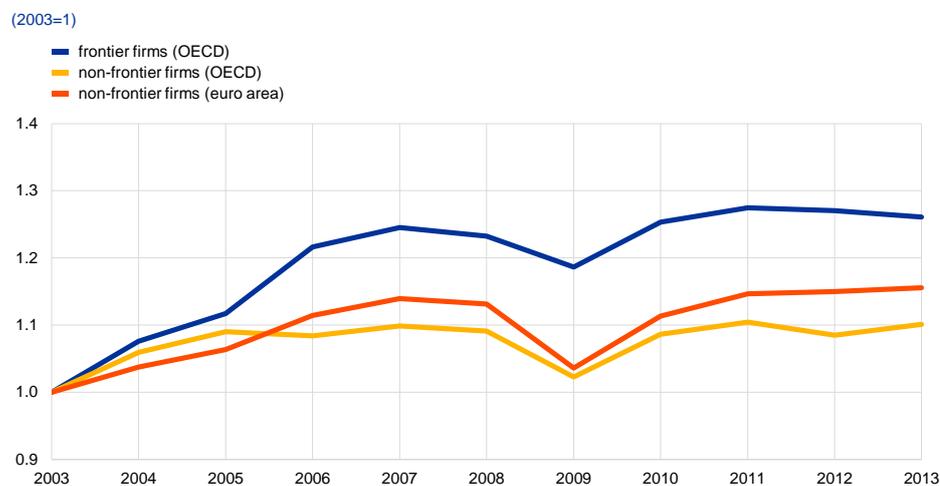
(2003=1)

- frontier firms (OECD)
- non-frontier firms (OECD)
- non-frontier firms (euro area)

Sources: Calculations based on OECD and 5th vintage CompNet.
Notes: The euro area non-frontier productivity dynamics are computed as productivity growth of the median firm in each two-digit sector aggregated with value added weights to the country level. Unweighted average of developments in Belgium, Finland, France, Italy and Spain. Sample is based on firms with more than 20 employees.

Chart 48

Cumulative labour productivity growth of frontier and non-frontier firms– Services
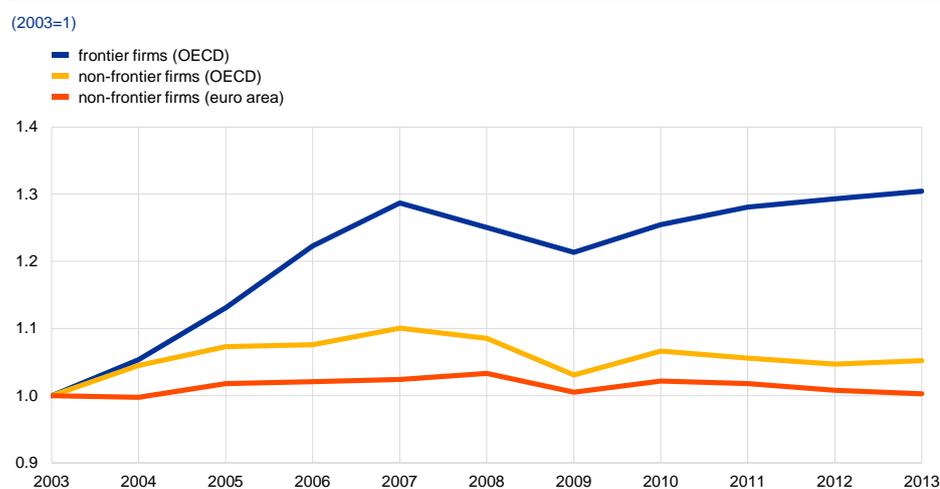
(2003=1)

- frontier firms (OECD)
- non-frontier firms (OECD)
- non-frontier firms (euro area)

Sources: Calculations based on OECD and 5th vintage CompNet.
Notes: The euro area non-frontier productivity dynamics are computed as productivity growth of the median firm in each two-digit sector aggregated with value added weights to the country level. Unweighted average of developments in Belgium, Finland, France, Italy and Spain. Sample is based on firms with more than 20 employees.

Possible explanations for these trends can be found in the literature and provide a basis for discussing which reforms could support productivity growth. The literature emphasises the importance of conducting own research and development to be able to understand and implement new technologies (Cohen and Levinthal, 1989; Griffith et al., 2004). Moreover, a skilled labour force can more easily understand and incorporate the new technologies into the firm's production process. Cohen and Levinthal (1990, 1994), for instance, argue that a firm's absorptive capacity is a by-product of three factors: R&D activities, production experience and

technical training. Hall and Mairesse (2006) confirm that the technical training of employees is one of the most important determinants for innovation. In addition, managerial ability has also been found to be key for technology adoption.[193]

Market competition and business churning (i.e. the rate of entry and exit of firms) – which are affected by country-specific framework conditions – influence the incentives and costs for firms to invest in new technology or adapt existing technologies. Tighter market competition, including from new firm entrants, increases the benefits, in terms of survival probability or increase in market share, that non-frontier firms can expect from investing in new technology or renewing the stock of capital and incorporating the latest vintage into the production process. In addition, besides the direct impact of allocative efficiency on aggregate productivity growth, the efficient allocation of inputs across firms creates the right incentives for investing in productivity-enhancing investments.

Firm dynamics, i.e. the process of entering into, thriving in, and exiting from the market, is a key factor in explaining aggregate growth and productivity. Business churning and jobs are sustained mostly by new firm entrants in their early years. Evidence from OECD countries shows that young firms contribute disproportionally to job creation relative to their share in employment (Calvino et al., 2016).[194] Among young firms, high job creation rates are accompanied by high job destruction rates as a result of firms exiting from the market (Haltiwanger, 2012). These up-or-out dynamics are a key indicator of the growth-enhancing process of creative destruction (Bartelsman et al., 2013). Several researches have shown that young firms thrive during their initial years by "learning their demand": repeated customer interactions, trial and error, and marketing allow new firms to increase their profitability and productivity and reduce their gap vis-à-vis incumbents (Foster et al., 2016).

However, there is evidence that business churning and the efficiency of resource allocation have been worsening over time in the euro area. This applies especially to the intra-sectoral allocation of capital across firms (Gamberoni et al., 2016a; ECB, 2017e), as shown in Chart 49 concerning six euro area countries for which data are available for the period 2002-13. Business churning has also been declining since before the crisis both in the United States and Europe (Chart 50). Recent cross-country evidence from OECD countries shows that diverging patterns in firm dynamics can be traced back to differences in frictions and to policies that favour incumbent firms over entrants.[195]

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[193] New technologies need new structures and production reorganisation – that is, management decisions – to result in efficiency gains (Garicano and Heaton, 2010). Management practice scores are lower in turn when the firm is family-owned and the CEO is the son of the firm's founder, rather than a professional manager (Bloom and Van Reenen, 2007).

[194] According to recent evidence for the period 2001-2011, net employment growth of young firms is positive and ranges from 3.5% of aggregate employment in Spain to 3.2% in France, 2.6% in the United Kingdom and 2.2% in Italy; conversely, net employment growth for old firms is generally negative (Criscuolo et al., 2014).

[195] Calvino et al. (2016) show that the strength of contract enforcement, the length of bankruptcy procedures, and seed and early-stage policies (together with easiness of access to capital and VC availability) impact positively on the growth of new and young firms and negatively on the survival rates of incumbent firms, particularly in high-volatile and high-growth sectors.

Chart 49

Weighted averages of sectoral dispersion in the marginal revenue of productivity of capital

Legend: Belgium, Finland, France, Italy, Slovakia, Spain
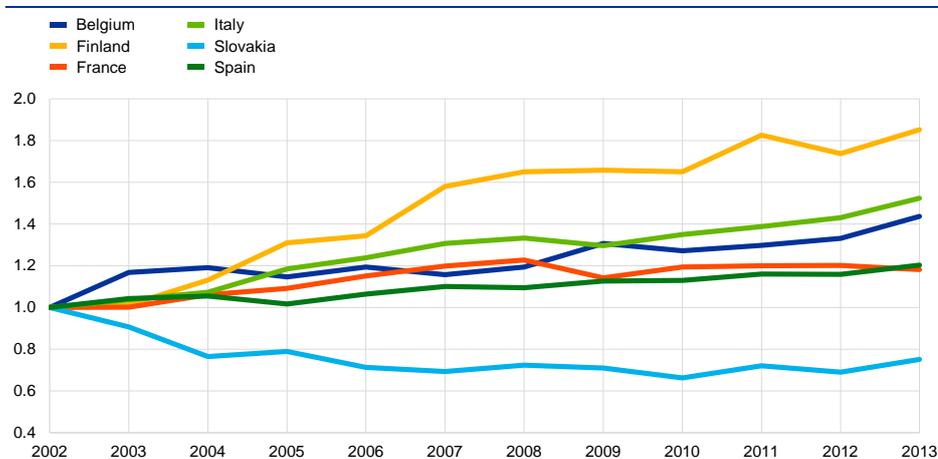
Source: ECB staff calculations on CompNet data. Sample with 20 or more employees.
Notes: The weights are the sectoral shares in value added (six euro area countries). Input misallocation is computed as the within-sector dispersion in marginal productivity of capital, as in Hsieh and Klenow (2009). Sector dispersion is thereafter aggregated to the country level using value added sector shares. See Gamberoni et al. (2016a) for greater detail.

Chart 50

Sum of firm entry and exit

Legend: EU14, US (right-hand scale)
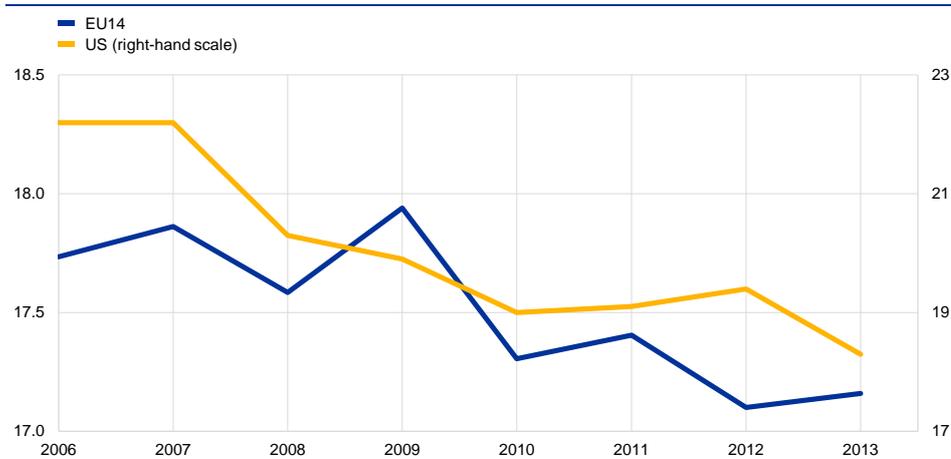
Source: ECB staff calculations based on Eurostat and US Census.
Note: EU-14 comprises Austria, Belgium, Germany, Denmark, Spain, Finland, France, Ireland, Italy, Luxembourg, the Netherlands, Portugal, Sweden and the United Kingdom.

Reforms that remove constraints on business entry and churning can facilitate shifts in resources from less productive units to more productive and more innovative ones, fostering adoption of new technologies and productivity.
Competition is the main driving force of this process (Aghion et al., 2004), and product market deregulation – enabling easier entry or exit, for instance – facilitates aggregate productivity growth (Arnold et al., 2011). Meanwhile, Bourlès et al. (2013) find that excessive regulation has significantly reduced productivity growth. Confirming the neo-Schumpeterian predictions, this impact has been particularly

strong for firms closer to the productivity frontier.[196] Reforms that enhance competition and reduce market power (and thus mark-ups) of firms can lead to large productivity gains and support investment.[197] An empirical investigation of some of the above issues is carried out in Box 8. The investigation finds that reforms which reduce product market regulation are associated with both higher business churning and higher productivity in Europe.

The above sections have shown that there are many benefits to structural reforms in labour and product markets in terms of employment, productivity and output. In addition, as shown in Box 3 in Chapter 4, model-based simulations suggest that packaging combinations of product and labour market reforms together can overcome the possible short-term negative impacts of some reforms while delivering greater benefits in terms of output compared with implementing the reforms separately.

6.2.2   Service sector reform – the case for completing the single market

The service sector is very important for the euro area economy. In 2015, it accounted for over 65% of gross value added in the euro area. However, the share for the euro area is still significantly below the corresponding value for the United States and Japan (Chart 51).

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[196]   Gutiérrez and Philippon (2017) use a combination of natural experiments and instrumental variables to establish a causal relationship where decreased competition reduces investment. They also provide some evidence that the increase in concentration can be explained by increasing regulations and, to a lesser extent, stronger winner-takes-all effects in some industries.

[197]   Recent research points to (strongly) increasing profit mark-ups in the US economy since the 1980s and 1990s. This is interpreted as evidence for a rise in market power (declining competition) that has been associated with a slowdown in aggregate output (De Loecker and Eeckhout, 2017) and lower investment (Gutiérrez and Philippon, 2017). Baqaee and Farhi (2017) estimate that eliminating mark-ups in the US economy would raise TFP by about 40%. The authors also acknowledge that, from a dynamic perspective, mark-ups may also play an important role in incentivising innovation and entry, so that exogenously eliminating mark-ups may also harm productivity, which may mitigate the increase in TFP estimated in a comparative static setting. At the same time, one may argue that from a political economy perspective, high mark-ups may also incentivise rent-seeking activities (see Chapter 5) and allow incumbent firms to increase their political and thereby market power by making entry more difficult and undermining competition (see Zingales, 2017).

Chart 51
Share of the services sector in gross value added and employment
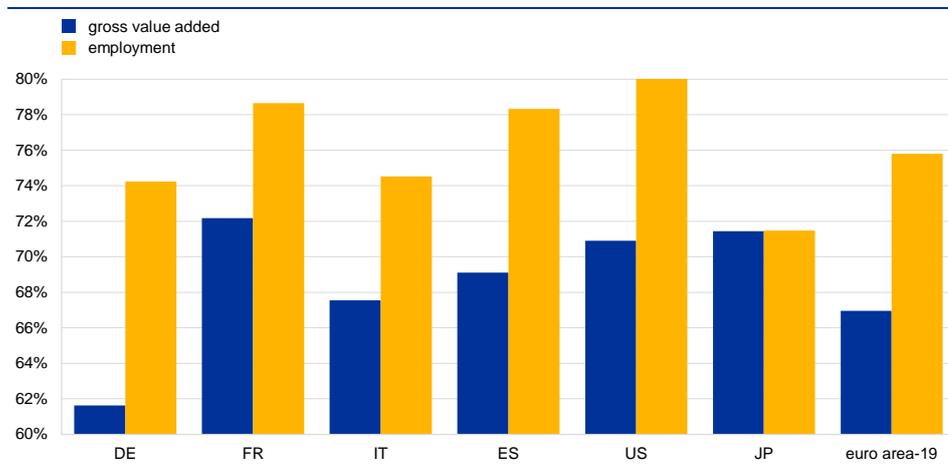
- gross value added
- employment

Owing to the relatively high labour intensity of this part of the economy, its importance in terms of employment is even more striking. There are around 150 million jobs in the EU service sector, and nine out of ten new jobs are created in services, while the service sector accounts for more than 75% of employment in the euro area (Corugedo and Ruiz, 2014).

A well-functioning service sector can act as a catalyst for productivity growth elsewhere in the economy. This is demonstrated for instance by Barone et al. (2011), who show that OECD countries with less anticompetitive regulation in services experience higher growth in value added, productivity and exports in downstream service-intensive industries such as manufacturing. This channel seems particularly relevant for the export industry, which draws on a developed service industry in three ways: as a direct input to the final product, as a provider of consultancy services to organise the manufacturing activities, and as an enabler to link the manufacturer to the foreign buyer. The intuitive conclusion that a competitive service sector spurs growth in other sectors of the economy via such forward-linkages is also confirmed in the literature (Corugedo and Ruiz, 2014).

Enhancing cross-border trade and competition in service markets also has the potential to significantly improve welfare by enhancing in turn the quality of services provided directly to households. With more competitive services markets, consumers would benefit from better services, tailored more closely to their individual needs, per euro of price (or tax) paid. This would in turn enhance their purchasing power. Interestingly in this context, there is some indication that the market for services directed at households is less developed than that for professional services in the EU. As Viviano (2015) shows using input-output linkages, the demand for services in the largest euro area countries comes mainly from manufacturing, unlike in the United States, where the demand for services is to a high degree generated by households.

While the single market for goods in the EU has been relatively successful, the services market remains incomplete. For example, the European Commission estimates that the Services Directive and the business environment reforms implemented up until mid-2013 have boosted labour productivity in the sectors affected by the Directive by around 4%, 6%, 7% and almost 9% in Portugal, Spain, Italy and Greece, respectively.[198] At the same time, the full benefits of the Directive have not been exploited. This is the result of partial implementation of existing regulation, loopholes in the Directive giving countries easy opt-out possibilities and the fact that several key sectors are completely excluded from the Services Directive.

Following significant progress in the first years after the adoption of the Services Directive, it seems that most of the momentum has been lost. According to estimates by the European Commission, many of the potential gains from a full implementation of the Services Directive have yet to be realised. Progress has been uneven across countries, but in the majority of cases well below half of the potential gains have translated into an increase in GDP (Chart 52).

Chart 52

Services Directive: GDP impact of ambitious implementation, euro area countries

(2014; percentages)

- implemented reforms
- possible reforms
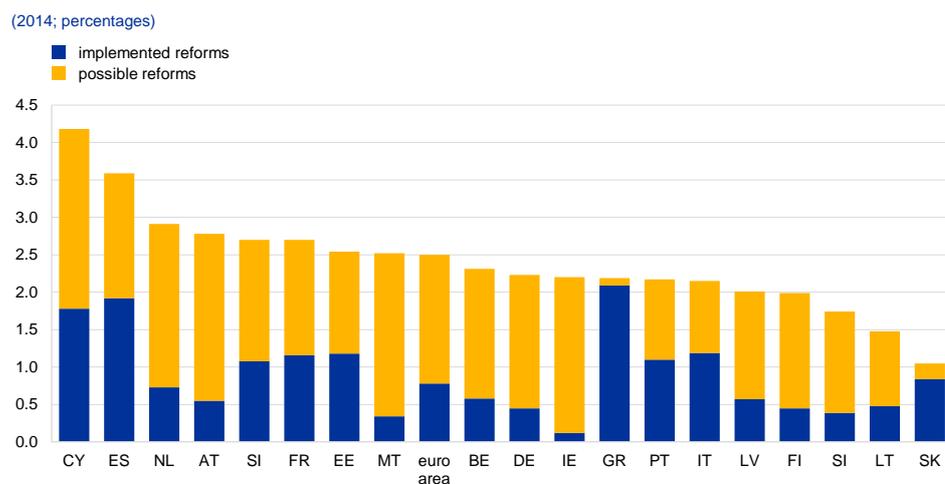
Source: European Commission Services (2016), update following Monteagudo et al. (2012).
Note: Figures are based on the assumption that countries would reduce barriers to the level of restrictions of the five best countries in the EU.

The reason for this implementation gap seems to be a combination of relatively lax follow-up of compliance breaches by Member States and, perhaps more importantly, major loopholes in the Directive that allow countries to defer implementation. Consequently, ten years after the introduction of the Services Directive, many Member States have still not fully transposed it into their national legislation.

One possible reason for the limited success could be that Member States have not been able to agree on the "country of origin" principle, which works well

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[198] See also European Commission (2014c).

for manufactured goods. Following this principle would mean that the applicable law when exporting a service would be the country where the service is performed and not the destination country. This could for instance affect barriers to entry to certain professions. According to this view, applying this principle could force Member States into a competitive situation where efficient regulation is promoted. An argument against the country of origin principle for services is that it might trigger a race to the bottom in terms of legislation, which could affect security and consumer protection standards.[199]

Instead, it was agreed to introduce certain minimum standards regarding the openness of the service sector, and to monitor the application of these standards by Member States. Follow-up from the European Commission has taken the form of issuing either country-specific recommendations or formal infringement procedures (e.g. in the area of professional services). However, the overall impact of these initiatives on the overall functioning of service markets has been relatively limited.

In addition to incomplete implementation, potential gains are also restricted by the complete exclusion of important sectors from the Services Directive. Although the political, technical and legal difficulties that led to the exclusion of, for instance, health care, transport and audio-visual services from the Directive cannot be ignored, the exclusion of such large parts of the total EU economy from the single market is most likely to come at a substantial price in terms of quality of services, productivity and economic output.

Since the service sector is traditionally more regulated than other parts of the economy, reform efforts are often met by fierce resistance from insiders protecting their rents.[200] This, along with the well-known limitations of the central monitoring of structural reform implementation at EU level, suggests that it might therefore be fruitful to increase the legislative competition among Member States in the field of services as a means of regaining reform momentum.

One option – the impact of which could be further explored – would be an agreement to apply the country of origin principle. Another possibility that is sometimes mentioned would be to strengthen the role and independence of national competition authorities or national productivity boards in screening and making transparent the cost of restrictive national legislation for consumers in terms of economic output and real purchasing power.

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[199] It seems inconsistent that such considerations are applied to services but not to manufactured products. At the same time, it should be acknowledged that the difficulties of exporting many types of services under a country-of-destination arrangement will most likely hinder many smaller service providers from operating abroad as it is too burdensome to offer the same service under many different legislative regimes.

[200] It should be noted, however, that some degree of regulation can also be justified on the basis of efficiency considerations (e.g. for natural monopolies).

Box 8

Product market regulation, business churning and productivity[201]

Firm entry and exit (business churning) is often regarded as key to business dynamism and economic growth, as this mechanism – also known as Schumpeterian creative destruction – facilitates the adoption of new technology as well as the shift of resources to more productive uses.

The aim of this box is to focus on how reforms which reduce product market regulation are associated with increased business churning and productivity.[202] First, we show the existence of a negative relationship between product market regulation and business churning; second, we investigate whether increased business churning is positively correlated with TFP growth. The dataset covers 28 EU countries over the period 2004-2014.[203] The data are available at the sectoral level for two different firm size categories: firms with fewer than ten employees and other, larger firms.

Using panel regressions to explain business churning, we find that GDP growth increases (decreases) firm birth (death) rates while an increase in the stringency of regulation, proxied by the PMR ETCR[204] indicator, is negatively associated with the business churn rate (Table A). In the case of firms with less than ten employees, the results for product market regulation are confirmed for both transmission channels (i.e. birth and death rates), while in bigger companies the negative impact of regulation on business churn tends to be driven primarily by death rates.[205]

Table A

Impact of product market regulation on churning (first step)

1st step	companies < 10 employees			companies >= 10 employees		
	(1)	(2)	(3)	(4)	(5)	(6)
	churn	birth rate	death rate	churn	birth rate	death rate
GDP growth (t-1)	0.0523	0.1667**	-0.0980***	-0.0549*	0.0007	-0.0470**
	(0.0748)	(0.0649)	(0.0311)	(0.0224)	(0.0097)	(0.0172)
PMR ETCR	-3.4373***	-1.7596***	-1.3332**	0.0115	0.2360***	-0.3021*
	(0.5181)	(0.3665)	(0.4348)	(0.2019)	(0.0448)	(0.1596)
constant	0	17.6910***	0	0.8034	0	0
	(.)	(1.5804)	(.)	(0.8983)	(.)	(.)
N	1204	1241	1230	1464	1496	1496
R-sq	0.6294	0.5239	0.6595	0.7039	0.6410	0.7092

Notes: Fixed-effects model using country, sector and time dummies. PMR ETCR refers to the OECD indicator of regulation in energy, transport and communications. Robust standard errors in parentheses, adjusted for clustering by country-sector: * $p<0.1$, ** $p<0.05$, *** $p<0.01$.

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[201] By Robert Anderton, Barbara Jarmulska and Benedetta Di Lupidio (ECB).

[202] For literature on this topic, see Aghion et al. (2004), Arnold et al. (2011) and Bourlès et al. (2013).

[203] Business Demography (Eurostat).

[204] The PMR ETCR is an OECD index covering seven non-manufacturing subsectors (telecoms, electricity, gas, postal, rail, air passenger transport and road freight) in which anticompetitive regulation tends to be concentrated. Given that manufacturing sectors are typically lightly regulated and open to international competition, this index is used as a proxy of product market regulation in the whole economy. An additional advantage of using the PMR ETCR indicator is the longer annual time series (compared with the PMR indicators, for instance). The index value ranges from 0 to 6 (a low value corresponds to light regulation).

