Close Encounters of the European Kind: Economic Integration, Sectoral Heterogeneity and Structural Reforms

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Abstract (100 words): This paper addresses two main questions: (a) Has European integration hindered the implementation of labour, financial and product market structural reforms? (b) Do the effects of these reforms vary more across sectors than across countries? Using more granular reform measures, longer time windows and a larger sample of countries than previous studies, we confirm that the euro triggered product but neither labour nor financial market reforms. Differently from previous studies, we find that: (a) the Single Market has similar effects to the euro, and (b) sectoral heterogeneity appears less important in explaining the economic impacts of reforms than country heterogeneity.

Keywords: European integration, structural reforms, Single Market, Euro, sectoral heterogeneity

JEL codes: F4, N1, N4, O4A

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1. Introduction

It has become almost uncontroversial that integration and globalisation have produced winners and losers, with an increasing share of the gains going to highly skilled individuals or those who own capital. However, the potential role of sectoral differences is not yet fully understood. For instance, integration may have disproportionately benefited the financial sector and, at the same time, disproportionately hurt manufacturing (Cecchetti and Kharroubi, 2015).

This paper tests the idea that the difficulties in identifying the effects of European integration comes from different sectors reacting in heterogeneous ways. More specifically, the paper addresses two questions. First, has European integration helped or hindered the implementation of labour, financial and product market structural reforms? Second, do the effects of these structural reforms vary across sectors more than they vary across countries? To the best of our knowledge, this is the first paper to study the idea that sector- rather than country-heterogeneity (in reform responses) is a key reason for the difficulties the existing literature faces in establishing robust results for the economic effects of European integration. This paper compares the importance of sector and country heterogeneity after two major events in European integration, namely the introduction of the Single Market and of the euro.

There have been numerous efforts to evaluate the effects of European integration, in general, and that of EU membership, the Single Market, and the common currency, more specifically.[1] The debate about the effects of the latter, in particular, remains highly inconclusive. We see two main reasons for this. One is potential endogeneity due to the Maastricht criteria and self-selection bias. Second, although it is clear that these effects can vary across countries (e.g., core and periphery) and over time, much less attention has been paid to the fact that the effects may also vary across sectors.

How does integration affect productivity growth? The literature points to direct effects

[1] See, among others, Henrekson et al. (1997), Lane (2006), Kutan and Yigit (2007), Beetsma and Giuliodori (2010), Sapir (2011), Mion and Ponattu (2019), Campos et al. (2019), and Furceri et al. (2019).

through increased competition and to indirect effects through structural reforms. Increased flexibility in product markets, financial regulations and employment protection legislation is expected to eliminate distortions, improve allocation, and increase competition, driving up GDP growth and raising productivity. Yet in the academic literature, the role of structural reforms in terms of the pay-offs from European integration is still relatively understudied, while the issue of structural reforms remains ubiquitous in European policy debates.[2]

This paper contributes to the literature on integration and structural reforms at least in three ways. Firstly, as already mentioned, ours is one of the first papers to pay attention to the possibility of sectoral heterogeneity and compare and contrast it with the relatively more common explanation of country heterogeneity.

Secondly, the analysis spans more years and more countries than previous studies.[3] It thus captures the staggered enlargement of the Single Market and of the euro area with different countries joining at different points in time. The considerably larger time window we use in this paper encompasses recent economic events such as the global financial crisis and the European sovereign debt crisis. Even more importantly, however, it also allows us to estimate and compare short- and long-term effects, something that although of crucial importance, is still rarely done in this literature.

A third important contribution is that this paper not only uses new and much more granular measures for labour and product market reforms, but also for financial reforms (which is an innovation vis-à-vis the vast majority of papers in this literature). Moreover, almost without exception previous studies examine either the effects of only one dimension of European integration (EU membership, European Single Market or the euro), focus on broad product market or labour market reforms or are restricted to individual measures of reform. One

[2] For instance, the monetary policy communication of the European Central Bank has repeatedly highlighted the need for structural reforms (Rieth and Wittich, 2020).

[3] The seminal paper in this literature is Alesina et al. (2010) but there are numerous important contributions, among others, Duval and Elmeskov (2005), Aghion et al. (2009a), Bassanini and Duval (2009), Eggertsson et al. (2014), Galasso (2014), Schönfelder (2018), and Dias da Silva et al. (2018).

expects that because these reforms encompass such different dimensions that there could be differences in their effects. Our paper examines these differences within reforms. For instance, in the case of labour market reforms, we are uniquely able to separate out the changes in labour laws that refer to workers under permanent contracts or 'insiders' from those referring to temporary workers or 'outsiders' (Lindbeck and Snower, 2001). A few papers have examined some of these dimensions individually but, to the