[205] In this respect, it sounds reasonable that product market deregulation mainly affects the births of small companies, as new firms usually start small.

The second step investigates the relationship between business dynamics and sectoral productivity.[206] Table B (columns 1-3) shows a statistically significant positive relationship between TFP dynamics and firm churn, birth and death rates.[207] Productivity dynamics are positively affected by business churn: on the one hand, assuming that it is mainly inefficient firms that exit the market, the higher their death rate, the higher the productivity of the remaining companies. On the other hand, an increased rate of firm births can generate higher aggregate productivity via increased competition.

Table B

Impact of churning on productivity (second step)

| 2nd step | companies >= 10 employees | | | | | |
	(1)	(2)	(3)	(4)	(5)	(6)
	TFP growth					
GDP growth	0.0068***	0.0064***	0.0070***	0.0068***	0.0066***	0.0070***
	(0.0006)	(0.0006)	(0.0005)	(0.0006)	(0.0005)	(0.0006)
churn (t-1)	0.0034***			0.0028***		
	(0.0006)			(0.0006)		
birth rate (t-1)		0.0022**			0.0019*	
		(0.0009)			(0.0005)	
death rate (t-1)			0.0063***			0.0054***
			(0.0011)			(0.0015)
TFP Leader				0.0968	0.0934	0.1024
				(0.0693)	(0.0705)	(0.0731)
TFP catch-up				-0.0711***	-0.0790***	-0.0696***
				(0.0073)	(0.0079)	(0.0073)
constant	-0.0307***	-0.0540***	-0.0437***	0.0011	0.0373**	0.0121
	(0.0053)	(0.0070)	(0.0086)	(0.0153)	(0.0111)	(0.0158)
N	1644	1710	1662	1647	1714	1665
R-sq	0.3370	0.3254	0.3358	0.3532	0.3496	0.3565

Notes: Fixed-effects model. Robust standard errors in parentheses, adjusted for clustering by country-sector: * p<0.1, ** p<0.05, *** p<0.01.

These general findings are confirmed in a more elaborate specification where two additional terms explaining TFP growth are included in the equation (Table B): the TFP growth of the leading country in a given sector, and a TFP technology catch-up variable which partly captures technological diffusion and is proxied by the lagged ratio between the productivity level of a given country sector and the productivity level of the country leader in that sector.[208] [209] The small magnitude of the TFP technology catch-up parameter suggests that technology diffusion may be hampered in Europe as catching up with the TFP leaders on productivity seems to be a weak and slow process.[210] Although

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[206] TFP is computed on the basis of a production function. See for example Olley and Pakes (1996).

[207] In this second stage of the analysis, owing to the substantial productivity differences between small and large establishments, we focus only on companies with more than ten employees. See for example Pagano and Schivardi (2001) and Taymaz (2005).

[208] Following Nicoletti and Scarpetta (2003).

[209] 75% of the leading countries (per year and sector) were among those lightly regulated, as proxied by the PMR indicators being below average.

[210] While technology diffusion to frontier firms seems to have been increasingly fast in recent years, its diffusion to the rest of the firms has been increasingly slow, which in turn negatively affects the productivity growth of the total economy (Andrews et al., 2015).

the results are not shown, further specifications reveal that the catch-up process in central eastern European (CEE) countries, which are experiencing a convergence process, is faster than in the rest of the EU countries. As a result, when the catch-up variable is interacted with the CEE countries dummy, the magnitude of its coefficient is further reduced for the rest of the countries.

In summary, the overall results of the above analysis are consistent with the view that structural reforms which reduce product market regulation can increase sectoral productivity performance via increased business churning.

Box 9

Empirical estimates of the impact of product and labour market reforms on total factor productivity[211]

Innovation is a major determinant of the long-run trend of productivity. A large body of literature has studied the link between competition and innovation. In their paper, Cette, Lopez and Mairesse (2016) investigate the impact on productivity of anticompetitive regulations in product and labour markets through their effects on production prices and wages. They focus on three channels through which regulations can impact TFP: the direct influence of product market regulations on the productivity of the regulated industry, the indirect productivity impact of regulations in industries producing intermediate inputs on downstream industries using these inputs, and the influence of labour market regulations on the rent-sharing process between firms and workers.

The estimated model is theoretically inspired by Blanchard and Giavazzi (2003). The empirical analysis uses a country/industry panel data sample of 2,820 observations from 14 OECD countries, from 1987 to 2007, and 18 industries covering the manufacturing and market services industries, with the exception of the real estate industry.

The estimation of the impact of regulations on TFP and prices is a four-step process. First the authors estimate the effect of regulations on goods and labour markets. The regulation indicators used in the estimation are the OECD indicators for Non-Manufacturing Regulations (NMR), Harmonized Tariffs (HT) and Employment Protection Legislation (EPL). Then they estimate direct and indirect effects of rents on TFP: the impacts of regulations on production prices reflect the level of rents, while the evolution of wages provides information on the sharing of these rents. Finally, the authors estimate the short-run elasticities for all these channels to assess the responses of productivity and prices to changes in regulation.

All the estimated coefficients are statistically significant: the direct and indirect price impact and wage impact indicators have a negative effect on productivity. Changes in production prices and wages are positively and significantly related to changes in the OECD regulation indicators.

With these estimates, the authors provide an ex-ante evaluation of the potential long-term effects of hypothetical ambitious regulatory reforms if they were implemented all at once. The authors assume, for the purposes of this simulation, that the "lightest practice" regulations observed could be immediately enforced in all industries, with "lightest practices" defined as the averages of the three lowest levels of regulations in the 14 countries making up their sample. The results of this

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[211] This box summarises the findings of Cette, Lopez and Mairesse (2016).

simulation are presented in the first column of Table A below. For the largest euro area countries, the effect on long-term TFP would range from 4% to 6% approximately. The authors also use their estimates to perform an ex-post evaluation of the long-term TFP gains from the implemented regulatory changes in product and labour markets during the 2008-2013 period (Table A, column 2). This simulation shows that the TFP gains attributable to these reforms in the long term are about 0.6% on average and are mainly due to reforms in product markets.

Table A

Long-term TFP gains from deregulation

(in percentages)

Country	Adoption of the lightest practices	Regulatory changes over 2008-2013
Austria	5.1	1.2
Finland	5.3	0.2
France	5.9	1.2
Germany	5.8	0.3

Work carried out by the ECB[212] also suggests that the soundness of economic institutions (as evidenced, for example, by application of the rule of law, control of corruption, government effectiveness, and regulatory quality), the complexity of the business environment (in terms of starting a business, obtaining credit and trading across borders), and the level of employment protection all contribute to the differences in TFP performance across euro area countries.

Box 10

Price-cost margins and workers' bargaining power in the EU[213]

This box summarises a recent study by Soares (2018) on the extent of product market competition in 11 EU countries using firm-level data from the period 2004-2012.[214] The main findings can be summarised as follows. First, the perfect competition hypothesis for both product and labour markets is widely rejected within narrowly defined sectors. The market power of the firms is statistically different from zero for virtually all sectors, signalling that prices depart from marginal costs. Using different assumptions regarding the labour market structure does not change this finding. Similarly, workers hold bargaining power that is statistically different from zero for the vast majority of the sectors, implying that they receive wages that are, on average, above their productivity. In fact, the non-rejection of the perfect competition assumption is only valid for less than 3% and 11% of aggregate turnover of product and labour markets respectively.

Second, the size of aggregate product and labour market imperfections is substantial in the EU (Chart A). This result suggests that there are still significant barriers and frictions that limit Single

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[212] See, for instance, ECB (2016f).

[213] By Ana Cristina Fernandes Pedro Soares (ECB) based on Soares (2018).

[214] For related approaches, see Blanchard and Giavazzi (2003), who build a macroeconomic model with monopolistic competition in the goods market and bargaining in the labour market to account for their endogeneity and discuss implications of product and labour market deregulation. They point out that product market deregulation should precede labour market deregulation.

Market completion, particularly when accounting for the extent of rent-sharing between firms and workers. In fact, disregarding labour market imperfections when measuring market power can disguise the true size of product market imperfections. If the rents captured by the workers are not taken into account, the estimated market power of the firm is biased downward. The price-cost margin in the EU countries is calculated to be between 0.11 and 0.19 (corresponding to a mark-up of between 1.1 and 1.2) under the assumption of competitive labour markets. This rises to an interval of 0.15 to 0.32 (corresponding to a mark-up of between 1.2 and 1.5) once this assumption is relaxed.

Chart A

Price-cost margin and workers' bargaining power in the EU
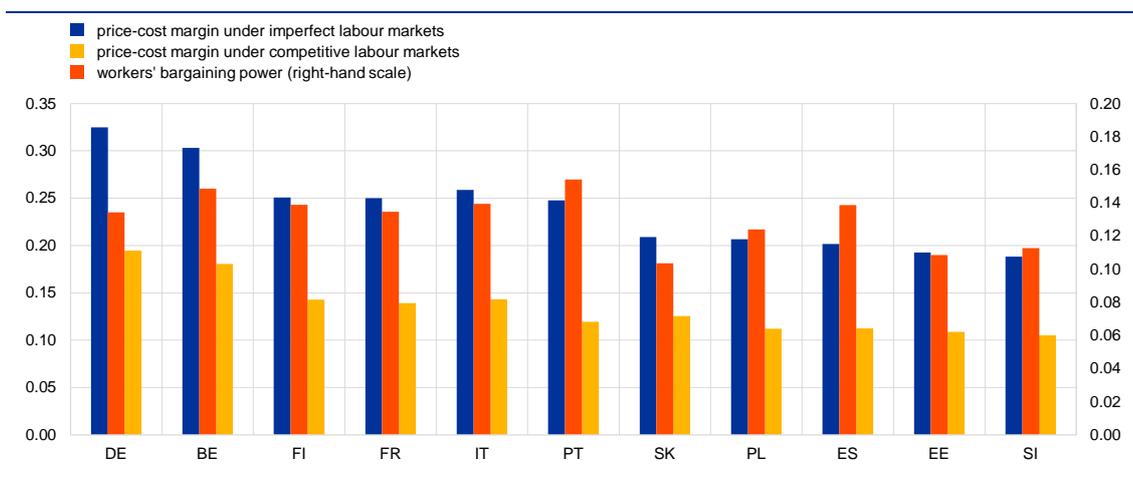
Source: Soares (2018).
Notes: Product and labour market imperfection is estimated at a two-digit level in NACE following the work of Roeger (1995), Crépon et al. (2005), Dobbelaere (2004) and Abraham et al. (2009). Aggregate figures are obtained using average turnover weights. All coefficients are significant at a 5% level.

Third, labour and product market imperfections are positively, strongly and significantly correlated across sectors and across countries. From a policy perspective, this result highlights a close dependence between product and labour market imperfections on the one hand, and the need to consider joint policies regarding product and labour markets on the other. Looking across countries in the EU, eastern European countries show relatively lower estimates of market imperfections, both in product and labour markets, reflecting to some extent more decentralised wage bargaining structures and higher exposure to international trade.[215]

Fourth, there is considerable heterogeneity across countries in terms of both product and labour market imperfections for a given sector (Chart B). Hence, product and labour market integration across EU countries varies considerably depending on the sector considered, although it seems to be lower in some service related sectors. More specifically, the majority of sectors showing the highest dispersion are services sectors. This is attributable to factors such as entry and exit barriers, information asymmetries, and reduced exposure to international trade. Dispersion in real estate, scientific research and construction is especially high. Meanwhile, the sectors showing the lowest dispersion are those related to wholesale and retail trade and to manufacturing, suggesting that product market integration is higher in these sectors. One important result is that product market integration within sectors across EU countries is lower once the degree of rent-sharing

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[215] See Du Caju et al. (2008) and Visser (2013) for further evidence on the institutional features of wage bargaining in the EU.

between firms and workers is taken into account. Indeed, dispersion in the price-cost margin rises for the vast majority of the sectors once the assumption of competitive labour markets is relaxed.

Chart B

Dispersion across countries within narrowly defined sectors

(price-cost margin – interquantile rate)

- under imperfect labour markets
- under competitive labour markets
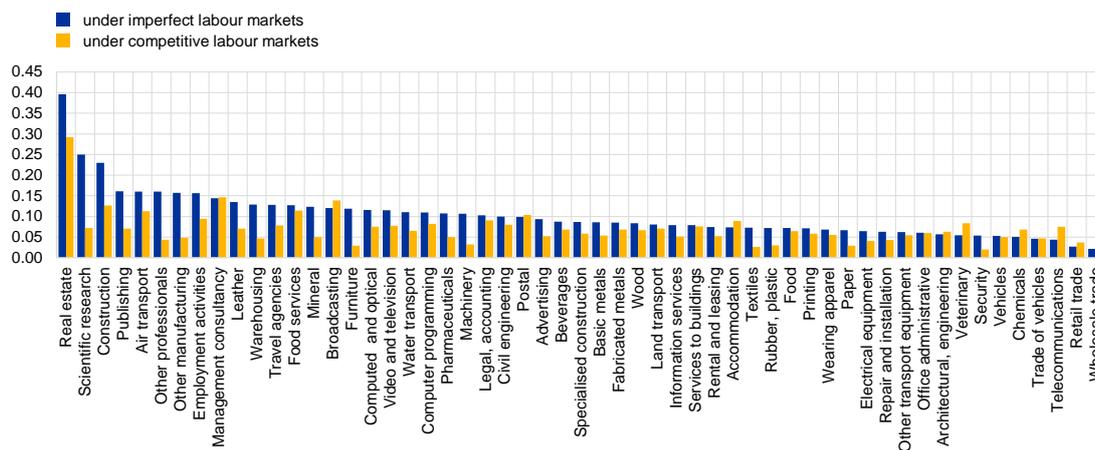
Note: Product and labour market imperfection is estimated at a two-digit level in NACE following the work of Roeger (1995), Crépon et al. (2005), Dobbelaere (2004) and Abraham et al. (2009).

In summary, the results tend to provide support for structural policies that strengthen competition including by extending and deepening the single market. Labour and product market imperfections seem to be positively correlated and substantial across EU countries at the sector level. At the same time, labour market structures seem to matter when measuring product market imperfections.

Box 11

Regulation reforms and intergenerational persistence among liberal professions: evidence from Italy[216]

In the euro area, regulation of professional services remains high and heterogeneous across countries, suggesting there is still ample room for reforms. Although OECD indicators do not capture all the factors that may affect regulation and are not perfectly comparable across different domains, the index of strictness of regulation for professional services in 2013 was equal to 2.3, compared with 1.9 in the network sectors. Moreover, while there was a process of convergence, the distance from the frontier (i.e. the least regulated country) is still substantial for some euro area countries.

One of the main justifications for regulation is the existence of asymmetric information between suppliers and clients, which may in turn lead to market failure. However, excessive regulation may also hinder competition, and this effect is likely to be stronger when regulation is shaped by the interests of the incumbents. Moreover, as liberal professions provide services with high skill content

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[216] By Sauro Mocetti (Banca d'Italia).

to their clients, the existence of anticompetitive regulation might have strong spillover effects across the whole economy. Barone and Cingano (2011) and Bourlès et al. (2013), for example, show that higher regulation (including in professional services) decreases value added and productivity in downstream service-intensive industries.

Regulation might affect economic growth in the long term through several channels. The extent of intergenerational persistence in the same occupation provides insights into the functioning of the labour market of professional services and the quality of those who enter a liberal profession. Indeed, professions characterised by high persistence can be viewed as more "unfair" and less efficient in the allocation of talents if persistence is mainly due to a positional advantage rather than to the individual ability. Chart A shows that countries with higher professional services regulation are also characterised by stronger intergenerational persistence in the same occupation.

Chart A

Regulation and intergenerational persistence – Cross-country evidence

(x-axis: strictness of regulation, 2003; y-axis: intergenerational persistence in the profession, 2005)

Sources: Charts on intergenerational persistence across professions and across countries are drawn from Italian LFS and EU-SILC (2004-2017), respectively; country data are restricted to the occupations in the ISCO groups 21 and 24 for which we have a measure of regulation; figures on the strictness of regulation at the profession level and at the country level are drawn from Mocetti et al. (2018) and OECD, respectively.

In a forthcoming paper, Mocetti et al. (2018) exploit two waves of reforms in the professional services industry in Italy to examine how the regulatory environment affects intergenerational persistence in occupation for a wide set of liberal professions. Specifically, two main legislative measures were taken – one in 2006 (the "Bersani Decree"), the other in 2011-2012 (the "Monti reform") – with the aim of improving the functioning of the professional services through increased competition.[217] However, initial conditions differed widely across professions, as did the pace and extent of regulatory reform. Descriptive evidence illustrated in Chart B shows a positive correlation between strictness of regulation and the propensity of children to follow their parents' occupation in Italy. Moreover, even after accounting for other profession-specific factors (such as innate qualities, family upbringing or external shocks whose importance might vary across occupations and time), regulation still has a significant and sizeable impact on intergenerational persistence. According to

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[217] Through these reforms, minimum tariffs and restrictions on advertising and on legal form were progressively abolished; more relaxed terms for traineeship, compulsory insurance and other conduct obligations were introduced. The progressive liberalisation of Italian professional services is also certified by the OECD indicator: between 2003 and 2013, Italy moved from the 1st (out of 11) to the 11th (out of 15) position with respect to the restrictiveness of regulation in the euro area.

their findings, the majority of the decrease (from 23% to 14%) in the likelihood that children of liberal professionals choose the same field of study as their parents at university can be attributed to the two reforms.[218]

Chart B

Regulation and intergenerational persistence – Cross-profession evidence in Italy

(x-axis: strictness of regulation, 2003; y-axis: intergenerational persistence in the profession, 2005)

Sources: Charts on intergenerational persistence across professions and across countries are drawn from Italian LFS and EU-SILC (2004-2017), respectively; country data are restricted to the occupations in the ISCO groups 21 and 24 for which we have a measure of regulation; figures on the strictness of regulation at the profession level and at the country level are drawn from Mocetti et al. (2018) and OECD, respectively.

Box 12

The macroeconomic effects of service sector reforms in Germany[219]

Up until the 1990s, product and service markets in Germany were quite strictly regulated. Since then, following extensive public and political debate on the potential benefits of deregulation, significant product market reforms have been implemented.[220] The reform progress in general is apparent in the evolution of the OECD's composite indicator of the degree of product market regulation (PMR), which shows a steady decline between 1998 and 2013 (Chart A).[221]

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218 A qualitatively similar result is found in Mocetti (2016). Exploiting spatial discontinuity (established by law) in the number of customers for each pharmacy, he shows that the propensity of pharmacists' children to follow their parents' career is significantly higher where rents are larger.

219 By Dirk Bursian and Oke Röhe (Deutsche Bundesbank).

220 See, for instance, Boss et al. (1996) and Deutsche Bundesbank (2000).

221 The indicators measure the stance of regulation in areas of the product market where competition is viable. The scale ranges from 0 (least stringent) to 6 (most restricted).

Chart A

Product market regulation in Germany
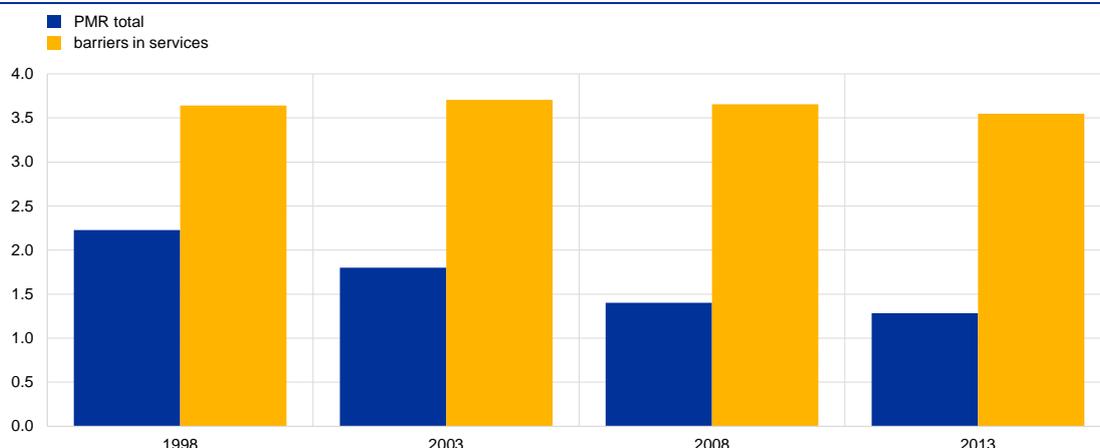
- PMR total
- barriers in services

Source: OECD PMR database.
Note: The vertical scale ranges from 0 (least stringent) to 6 (most restricted)

The aggregate perspective, however, conceals that Germany's regulatory stance is still restrictive in some areas (Chart B). Despite significant reforms, for instance in network industries, postal services, and retail trade, Germany's services sectors still appear to be relatively strongly regulated – at least in certain subsectors – by international comparison.[222] Not least against the background of comparatively low labour productivity growth in the services sectors compared to German manufacturing over the last decade, the need for additional reforms in these areas has been frequently pointed out.[223]

Chart B

Product market regulation in 2013
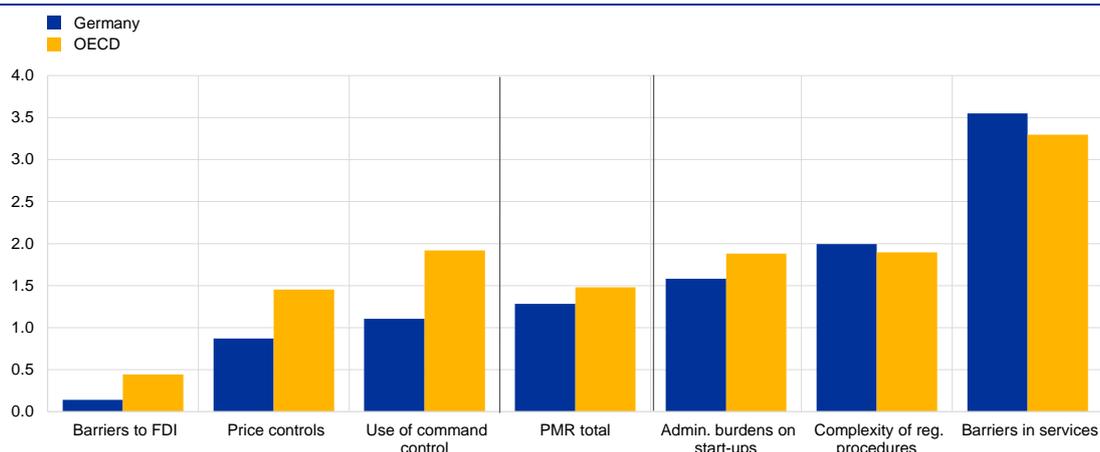
- Germany
- OECD

Source: OECD PMR database.
Note: The vertical scale ranges from 0 (least stringent) to 6 (most restricted).
OECD indicators are calculated as unweighted average of 34 OECD countries.

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[222] See European Commission (2016a).

[223] See European Commission (2016a); International Monetary Fund (2014b); and OECD (2014b).

Changes in the regulation of services sectors can boost economic activity and real wages through a host of different channels. Reforms aimed at opening up markets, for instance by reducing market entry barriers, might increase competition and therefore lower price mark-ups, in turn stimulating aggregate activity and productivity.[224] In addition, such reforms might influence the extent to which economic resources are redistributed towards the most productive sectors and firms.[225]

Quantitative analyses have confirmed the positive macroeconomic effects of service sector deregulation in Germany.[226] While these studies assume that reforms are implemented across all services sectors, a more conservative approach is chosen by Krebs and Scheffel (2013). They analyse the macroeconomic effects of a deregulation of professional services, which only account for a small share of total gross value added. While their results are generally able to confirm the positive effects of service sector deregulation from a qualitative perspective, overall reform effects are found to be significantly lower.[227]

In sum, although the quantification of reform effects in the German services sectors is subject to considerable uncertainty, the overall macroeconomic evidence tends to support the view that deregulation is associated with positive long-run effects on aggregate economic activity. Further deregulation efforts therefore represent an economically beneficial proposition.

6.3 Selected financial market reforms

6.3.1 Financial development and growth[228]

Economists hold different opinions regarding the importance of the financial system for economic growth. Some have argued that a developed financial system is a key condition for industrialisation (Gerschenkron, 1962) and that historically the contribution of financial markets to economic growth has been "important" (Stiglitz, 2010), "pivotal" (Schumpeter, 1912) or even "too obvious for serious discussion" (Miller, 1998). Others have claimed that the importance of financial markets in economic development is severely exaggerated in academic discussion (Robinson, 1952; Lucas, 1988).

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[224] Christopoulou and Vermeulen (2012) find that the weighted average mark-up across sectors is more than three times higher in German services than in manufacturing and construction. There is also evidence that lower price mark-ups can reduce inequality. See Causa, de Serres and Ruiz (2014).

[225] See Canton, Ciriaci and Solera (2014).

[226] Specifically, a 5 percentage point reduction in the gross mark-up leads to a 1.3% increase in long-run real GDP relative to the baseline level, while in case of a 15 percentage point reduction, German output rises by 4.4% relative to the baseline. See Gomes, Jacquinot, Mohr and Pisani (2013). Strong effects are also identified by Varga and in't Veld (2014) and Vogel (2014), both employing extended versions of the QUEST DSGE model, and by the IMF (2014b) applying the Global Integrated Monetary and Fiscal (GIMF) DSGE model. Results based on an extended version of the GIMF model indicate an increase in German GDP of more than 0.4% after four years relative to the baseline simulating a gradual reduction of the service sector mark-up by 2 percentage points.

[227] If the mark-up in professional services is reduced by 4 percentage points, then potential output, for instance, is expected to be 0.14% higher after ten years.

[228] Contribution by Alexander Popov (ECB).

The bulk of the empirical literature indicates that on average, financial development affects economic growth in a positive, monotonic way. This line of research has demonstrated that the strong positive association between financial development and economic growth may lend itself to a causal argument, namely that "finance causes growth" (see e.g. Rajan and Zingales, 1998; Levine and Zervos, 1998; Beck, Levine and Loayza, 2000; and Popov, 2014b, Belke, Haskamp and Setzer, 2016).

Research has also shed light on the impact of financial development on a number of social factors that can potentially have an important, second-round effect on growth. For example, Beck, Demirgüç-Kunt and Levine (2007) show that about 40% of the long-run impact of financial development on the income growth of the poorest quintile is the result of reductions in income inequality, while 60% is due to the impact of financial development on aggregate economic growth. They also show that financial development is associated with a drop in the fraction of the population living in extreme poverty. Beck, Levine and Levkov (2010) show that banking deregulation in the United States materially tightened the distribution of income by boosting incomes in the lower part of the income distribution, as the relative wage rates and working hours of unskilled workers went up.

However, more recent evidence suggests that the monotonicity of the finance-growth nexus does not hold for all types of financial activity and at all levels of development. Some researchers have argued that beyond a threshold of economic and financial development, the positive impact of an additional unit of value added in the financial sector on the real economy disappears (see e.g. Arcand, Berkes and Panizza, 2015). Another strand of the literature argues that without proper rules, finance can grow excessively, increasingly degenerating into a rent-seeking activity (Zingales, 2015) and a powerful force for planting the seeds of future financial crises (Schularick and Taylor, 2012; Mian and Sufi, 2014), with adverse implications for long-term growth and for social welfare.

There are three broad theory-based explanations for the non-linearities in the finance-growth nexus uncovered in recent studies. The first one is related to the fact that at high levels of financial development, the further deepening of financial markets may be associated with a type of financial services that have lower growth potential, such as mortgage finance (Beck, Büyükkarabacak, Rioja and Valev, 2012), or banking markets may be too developed relative to the quality of corporate governance (Levine, Lin and Xie, 2016).[229] Second, there may be a trade-off between economic growth and macroeconomic risk, which financial markets may exacerbate (Levchenko, Rancière and Thoenig, 2009; Popov, 2014a), although the evidence in this regard is mixed (Larrain, 2006). The third explanation is that financial markets deplete human capital from the real economy, reducing the rates of innovation and growth (Bolton, Santos and Scheinkman, 2016).

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[229] Levine, Lin and Xie (2016) use firm-level data from 36 countries for the period 1990-2011 and find that the adverse consequences of banking crises on equity issuances, firm profitability, employment and investment efficiency are larger in countries with weaker shareholder protection laws, suggesting that too much finance coupled with poor corporate governance can result in a weaker association between financial development and long-run growth.

The last two mechanisms have important policy implications. In particular, if rent-seeking in the financial sector reduces growth during the upturn, while excessive financial intermediation leads to long-term-growth-reducing banking crises, there is a clear case for reforms, and in particular – but not exclusively – financial regulation reforms that simultaneously reduce rent-seeking and risk-taking incentives. One example would be a capital regulation reform that imposes higher capital requirements on banks, effectively asking financiers to place more of their personal wealth at risk. Some of these aspects will be discussed in greater detail in the next sections.

6.3.2   Banks and credit allocation[230]

Recent literature suggests that the fall in aggregate productivity in the euro area was partly due to the increase in misallocation of resources. One particular manifestation of resource misallocation is lending to distressed firms (often called zombie firms), as loans to such firms are effectively subsidised. Although the firms are too unproductive to profitably exist in the longer-term given their outstanding debt, they continue to operate through the extension of new credit or through forbearance on existing debts. Zombie firms and their effects on employment and productivity have been blamed as one of the reasons for Japan's period of economic stagnation in the 1990s (Caballero et al., 2008), and there is evidence that the share of zombie firms in the euro area has increased significantly since the start of the financial crisis in 2007 until around 2013 (Storz et al., 2017; Andrews and Petroulakis, 2017). As documented in Peek and Rosengren (2005) and Caballero et al. (2008), the presence of zombie firms can not only drive down the average productivity level of the corporate sector, but can also act as a tax on healthy firms (and their workers), eating away at their profits and thus reducing their opportunities to invest, innovate and hire new staff.

There are various political economy reasons that might explain the existence of zombie firms. For example, owners of zombie firms may gamble for resurrection, while banks may be reluctant to stop lending and initiate liquidation, as this may depress accounting capital and force banks to recapitalise, which tends to dilute existing shareholders. A soft public budget constraint[231] may raise expectations by both banks and zombie firms that future (possibly hidden) public sector subsidies could help firms with low productivity to survive, at least for some time. Finally, there might be pressure from vested interests and politicians who want to protect jobs, wages or the wealth of firms' owners, but (temporarily) aim to hide the fact that this is likely to require a redistribution from taxpayers towards firm owners, creditors or employees (García-Santana et al., 2016).

By increasing the prevalence of zombie firms, weak banks seem to have impaired the process of resource reallocation. Schivardi, Sette and Tabellini (2018), using a rich and unique data set that covers almost all bank-firm

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[230]   Contribution by Filippos Petroulakis, Ralph Setzer and Manuela Storz (ECB).

[231]   See Chapter 7 for a discussion on soft budget constraints.

relationships in Italy in the period from 2004 to 2013, show that under-capitalised banks were more likely to keep lending to zombie firms during the financial crisis (compared with stronger banks). Andrews and Petroulakis (2017) provide evidence on several OECD countries showing that the reallocation process is slower in industries where firms get credit mostly from weak banks.

Weak banks also seem to have hindered an orderly corporate deleveraging process in the euro area periphery. Storz et al. (2017) show that weak banks appear to have impaired the deleveraging of weak SMEs in peripheral euro area economies.[232] Based on a sample of over 400,000 firms and around 1,000 banks, they find that zombie firms continued to lever up during the 2010-2014 period when tied to a weak bank. For each standard deviation increase in bank stress, the leverage of a zombie client increases by one additional percentage point annually. These findings suggest that by evergreening loans, weak banks may try to avoid realising losses on outstanding loans, which would further deteriorate their accounting capital in case of under-provisioning.

A rising share of zombie firms (Chart 53) is often associated with distortions in the growth of healthy firms and discourages market entry of new firms. For several OECD countries, Adhikari et al. (2016) find that healthy firms in industries with a high share of capital tied to zombie firms grow more slowly on average than in industries with lower zombie congestion. In particular, the employment growth of young firms is negatively associated with zombie congestion. In a companion paper, Adalet McGowan et al. (2017a) consider the role of insolvency frameworks, which directly affect firm exits.

Chart 53
Share of zombie firms in selected OECD countries
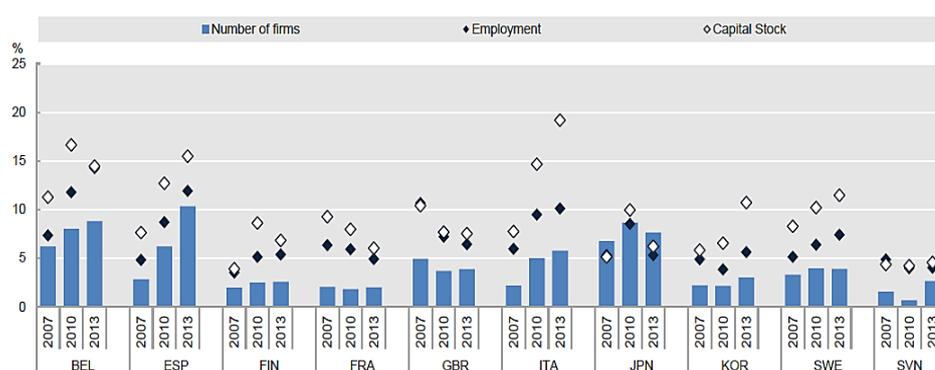
Source: Adalet McGowan et al. (2017b).
Notes: Zombie firms are firms aged more than ten years and with an interest coverage ratio smaller than 1 over three consecutive years. Capital stock and employment refer to the share of capital and labour sunk in zombie firms. The sample excludes firms that are larger than 100 times the 99th percentile of the size distribution in terms of capital stock or number of employees.

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[232] The sample includes the "peripheral" economies Spain, Portugal, Greece, Slovenia and Ireland, and the core countries Germany and France. In the absence of market-based measures for a larger sample of banks, bank stress is defined by constructing a continuous stress indicator derived from principal component analysis of observable bank traits, which are also employed by microprudential supervisors. Variables included are bank capitalisation, NPLs, return on assets, z-score and maturity mismatch. Zombie firms are defined as firms with negative returns and negative investments, as well as low debt servicing capacity; these criteria have to have to be met for at least two consecutive years.

In the event of an adverse aggregate shock, an efficient insolvency framework can enable fast restructuring or resolution of firms, thereby freeing up resources for other, more productive uses. Efficient insolvency frameworks therefore imply both a lower level of zombie firms and lower intensity of zombie congestion. Adalet McGowan et al. (2017b) also find that a high share of zombie firms restricts not only the expansion possibilities of existing firms but also the entry of new firms. As zombie lending keeps the supply of weak firms artificially high, it depresses market prices, and new firms must achieve higher productivity levels to be competitive.

The adverse macroeconomic consequences of zombie lending are more pronounced over the longer term and possibly more relevant in the economic recovery than during a crisis. The short-term effects of capital misallocation on growth are subject to significant uncertainty. While Acharya et al. (2016) and Adalet McGowan (2017b) argue that credit misallocation imposes substantial costs on healthy firms already in the short term, Schivardi et al. (2018) find only modest real effects of zombie lending during the financial crisis period in Italy. They argue that as low-productivity firms are kept alive (or prevented from shrinking), aggregate demand is temporarily supported, which partly offsets the negative demand effect stemming from the inefficient allocation of loans.[233] There is, however, broad support for the view that over the medium and long term interference with the process of creative destruction is likely to create significant negative consequences on employment, investment and growth as new sources of growth are stifled. Theoretical reasoning also suggests that the negative effects of zombie lending are larger during an economic recovery or good economic times than during the recent crisis period (which was analysed by Schivardi et al.), when entry of new firms was low and incumbent firms had fewer opportunities to expand.[234]

These findings highlight the importance of reforms aimed at addressing any remaining bank weaknesses and facilitating the allocation of resources towards more innovative and productive firms, most notably by providing incentives for banks to move more decisively with the workout of bad assets. The findings also suggest that it is important to enhance legal frameworks (e.g. insolvency laws or bank regulation) and address capacity constraints in the courts. The positive impact of such reforms seems particularly strong during an economic upswing.

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[233] See Schivardi et al. (2018), and García-Santana, Pijoan-Mas, Moral-Benito and Ramos (2016).

[234] Schivardi et al. (2018) argue as follows: "Reallocating productive factors from low productivity firms requires that there are more productive firms willing to use such assets. During the deep recessionary period we analyze, however, even healthy firms suffered large demand drops and, therefore, their demand for inputs might have been unable to absorb those freed up by zombies. In such a scenario, hoarding factors in zombies might be less detrimental to growth than during 'normal' times."

Box 13

Removing tax subsidies for debt financing can strengthen the resilience of firms[235]

Most national tax systems favour debt financing over equity financing (Chart A). This debt bias partly reflects the fact that interest payments can be deducted from the tax base, whereas the costs of other forms of financial instruments, such as dividends for equity, are not deductible. In addition, (implicit) public sector guarantees for bank debt that are not matched by adequate insurance premia to be paid also imply a debt bias. The distortions caused by this preferential treatment of debt financing are threefold (Spengel et al., 2016). First, the induced incentives for firms to resort to debt financing might lead to excessive leverage in the corporate sector, which might intensify the effects of financial crises. Second, this treatment discriminates against young and innovative firms which have limited access to credit, and consequently hampers their prospects for growth. Third, the tax subsidies for debt financing can be exploited by multinational companies for profit-shifting strategies through intra-group loans. This again increases the leverage of firms and distorts competition and level playing fields, as it discriminates against purely domestic companies, particularly SMEs.

Chart A

Debt bias in corporate tax systems
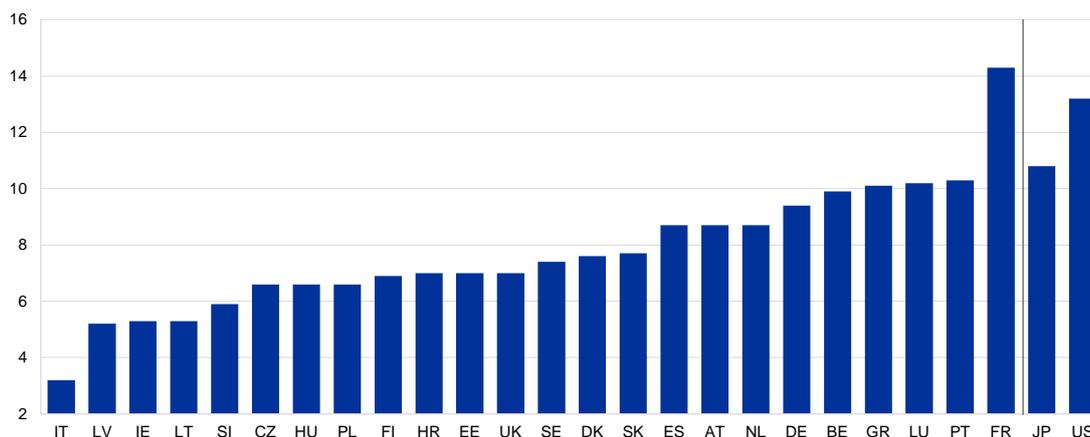
Source: OECD (2017d), based on ZEW (2016), The Effects of Tax Reforms to Address the Debt-Equity Bias on the Cost of Capital and on Effective Tax Rates.
Note: Difference in effective average tax rates (new equity minus debt), 2016.

The debt bias is an obstacle to a larger equity base for firms and thus undermines their resilience. There is ample empirical evidence of a strong link between the preferential tax treatment of debt and the indebtedness of firms: a meta-analysis by Feld et al. (2013) estimates that the debt-to-assets ratio rises by 2.7 percentage points if the marginal tax rate on profits increases by 10 percentage points. In addition, the Commission regards the preferential tax treatment of debt financing as a major impediment to the creation of an integrated capital market in the EU, as it may affect the market efficiency of asset allocation.[236]

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[235] By Steffen Osterloh (ECB).

[236] The Commission has included the corporate tax offset allowance for equity which is part of the CCCTB proposal as one of the 33 actions in its Action Plan on Building a Capital Markets Union. See European Commission (2015b).

There are two fundamental solutions to address the debt bias in corporate taxation. One solution is to disallow the deductibility of interest expenses; the other is to extend similar deductibility to the costs of equity. Following the first approach, the introduction of a comprehensive business income tax would disallow the deductibility of interest expenses and equalise the tax treatment of debt and equity. However, this approach could imply an increase in the costs of capital at the corporate level since all returns to investment would be taxed, unless the corporate income tax rate were adjusted downwards.

There are several options for extending tax deductibility to costs of equity. The most prominent model is the allowance for corporate equity (ACE). Under an ACE, an imputed rate of return on equity capital (notional interest rate) is deductible from the profit tax base. The notional interest rate is usually linked to a risk-free reference rate such as the interest rate on government bonds. A related option for extending the deductibility to equity financing is the allowance for corporate capital (ACC), which allows for the deductibility of all capital, i.e. debt and equity, at the same notional rate.[237]

Eliminating the debt bias requires reforms of national tax systems or the harmonisation of rules to calculate companies' taxable profits in the EU. In October 2016, the European Commission published a proposal for introducing a Common Consolidated Corporate Tax Base which explicitly addresses the debt bias.[238] In particular, it proposes an allowance for growth and investment (AGI). The AGI is a specific version of the ACE but limits the allowance to the sum of equity increases over the past ten years and includes rules to close loopholes which allow tax planning strategies in an ACE system. The Commission's impact assessment shows that an AGI can entirely remove the debt bias but would lead to lower revenue losses than the ACE.

6.3.3 Regulatory initiatives in the financial market that can support resilience and resource allocation in EMU[239]

A number of recent regulatory reform initiatives are aimed at delivering the environment for the financial market to appropriately play its role in financing the economy, thereby contributing to cross-border financial risk sharing, improved credit allocation and growth. First, the CMU initiative and the EDIS proposals are aimed at dismantling barriers to the cross-border functioning of financial markets and at reducing the existing home bias, which should lead to a better allocation of assets and savings across borders, supporting the smooth

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[237] ACE systems have been introduced in Belgium and Italy, but experiences have been mixed. Belgium introduced an ACE-type system in 2006 which has been shown to reduce the indebtedness of firms (Zangari, 2014). However, since the Belgian ACE is granted to the entire stock of equity, its introduction lead to substantial tax revenue losses as it entails windfall gains for capital already invested. Revenue losses have been increased further by the design of the ACE and insufficient anti-avoidance rules. Notably, the Belgian ACE has created new tax planning incentives to artificially restructure companies' activities, using intra-group loans as a means of optimising ACE benefits. By contrast, the Italian ACE (introduced in 2011) is incremental, as it limits the deductibility to new equity which has been accumulated after the reform. The incremental feature in connection with a more comprehensive anti-avoidance framework ensures that the fiscal costs of the Italian ACE are more limited.

[238] European Commission (2016b).

[239] Contribution by Michael Grill, Michael Wedow, Jacopo Carmassi and Johanne Evrard (ECB).

functioning of EMU. Second, the post-crisis financial regulatory reforms should lead to a more resilient financial sector where investment decisions are less distorted by expectations about the likelihood of bail-outs of banks. Better allocation of resources and their efficient use in turn have the potential to support growth.

CMU can lead to three benefits: deeper and more sustainable financial integration, enhanced private risk sharing across countries, and diversification of the sources of financing. Financial integration should be understood in the sense of ensuring that capital is allowed to flow freely and is allocated efficiently without cross-border barriers or frictions linked to the location of resources or actors. CMU is aimed at tackling the barriers to the cross-border functioning of markets. Several initiatives are under way in that regard, notably regulatory proposals and sharing of best practices by the Commission to identify and address barriers in the fields of withholding taxation, barriers to the cross-border distribution of funds, etc. However, further action would be needed, notably in harmonising insolvency laws and reducing the bias in taxation favouring debt rather than equity, which has a key impact on investors' market access and investment decisions (Box 13). Finally, existing regulations which reduce the incentives for cross-border diversification of bond and equity holdings by banks and/or private investors may need to be addressed.

Integrated financial markets can also help support consumption smoothing across countries, which is one form of cross-border risk sharing. For example, well-functioning cross-border credit markets can contribute to consumption smoothing in the event of asymmetric shocks. The challenge of CMU is to foster the sustainable financial integration of financial markets, i.e. through cross-ownership of assets, direct lending to households and firms, and longer-term investment, rather than through wholesale lending and borrowing in interbank markets, which are more volatile and prone to sudden stops. In this regard, the Commission is seeking to develop equity markets through the CMU initiative. More generally, there is a need to reduce Europe's over-reliance on the banking system so as to prevent bank deleveraging from having an impact on the real economy in the event of a crisis and also to provide funding to actors with specific needs.

In principle, the proposal for an EDIS can lead to a more efficient allocation of savings across borders and offer substantial benefits in terms of depositor protection.[240] It thereby strengthens depositor confidence and financial stability, with limited risks in terms of EDIS exposure and proper disincentives to moral hazard.[241] For example, incentive issues and moral hazard can be tackled by EDIS being funded via risk-based fees paid ex ante by banks and calculated on the basis of their

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[240] This paper does not take a stance on details regarding the EDIS, including the link between the EDIS on the one hand and issues such as addressing legacy risks in bank balance sheets and regulatory treatment of sovereign exposures on the other.

[241] In the EDIS the safety of deposits would not be dependent on the ability of a national deposit guarantee scheme to pay out to depositors in a banking failure, and would therefore not be affected by the strength of the underlying public backstop provided by Member States in the event that the DGS is depleted. Hence, the EDIS would contribute to reducing the bank sovereign nexus and would promote a uniform level of confidence in the safety of deposits across the euro area. Depositors' decisions could then be taken on the basis of the bank's characteristics and risk profile rather than based on the assumption that deposits will be safer simply because of their location (see ECB, 2016g).

risk profile, following a "polluter pays" approach. The specificities of a banking system could be taken into account in the risk-based contributions to the deposit insurance fund (DIF), rather than adjusting the target level of the DIF for individual countries. Importantly, with well-designed risk-based contributions there would be no unwarranted systematic cross-subsidisation within the EDIS, in the sense of some banking systems systematically contributing less than they would benefit from the DIF.[242]

A further area of regulatory reform that could have a significant positive long-term impact on the allocation of savings is the effort to reduce the "too-big-to-fail" problem. Implicit or explicit government subsidies for too-big-to-fail banks create a variety of problems, namely competitive distortions, excessive risk-taking, reduced market discipline and large costs for the public sector. Since investors in systemically important banks assume a degree of protection from stress, they do not bear the full cost of failure and are willing to provide funding without appropriate risk premia and without sufficiently monitoring the banks' risk profiles, thereby encouraging excess leverage and risk-taking (IMF, 2014c). The main initiatives in this area relate to requirements for additional loss absorption capacity above the Basel III minimum for global systemically important banks (G-SIBs).[243] First, the Financial Stability Board (FSB) together with the Basel Committee developed the G-SIB buffer to ensure that banks whose failure would impose significant externalities on the global financial system are subject to higher capital requirements. Second, the FSB developed the total loss-absorbing capacity (TLAC) standard for G-SIBs.[244] In the EU, TLAC will be implemented via the ongoing review of the minimum requirement for own funds and eligible liabilities (MREL) under the Bank Recovery and Resolution Directive[245]. MREL pursues the same goal as TLAC, i.e. to enhance resolvability by increasing loss-absorbing capacity, and it applies in principle to all banks. G-SIBs in the EU will have to fulfil a minimum level and quality of (Pillar 1) MREL which is in line with the TLAC standard, while for other banks MREL will be bank-specific (Pillar 2).

Alongside the reforms specific to systemically relevant banks, a number of regulatory initiatives have led to significantly higher capital requirements for banks. These include changes to the definition of capital underlying the capital ratios, a generally higher risk-based capital requirement and the introduction of the leverage ratio into the Basel capital framework. While higher capital requirements may have some costs that mainly affect the financing of the economy in the short run, the benefits of the requirements can be seen as banks become more resilient – owing to the lower probability of default – and thus less vulnerable to a widespread financial crisis with the associated large output costs.

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[242] On these points, see European Central Bank (2017f).

[243] Better resolvability of banks through the instruments introduced with the Bank Recovery and Resolution Directive contributes to this objective.

[244] The TLAC standard has been designed so that failing G-SIBs will have sufficient loss-absorbing and recapitalisation capacity available in resolution. It defines a minimum requirement for the instruments and liabilities that should be readily available for bail-in within resolution at G-SIBs.

[245] Directive 2014/59/EU of the European Parliament and of the Council.

The reforms targeting the "too-big-to-fail" problem and initiatives to increase capital requirements will make the banking system more stable and support the optimal allocation of savings. Higher bank capital will help to address the problem of the implicit public guarantees for large banks and thus the associated lending distortions. Moreover, savers and bondholders may be willing to accept lower interest rates given the lower likelihood of bank failure, thereby allowing banks to pass on these lower refinancing costs to the real economy by lowering the costs of loans.

6.3.4 Insolvency frameworks and deleveraging[246]

The strength of an insolvency framework is an important parameter in the dynamic interaction between lenders and borrowers. As such, it can have a significant impact on credit market outcomes. On the demand side, debtors can be viewed as constantly weighing the benefits of defaulting against the cost of destroying a credit relationship. The balance of this trade-off may depend, among other variables, on the institutional environment that affects the ex post recovery rate of a loan (Schiantarelli et al., 2016). For example, it turns out that debtors tend to default more often on loans provided by creditors located in jurisdictions where the judicial system is inefficient. On the supply side, creditors estimate how much credit to supply and at what price. While doing that, they factor in the expected probability of default and the expected recovery rate of funds in the case of default and liquidation. If the expected probability of default is low and the expected recovery rate is high, creditors perceive less credit risk, and (on average) demand lower risk premia. Consequently, demand for credit will increase, and creditors will accommodate this by increasing supply in order for the market to clear. In addition, there is strong empirical evidence that efficient insolvency regimes increase credit supply and lower the risk premia included in contract interest rates (Scott and Smith, 1986; Jappelli et al., 2005; Armour et al., 2015).

More efficient and harmonised private sector insolvency frameworks may prove beneficial in strengthening the efficiency of asset allocation and the effectiveness of monetary policy transmission. There is evidence that inefficient business insolvency proceedings as a mechanism for restructuring debt – in comparison with mortgage foreclosures – skew credit towards projects collateralised by real estate (García-Posada and Mora-Sanguinetti, 2014).[247] Several euro area economies are currently characterised by banking systems with a large stock of NPLs and divergent (national) insolvency frameworks that are variably equipped to resolve those loans. This poses a problem for the allocative efficiency of resources for at least two reasons. First, as discussed above, the existing stock of NPLs ties up capital in relatively unproductive firms. Second, inefficient and divergent insolvency laws make it harder for investors to assess credit risk, particularly where they consider making cross-border investments. Distressed bank balance sheets

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[246] Includes contributions by Patrick Kosterink (De Nederlandsche Bank), Agostino Consolo and Beatrice Pierluigi (ECB).

[247] García-Posada and Mora-Sanguinetti (2014).

therefore hamper the monetary policy transmission mechanism, in particular by clogging the bank lending channel: if banks have to make loan loss provisions (or fear having to do so in the future), they will be less agile in reacting to changes in the policy rate (DNB, 2016), but may prefer to use low policy rates partly for ("stealth") recapitalisation.

There is some empirical evidence to suggest that strong insolvency frameworks are important for deleveraging and NPL resolution. Recent literature suggests that OECD countries with better insolvency frameworks deleverage faster and can adjust their NPLs more rapidly than countries with weaker regimes (Consolo, Pierluigi and Malfa, 2017; see Chart 54 and Table 4). The empirical evidence also shows that there is a strong correlation between the efficiency of insolvency frameworks and NPLs. In particular, the evidence suggests that in a situation of high unemployment, the NPL ratio is found to be generally lower when more efficient insolvency frameworks are in place.

Chart 54

Texas ratios and NFC debt in % of financial assets (2016Q3)
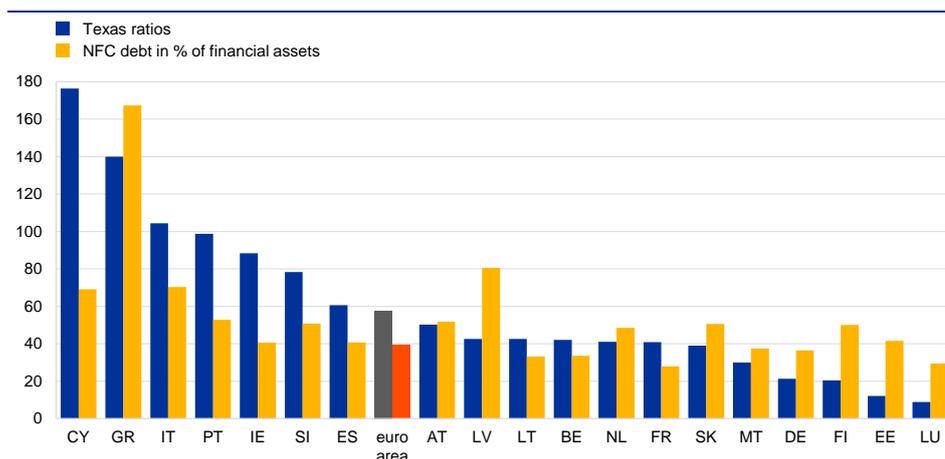
Sources: Consolidated Banking Data and Eurostat (based on Consolo, Pierluigi and Malfa, 2017).
Notes: Texas ratio is NPLs over CET1 capital and total impairments. Non-financial corporation (NFC) debt is in percent of financial assets of the non-financial corporate sector.

Table 4

Impact of insolvency frameworks (IF) on NPL ratio in EU countries

	(1) NPL ratio	(2) NPL ratio 3yr change
Insolvency framework (IF)	-2.517***	-0.873**
	(0.353)	(0.337)
IF * Unemployment gap	-0.797***	-0.594***
	(0.178)	(0.147)
Unemployment rate	0.507***	0.160*
	(0.087)	(0.09)
Unemployment rate (3yr change)	0.502***	0.767***
	(0.137)	(0.137)
NFC Debt-to-Equity Ratio	3.266***	1.985***
	(0.819)	(0.726)
NPL Ratio (-3)		-0.319***
		(0.108)
Constant	-3.736***	-3.123***
	(1.031)	(1.152)
Observations	310	332
Number of countries	28	28
R-squared	0.556	0.571
Time FE	YES	YES

Sources: Consolidated Banking Data and Eurostat (based on Consolo, Pierluigi and Malfa, 2017).
Notes: *** p<0.01, ** p<0.05, * p<0.1. Dependent variable is NPL ratio (column (1) and 3-year change in NPL ratio (column 2), respectively. IF is calculated as the composite indicator of four World Bank 2017 Doing Business sub-indicators: getting credit – strength of legal rights index (0-12); enforcing contracts – time (days); enforcing contracts – cost (% of claim); and resolving insolvency – cost (% of estate). Each sub-indicator is weighted equally. The index thus includes not only aspects of insolvency regimes but also broader elements of enforcing contracts as measured by the World Bank.
The sample includes 28 countries (all EU) over the period 2003-2015. All independent variables (except unemployment rate 3-year change) are lagged (t-1). Robust standard errors in parentheses.

In line with this evidence, international institutions have recently begun to pay more attention to the role of insolvency frameworks in addressing debt overhangs and in cleaning up NPLs from banks' balance sheets. In November 2016, the European Commission released a proposal for a Directive on Preventive Restructuring Frameworks and Debt Discharge.[248] In particular, the Commission points to (i) the use of early restructuring frameworks, (ii) the possibility of a second chance for entrepreneurs, and (iii) more efficient legal proceedings (e.g. judicial professionality, reduced length of trials – European Commission proposal for a Directive on Restructuring Frameworks and Debt Discharge and the ECB opinion of 2017 on the proposal).[249] To be as effective as possible, this proposal should ideally be flanked by adequate supervisory rules and the development of distressed debt markets. Other important initiatives at the international level have been the IMF discussion paper on strategies for resolving NPLs (Aijar et al., 2015), and the

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[248] A preliminary assessment of recent reforms in the area of insolvency proceedings suggests that such reforms would have resulted in the greater efficiency of these proceedings (see García-Posada and Vegas, 2016). They would have been conducive to greater use of insolvency proceedings by firms and therefore would have promoted an increase in the weight of project financing with a high potential return and a higher level of risk.

[249] See European Commission (2016c), and European Central Bank (2017g).

initiative by the OECD to compile a new database on insolvency framework reforms (Adalet McGowan et al., 2017a).

6.4 The macroeconomic effects of pension reforms[250]

Lower population growth and higher longevity are expected to result in the medium term in lower consumption, higher precautionary savings and a decline in the equilibrium interest rate.[251] Pension reforms that increase the effective pension age and thus expected future wage income can counteract these effects. More generally, reforms of the pension system are important to ensure fiscal sustainability in the long run and to alleviate at least part of the adverse macroeconomic implications of ageing.

However, in most cases recent pension reforms appear insufficient to fully address pension sustainability risks. Recent parametric pension reforms are mainly aimed at lifting the retirement age, while several countries also reduced the generosity of their pension systems by lowering the replacement rate and by shifting from wage to price indexation of pensions (see Carone et al., 2016). Some countries have also implemented automatic adjustment mechanisms which link key pension parameters to changes in life expectancy to ensure the sustainability of the pension systems. Despite the recent pension reforms, the 2018 Ageing Report (European Commission, 2018) projects that in the long term, pension expenditures will on average remain at their current high levels as a percentage of GDP, notwithstanding large differences between countries (Chart 55).[252] To allow for a safety margin, not least in view of potentially more adverse macroeconomic developments, further pension reform measures are needed. However, their macroeconomic implications for employment, labour productivity and notably the savings ratio differ depending on the specific reform measures to be undertaken.[253]

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[250] By Carolin Nerlich (ECB).

[251] In the long run, however, the impact on the saving ratio is ambiguous, as the expected decline in the labour force is expected to work in the opposite direction.

[252] While some countries, such as Luxembourg, Slovenia, Belgium, Malta and Germany, are projected to face significant pension spending pressures, for other countries such pressures are projected to decline. The projected declines are attributed to a combination of the impact of recent pension reforms and to some very favourable macroeconomic assumptions. For an assessment of the underlying assumptions of the 2018 Ageing Report, see also European Central Bank (2015c).

[253] See also "The economic impact of population ageing and pension reforms" in ECB, 2018.

Chart 55

Long-term changes in ageing and pension cost projections

(percentage points of GDP, 2016-70)

- pensions
- strictly ageing costs
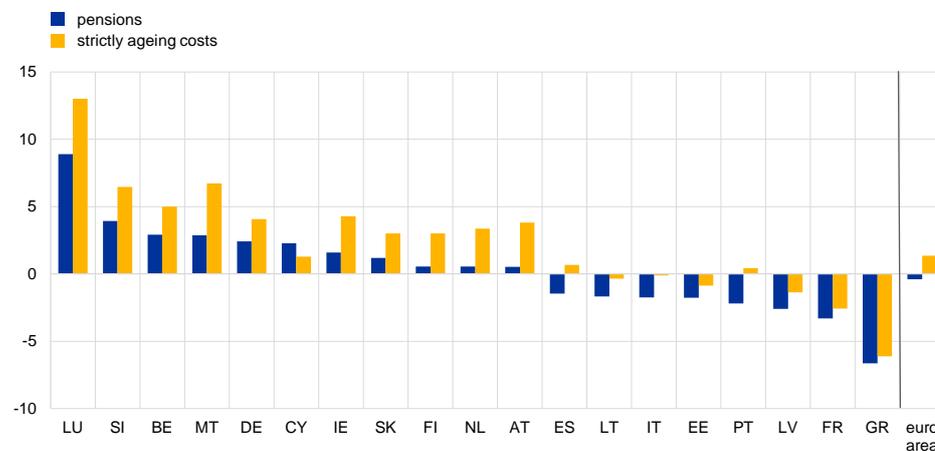
Sources: European Commission 2018 Ageing Report.
Notes: Ageing costs relate to strictly age-related costs, which include public spending on pension, health care, long-term care and education. The projected decline in pension costs in some countries can be explained by pension reforms implemented and by optimistic macroeconomic and demographic assumptions in a few cases.

Lifting the statutory retirement age in line with longevity has a strongly positive impact on labour supply and economic growth by effectively raising the size of the active labour force relative to pensioners. This result is supported by various empirical studies using different model specifications.[254] Box 14 provides some specific results for the case of Italy, which, importantly, also shows that pension reforms have no negative effect on youth employment. In addition, longer working lives could potentially alleviate the financing pressures of public pension systems through an increase in total pension contributions. While this would imply higher pension entitlements for the next generation, it would also help to improve pension adequacy. Karam et al. (2010) also find evidence that the positive growth impact of pension reforms, and specifically the impact of lifting the retirement age, would be significantly stronger if such reforms were enacted in a cooperative fashion by several countries in parallel.

In contrast to increasing the retirement age, the macroeconomic implications of either increasing contribution rates or reducing replacement rates are assumed to be less favourable, as they imply important trade-offs. In fact, the increase in contribution rates required to fully neutralise the adverse public debt impact of ageing could be highly distortive for labour supply, employment and economic growth.[255] Likewise, pension reform adjustments that fully rely on cuts in replacement rates to ensure fiscal sustainability, as in the case of the automatic adjustment mechanism, have been found to have less favourable macroeconomic effects than lifting the retirement age (see Baksa and Munkacsi, 2016; Baksa, Constantinescu and Munkacsi, 2016; and Castro et al., 2016). In addition, cutting

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[254] See inter alia: Baksa and Munkacsi (2016); Baksa, Constantinescu and Munkacsi (2016); Karam et al. (2010); Vogel, Ludwig and Börsch-Supan (2012).

[255] Higher contribution rates were also found to adversely affect external imbalance. See e.g. Castro, Maria, Mourinho Félix and Rodrigues Braz (2016).

replacement rates not only has a detrimental impact on domestic demand, but in extreme cases can also lower pension adequacy, which could eventually put at risk the general acceptance of pension reforms. However, several studies find evidence that pension reforms combining a reduction in replacement rates with other measures could have the most favourable macroeconomic implications.[256]

Labour market reforms can be complementary to pension reforms. Labour market reforms geared towards old-age workers can be supportive in fostering their participation rate. Thus, a combination of pension reforms and labour market reforms could alleviate the adverse ageing impact on employment more than pension reforms alone. Börsch-Supan, Härtl and Ludwig (2014) find that combining labour market reforms (e.g. to increase the female participation rate) with a systemic pension reform results in a lower ageing-induced decline in consumption per capita than if labour market and pension reforms are adopted in isolation.[257] In fact, the decline in consumption per capita would be one-third lower than the sum of the isolated labour market and pension reforms.

Box 14
Pension reform and employment – micro-based evidence from Italy[258]

A recent study by the Banca d'Italia (Carta et al., forthcoming) quantifies the consequences of increasing the legal retirement age on labour, capital and productivity. The impact of a greying workforce on employment and wages of workers of different age classes is estimated both at the geographical level and at the firm level by combining various micro data sources. Identification is achieved through the unexpected 2012 pension reform that sharply curbed eligibility criteria.

The results suggest that increasing the legal retirement age leads to an overall increase in the supply of labour, investment and capital, with a moderately negative impact on wages. The results also provide evidence for a positive relationship between employment rates for different age groups. This applies in particular to the employment rates for young and elderly workers, while the employment rates for middle-aged and elderly individuals are less strongly correlated. When looking at hourly wages, the pension reform is not found to have any sizeable impact in any age class. Overall, gross daily hiring wages for all age classes decrease slightly following the pension reform, while wages of elderly workers also decrease for stayers. Capital increases, but by less than employment levels, thus lowering the capital-labour ratio. The study does not find any impact on value added per worker.

These results confirm previous results on the absence of negative employment effects due to an increase in the legal retirement age.[259] In line with most previous studies, the increase in the supply of workers leads only to a moderate negative impact on wages (which is likely to be due to a decline in overtime work).

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[256] See the results of the OLG models for Luxembourg, Portugal and Finland, which are summarised in Dieppe and Guarda (2015).

[257] This can be explained by the assumed interaction effects between pension systems and labour markets. A pension reform which ensures that the contribution rate remains constant, by introducing a kind of "sustainability factor", will favour labour supply.

[258] By Francesca Carta and Francesco D'Amuri (Banca d'Italia).

[259] For example, an analysis of micro data over the period 2006-12 suggests that the strong increase in the participation and employment rates of older workers does not result in a substitution away from younger workers: instead additional youth employment is often a complement to the additional employment of older workers in local labour markets. See European Central Bank (2015d).

7 The political economy of reforms

This chapter looks at political economy aspects of reforms. Section 7.1 analyses the mechanisms which may induce governments to avoid or delay welfare-enhancing reforms. The political economy conclusions from this analysis are manifold. A high degree of transparency about political and administrative decisions and a free press seem of utmost importance to support reforms. This may be underpinned by easier-to-understand laws, fewer regulations that entail non-transparent discretionary powers for administrations, and fewer possibilities and "tools" for governments to hide the long-term costs of misguided policies and lack of reforms.

Section 7.2 discusses compensation measures for those individuals who may lose out from a reform. Possible negative distributional effects of reform warrant a more broadly based view on structural polices, e.g. through reform packages or ALMPs, including education and training. In other cases, however, when a reform consists of removing opportunities for rent-seeking and monopolistic behaviour, the need for compensation is not evident.

Section 7.3 discusses how EU institutions may support the reform process.

7.1 What hinders the implementation of reforms?[260]

Political economy considerations are important for understanding what determines and hinders the implementation of socially beneficial policies. The literature on the political economy of reforms can help in understanding the reasons behind the observed disconnect between the large scope and need for welfare-enhancing reforms on the one hand, and the lack of progress on actual implementation of such policies on the other (e.g. Fernandez and Rodrik, 1991; OECD Going for Growth, 2012b; Fernández-Villaverde et al., 2013[261]).

A notable obstacle to gaining political support for structural reforms is the distributional uncertainty associated with their respective pay-offs. There is often considerable uncertainty when it comes to the distribution of gains and losses from reforms. In such an environment, people tend to favour the status quo, fearing that after the reform takes place they may be worse off relative to the status quo (Fernandez and Rodrik, 1991). One example is employees opposing privatisation because they do not know whether their individual skills will be required after the

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[260] Includes input by Patrick Kosterink (De Nederlandsche Bank).

[261] Fernandez-Villaverde et al. (2013) and Challe et al. (2018) argue that large private credit inflows in the period before the crisis reduced pressures for economic reforms in the euro area periphery and that the abandonment of the reform process and the institutional deterioration in turn not only reduced the longer-term growth prospects of these countries but also fed back into financial conditions, prolonging the credit boom and delaying the response to the bubble when the speculative nature of the cycle was already evident. Similarly, one might now argue that for several years the reform momentum in Germany has been rather weak, partly as a result of the boost to exports stemming inter alia from the relatively low level of domestic prices and wages (real undervaluation) as compared with the euro area average.

reform, even though they can assume most of them will benefit in the end (De Haan et al., 2006). As such, uncertainty about the distributional pattern of reforms ex ante may hamper their occurrence, even though social welfare is expected to increase for a majority of citizens.[262]

Objections from those who lose out from reforms often prevail, even if these groups are relatively small in terms of their share in the overall population (or electorate). Firms or industries that have strong vested interests and means, including influence on politicians and the media, may secure the necessary political support against a broad and diffuse majority of beneficiaries (see e.g. Olson, 1965 or Eleftheriadis, 2014).[263] The benefits of reforms are often small for each individual, and information asymmetries – which may be fostered by non-transparent political decisions and institutions – help well-organised vested interests to influence and exploit the majority of citizens (Akerlof and Shiller, 2015, Lustig, 2017).[264] A large majority of voters will inevitably (and for good reasons, e.g. owing to different individual specialisations) not be experts in analysing the complex propagation mechanisms of changes in structural policies. These citizens may easily be influenced in their assessment of the reform proposal by media which, in turn, may be controlled or influenced in part by small but powerful individuals or groups that risk losing substantial rents or privileges as a result of the reform. This incentive structure also explains why regulations are sometimes overly complex. If regulations lack clarity, then those who can extract rents as a result of the regulations can hide this very fact from the broader public, thereby reducing the political chance of a reform that addresses the problem. People who have observed – or believe they have observed – a gradual shift in the direction of a rent-seeking society over a number of years may well be increasingly sceptical about their political and economic leaders' ability and willingness to improve economic conditions for ordinary people and foster social fairness. Once trust has been lost, there may be a risk of the electorate turning to political groups or parties that promise radical change, but once in power, effectively contribute to further undermining rules and reforms that are resisted by vested interest, while being beneficial for the majority in the longer-term.

Insufficient transparency about government liabilities (and balance sheets) can undermine reform momentum. Several analyses find that fiscal reporting and accounting are often incomplete and that the understanding of governments' underlying fiscal position and the risks related to that position remains inadequate, including in advanced economies (IMF, 2012b, 2016; Wyplosz, 2004). In particular, weak budget constraints, implicit subsidies or guarantees, and future liabilities associated with the demographic transition and pension and old-age care systems can add up to a large hidden public debt burden that may allow governments – at

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[262] By contrast, Bonfiglioli and Gancia (2015) find that general uncertainty can also have a positive effect on the adoption of reforms. Their findings are broadly consistent with other recent models suggesting that uncertainty can promote reforms by mitigating agency problems between policymakers and voters.

[263] In this context, a strong influence of firm owners or interest groups on the media can further undermine the adoption of necessary reforms (and create anti-European sentiments, if such reforms are seen as being supported or recommended by "Brussels"), in spite of such reforms being beneficial for the large majority of citizens (see Eleftheriadis, 2014 for an extreme case).

[264] Akerlof and Shiller (2015) show how information asymmetries and costs can be exploited by firms to the disadvantage of the majority of consumers.

least for some time – to hide the (longer-term) economic and social costs of (misguided) policies and delays in implementing reforms.[265] In this way, incumbent governments may shift the political costs of solving current problems to future governments, which may then have difficulties in bringing about necessary reforms as they have inherited both poor economic outcomes and a lower level of social trust in public institutions and governments in general.

In this context, implicit guarantees and other hidden contingent[266] liabilities that are often not subject to parliamentary control or to intense public scrutiny represent a potentially problematic "tool". The private sector, e.g. large firms, may anticipate that there is a certain probability that the public sector will bail them out – or protect it from financial damages – in the event of a significant risk to economic developments (e.g. via financial instability). Such implicit guarantees are not only "hidden" from official debt statistics but are also not associated with any insurance premium to be paid by the private firms to the state. Therefore, they are might entail moral hazard and support rent-seeking.[267] This tends to lead to a (net present value, NPV) shift in wealth from the taxpayer to the corporate sector (benefitting in particular shareholders and bondholders) that is hidden from official government accounts and thus largely escapes the parliamentary and public scrutiny.[268] When implicit guarantees lead to a large-scale bail-out of shareholders or bondholders in a crisis, the public may lose trust in the ability of the official sector to ensure stability, the rule of law and social fairness.

A closely related political economy problem that can explain a lack of reforms relates to soft government budget constraints. A soft budget constraint is a situation where the public sector subsidises, ex post, investment projects that, ex ante, should not have been implemented from a social welfare perspective (Kornai et al., 1998). Such projects initially have negative NPV for society as a whole, but may yield positive expected private returns for the investor, for example as they involve zero or negative-sum games allowing those undertaking the project over time to eventually shift losses or costs (including negative external effects) to the taxpayer or to other third parties. In some cases, such projects involve specific investments which are largely lost if the project fails and is terminated (which also represents a loss for society). In such a situation an ex-post subsidisation of the project may

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[265] An IMF study finds that among the ten countries experiencing the largest unexpected increases in the government debt-to-GDP ratio between 2007 and 2010, 23% of the increase was due to incomplete information about the government's underlying fiscal position (International Monetary Fund, 2012b). To increase the precision and transparency of implicit government liabilities, Wyplosz (2004) suggests "wisemen" committees to avoid the politicisation of a technical task. Zupan (2015) argues that a free press plays a key role in the transparency of fiscal data.

[266] Bova, Ruiz-Arranz, Toscani and Ture (2016) discuss contingent liabilities as follows: "We find that contingent liability realisations are a major source of fiscal distress. The average fiscal cost of a contingent liability realisation is 6% of GDP but costs can be as high as 40% for major financial sector bailouts. [...] Countries with stronger institutions are able to better control and address the underlying risks so that they are less exposed to contingent liability realisations."

[267] There is a large body of literature on implicit bank guarantees by the public sector. See for example Kane (2009); Brewer and Jagtiani (2013); Kelly et al. (2016); Kane (2000); Molyneux, Schaeck and Zhou (2014); and Benston, Hunter and Wall (1995).

[268] During a banking crisis bank shareholders and bondholders will try to "cash in" on the implicit guarantee. The government may argue that such exceptional support is without alternative, while the general public may not be informed that the implicit guarantee during the run-up to the crisis may have played a role incentivising banks to increase the leverage and riskiness of their business.

appear appropriate for a government which does not take into account the negative long-term effects on the future behaviour of investors resulting from such a policy. In other words, such projects will be subsidised ex post if the government cannot credibly commit to a no-subsidisation policy. Obviously, investors anticipate this sub-optimal behaviour by the government (the time inconsistency of the long-term optimal policy), resulting overall in too many projects with negative social value. Relative to the optimal commitment policy, this outcome reduces welfare, which may inter alia be reflected in gains for rent-seekers and lower productivity growth.

The political economy of government rent-seeking argues that insider groups within the public administration act against structural reforms. Kollintzas et al. (2017) argue that the structure of the economic and political systems in some European countries is characterised by a relatively large public sector, with basic networks and utility services provided by the government and by agencies or firms that are heavily regulated and characterised by labour organised into powerful independent unions. Moreover, there are important strategic interactions between these unions and the government that may give rise to an insiders-outsiders society featuring a high spending bias, high debt accumulation and low long-term TFP growth.

An unequal distribution of the costs of reforms in a polarised political landscape can also make structural change less likely to happen. Socio-economic groups negatively affected by potential reforms have a rational incentive to delay them. By delaying the reform they may shift a disproportionate share of its burden to other interest groups and future generations. In doing so, they effectively engage in a "war of attrition", whereby they make a trade-off between the costs of delaying the reform and the gain from averting its potential private costs. This implies that even though all parties may agree that the reform is required and delivers positive net social benefits, there can be disagreement about how the burden is to be shared. Therefore, countries often follow, for extended periods of time, policies recognised to be unfeasible in the long run (Alesina and Drazen, 1991).

A lack of trust[269] **in the government or a significant probability that the reforms may be reversed at a later date reduces political support for reforms.** If people lack trust in their political institutions, it makes it more difficult even for well-intentioned politicians to convince voters of the benefits of reforms. If trust has been lost, e.g. owing to a perceived or actual lack of social fairness of past policies, there is risk of a vicious circle. The accumulation over many years of several (small) steps in the direction of a rent-seeking society will leave citizens increasingly sceptical about the ability and willingness of the political and economic elite to improve the situation and social fairness. This can reduce support for reforms and further worsen trust in public institutions. In such a situation, the expectation that a reform will be implemented and maintained will be low. This in turn reduces incentives for people to

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[269] The concept of trust in government (or in institutions, social norms, see Chapter 5) is linked to the concept of "social capital". Several authors argue that higher social capital benefits growth (e.g. Knack and Keefer, 1997; Akçomak and Ter Weel, 2009; and Forte et al., 2015). There are at least two channels through which social capital could interact with structural reform in supporting growth. First, social capital could facilitate the implementation of the reforms and magnify their impact. Second, structural reforms could increase social capital and thereby growth.

increase investment and consumption in anticipation of the longer-term benefits of reforms, thereby limiting the benefits of the policy change.

According to the literature on drivers of reforms, periods of recession and crisis situations tend to be positively associated with (subsequent) reform implementation. This is because crises (i) create a sense of urgency, (ii) weaken strong redistributional coalitions, and (iii) shorten "wars of attrition" (Pitlik and Wirth, 2003). In times of economic distress, policymakers have to fight hard to keep the economy afloat, and vested interests may see their business models severely jeopardised. A crisis may thus convince politicians and vested interests more strongly that something decisive needs to be done (Williamson and Haggard, 1994). In addition, crises tend to diminish the strength of interest groups that have profited from rent-seeking and were formerly able to hinder the progression of overall beneficial reforms (Olson, 1982). Also, "wars of attrition" may be shortened considerably, in particular because dire economic circumstances alter the balance of the pay-offs, i.e. the costs of delaying reforms generally rise significantly (Alesina and Drazen, 1991; Drazen and Grilli, 1990). Taken together, episodes of severe economic downturn generally render the political landscape more accommodating for an overhaul of the economic structure (see also Box 15).

Box 15
What drives the implementation of structural reforms?[270]

This box summarises an ECB analysis on the determinants of structural reforms (Dias Da Silva, Givone and Sondermann, 2017). The authors identify major structural reforms over three decades across 40 OECD and EU countries and test the significance of macroeconomic, institutional and policy factors which could potentially promote or hinder the implementation of reforms.

For the identification of reforms, the study draws on policy indicators for the labour market (summarised with the OECD EPL indicator), the product market (based on the OECD ETCR indicator), framework conditions (calculated by the World Bank Doing Business indicator) and FDI barriers (summarised by the OECD FDI restrictiveness index). Reforms are identified by looking at significant annual changes in the underlying indicators, defined as changes in an indicator larger than 2 standard deviations of the changes over all observation. The results are robust to an alternative measure of reforms based on the annual change in the indicators.

The model takes the following form:

$$REF_{i,t} = \alpha + \beta_1 STR_{i,t-1} + \beta_2 MAC_{i,t-1} + \beta_3 MPOLS_{i,t-1} + \beta_4 POL_{i,t-1} + \beta_5 EXT_{i,t-1} + d_i + \varepsilon_{i,t}$$

The reform stance indicator (REF), for country i, in year t, is regressed on a set of variables, including the following: (i) α, a common intercept; (ii) $STR,$ the initial structural conditions; (iii) various proxies for the macroeconomic environment, MAC (such as the existence of a recession, the unemployment rate or potential growth five years ahead); (iv) macroeconomic policies (including fiscal policy and a proxy for the interest rate; $MPOLS$); (v) the political environment (POL), e.g. whether a government has sufficient support in parliament; (vi) the external influence (EXT),

covering financial markets but also institutional arrangements such as the EU Single Market legislation or financial assistance programmes; and (vii) d_i, country fixed effects. For the benchmark regressions, the authors use pooled ordinary least squares (OLS) and fixed effects panel models as suggested by relevant econometric tests. All variables are lagged by one year to account for lags in the transmission of the various factors influencing the decision-making process of politicians and to account – to the extent possible – for reverse causation problems. In addition, to further account for possible endogeneity among variables, the authors also conduct a battery of robustness checks, including instrumental variables (IV) and generalised method of moment (GMM) estimations. The results of the benchmark regressions remain robust overall.

The main results can be summarised as follows (see Table A).

Table A

Drivers of structural reforms

	Labour market reforms	Product market reforms	Reforms on framework conditions	Reforms on FDI barriers
Depth of recession	+			+
Unemployment rate	+			
Potential growth	-	-	-	
Chg. structural balance	+		-	-
Short-term interest rate	-		-	-
Programme dummy	+		+	+
Majority in all houses	+	+	+	
Single market dummy		+		
EPL initial conditions	+			
ETCR initial conditions		+		
DBI initial conditions			+	
FDI initial conditions				+
Past product market reforms	+			

Source: Dias Da Silva, Givone and Sondermann (2017).

The macroeconomic environment (proxied by the depth of the recession, the level of the unemployment rate and the prospects for potential growth) is very important for fostering reforms, particularly in the area of labour markets. The results are consistent with the finding that governments seem more inclined to undertake reforms in dire economic times (in line with e.g. Tommasi and Velasco, 1996 or Drazen and Easterly, 2001) as the costs of the status quo clearly emerge and the resistance to change is reduced.

There is no clear correlation between the implementation of structural reforms and the fiscal policy stance (proxied by the change in the structural balance). On the one hand, business and trade openness conditions are less likely to be strengthened when fiscal policy is contractionary, which suggests that the political capital needed to engage in fiscal consolidation is then missing for such policy actions. On the other hand, labour market reforms are undertaken when the government is already engaged in fiscal consolidation.

The analysis does not show clear evidence of a significant relationship between nominal interest rates and reform efforts in all specifications. For some reform areas and specifications, lower short-term interest rates are associated with a higher likelihood of reform implementation, particularly in the areas of labour markets, framework conditions and trade. In other specifications, there is no

significant relationship. The significant negative relationship might be read as the anticipated positive effect of lower rates on the general government balance (through lower state financing costs) or on growth and employment, in turn, offering more room for manoeuvre for policymakers to compensate the part of the population negatively affected by the change brought about by reforms.

A strong government seems to be conducive to more reforms. The presence of one-party government with a majority in all relevant houses clearly increases the probability of reforms in various areas (in line with Alesina et al., 1998). The fact that the majority in all houses tends to be particularly important for deregulating network industries suggests that vested interests are more easily overcome this way.

External pressures increase the momentum for structural reforms. Financial assistance programmes or the European directives in the context of the Single Market have put pressure on national governments to implement reforms in product markets (similarly to Thompson and Price, 2009; Bonfiglioli and Gancia, 2015). Reform intensity has also been higher in the five years before and after EU accession while the contrary holds for the years after accession. By contrast, financial markets seem after all to exert less pressure on the government to undertake reforms. Neither the sovereign bond spread nor the decisions of rating agencies have turned out to be an important predictor of structural policy actions.

The initial structural conditions at the time of the reform are found to be particularly important for the likelihood of policy actions. Countries with larger gaps from the frontier tend to implement more reforms than countries closer to best practices, where the need for further actions is less pressing.

Finally, product market reforms tend to pave the way for labour market reforms. This is in line with the argument that product market reforms improve the conditions for achieving an easing of EPL rules as they boost overall employment opportunities by facilitating new firm entries (e.g. Høj et al., 2006 or Blanchard and Giavazzi, 2003). At the same time product market reforms reduce rents and are thereby likely to reduce resistance to labour market reforms (Saint-Paul, 2000). However, it should be noted that this is only found for the overall sample of OECD countries, whereas the estimates are not significant for euro area countries alone. This suggests that euro area countries might not have exploited the advantages of the right sequencing of reforms sufficiently. In terms of the reverse directions, the authors do not find that (larger) labour market reforms tend to increase the chances of product market reforms following suit.

Other possible determinants (such as the government debt ratio, trade openness, demographics and upcoming elections) have not been found to explain the pattern of reforms.

While caution is warranted as regards a causal interpretation of these results, overall these findings support the view that weak initial conditions, an adverse macroeconomic environment and external pressures result in a stronger tendency towards reform. The results also suggest that reforms happen both in times of fiscal tightening and loosening, and in times of monetary loosening.

7.2 What help can be given to those who lose out from specific reforms?

The implementation of structural reforms also generates losers, particularly in the short term. Costs and benefits differ depending not only on the type of reform but also on its completeness and the belief that it will be fully implemented. As explained above, the benefits of reforms often materialise only after a lag, in particular if the announcement of the reform is only partially credible. In such cases, the share of losers may be higher in the immediate term than in the long run, and this group may not easily be convinced that they will benefit from looking further ahead.

While the decision to implement a reform should be taken on grounds of maximising social welfare, it is also important to consider how losers are to be treated, not least from a social perspective. Moreover, some form of support for losers could be efficient by ensuring that every individual has the chance to remain integrated in the society. There are also political economy arguments why compensation might be necessary in order to have the reform passed at all.

Specific transfers to compensate for layoffs are often not the best solution. In principle, the presence of a sufficient social safety net limits the need for more specific compensatory measures. There is less of a need to introduce discretionary offsetting measures if citizens can rely on broader schemes during an adjustment process. However, types of direct compensation that would leave displaced workers no worse off in financial terms, while apparently Pareto-optimal, are often not acceptable in the real world. Displaced workers often prefer to find another job of similar quality and offering similar pay. This implies that trust in the adequacy of the social safety net must be coupled with good opportunities for training and education.

Specific ALMP measures that increase matching in the labour market can help in the event of increasing unemployment among specific groups or even among broader parts of the labour force on a national or regional basis. ALMPs can be a means of achieving an economically efficient outcome, as initially short-term unemployment that turns into a long-term unemployment situation is very costly in both economic and social terms. Research into re-employment possibilities for people losing their jobs in Europe finds that in recent years, labour markets have become increasingly polarised. This not only puts increasing pressure on workers with mid-level skills but also complicates the upgrading possibilities for unskilled workers, who continue to be trapped in low-paid jobs. Education and training that disseminate marketable skills more widely are therefore key to avoiding the risk of structural reforms being seen as a catalyst for a low-wage, precarious economy, rather than as a harbinger of good jobs and new opportunities. However, relying on a sufficiently general social safety net and ALMPs may not be fully sufficient if a reform has the potential to significantly hit employment opportunities in a particular sector or region. ALMPs and training should therefore also support geographical mobility and allow people to move to areas where jobs can be found.

In other cases, the best course of action is to not offer any specific compensation at all. When a reform consists of removing unfair privileges and opportunities, or restraining monopolistic behaviour and other forms of rent-extraction, the best policy is to stay the course despite criticism from vested interests. Both from an efficiency and from a normative point of view, it would be questionable to compensate those who have benefited from socially unwelcome or even unfair behaviour in the past. In such cases, the winners from reforms are likely to outnumber the losers by quite a margin. Efforts should therefore be focused on gaining support from the silent majority rather than contemplating compensation to those who are currently extracting excessive rents.

Where compensation is desirable, a good option is sometimes to bundle several different reforms in a way that minimises the pain for those losing out. An example of this could for instance be to simultaneously pass legislation to increase nominal wage flexibility and to lower taxes on labour that may target low to medium-wage earners. This would seem consistent with the findings of Mierau et al. (2007), who report evidence that the likelihood of fiscal policy reforms increases in the event of broad policy reforms. Another example of bundling that compensates low to medium-wage earners amid a labour market reform that puts downward pressure on nominal wages is to liberalise product markets in order to lower excessive profit mark-ups and in turn consumer prices, supporting purchasing power of nominal wages.

When support for potential losers is sought within the same reform, a common strategy is to grandfather the conditions of incumbents. This has the benefit of reducing the social and political upheaval amid the reform and is sometimes also an adequate way of preventing negative short-term distributional consequences of reforms. However, grandfathering has the drawback of delaying the positive impact of the reform. It can also be questioned from the viewpoint of fairness, as new entrants bear the pain of adjustment while incumbents continue to benefit from more generous arrangements (creating for instance the risk of dual labour markets). In several cases, for instance with reforms of pension systems, such strategies also tend to be disadvantageous to the young and working-age generations.

Direct, discretionary compensation of losers by means of a monetary transfer brings further complex problems (OECD, 2010). One of the main challenges is that financial schemes are often ineffective as an incentive to economic agents to favour structural reforms. This is not only because, as described above, displaced workers prefer finding new jobs to financial transfers, but also because the distributional consequences of policy changes are often uncertain, and direct compensation schemes are time-inconsistent, in particular because the ex post majority (who are in favour of the reforms) have an incentive to renege on the compensation arrangement agreed upon ex ante (Fernandez and Rodrik, 1991). Moreover, direct compensation might be seen as subsidisation of resistance to reforms and as such might bring about more resistance.

However, there are still situations where direct, discretionary compensation may be the only realistic means of implementing a structural reform within a short timeframe. A classic example of this is a city with highly regulated taxi

markets where a limited amount of licences are traded, and the only means of entry is to buy an existing licence at a high price. In such cases, a city that wants to liberalise the market often only has two practical choices. It could choose a very slow adjustment process (for instance by gradually increasing the number of licences over a number of years). However, an excessively gradual or diluted implementation of reforms could negatively affect the effectiveness of the policy and allow vested interests to exert pressure against the full implementation of the policy. Alternatively, the authority may simply withdraw all existing licences by buying them up, thus compensating the owners.

Good communication is an essential element of structural reform efforts. The majority in society can often agree on the need for adjustment if convincing arguments are presented. Proponents of reform should therefore point out that flexible, open and inclusive societies that push back on rent-seeking are to the benefit of consumers and employees, who will see real disposable income and well-being increasing over time. In the long run, such strategies are the best way of limiting the number of those on the losing side of economic development and of having sufficient tax revenues to ensure a good social safety net.

7.3 How can EU and euro area institutions support the reform process in Member States?

The special institutional setting of the euro area implies that its political economy processes are different in nature from those in countries with their own national currency. For example, within EMU, sub-optimal national policies are no longer "sanctioned" – and made visible to the broader public – by nominal devaluations of national currencies. Another specific feature of the euro area is that while the process of European integration is well advanced economically, most political news coverage and discussions remain national and thus fragmented; the wider euro area perspective only plays a small role in such debates. In other words, the public discussions within Member States regarding (sub-) national policies are of a different nature from the public discussions within the euro area regarding euro area or national policies of the participating Member States. This, together with the complex and sometimes non-transparent institutional arrangements and processes at the EU and euro area levels, has arguably made it easier for some political actors to downplay the advantages of European integration and/or to blame "the euro", "Europe", "Brussels" or European institutions in general for unsatisfactory national regional economic outcomes, thereby providing a distraction from the responsibility of national policies. In such a context, vested interests that benefit from rent extraction and intrusive regulations may be particularly effective in delaying or watering down reforms (Demertzis and Goncalves Raposo, 2018). What can be done to address such political economy challenges?

A transparent and clear allocation of policy responsibilities is desirable from the perspective of accountability and ownership of reforms. In a complex political setting with multiple political layers (municipality, regional, national and European level), citizens need clarity as to which political level is responsible for

which decision. Unclear responsibilities give rise to the risk of national reform efforts being undermined by the emergence of vocal anti-reform and often also anti-European groups. In this way "Europe" can be wrongly used as a scapegoat in a way that can help to divert public attention from the responsibility of national institutions for (disappointing) economic and social outcomes. In this context, a systematic assessment of the implications of existing EU and euro area rules and processes for national ownership of reforms might be useful to ensure a complete cost-benefit analysis of various design options.

This raises the question of whether – and under what conditions – new policies and additional powers at the EU/EA level can help with implementing or incentivising beneficial reforms. In the case of European common goods, and given a broad consensus that action at the European level is truly necessary, shifting sovereignty to European institutions in a transparent manner might be more effective than rule-based coordination that lacks credible enforcement mechanisms. One positive example is the decision to assign power over state aid and competition rules to the European Commission's Directorate-General for Competition. This was an important decision helping to ensure a level playing field within the EU. In addition, transparent incentives provided from the EU level could enhance the chances for the implementation of reforms. In this context, reform incentives might be strengthened if EU transfers were partly given directly to European citizens (e.g. as a top-up on unemployment insurance) rather than to national and regional governments.

In addition, the EU could consider strengthening incentives for reforms at the national level. A further concentration of specific competences at the EU level, accompanied by a change in the incentives provided by some EU/EA frameworks, could support both the quality of national and European institutions and trust in these institutions. For example, consideration could be given to linking future EU transfers to improvements in the quality of national or regional institutions. Certain parts of current or new EU transfers could be made conditional on, or could directly target, concrete progress in areas such as the efficiency and transparency of public administration, procurement processes, the rule of law, or fighting tax evasion. After all, there is a convincing argument that without efficient, transparent and impartial national and regional administrations there is a higher probability of European transfers being used inefficiently (or to some extent wasted) or benefiting rent-seekers.[271]

Finally, the European Commission could consider further enhancing analyses and the provision of (micro) data to the general public as a service to EU citizens and their governments. The EU could play a stronger role in ensuring that EU citizens receive thoroughly researched, carefully checked, unbiased data and

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[271] See Svensson (2000) and Economides et al. (2008) for a more general discussion of the link between (foreign) aid and rent-seeking. Rodríguez-Pose and Enrique Garcilazo (2015) find that "above a threshold of cohesion expenditure – calculated at more than €120 of cohesion expenditure per capita per year – government quality improvements are a far more important and realistic option for regional development than additional public investment. In many of the regions receiving the bulk of Structural Funds, further improvements in economic growth would require massive amounts of additional investment, unless the quality of government is significantly enhanced". See also Crescenzi, Di Cataldo and Rodríguez-Pose (2016).

information in order to be able to understand trade-offs in policy choices and the associated costs and benefits. This could allow voters to better distinguish between alternative policy proposals. For example, the European Commission could further strengthen public data dissemination on cross-country and cross-regional differences regarding policy outcomes and cost-benefit relationships on various public services and policies. This could help citizens and politicians to identify countries' reform needs and opportunities. Importantly, this should be clearly distinguished from making policy recommendations for individual countries or regions.

References

Abraham, F., Konings, J. and Vanormelingen, S. (2009), "The effect of globalization on union bargaining and price-cost margins of firms", *Review of World Economics*, Vol. 145, No 1, pp. 13-36.

Acemoglu, D. and Restrepo, P. (2017), "Secular stagnation? The effect of aging on economic growth in the age of automation", *American Economic Review*, Vol. 107, No 5, pp. 174-79.

Acemoglu, D. and Verdier, T. (2000), "The choice between market failures and corruption", *American Economic Review*, Vol. 90, No 1, pp. 194-211.

Acemoglu, D. and Johnson, S. (2005), "Unbundling institutions", *Journal of Political Economy*, Vol. 113, No 5, pp. 949-995.

Acemoglu, D., Aghion, P. and Zilibotti, F. (2006), "Distance to frontier, selection, and economic growth", *Journal of the European Economic Association*, Vol. 4, No 1, pp. 37-74.

Acemoglu, D., Johnson, S. and Robinson, J.A. (2001), "The colonial origins of comparative development: an empirical investigation", *American Economic Review*, Vol. 91, No 5, pp. 1369-1401.

Acemoglu, D., Johnson, S. and Robinson, J.A. (2004), "Institutions as the fundamental cause of long-run growth", *NBER Working Paper*, No 10481.

Acemoglu, D. and Jackson, M.O. (2017), "Social norms and the enforcement of laws", *Journal of the European Economic Association*, Vol. 15, No 2, pp. 245-295.

Acharya, V., Eisert, T., Eufinger, C. and Hirsch, C. (2017), "Whatever it takes: The real effects of unconventional monetary policy", *CEPR Discussion Paper*, No 12005.

Adalet McGowan, M., Andrews, D. and Millot, V. (2017a), "Insolvency regimes, zombie firms, and capital reallocation", *OECD Economics Department Working Paper*, No 1399.

Adalet McGowan, M., Andrews, D. and Millot, V. (2017b), "The walking dead? Zombie firms and productivity performance in OECD countries", *OECD Economics Department Working Paper*, No 1372.

Adhikari, B., Hu, B., Loungani, P. and Duval, R.A. (2016), "Can reform waves turn the tide? Some case studies using the synthetic control method", *IMF Working Paper*, No 16/171.

Aghion, P., Akcigit, U., Bergeaud, A., Blundell, R. and Hemous, D. (2015), "Innovation and top income inequality", *NBER Working Paper*, No 21247.

Aghion, P., Akcigit, U., Cagé, J. and Kerr, W. (2016), "Taxation, corruption, and growth", *European Economic Review*, Vol. 86, pp. 24-51.

Aghion, P., Blundell, R., Griffith, R., Howitt, P. and Prantl, S. (2004), "Entry and productivity growth: evidence from micro-level panel data", *Journal of the European Economic Association*, Vol. 2, No 2-3, pp. 265-276.

Aghion, P. and Griffith, R. (2005), *Competition and growth*, MIT Press, Cambridge, Massachusetts, United States.

Ahrend, R. (2002), "Press freedom, human capital and corruption", *DELTA Working Paper*, No 2002-11.

Aidt, T. S. (2016), "Rent seeking and the economics of corruption", *Constitutional Political Economy*, Vol. 27, No 2, pp. 142-157.

Aiyar, S.S., Ebeke, C. and Shao, X. (2016), "The impact of workforce aging on European productivity", *IMF Working Paper*, No 16/238.

Aijar, S., Bergthaler, W., Garrido,J.M., Ilyina, A., Jobst, A., Kenneth K., Kovtun, D., Liu, Y., Monaghan, D. and Moretti, M. (2015), A Strategy for Resolving Europe's Problem Loans, IMF Staff Discussion Note No. 15/19, International Monetary Fund.

Akçomak, I. S. and Weel, B. ter (2009), "Social capital, innovation and growth: Evidence from Europe", *European Economic Review*, Vol. 53, Issue 5, pp. 544-567.

Akerlof, G. A. and Shiller, R. J. (2015), *Phishing for Phools: The Economics of Manipulation and Deception*, Princeton University Press.

Alesina, A. and Drazen, A. (1991), "Why are stabilizations delayed?", *American Economic Review*, Vol. 81, No 5, pp. 1170-1188.

Alesina, A., Perotti, R. and Tavares, J. (1998), "The political economy of fiscal adjustments", *Brookings Papers on Economic Activity*, pp. 197-266.

Aligica, P. D. and Tarko, V. (2015), "Crony capitalism", *CESifo DICE Report*, Vol. 13, No 3, pp. 27-32.

Allen, F. et al. (2011), *Cross-Border Banking in Europe: Implications for Financial Stability and Macroeconomic Policies*, CEPR.

Allen, F., Carletti, E., Goldstein, I. and Leonello, A. (2015), "Moral hazard and government guarantees in the banking industry", *Journal of Financial Regulation*, Vol. 1, No 1, pp. 30-50.

Almunia, M. and López-Rodríguez, D. (2017), "Under the radar: The effects of monitoring firms on tax compliance", *American Economic Journal: Economic Policy*, Vol. 10, No 1, pp. 1-38.

Alstadsæter, A., Johannesen, N. and Zucman, G. (2017), "Tax evasion and inequality", *NBER Working Paper*, No 23772.

Altavilla, C., Pagano, M. and Simonelli, S. (2016), "Bank exposures and sovereign stress transmission", *Working Paper Series*, No 1969, ECB, Frankfurt am Main, October.

Anderson, D., Barkbu, B., Lusinyan, L. and Muir, D. (2014), "Assessing the Gains from Structural Reforms for Jobs and Growth", *Jobs and Growth: Supporting the European Recovery*, Chapter 7, IMF.

Anderton, R. et al. (2012), "Euro area labour markets and the crisis", *Occasional Paper Series*, No 138, ECB, Frankfurt am Main, October.

Anderton, R. and Bonthuis, B. (2015), "Downward wage rigidities in the euro area", *University of Nottingham Centre for Globalisation and Economic Policy Research Paper Series*, No 9, University of Nottingham, September.

Anderton, R., Hantzsche, A., Savsek, S. and Tóth, M. (2016), "Sectoral Wage Rigidities and Labour and Product Market Institutions in the Euro Area", *Working Paper Series*, No 16/01, Centre for Finance, Credit and Macroeconomics (CFCM), January. Also published in *Open Economies Review*, Vol. 28, No 5, Springer, October 2017, pp. 923-965.

Andrés, J., Arce, Ó. and Thomas, C. (2017), "Structural reforms in a debt overhang", *Journal of Monetary Economics*, Vol. 88, pp. 15-34.

Andrews, D. and Petroulakis, F. (2017), "Breaking the shackles: zombie firms, weak banks and depressed restructuring in Europe", paper and presentation at the OECD WP1 Meeting, 12-13 October 2017, also *OECD Working Paper*.

Andrews, D., Criscuolo, C. and Gal, P. (2015), "Frontier firms, technology diffusion and public policy: micro evidence from OECD countries", *OECD Productivity Working Paper*, OECD Publishing, Paris.

Angelopoulos, K., Philippopoulos, A. and Vassilatos, V. (2009), "The social cost of rent seeking in Europe", *European Journal of Political Economy*, Vol. 25, No 3, pp. 280-299.

Anginer, D., Demirgüç-Kunt, A. and Zhu, M. (2014), "How does deposit insurance affect bank risk? Evidence from the recent crisis", *Journal of Banking & Finance*, Vol. 48, Issue C, pp. 312-321.

Arcand, J. L., Berkes, E. and Panizza, U. (2015), "Too much finance?", *Journal of Economic Growth*, Vol. 20, No 2, pp. 105-148.

Arce, Ó., Hurtado, S., and Thomas, C. (2016), "Policy Spillovers and Synergies in a Monetary Union", International Journal of Central Banking, Vol. 12, No 3, pp. 219-277.

Armour, J. et al. (2015), "How do creditor rights matter for debt finance? A review of empirical evidence", in Dahan, F. (ed.), *Research Handbook on Secured Financing in Commercial Transactions*, Edward Elgar, 2015.

Arnold, J., Nicoletti, G. and Scarpetta, S. (2011), "Does anti-competitive regulation matter for productivity? Evidence from European firms", *IZA Discussion Paper*, No 5511.

Arnold, J., Scarpetta, S. and Nicoletti, G. (2011), "Regulation, resource reallocation and productivity growth", *European Investment Bank Papers*, Vol. 16, No 1, pp. 90-115.

Arpaia, A. and Pichelmann, K. (2007), "Nominal and real wage flexibility in EMU", *International Economics and Economic Policy*, Vol. 4, No 3, pp. 299-328.

Arrieta Ibarra, I., Goff, L., Jiménez Hernández, D., Lanier, J. and Weyl, E. (2017), *Should We Treat Data as Labor? Moving Beyond "Free"*.

Asdrubali, P., Sørensen, B. and Yosha, O. (1996), "Channels of interstate risk sharing: United States 1963-1990", *Quarterly Journal of Economics*, Vol. 111, No 4, pp. 1081-1110.

Åslund, A. (2015), "Why have the Baltic Tigers been so successful", *CESifo Forum*, Vol. 16, No 4, München: ifo Institut – Leibniz-Institut für Wirtschaftsforschung an der Universität München, Munich, pp. 3-8.

Babecký, J., Du Caju, P., Kosma, T., Lawless, M., Messina, J. and Rõõm, T. (2010), "Downward nominal and real wage rigidity: survey evidence from European firms", *The Scandinavian Journal of Economics*, Vol. 112, No 4, pp. 884-910.

Babetskii, I. (2007), "Aggregate wage flexibility in selected new EU member States", *CESifo Working Paper*, No 1916.

Bae, K.H. and Goyal, V.K. (2009), "Creditor Rights, Enforcement, and Bank Loans", *Journal of Finance*, Vol. 64, No 2, pp. 823-860.

Baksa, D. and Munkacsi, Z. (2016), "Ageing, pension reforms and the shadow economy in Southern Europe", *Working Paper Series*, No 32, Lietuvos bankas.

Baksa, D., Constantinescu, M. and Munkacsi, Z. (2016), "Ageing, informality and public policies in a small open economy", *Discussion Paper Series*, No 2, Lietuvos bankas.

Banco de España (2013), "The 2012 labour reform: an initial analysis of some of its effects on the labour market", *Economic Bulletin*, pp. 17-25.

Banco de España (2016), "Competitive adjustment and recovery in the Spanish Economy", *Annual Report 2015*, Chapter 2.

Bank of Greece (2013), *Annual Report 2012*.

Bank of Greece (2014), *Annual Report 2013*.

Baqaee, D.R. and Farhi, E. (2017), "Productivity and misallocation in general equilibrium", *NBER Working Paper*, No 24007.

Barone, G. and Cingano, F. (2011), "Service regulation and growth: Evidence from OECD countries", *The Economic Journal*, Vol. 121, No 555, pp. 931-957.

Bartelsman, E., Haltiwanger, J. and Scarpetta, S. (2013), "Cross-country evidence of differences in productivity: the role of allocation and selection", *American Economic Review*, Vol. 103, No 1, pp. 305-334.

Bassanini, A. and Duval, R. (2006), "Employment Patterns in OECD Countries: Reassessing the Role of Policies and Institutions", *OECD Economics Department Working Paper*, No 486, OECD Publishing.

Beck, T. and Demirgüç-Kunt, A. (2006), "Small and medium-size enterprises: Access to finance as a growth constraint", *Journal of Banking & Finance*, Vol. 30, No 11, pp. 2931-2943.

Beck, T., Büyükkarabacak, B., Rioja, F. and Valev, N. (2012), "Who gets the credit? And does it matter? Household vs. firm lending across countries", *The B.E. Journal of Macroeconomics*, Vol. 12, No 1, Article 2.

Beck, T., Demirgüç-Kunt, A. and Levine, R. (2007), "Finance, inequality and the poor", *Journal of Economic Growth*, Vol. 12, No 1, pp. 27-49.

Beck, T., Levine, R. and Levkov, A. (2010), "Big Bad Banks? The Winners and Losers from Bank Deregulation in the United States", *Journal of Finance*, Vol. 65, No 5, pp. 1637-1667.

Beck, T., Levine, R. and Loayza, N. (2000), "Finance and the sources of growth", *Journal of Financial Economics*, Vol. 58, No 1-2, pp. 261-300.

Belke, A., Schnabl, G. , and Zemanek, H. (2010), "Current Account Imbalances and Structural Adjustment in the Euro Area", International Economics and Economic Policy, Vol. 7, pp. 83-127.

Belke, A., Haskamp, U., Setzer, R. (2016), "Regional bank efficiency and its effect on regional growth in "normal" and "bad" times", Economic Modelling, Elsevier, vol. 58(C), pp. 413-426.

Bénassy-Quéré, A., Coupet, M. and Mayer, T. (2007), "Institutional determinants of foreign direct investment", *The World Economy*, Vol. 30, No 5, pp. 764-782.

Bennett, D., Nikolaev, B. and Aidt, T. (2016), "Institutions & well-being", *European Journal of Political Economy*, Vol. 45, pp. 1-10.

Benston, G.J., Hunter, W.C. and Wall, L.D. (1995), "Motivations for bank mergers and acquisitions: Enhancing the deposit insurance put option versus earnings diversification", *Journal of Money, Credit and Banking*, Vol. 27, No 3, pp. 777-788.

Berger, H. and Neugart, M. (2011), "Labor courts, nomination bias, and unemployment in Germany", *European Journal of Political Economy*, Vol. 27, No 4, pp. 659-673.

Blanchard, O. and Acalin, J. (2016), "What does measured FDI actually measure?", *Policy Brief*, No PB16-17, Peterson Institute for International Economics.

Blanchard, O. and Giavazzi, F. (2003), "Macroeconomic effects of regulation and deregulation in goods and labor markets", *Quarterly Journal of Economics*, Vol. 118, No 3, pp. 879-907.

Blanchard, O. and Katz, L. (1999), "Wage dynamics: reconciling theory and evidence", *American Economic Review*, Vol. 89, No 2, pp. 69-74.

Blanchard, O. and Wolfers, J. (2000), "The role of shocks and institutions in the rise of European unemployment: the aggregate evidence", *The Economic Journal*, Vol. 110, No 462, pp. 1-33.

Blanchard, O., Jaumotte, F., and Loungani, P. (2014), "Labor market policies and IMF advice in advanced economies during the Great Recession", IZA Journal of Labor Policy, Vol. 3, No 1.

Blonigen, B.A. (2005), "A review of the empirical literature on FDI developments", *Atlantic Economic Journal*, Vol. 33, No 4, pp. 383-403.

Bloom, N. and Van Reenen, J. (2007), "Measuring and explaining management practices across firms and countries", *Quarterly Journal of Economics*, Vol. 122, No 4, pp. 1351-1408.

Bloom, N., Sadun, R. and Van Reenen, J. (2012), "Americans do IT better: US multinationals and the productivity miracle", *American Economic Review*, Vol. 102, No 1, pp. 167–201.

Boeri, T. and Jimeno, J.F. (2015), "The unbearable divergence of unemployment in Europe", *Working Paper Series*, No 1534, Banco de España.

Bolton, P., Santos, T. and Scheinkman, J. A. (2016), "Cream-Skimming in Financial Markets", *Journal of Finance*, Vol. 71, No 2, pp. 709-736.

Bonfiglioli, A. and Gancia, G. A. (2015), "Economic uncertainty and structural reforms", *CEPR Discussion Paper*, No 10937.

Bordon, A.R., Ebeke, C. and Shirono, K. (2016), "When do structural reforms work? On the role of the business cycle and macroeconomic policies", *IMF Working Paper*, No 16/62.

Borjas, G.J. (1994), "The economics of immigration", *Journal of Economic Literature*, Vol. 32, No 4, pp. 1667-1717.

Borjas, G.J. (2003), "The labor demand curve is downward sloping: Reexamining the impact of immigration on the labor market", *Quarterly Journal of Economics*, Vol. 118, No 4, pp. 1335–1374.

Börsch-Supan, A., Härtl, K. and Ludwig, A. (2014), "Ageing in Europe: reforms, international diversification, and behavioural reactions", *American Economic Review*, Vol. 104, No 5, pp. 224-229.

Bosco, B. (2016), "Corruption, fatigued democracy and bad governance: Are they co-determinants of poverty risk and social exclusion in Europe? A cross-country macro-level comparison", *University of Milan Bicocca Department of Economics, Management and Statistics Working Paper*, No 323.

Boss, A. et al. (1996), "Deregulierung in Deutschland: Eine empirische Analyse", *Kiel, Hamburg: ZBW-Deutsche Zentralbibliothek für Wirtschaftswissenschaften, Leibniz-Informationszentrum Wirtschaft*, Vol. 275.

Bouis, R., Causa, O., Demmou, L., Duval, R. and Zdzienicka, A. (2012), "The short-term effects of structural reforms: an empirical analysis", *OECD Economics Department Working Paper*, No 949, OECD Publishing.

Bourlès, R., Cette, G., Lopez, J., Mairesse, J. and Nicoletti, G. (2013), "Do product market regulations in upstream sectors curb productivity growth? Panel data evidence for OECD countries", *Review of Economics and Statistics*, Vol. 95, No 5, pp. 1750-1768.

Bova, E., Ruiz-Arranz, M., Toscani, F.G. and Ture, H.E. (2016), "The fiscal costs of contingent liabilities: A new dataset", *IMF Working Paper*, No 16/14.

Brewer, E. and Jagtiani, J. (2013), "How much did banks pay to become too-big-to-fail and to become systemically important?", *Journal of Financial Services Research*, Vol. 43, No 1, pp. 1-35.

Brocek, F. and Lalinsky, T. (2017), "Welfare in Slovakia and the EU – an alternative to GDP per capita", *BIATEC*, Vol. 25, No 6, pp. 2-8.

Brondolo, J. (2009), "Collecting taxes during an economic crisis: challenges and policy options", *IMF Staff Position Note*, No 09/17, IMF.

Brumm, H.J. (1999), "Rent seeking and economic growth: evidence from the states", *Cato Journal*, Vol. 19, Issue 1, pp. 7-16.

Brunetti, A. and Weder, B. (2003), "A free press is bad news for corruption", *Journal of Public Economics*, Vol. 87, No 7, pp. 1801-1824.

Burda, M. and Hunt, J. (2011), "What explains the German labor market miracle in the Great Recession?", *NBER Working Paper*, No 17187.

Bursian, D. and Stähler, N. (2017), "Macroeconomic Effects of Increased Wage Flexibility in EMU", *Journal of Economic Policy Reform*, pp. 1-15.

Byrne, S. and O'Brien, M.D. (2016), "Understanding Irish labour force participation", *The Economic and Social Review*, Vol. 48, No 1, pp. 27-60.

Caballero, R., Hoshi, T. and Kashyap, A. (2008), "Zombie lending and depressed restructuring in Japan", *American Economic Review*, Vol. 98, No 5, pp. 1943-1977.

Cacciatore, M. and Fiori, G. (2016), "The macroeconomic effects of goods and labor markets deregulation", *Review of Economic Dynamics*, Vol. 20, pp. 1-24.

Cacciatore, M., Duval, R., Fiori, G. and Ghironi, F. (2016a), "Market reforms at the zero lower bound", mimeo, HEC Montréal, International Monetary Fund, North Carolina State University and University of Washington.

Cacciatore, M., Duval, R., Fiori, G. and Ghironi, F. (2016b), "Short-term pain for long-term gain: Market deregulation and monetary policy in small open economies", *Journal of International Money and Finance*, Vol. 68, pp. 358-385.

Calvino, F., Criscuolo, C. and Menon, C. (2016), "No country for young firms?: Start-up dynamics and national policies", *OECD Science, Technology and Industry Policy Papers*, No 29, OECD Publishing, Paris.

Campos, N. and Kinoshita, Y. (2008), "Foreign Direct Investment and Structural Reforms: Evidence from Eastern Europe and Latin America", *IMF Working Paper*, No 08/29, pp. 38.

Cantillon, B. (2011), "The paradox of the social investment state: growth, employment and poverty in the Lisbon era", *Journal of European Social Policy*, Vol. 21, No 5, pp. 432-449.

Canton, E., Ciriaci, D., and Solera, I. (2014), "The economic impact of professional services liberalisation", No 533, Directorate General Economic and Financial Affairs (DG ECFIN), European Commission.

Carlstrom, C. T., Fuerst, T. S. and Paustian, M. (2009), "Inflation persistence, monetary policy, and the great moderation", *Journal of Money, Credit and Banking*, Vol. 41, No 4, pp. 767-786.

Carone, G., Eckefeldt, P., Giamboni, L., Laine, V. and Pamies Sumner, S. (2016), "Pension reforms in the EU since the early 2000's: Achievements and challenges ahead", *European Commission Discussion Paper*, No 42.

Carta, F., D'Amuri, F. and von Wachter, T. (forthcoming), "Ageing, pension reform and firm's dynamics", *Occasional Paper Series*, Banca d'Italia.

Casado, J. M., Fernandez, C. and Jimeno, J. F. (2015), "Worker flows in the European Union during the Great Recession", *Working Paper Series*, No 1529, Banco de España.

Casas-Arce, P. and Saiz, A. (2010), "Owning versus renting: Do courts matter?", *Journal of Law and Economics*, Vol. 53, No 1, pp. 137-165.

Case, A. and Deaton, A. (2017), "Mortality and morbidity in the 21st century", *Brookings Papers on Economic Activity*, pp. 397- 476.

CASE – Center for Social and Economic Research (2013), *Study to quantify and analyse the VAT Gap in the EU-27 Member States: Final Report*.

CASE – Center for Social and Economic Research (2016), *Study and reports on the VAT Gap in the EU-28 Member States: 2016 Final Report*.

Castro, G., Maria, J. R., Mourinho Félix, R. and Rodrigues Braz, C. (2016), "Aging and fiscal sustainability in a small euro area economy", *Macroeconomic Dynamics*.

Causa, O. and Johansson, Å. (2009), "Intergenerational social mobility in European OECD countries", *OECD Economics Department Working Paper*, No 709.

Causa, O., de Serres, A. and Ruiz, N. (2014), "Can growth-enhancing policies lift all boats? An analysis based on household disposable income", *OECD Economics Department Working Paper*, No 1180.

Cecchetti, S. G., Mohanty, M. S., & Zampolli, F. (2011), "The real effects of debt", BIS Working Papers No 352.

Cecchetti, S. and Schoenholtz, K. (2018), "Financing intangible capital", voxeu.org, 22 February.

Centeno, M., Maria, J.R. and Novo, Á. (2009), "Unemployment: Supply, Demand, and Institutions", *The Portuguese Economy in the Context of Economic, Financial and Monetary Integration*, Banco de Portugal, Lisbon, pp. 215–258.

Cette, G., Lopez, J. and Mairesse, J. (2016), "Market regulations, prices and productivity", *American Economic Review: Papers and Proceedings*, Vol. 106, No 5, pp. 104-108.

Challe, E., Lopez, J.I. and Mengus, E. (2018), " "Institutional Quality and Capital Inflows: Evidence and Theory". HEC Paris Research Paper No. ECO/SCD-2018-1247.

Chen, S., Kim, M., Otte, M., Wiseman, K. and Zdzienicka, A. (2015). "Private sector deleveraging and growth following busts", No 15-35, International Monetary Fund.

Cheshire, P.C., and Hilber, C.A.L. (2008), "Office Space Supply Restrictions in Britain: The Political Economy of Market Revenge", The Economic Journal, Vol. 118, Issue 529, pp. F185-F221.

Christoffel, K. P. and Linzert, T. (2006), "The role of real wage rigidity and labor market frictions for unemployment and inflation dynamics", *Discussion Paper, Series 1: Economic Studies*, No 11/2006.

Christopoulou, R. and Vermeulen, P. (2012), "Markups in the Euro area and the US over the period 1981–2004: A comparison of 50 sectors", *Empirical Economics*, Vol. 42, No 1, pp. 53–77.

Ciccone, A. and Papaioannou, E. (2009), "Human capital, the structure of production, and growth", *Review of Economics and Statistics*, Vol. 91, Issue 1, pp. 66-82.

Coase, R.H. (1960), "The problem of social cost", *Journal of Law and Economics*, Vol. 3, pp. 1-44.

Cochrane, J. (2016), "Economic Growth", in Moore, J.N. (ed.), *The Presidential Debates*, Carolina Academic Press, pp. 65-90.

Cockx, B. and Ghirelli, C. (2016), "Scars of recessions in a rigid labor market", *Labour Economics*, Vol. 41, pp. 162-176.

Cœuré, B. (2014), "Structural reforms: learning the right lessons from the crisis", Keynote speech delivered at the Economic conference, Latvijas Banka, Riga, 17 October.

Cœuré, B. (2017), "Convergence matters for monetary policy", Speech at the Competitiveness Research Network (CompNet) conference on "Innovation, firm size, productivity and imbalances in the age of de-globalization", Brussels, 30 June 2017.

Cohen, W.M. and Levinthal, D.A. (1989), "Innovation and learning: The two faces of R&D", *The Economic Journal*, Vol. 99, No 397, pp. 569-596.

Cohen, W.M. and Levinthal, D.A. (1990), "Absorptive capacity: A new perspective on learning and innovation", *Administrative Science Quarterly*, Vol. 35, No 1, pp. 128-152.

Cohen, W.M. and Levinthal, D.A. (1994), "Fortune favours the prepared firm", *Management Science*, Vol. 40, No 2, pp. 227-251.

Cole, I.M. and Chawdry, M.A., (2002), "Rent seeking and economic growth: evidence from a panel of U.S. states", *Cato Journal*, Vol. 22, No 2, pp. 211–228.

Consolo, A., Pierluigi, B. and Malfa, F. (2017), "The importance of insolvency frameworks for deleveraging and NPL resolution", mimeo, ECB.

Corugedo, E.F. and Ruiz, M.E.P. (2014), "The EU Services Directive: Gains from Further Liberalization", *IMF Working Paper*, No 14/113.

Crépon, B., Desplatz, R. and Mairesse, J. (2005), "Price-cost margins and rent sharing: Evidence from a panel of French manufacturing firms", *Annales d'Economie et de Statistique*, No 79/80, pp. 583-610.

Crescenzi, R., Di Cataldo, M. and Rodríguez-Pose, A. (2016), "Government quality and the economic returns of transport infrastructure investment in European regions", *Journal of Regional Science*, Vol. 56, No 4, pp. 555–582.

Criscuolo, C., Gal, P. and Menon, C. (2014), "The dynamics of employment growth: New evidence from 18 countries", *OECD Science, Technology and Industry Policy Paper*, No 14, OECD Publishing, Paris.

Cuerpo, C., Pontuch, P. and Kalantaryan, S. (2014), "Rental Market Regulation in the European Union", *European Economy – Economic Papers*, No 515, Directorate-General for Economic and Financial Affairs (DG ECFIN), European Commission.

D'Addio, A.C. (2007), "Intergenerational transmission of disadvantage: Mobility or immobility across generations? A review of the evidence for OECD countries", *OECD Social, Employment and Migration Working Paper*, No 52.

Dabla-Norris, E., Ho, G. and Kyobe, M. (2017), "Structural Reforms and Productivity Growth in Emerging Market and Developing Economies", *IMF Working Paper*, No 16/15.

De Rosa, D., Gooroochurn, N. and Görg, H. (2010), "Corruption and Productivity: Firm-level Evidence from the BEEPS survey", *World Bank Policy Research Working Paper*, No 5348.

Dellas, H., Malliaropoulos, D., Papageorgiou, D. and Vourvachaki, E. (2017), "Fiscal policy with an informal sector", *CEPR Discussion Paper*, No 12494.

Dellis, K., Sondermann, D. and Vansteenkiste, I. (2017), "Determinants of FDI inflows in advanced economies: Does the quality of economic structures matter?", *Working Paper Series*, No 2066, ECB.

Demertzis, M., and Goncalves Raposo, I. (2018), "Structural Reforms 0.0 – The case for strengthening institutions", Bruegel, May.

Demirgüç-Kunt, A. and Maksimovic, V. (1998), "Law, Finance, and Firm Growth", *Journal of Finance*, Vol. 53, No 6, pp. 2107-2137.

Deutsche Bundesbank (2000), "The price effects of deregulation and privatisation in the product markets", *Monthly Report*, December, pp. 31-42.

Deutsche Bundesbank (2004), "Greater flexibility on the German labour market", *Monthly Report*, September, pp. 4358.

Deutsche Bundesbank (2010), "Germany in the financial and economic crisis: Labour market", *Monthly Report*, October, pp. 55-69.

Deutsche Bundesbank (2014), "The macroeconomic impact of labour market reforms in Germany", *Monthly Report*, January, pp. 34–36.

Dias, D. A., Givone, A. and Sondermann, D. (2017), "When do countries implement structural reforms?", *Working Paper Series*, No 2078, ECB.

Dias, D. A., Marques, C. R. and Richmond, C. (2016), "Misallocation and productivity in the lead up to the Eurozone crisis", *Journal of Macroeconomics*, Vol. 49, pp. 46-70.

Dieppe, A. and Guarda, P. (2015), "Public debt, population ageing and medium-term growth", *Occasional Paper Series*, No 165, ECB.

Djankov, S., Hart, O., McLiesh, C. and Shleifer, A. (2008), "Debt enforcement around the world", *Journal of Political Economy*, Vol. 116, No 6, pp. 1105-1149.

DNB (2016), "2016 Annual Report".

Dobbelaere, Sabien (2004), "Estimation of price-cost margins and union bargaining power for Belgian manufacturing", International Journal of Industrial Organization, Vol. 22, No 10, pp. 1381-1398.

Doménech, R., J.R. García, and C. Ulloa (2016), "The effects of wage flexibility on activity and employment in the Spanish economy", BBVA Working Paper, No 16/17.

Doppelhofer, G., Sala, I., Martin, X. and Weeks, M. (2005), "Jointness of determinants of economic growth", Money Macro and Finance (MMF) Research Group Conference 2005/54, Money Macro and Finance Research Group.

Draghi, M. (2015), "Structural reforms, inflation, and monetary policy", Introductory speech, ECB Forum on Central Banking, Sintra, 22 May.

Draghi, M. (2017), "Structural reforms in the euro area", Introductory remarks at the ECB conference on "Structural reforms in the euro area", Frankfurt am Main, 18 October.

Drazen, A. and Easterly, W. (2001), "Do crises induce reform? Simple empirical tests of conventional wisdom", *Economics & Politics*, Vol. 13, No 2, pp. 129-157.

Drazen, A. and Grilli, V. (1990), "The benefits of crises for economic reforms", *NBER Working Paper*, No 3527.

Du Caju, P., Gautier, E., Momferatou, D. and Ward-Warmedinger, M.E. (2008), *Institutional features of wage bargaining in 23 European countries, the US and Japan*.

Economides, G., Kalyvitis, S., and Philippopoulos, A. (2008), "Does foreign aid distort incentives and hurt growth? Theory and evidence from 75 aid-recipient countries", Public Choice, Vol. 134, No 3-4, pp. 463-488.

Égert, B. (2018), "The quantification of structural reforms: Extending the framework to emerging market economies", No 6921, CESifo Working Paper.

Égert, B. and Gal, P.N. (2016), "The quantification of structural reforms in OECD countries: A new framework", *OECD Economics Department Working Paper*, No 1354.

Eggertsson, G., Ferrero, A. and Raffo, A. (2014), "Can structural reforms help Europe?", *Journal of Monetary Economics*, Vol. 61, pp. 2-22.

Elborgh-Woytek, K., Newiak, M., Kochhar, K., Fabrizio, S., Kpodar, K., Wingender, P., Clements, B. and Schwartz, G. (2013), "Women, work and the economy: Macroeconomic gains from gender equity", *IMF Staff Discussion Note*, No 13/10, September.

Eleftheriadis, P. (2014), "Misrule of the few: How the oligarchs ruined Greece", *Foreign affairs*, Vol 93, No 6, pp. 139-146.

Erceg, C. and Lindé, J. (2014), "Is there a fiscal free lunch in a liquidity trap?", *Journal of the European Economic Association*, Vol. 2, No 1, pp. 73-107.

European Central Bank (2015a), "What is behind the low investment in the euro area? Responses from a survey of large euro area firms", *Economic Bulletin*, Issue 8, Box 2.

European Central Bank (2015b), "Measurement of the costs and benefits of the German labour market reforms of the early 2000s", *Economic Bulletin*, Issue 7, Box 2.

European Central Bank (2015c), "The 2015 Ageing Report: how costly will ageing in Europe be?", *Economic Bulletin*, Issue 4.

European Central Bank (2015d), "Comparisons and contrasts of the impact of the crisis on euro area labour markets", *Occasional Paper Series*, No 159, Box 1 "The lump of labour fallacy: a re-assessment for the euro area".

European Central Bank (2016a), "Global production patterns from a European perspective: insights from a survey of large euro area firms", *Economic Bulletin*, Issue 6, Box 4.

European Central Bank (2016b), "Financial integration in Europe", April.

European Central Bank (2016c), "New evidence on wage adjustment in Europe during the period 2010-13", *Economic Bulletin*, Issue 5, Article 2, Box 1.

European Central Bank (2016d), "The employment-GDP relationship since the crisis", *Economic Bulletin*, Issue 6, Box 3, "Recent employment dynamics and structural reforms", pp. 53-71, Article 1.

European Central Bank (2016e), "Factors behind developments in average hours worked per person employed since 2008", *Economic Bulletin*, Issue 6, pp. 49-52.

European Central Bank (2016f), "Increasing resilience and long-term growth: the importance of sound institutions and economic structures for euro area countries and EMU", *Economic Bulletin*, Issue 5, Article 3.

European Central Bank (2016g), "European institutional reform − establishing a European Deposit Insurance Scheme", *Financial integration in Europe*, pp. 37-53.

European Central Bank (2017a), "Structural reform needs in the euro area: insights from a survey of large companies'', *Economic Bulletin*, Issue 6, Box 5.

European Central Bank (2017b), "Financial integration in Europe", pp. 27-28, *May*.

European Central Bank (2017c), "Assessing labour market slack", *Economic Bulletin*, Issue 3, Box 3.

European Central Bank (2017d), "Low inflation in the euro area: Causes and consequences", *Occasional Paper Series*, No 181.

European Central Bank (2017e), "Firm heterogeneity and competitiveness in the European Union", *Economic Bulletin*, Issue 2.

European Central Bank (2017g), "Opinion on a proposal for a directive of the European Parliament and of the Council on preventive restructuring frameworks, second chance and measures to increase the efficiency of restructuring, insolvency and discharge procedures and amending Directive 2012/30/EU" (CON/2017/22) (OJ C 236, 21.7.2017, p. 2).

European Central Bank (2017f), "Exposure of the European Deposit Insurance Scheme to bank failures and the benefits of risk-based contributions", *Macroprudential Bulletin*, Issue 3.

European Central Bank (2018), "Economic and monetary developments", *Economic Bulletin*, Issue 2.

European Commission (2013), "The growth impact of structural reforms"

European Commission (2014a), "Structural reforms at the zero lower bound", *Quarterly Report on the Euro Area*, Vol. 13, No 3, pp. 21-26.

European Commission (2014b), "Anti-corruption report 2014", Report from the Commission to the Council and the Parliament.

European Commission (2014c), "Market reforms at work in Italy, Spain, Portugal and Greece", *European Economy*, 5/2014, Directorate-General for Economic and Financial Affairs (DG ECFIN).

European Commission (2015a), *European semester thematic fiche: Labour market participation of women*.

European Commission (2015b), "Action Plan on Building a Capital Markets Union, Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions", COM(2015) 468 final, Brussels, 30.9.2015.

European Commission (2016a), *Country Report Germany 2016 – Including an In-Depth Review on the prevention and correction of macroeconomic imbalances*, SWD(2016) 75 final, Brussels.

European Commission (2016b), "Proposal for a Council Directive on a Common Corporate Tax Base", COM/2016/0685 final.

European Commission (2016c), "Proposal for a Directive of the European Parliament and of the Council on preventive restructuring frameworks, second chance and measures to increase the efficiency of restructuring, insolvency and discharge procedures and amending Directive 2012/30/EU, COM/2016/723 final".

European Commission (2018), "The 2018 Ageing Report: Underlying Assumptions and Projection Methodologies", *European Economy*, No 065.

European Parliament (2014), "The Cost of Non-Europe in the area of Organised Crime and Corruption", Annex II – Corruption, study by the RAND Institute.

European Parliament and the Council (2006), "Directive 2006/123/EC: On services in the internal market", OJ L 376, pp. 36, 12 December.

European Parliament and the Council (2014), "Directive 2014/59/EU: On establishing a framework for the recovery and resolution of credit institutions and investment firms and amending Council Directive 82/891/EEC, and Directives 2001/24/EC, 2002/47/EC, 2004/25/EC, 2005/56/EC, 2007/36/EC, 2011/35/EU, 2012/30/EU and 2013/36/EU, and Regulations (EU) No 1093/2010 and (EU) No 648/2012, of the European Parliament and of the Council (OJ L 173, 12.6.2014, p. 190), 15 May.

Fabbri, D. (2010), "Law enforcement and firm financing: Theory and evidence", *Journal of the European Economic Association*, Vol. 8, No 4, pp. 776-816.

Fahr, R. and Sunde, U. (2009), "Did the Hartz reforms speed up the matching process? A macro-evaluation using empirical matching functions", *German Economic Review*, Vol. 10, No 3, pp. 284-316.

Feld, L.P., Heckemeyer, J.H. and Overesch, M. (2013), "Capital structure choice and company taxation: A meta-study", *Journal of Banking & Finance*, Vol. 37, No 8, pp. 2850-2866.

Ferguson, S. and Formai, S. (2013), "Institution-driven comparative advantage and organizational choice", *Journal of International Economics*, Vol. 90, No 1, pp. 193-200.

Fernandez, R. and Rodrik, D. (1991), "Resistance to reform: Status quo bias in the presence of individual-specific uncertainty", *American Economic Review*, Vol. 81, No 5, pp. 1146-1155.

Fernández-Villaverde, J. (2014), "Discussion of 'Can structural reforms help Europe?' by Eggertsson, G., Ferrero, A. and Raffo, A.", *Journal of Monetary Economics*, Vol. 61, pp. 23-31.

Fernández-Villaverde, J., Garicano, L. and Santos, T. (2013), "Political credit cycles: the case of the Eurozone", Journal of Economic perspectives, Vol. 27, No 3, pp. 145-66.

Fernández-Villaverde, J., Guerrón-Quintana, P. and Rubio-Ramírez, J. F. (2014), "Supply-side policies and the zero lower bound", *IMF Economic Review*, Vol. 62, No 2, pp. 248-260.

Font, P., Izquierdo, M. and Puente, S. (2015), "Real wage responsiveness to unemployment in Spain: asymmetries along the business cycle", *IZA Journal of European Labor Studies*, Vol. 4, No 1.

Forte, A., Peiró-Palomino, J. and Tortosa-Ausina, E. (2015), "Does social capital matter for European regional growth?", *European Economic Review*, Vol. 77, pp. 47-64.

Foster, L., Haltiwanger, J. and Syverson, C. (2016), "The slow growth of new plants: Learning about demand?", *Economica*, Vol. 83, No 329, pp. 91-129.

Frankel, J. A. (2010), "The natural resource curse: a survey", No 15836, National Bureau of Economic Research

Funke, N., Isakova, A. and Ivanyna, M. (2017), "Identifying structural reform gaps in emerging Europe, the Caucasus, and Central Asia", *IMF Working Paper*, No 17/82.

Furman, J. (2017), "Should policymakers care whether inequality is helpful or harmful for growth?", Rethinking Macroeconomic Conference, Peterson Institute for International Economics, 11-12 October.

Furman, J. and Orszag, P. (2015), "A firm-level perspective on the role of rents in the rise in inequality", Presentation at "A Just Society" Centennial Event in Honor of Joseph Stiglitz Columbia University.

Gadatsch, N., Stähler, N. and Weigert, B. (2016), "German labor market and fiscal reforms 1999–2008: Can they be blamed for intra-euro area imbalances?", *Journal of Macroeconomics*, Vol. 50, Issue C, pp. 307-324.

Gagnon, E., Johannsen, B.K. and López-Salido, J.D. (2016), "Understanding the new normal: The role of demographics", *Finance and Economics Discussion Series*, 2016-080, Federal Reserve Board.

Galí, J. and Monacelli, T. (2016), "Understanding the gains from wage flexibility: The exchange rate connection", *American Economic Review*, Vol. 106, No 12, pp. 3829-3868.

Gamberoni, E., Giordano, C. and Lopez-Garcia, P. (2016a), "Capital and labour (mis)allocation in the euro area: some stylized facts and determinants", *Working Paper Series*, No 1981, ECB.

Gamberoni, E., Gartner, C., Giordano, C. and Lopez-Garcia, P. (2016b), "Is corruption efficiency-enhancing? A case study of nine Central and Eastern European countries", *Working Paper Series*, No 1950, ECB.

García-Pérez, J. I. (2016), "El efecto de la Reforma Laboral de 2012 sobre la dualidad y el empleo: Cambios en la contratación y el despido por tipo de contrato", Fedea Policy Papers-2016/06.

García-Posada, M. and Mora-Sanguinetti, J.S. (2014), "Entrepreneurship and enforcement institutions: Disaggregated evidence for Spain", *European Journal of Law and Economics*, Vol. 40, No 1, pp. 49-74.

García-Posada, M. and Mora-Sanguinetti, J.S. (2015), "Does (average) size matter? Court enforcement, business demography and firm growth", *Small Business Economics Journal*, Vol. 44, No 3, pp. 639-669.

García-Posada, M. and Vegas R. (2016), "Las reformas de la Ley Concursal durante la Gran Recesión", *Working Paper Series*, No 1610, Banco de España.

García-Santana, M., Moral-Benito, E., Pijoan-Mas, J. and Ramos, R. (2016), "Growing like Spain: 1995-2007", *CEPR Discussion Paper*, No 1144.

Garda, P. (2016), "The ins and outs of employment in 25 OECD countries", *OECD Economics Department Working Paper*, No 1350, OECD Publishing, Paris.

Garicano, L. and Heaton, P. (2010), "Information technology, organization, and productivity in the public sector: Evidence from police departments", *Journal of Labor Economics*, Vol. 28, No 1, pp. 167-201.

Gebauer, S., Setzer, R. and Westphal, A. (2017), "Corporate debt and investment: a firm level analysis for stressed euro area countries", Journal of International Money and Finance, forthcoming.

Gerali, A. Notarpietro, A. and Pisani, M. (2015), "Structural reforms and zero lower bound in a monetary union", *Working Papers Series*, No 1002, Banca d'Italia.

Gerschenkron, A. (1962), "Economic backwardness in historical perspective – A book of essays", Harvard University Press, Cambridge, MA.

Giacomelli, S. and Menon, C. (2016), "Does weak contract enforcement affect firm size? Evidence from the neighbour's court", *Journal of Economic Geography*, Vol. 17, No 6, pp. 1251-1282.

Giersch, H. (1985), "Eurosclerosis" *Kieler Diskussionsbeiträge*, No 112, Institut für Weltwirtschaft (IfW), Kiel.

Gomes, S. (2014), "Structural reforms in the euro area", *Economic Bulletin*, Banco de Portugal, pp. 99-109.

Gomes, S., Jacquinot, P., Mohr, M. and Pisani, M. (2013), "Structural reforms and macroeconomic performance in the euro area countries: a model-based assessment", *International Finance*, Vol. 16, No 1, pp. 23-44.

Goos, M., Manning, A. and Salomans, A. (2014), "Explaining job polarisation: routine-based technological change and offshoring", *American Economic Review*, Vol. 104, No 8, pp. 2509-26.

Gopinath, G., Kalemli-Özcan, Ş., Karabarbounis, L. and Villegas-Sanchez, C. (2017), "Capital allocation and productivity in South Europe", *Quarterly Journal of Economics*, Vol. 132, No 4, pp. 1915-1967.

Gourinchas, P.O. and Obstfeld, M. (2012), "Stories of the twentieth century for the twenty-first", *American Economic Journal: Macroeconomics*, Vol. 4, No 1, pp. 226-65.

Gratton, G., Guiso, L., Michelacci, C. and Morelli, M. (2017), "From Weber to Kafka: Political instability and the rise of an inefficient bureaucracy".

Grauwe, P. de., and Ji, Y. (2017), "Structural reforms and monetary policies in a behavioural macroeconomic model", *CEPR Discussion Paper*, No 12336.

Griffith, R., Redding, S. and Reenen, J. van (2004), "Mapping the two faces of R&D: Productivity growth in a panel of OECD industries", *Review of Economics and Statistics*, Vol. 86, No 4, pp. 883-895.

Gros, D. (2016), "Structural Reforms as a Panacea? The European Productivity and Growth Puzzle", Intereconomics, November/December, pp. 316-320.

Gutiérrez, G. and Philippon, T. (2017), "Declining competition and investment in the US", *NBER Working Paper*, No 23583.

Hall, B. and Mairesse, J. (2006), "Empirical studies of innovation in the knowledge driven economy: An introduction", Economics of Innovation and New Technology, Vol. 15, No 4-5, pp. 289-299.

Haltiwanger, J. (2012), "Job creation and firm dynamics in the United States", *Innovation Policy and the Economy*, Vol. 12, No 1, pp. 17-38.

Haltiwanger, J., Scarpetta, S. and Schweiger, H. (2014), "Cross country differences in job reallocation: The role of industry, firm size and regulations", *Labour Economics*, Vol. 26, pp. 11-25.

Hamilton, J. D., Harris, E. S., Hatzius, J. and West, K. D. (2016), "The equilibrium real funds rate: Past, present, and future", *IMF Economic Review*, Vol. 64, No 4, pp. 660-707.

Haan, J. de and Berger, H. (2010), "The European Central Bank at Ten", Springer Science & Business Media.

Haan, J. de, Lundström, S. and Sturm, J.E. (2006), "Market-oriented institutions and policies and economic growth: A critical survey", Journal of Economic Surveys, Vol. 20, No 2, pp. 157-191.

Hanousek, J. and Kochanova, A. (2015), "Bribery environment and firm performance: Evidence from Central and Eastern European countries", *CEPR Discussion Paper*, No 10499.

Heckman, J. J. and Masterov, D. V. (2007), "The productivity argument for investing in young children", *Applied Economic Perspectives and Policy*, Vol. 29, No 3, pp. 446-493.

Helliwell, J. F. et al. (2014), "Good governance and national well-being: What are the linkages?", *OECD Working Paper on Public Governance*, No 25, OECD Publishing.

Hertweck, M.S. and Sigrist, O. (2013), "The aggregate effects of the Hartz reforms in Germany", *SOEPpapers on Multidisciplinary Panel Data Research*, No 532.

Hijzen, A. and Menyhert, B. (2016), "Measuring labour market security and assessing its implications for individual well-being", *OECD Social, Employment and Migration Working Paper*, No 175, OECD Publishing, Paris.

Hoffmann, M. and Sørensen, B. E. (2015), "Small firms and domestic bank dependence in Europe's Great Recession", *ECFIN European Economy Discussion Paper*, No 12.

Høj, J., Galasso, V., Nicoletti, G. and Dang, T.T. (2006), "The political economy of structural reform: empirical evidence from OECD countries", *OECD Economics Department Working Paper*, No 501, OECD Publishing, Paris.

Holcombe, R.G. and Boudreaux, C.J. (2015), "Regulation and corruption", *Public Choice*, Vol. 164, No 1-2, pp. 75-85.

Holston, K., Laubach, T. and Williams, J.C. (2017), "Measuring the natural rate of interest: International trends and determinants", *Journal of International Economics*, Vol. 108, pp. S59-S75.

Hondroyiannis, G. and Papaoikonomou, D. (2017), "The effect of card payments on VAT revenue: New evidence from Greece", *Economics Letters*, No 157, pp. 17-20.

Hsieh, C.T. and Klenow, P.J. (2009), "Misallocation and manufacturing TFP in China and India", *Quarterly Journal of Economics*, Vol. 124, No 4, pp. 1403-1448.

Hsieh, C.T. and Moretti, E. (2015), "Housing constraints and spatial misallocation", *NBER Working Paper*, No 21154.

Ichino, A., Polo, M. and Rettore, E. (2003), "Are judges biased by labor market conditions?", *European Economic Review*, Vol. 47, Issue 5, pp. 913-944.

International Monetary Fund (2012a), "Japan: selected issues", *Country report*, No 12/209.

International Monetary Fund (2012b), "Fiscal transparency, accountability, and risk", IMF policy paper, August.

International Monetary Fund (2014a), "Perspectives on Global Real Interest Rates", *World Economic Outlook*, April, Chapter 3.

International Monetary Fund (2014b), "Germany: selected issues", *IMF Country Report*, No 21.

International Monetary Fund (2014c), "Moving from liquidity to growth-driven markets", *Global financial stability report*, Chapter 3, April, Washington.

International Monetary Fund (2015), "Current challenges in revenue mobilization: Improving tax compliance", Staff report, April.

International Monetary Fund (2016), "Time for a supply-side boost? Macroeconomic effects of labor and product market reforms in advanced economies", *World Economic Outlook*, April, Chapter 3.

Ioannou, C. and Papadimitriou, C. (2013), *Collective agreements in Greece during 2011 and 2012 – trends, innovations and prospects*, Organization for Mediation and Arbitration, Athens.

Iqbal, N. and Daly, V. (2014), "Rent seeking opportunities and economic growth in transitional economies", *Economic Modelling*, Vol. 37, pp. 16-22.

Islam, R. (2004), "The nexus of economic growth, employment and poverty reduction: An empirical analysis", *Issues in Employment and Poverty*, Discussion Paper No 14, Recovery and Reconstruction Department, International Labour Office.

Izquierdo, M. and Jimeno, J.F. (2015), "Employment, wage and price reactions to the crisis in Spain: Firm-level evidence from the WDN survey", *Occasional Paper Series*, No 1503, Banco de España.

Izquierdo, M., Jimeno, J.F. and Lacuesta, A. (2016), "Spain from massive immigration to vast emigration", *IZA Journal of Migration*, Vol. 5, No 1.

Izquierdo, M., Jimeno, J.F., Kosma, T., Lamo, A., Millard, S., Rõõm, T. and Viviano, E. (2017a), "Labour Market Adjustment during the Crisis: Microeconomic Evidence from the Wage Dynamics Network", Wage Dynamics Network, presented at the 12th joint ECB/CEPR Labour Market Workshop.

Izquierdo, M., Jimeno, J. F. and Rojas, J.A. (2007), "On the aggregate effects of immigration in Spain", *Working Paper Series*, No 0714, Banco de España.

Izquierdo, M., Kosma, D., Lamo, A., Martins, F. and Savsek, S. (2017b), "Firms' perceptions and the role of labour market reforms in the Southern countries of the euro area", forthcoming.

Jacquinot P., Vetlov, I., Savsek, S. and Tóth, M. (2018), "Structural reforms at the zero lower bound – insights from the EAGLE model", in De Haan, J. and Parlevliet, J. (eds.), *Structural Reforms – Moving the Economy Forward*, Springer-Verlag Berlin Heidelberg, Chapter 6.

Jappelli, T., Pagano, M. and Bianco, M. (2005), "Courts and banks: Effects of judicial enforcement on credit markets", *Journal of Money Credit and Banking*, Vol. 37, No 2, pp. 223-244.

Jimeno, J. F., Lacuesta, A., Martínez-Matute, M. and Villanueva, E. (2016), "Education, labour market experience and cognitive skills: evidence from PIAAC", *Working Paper Series*, No 1635, Banco de España.

Jimeno, J.F., Martínez-Matute, M. and Mora-Sanguinetti, J.S. (2015), "Employment protection legislation and labor courts' activity in Spain", *Working Paper Series*, No 1507, Banco de España.

Johnson, S., McMillan, J. and Woodroof, C. (2002), "Courts and relational contracts", *Journal of Law, Economics and Organisation*, Vol. 18, No 1, pp. 221-277.

Jolles, M. and Meyermans, E. (2018), "Economic resilience, the Single Market and EMU: a self-reinforcing interaction", Quarterly Report in the euro area, European Commission, Vol. 17, No 1, pp. 7-22.

Jones. C.I. and Klenow. P.J. (2016), "Beyond GDP? Welfare across countries and time", *American Economic Review*, Vol. 106, No 9, pp. 2426-2457.

Juncker, J.-C. et al. (2015), "Completing Europe's Economic and Monetary Union", June.

Kane, E.J. (2000), "Incentives for banking megamergers: What motives might regulators infer from event-study evidence?", *Journal of Money, Credit and Banking*, Vol. 32, No 3, pp. 671-701.

Kane, E.J. (2009), "Extracting nontransparent safety net subsidies by strategically expanding and contracting a financial institution's accounting balance sheet", *Journal of Financial Services Research*, Vol. 36, No 2-3, pp. 161-168.

Karam, P.D., Muir, D.V., Pereira, J. and Tuladhar, A. (2010), "Macroeconomic effects of public pension reforms", *IMF Working Paper*, No 10/297.

Kaufmann, D., Kraay, A. and Zoido-Lobatón, P. (1999), "Governance matters", *World Bank Policy Research Working Paper*, No 2196.

Kaufmann, D., Kraay, A. and Mastruzzi, M. (2010), "The worldwide governance indicators: methodology and analytical issues", *World Bank Policy Research Working Paper*, No 5430.

Kelly, B., Lustig, H. and Nieuwerburgh, S. van (2016), "Too-systemic-to-fail: What option markets imply about sector-wide government guarantees", *American Economic Review*, Vol. 106, No 6, pp. 1278-1319.

Kerr, S.P. and Kerr, W.R. (2011), "Economic impacts of immigration: A survey", *Technical Report*, No 16736, National Bureau of Economic Research.

Klinger, S. and Weber, E. (2016), "Decomposing Beveridge curve dynamics by correlated unobserved components", *Oxford Bulletin of Economics and Statistics*, Vol. 78, No 6, pp. 877-894.

Klinger, S. and Rothe, T. (2012), "The impact of labour market reforms and economic performance on the matching of the short-term and the long-term unemployed", *Scottish Journal of Political Economy*, Vol. 59, No 1, pp. 90-114.

Knack, S. and Keefer, P. (1997), "Does social capital have an economic payoff? A cross-country investigation", *Quarterly Journal of Economics*, Vol. 112, No 4, pp. 1251-1288.

Kollintzas, T., Papageorgiou, D. and Vassilatos, V. (2017), "Market and political power interactions in Greece: A theory", *European Journal of Political Economy*, forthcoming.

Kornai, J. (1979), "Resource-constrained versus demand-constrained systems", *Econometrica: Journal of the Econometric Society*, Vol. 47, No 4, pp. 801-819.

Kornai, J. (1998), "The place of the soft budget constraint syndrome in economic theory", *Journal of Comparative Economics*, Vol. 26, No 1, pp. 11-17.

Kosma, T., Papapetrou, E., Pavlou, G., Tsochatzi, C. and Zioutou, P. (2017), "Labour market adjustments and reforms in Greece during the crisis: Microeconomic evidence from the third wave of the Wage Dynamics Survey", *Working Paper Series*, No 227, Bank of Greece.

Krasnopjorovs, O. (forthcoming), "Which structural reforms could boost economic growth of the EU", *Working Paper Series*, Latvijas Banka.

Krause, M. and Uhlig, H. (2012), "Transitions in the German labor market: structure and crisis", *Journal of Monetary Economics*, Vol. 59, No 1, pp. 64-79.

Krebs, T. and Scheffel, M. (2013), "Macroeconomic evaluation of labor market reform in Germany", *IMF Economic Review*, Vol. 61, No 4, pp. 664-701.

Krueger, A.O. (1974), "The political economy of the rent-seeking society", *American Economic Review*, Vol. 64, No 3, pp. 291-303.

Kumar, B., Rajan, R. and Zingales, L. (2001), "What Determines Firm Size", *NBER Working Paper*, No 7208.

Laband, D.N. and Sophocleus, J.P. (1988), "The social cost of rent-seeking: First estimates", *Public Choice*, Vol. 58, No 3, pp. 269-275.

Laeven, L. and Woodruff, C. (2007), "The quality of the legal system, firm ownership and firm size", *Review of Economics and Statistics*, Vol. 89, No 4, pp. 601-614.

LaLonde, R.J. and Topel, R.H. (1997), "Economic impact of international migration and the economic performance of migrants", *Handbook of population and family economics*, Vol. 1, pp. 799-850.

Larrain, B. (2006), "Do Banks Affect the Level and Composition of Industrial Volatility?", *Journal of Finance*, Vol. 61, No 4, pp. 1897-1925.

Launov, A. and Waelde, K. (2013), "Estimating incentive and welfare effects of non-stationary unemployment benefits", *International Economic Review*, Vol. 54, No 4, pp. 1159-1198.

Lecumberry, J. and Stephan, G. (2015), "The German unemployment since the Hartz reforms: permanent or transitory fall?", *Economics Letters*, Vol. 136, pp. 49-54.

Lehmann, E., Lucifora, C., Moriconi, S. and Linden, B. van der (2016), "Beyond the labour income tax wedge: the unemployment-reducing effect of tax progressivity", *International Tax and Public Finance*, Vol. 23, No 3, pp. 454-489.

Leiner-Killinger, N., Lopez, V., Stiegert, R. and Vitale, G. (2007), "Structural reforms in EMU and the role of monetary policy – a survey of the literature", *Occasional Paper Series*, No 66, ECB.

Levchenko, A., Rancière, R. and Thoenig, M. (2009), "Growth and risk at the industry level: The real effects of financial liberalization", *Journal of Development Economics*, Vol. 89, No 2, pp. 210-222.

Levine, R. and Zervos, S. (1998), "Stock markets, banks, and economic growth", *American Economic Review*, Vol. 88, No 3, pp. 537-558.

Levine, R., Lin, C. and Xie, W. (2016), "Spare tire? Stock markets, banking crises, and economic recoveries", *Journal of Financial Economics*, Vol. 120, No 1, pp. 81-101.

Loecker, J. de and Eeckhout, J. (2017), "The rise of market power and the macroeconomic implications", *NBER Working Paper*, No 23687.

Lucas, R. (1988), "On the mechanics of economic development", *Journal of Monetary Economics*, Vol. 22, No 1, pp. 3-42.

Lustig, R. (2017), *The hacking of the American mind: The science behind the corporate takeover of our bodies and brains*, Penguin Random House.

Maria, J.R. (2016), "Output and unemployment, Portugal, 2008-2012", *Banco de Portugal Economic Studies*, pp. 21-33.

Marotzke, P., Anderton, R., Bairrao, A., Berson, C. and Tóth, P. (2016), "Wage adjustment and employment in Europe", *University of Nottingham Centre for Globalisation and Economic Policy Research Paper Series*, No 19, University of Nottingham, November. Also published in *Working Paper Series*, No 2013, ECB, 2017.

Masuch, K., Moshammer, E. and Pierluigi, B. (2016), "Institutions, public debt and growth", *Working Paper Series*, No 1963, ECB, Frankfurt am Main.

Mauro, P. (1995), "Corruption and Growth", *Quarterly Journal of Economics*, Vol. 110, No 3, pp. 681-712.

Mian, A. and Sufi, A. (2014), *House of debt: How they (and you) caused the Great Recession, and how we can prevent it from happening again*, University of Chicago Press.

Mierau, J., Jong-A-Pin, R.M. and Haan, J. de (2007), "Do political variables affect fiscal policy adjustment decisions? New empirical evidence", *Public Choice*, Vol. 133, No 3-4, pp. 297-319.

Miller, M. (1998), "Financial markets and economic growth", *Journal of Applied Corporate Finance*, Vol. 11, No 3, 8-14.

Mocetti, S. (2016), "Dynasties in professions and the role of rents and regulation: evidence from Italian pharmacies", *Journal of Public Economics*, Vol. 133, pp. 1-10.

Mocetti, S., Roma, G. and Rubolino, E. (2018), "Knocking on parents' door: regulation and intergenerational mobility", Bank of Italy, working paper, forthcoming.

Molyneux, P., Schaeck, K. and Zhou, T.M. (2014), "'Too systemically important to fail in banking' – evidence from bank mergers and acquisitions", *Journal of International Money and Finance*, Vol. 49, Part B, pp. 258-282.

Monteagudo, J., Rutkowski, A., and Lorenzani, D. (2012), "The economic impact of the Services Directive: A first assessment following implementation", No 456, Directorate General Economic and Financial Affairs (DG ECFIN), European Commission.

Moortel, D.de, Vandenheede, H. and Vanroelen, C. (2014), "Contemporary employment arrangements and mental well-being in men and women across Europe: a cross-sectional study", *International Journal for Equity in Health*.

Moral-Benito, E. (2016), "Growth empirics in panel data under model uncertainty and weak exogeneity", *Journal of Applied Econometrics*, Vol. 31, No 3, pp. 584-602.

Mora-Sanguinetti, J.S. (2012), "Is judicial inefficacy increasing the weight of the house property market in Spain? Evidence at the local level", *SERIEs – Journal of the Spanish Economic Association*, Vol. 3, No 3, pp. 339-365.

Mora-Sanguinetti, J.S. (2017), "Assessing the impact of the institutional framework on the efficiency of the Spanish economy", *Research Update*, Banco de España, Spring 2017, pp. 7-11.

Mora-Sanguinetti, J.S., Martínez-Matute, M. and García-Posada, M. (2017), "Credit, crisis and contract enforcement: evidence from the Spanish loan market", *European Journal of Law and Economics*, Vol. 44, No 2, pp. 361-383.

Mork, K. A. (1993), "Living with lobbying: A growth policy co-opted by lobbyists can be better than no growth policy at all", *The Scandinavian Journal of Economics*, Vol. 95, No 4, pp. 597-605.

Mueller, D. (2003), *Public Choice III*, Cambridge University Press, New York.

Mundell, R. (1961), "A theory of Optimum Currency Areas", *American Economic Review*, Vol. 51, No 4, pp. 657-665.

Mungiu-Pippidi, A. (2015), "The quest for good governance: how societies develop control of corruption", Cambridge University Press.

Murphy, K.M., Shleifer, A. and Vishny, R.W. (1991), "The Allocation of Talent: Implications for Growth", *Quarterly Journal of Economics*, Vol. 106, No 2, pp. 503-530.

Murphy, K.M., Shleifer, A. and Vishny, R.W. (1993), "Why is Rent-Seeking so Costly to Growth?", *American Economic Review: Papers and Proceedings*, Vol. 83, No 2, pp. 409-414.

Nicoletti, G. and Scarpetta, S. (2003), "Regulation, productivity and growth", Economic Policy, Vol. 18, No 36, pp. 9-72.

North, D.C. (1990), "Institutions, institutional change and economic performance", Cambridge University Press, Cambridge.

Nunn, N. (2007), "Relationship-specificity, incomplete contracts and the pattern of trade", *Quarterly Journal of Economics*, Vol. 122, No 2, pp. 569-600.

OECD (2010), *Making reforms happen, Lessons from OECD countries*, OECD Publishing, Paris.

OECD (2012a), *Closing the Gender Gap: Act Now*, OECD Publishing, Paris.

OECD (2012b), *Economic Policy Reforms 2012: Going for Growth*, OECD Publishing, Paris.

OECD (2014a), *"Economic challenges and policy recommendations for the Euro Area"*, *Better Policies Series*, February.

OECD (2014b), *"Germany keeping the edge: Competitiveness for inclusive growth"*, *Better Policies Series*, February.

OECD (2015a), *"Going for Growth: Pro-growth structural reforms, the environment and environmental policies"*, OECD Publishing, Paris.

OECD (2015b), *The future of productivity*, OECD Publishing, Paris.

OECD (2016), *The Productivity-Inclusiveness Nexus*, OECD Publishing, Paris.

OECD (2017a), "OECD Employment Outlook 2017", OECD Publishing, Paris, Box 2.3.

OECD (2017b), "Report on the Implementation of the OECD Gender Recommendations – Some Progress on Gender Equality but Much Left to Do", Meeting of the OECD Council at Ministerial Level, Paris, 7-8 June.

OECD (2017c), *Economic Policy Reforms 2017: Going for Growth*, OECD Publishing, Paris.

OECD (2017d), "Resilience in a Time of High debt", *OECD Economic Outlook*, Chapter 2.

Olley, S. and Pakes, A. (1996), "The dynamics of productivity in the telecommunications equipment industry", *Econometrica*, Vol. 64, No 6, pp. 1263-1297.

Olson, M. (1965), *The logic of collective action: Public goods and the theory of groups*, Harvard University Press, Cambridge, Massachusetts.

Olson, M. (1982), *The rise and decline of nations: Economic growth, stagflation, and social rigidities*, Yale University Press, New Haven.

Pagano, P. and Schivardi, F. (2001), "Firm size distribution and growth", *Temi di discussione (Working Papers)*, No 394, Banca d'Italia, Economic Research and International Relations Area.

Palumbo, G., Giupponi, G., Nunziata, L. and Mora-Sanguinetti, J.S. (2013), "The economics of civil justice: New cross-country data and empirics", *OECD Economics Department Working Paper*, No 1060, OECD Publishing, Paris.

Papadia, F. and Zylberberg, Y. (2017), "Austerity and tax compliance", *European Economic Review*, Vol. 100, pp. 506-524

Pappa, E., Sajedi, R. and Vella, E. (2015), "Fiscal consolidation with tax evasion and corruption", *Journal of International Economics*, Vol. 96, pp. S56-S75.

Papageorgiou, D. and Vourvachaki, E. (2017), "Macroeconomic effects of structural reforms and fiscal consolidations: Trade-offs and complementarities", *European Journal of Political Economy*, Vol. 48, pp. 54-73.

Parlevliet, J. (2015), "What drives public acceptance of reforms? Longitudinal evidence from the run-up of the increase of the Dutch retirement age", *Working Paper Series*, No 492, De Nederlandsche Bank.

Peek, J. and Rosengren, E. (2005), "Unnatural selection: Perverse incentives and the misallocation of credit in Japan", *American Economic Review*, Vol. 95, No 4, pp. 1144-1166.

Pelkmans, J., Montoya, L.A. and Maravalle A. (2008), "How product market reforms lubricate shock adjustment in the euro area", *European Economy, Economic Papers*, No 341, Directorate-General for Economic and Financial Affairs (DG ECFIN), European Commission.

Pitlik, H. and Wirth, S. (2003), "Do crises promote the extent of economic liberalization?: an empirical test", *European Journal of Political Economy*, Vol. 19, No 3, Elsevier, pp. 565-581.

Ploeg, F. van der (2011), "Fiscal policy and Dutch disease", *International Economics and Economic Policy*, Vol. 8, No 2, Springer, pp. 121-138.

Popov, A. (2014a), "Credit constraints, equity market liberalization, and growth rate asymmetry", *Journal of Development Economics*, Vol. 107, Issue C, pp. 202–214.

Popov, A. (2014b), "Credit constraints and investment in human capital: Training evidence from transition economies", *Journal of Financial Intermediation*, Vol. 23, No 1, pp. 76-100.

Psacharopoulos, G. (1994), "Returns to investment in education: A global update", *World Development*, Vol. 22, No 9, pp. 1325-1343.

Psacharopoulos, G. and Patrinos, H.A. (2004), "Returns to investment in education: a further update", *Education Economics*, Vol. 12, No 2, Taylor & Francis Journals, pp. 111-134.

Praet, P. (2015), "Structural reforms and long-run growth in the euro area", Intervention on panel "Long-run growth, monetary policy and financing of the economy" at the 43rd Economics Conference of the Central Bank of Austria, Vienna, 15 June.

Praet, P. (2018), "Improving the functioning of Economic and Monetary Union: lessons and challenges for economic policies", Speech at the NABE Symposium, 16 April.

Qian, J. and Strahan, P. (2007), "How Law and Institutions Shape Financial Contracts: The Case of Bank Loans", *Journal of Finance*, Vol. 62, No 6, pp. 2803-2834.

Rajan, R.G. and Zingales, L. (1998), "Financial dependence and growth", *American Economic Review*, Vol. 88, No 3, pp. 559-586.

Rama, M. (1993), "Rent seeking and economic growth: A theoretical model and some empirical evidence", *Journal of Development Economics*, Vol. 42, No 1, pp. 35-50.

Reis, R. (2013), "The Portuguese slump and crash and the euro crisis", National Bureau of Economic Research, No 19288.

Ridder, M. de and Pfajfar, D. (2016), "Policy Shocks and Wage Rigidities: Empirical Evidence from Regional Effects of National Shocks", *Cambridge Working Papers in Economics*, No 1717, Faculty of Economics, University of Cambridge, No 1717.

Roaf, J., Atoyan, R., Joshi, B., Krogulski, B. and an IMF Staff Team (2014), "25 Years of transition. Post-communist Europe and the IMF", *Regional Economic Issues – Special Report*, IMF.

Robinson, J. (1952), *The rate of interest and other essays*, MacMillan, London.

Rockey, J. and Temple, J. (2016), "Growth econometrics for agnostics and true believers", Vol. 81, pp. 86-102.

Rodríguez-Pose, A., Di Cataldo, M. and Rainoldi, A. (2014), "The role of government institutions for smart specialisation and regional development", S3 Policy Brief Series 04, European Commission, 2014.

Rodríguez-Pose, A. and Garcilazo, E. (2015). "Quality of government and the returns of investment: Examining the impact of cohesion expenditure in European regions", *Regional Studies*, Vol. 49, No 8, pp. 1274–1290.

Rodrik, D., Subramanian, A. and Trebbi, F. (2004), "Institutions rule: The primacy of institutions over geography and integration in economic development", *Journal of Economic Growth*, Vol. 9, No 2, pp. 131–165.

Röhe O. and Stähler N. (2018), "Coordinated Structural Reforms: Insights from Fiscal and Labour Market Reforms in Germany", in Haan, J. de and Parlevliet, J. (eds.), *Structural Reforms – Moving the Economy Forward*, Springer, forthcoming, Chapter 10.

Roeger, W. (1995), "Can imperfect competition explain the difference between primal and dual productivity measures? Estimates for US manufacturing", *Journal of Political Economy*, Vol. 103, No 2, pp. 316-330.

Saint-Paul, G. (2000), *The political economy of labour market institutions*, Oxford University Press.

Schiantarelli, F., Stacchini, M. and Strahan, P. (2016), "Bank quality, judicial efficiency and borrower runs: Loan repayment delays in Italy", *NBER Working Paper*, No 22034.

Schivardi, F. and Viviano, E. (2011), "Entry barriers in retail trade", *The Economic Journal*, Vol. 121, No 551, pp. 145-170.

Schivardi, F., Sette, E. and Tabellini, G. (2018), "Credit misallocation during the financial crisis", revised version of *BIS Working Paper*, No 669.

Schnabel, I. and Véron, N. (2018), "Completing Europe's Banking Union Means Breaking the Bank-Sovereign Vicious Circle", Peterson Institute for International Economics, Real Time Economic Issues Watch, May.

Schularick, M. and Taylor, A. M. (2012), "Credit booms gone bust: Monetary policy, leverage cycles, and financial crises, 1870-2008", *American Economic Review*, Vol. 102, No 2, pp. 1029-1061.

Schumpeter, D. J. (1912), *Theorie der wirtschaftlichen Entwicklung*, Berlin: Duncker & Humblot.

Scott, J.A. and Smith. T.C. (1986), "The effect of the bankruptcy reform act of 1978 on small business loan pricing", *Journal of Financial Economics*, Vol. 16, No 1, pp. 119-140.

Sestito, P. and Viviano, E. (2016), "Hiring incentives and/or firing cost reduction? Evaluating the impact of the 2015 policies on the Italian labour market", *Occasional Paper Series*, No 325, Banca d'Italia.

Shvets, J. (2013), "Judicial institutions and firms' external finance: Evidence from Russia", *Journal of Law, Economics, and Organization*, Vol. 29, No 4, pp. 735-764.

Soares, A. C (2018), "Price-cost margin and bargaining power in the European Union", *Working Paper Series*, ECB, forthcoming.

Sondermann, D. (2016), "Towards More Resilient Economies: The role of well-functioning economic structures", *Working Paper Series*, No 1984, ECB.

Spengel, C., Heckemeyer, J.H., Bräutigam, R., Nicolay, K., Klar, O. and Stutzenberger, K. (2016), "The effects of tax reforms to address the debt-equity bias on the cost of capital and on effective tax rates", *Taxation Paper*, No 65, European Commission.

Stanga, I., Vlahu, R. and Haan, J. de (2018), "Mortgage delinquency rates: A cross-country perspective", voxeu.org, 15 March.

Stephan, G. and Lecumberry, J. (2015), "The German unemployment since the Hartz reforms: Permanent or transitory fall?", *Economics Letters*, Vol. 136, pp. 49-54.

Stiglitz, J. (2010), "Financial innovation: Against the motion that financial innovation boosts economic growth", *The Economist*, 23 February-3 March.

Storz, M., Koetter, M., Setzer, R. and Westphal, A. (2017), "Do we want these two to tango? On zombie firms and stressed banks in Europe", *Working Paper Series*, No 2104, ECB.

Svensson, J. (2000), "Foreign aid and rent-seeking. Journal of international economics", Vol. 51, No 2, pp. 437-461.

Taymaz, E. (2005), "Are small firms really less productive?", *Small Business Economics*, Vol. 25, No 5, pp. 429-445.

Thomas, C. and Zanetti, F. (2009), "Labor market reform and price stability: An application to the Euro Area", *Journal of Monetary Economics*, Vol. 56, No 6, pp. 885-899.

Thompson, W. and Price, R. (2009), "The Political Economy of Reform: Lessons from Pensions, Product Markets and Labour Markets in Ten OECD Countries", OECD Publishing, Paris.

Tommasi, M. and Velasco, A. (1996), "Where are we in the political economy of reform?", *Journal of Economic Policy Reform*, Vol. 1, No 2, pp. 187-238.

Tørsløv, T., Wier, L. and Zucman, G. (2017), *€600 billion and counting: Why high tax countries let tax havens flourish*.

Turner, B. and Malpezzi, S. (2003), "A review of empirical evidence on the costs and benefits of rent control", *Swedish Economic Policy Review*, No 10.

Varga, J. and Veld, J. in't (2014), "The potential growth impact of structural reforms in the EU: A benchmarking exercise", *European Economy – Economic Papers*, No 541.

Visser, J. (2013), "Wage bargaining institutions: from crisis to crisis", *European Economy – Economic Papers*, No 488 Directorate-General for Economic and Financial Affairs (DG ECFIN), European Commission.

Viviano, E. (2008), "Entry regulations and labour market outcomes: Evidence from the Italian retail trade sector", *Labour Economics*, Vol. 15, No 6, pp. 1200-1222.

Viviano, E. (2015), "The growth of the service sector and demand for services", *Occasional Paper Series*, No 290, Banca d'Italia.

Vogel, L. (2014), "Nontradable sector reform and external rebalancing in monetary union: A model-based analysis", *Economic Modelling*, Vol. 41, pp. 421-434.

Vogel, L. (2017), "Structural reforms at the zero bound", *European Economy – Economic Papers*, No 537.

Vogel, E., Ludwig, A. and Börsch-Supan, A. (2012), "Aging and pension reform: Extending the retirement age and human capital formation", *Working Paper Series*, No 1476, ECB.

Williamson, J. and Haggard, S. (1994), "The political conditions for economic reform", in Williamson, J. (ed.), *The Political Economy of Policy Reform*, Institute for International Economics, Washington, DC.

Woodford, M. (2003), *Interest and prices*, Chapter 4.

Wyplosz, C. (2004), "Large and Unknown Implicit Liabilities: Policy Implications for the Eurozone", presentation at the Workshop on "Fiscal Surveillance in EMU: New Issues and Challenges", Directorate-General for Economic and Financial Affairs, European Commission, Brussels, 12 November 2004.

Zangari, E. (2014), "Addressing the debt bias: A comparison between the Belgian and the Italian ACE systems", *Taxation Paper*, No 44, European Commission.

Zidar, O.M. (2015), "Tax cuts for whom? Heterogeneous effects of income tax changes on growth and employment", *NBER Working Paper*, No 21035.

Zingales, L. (2012), *Capitalism for the people: Recapturing the lost genius of American prosperity*, Basic Books, New York.

Zingales, L. (2015), "Presidential Address: Does Finance Benefit Society?", *Journal of Finance*, Vol. 70, No 4, pp. 1327-1363.

Zingales, L. (2017), "Towards a political theory of the firm", *Journal of Economic Perspectives*, Vol. 31, No 3, pp. 113-130.

Zupan, M.A. (2015), "Rent-seeking on the supply side of politics", *CESifo DICE Report*, Vol. 13, No 3, pp. 6-14.

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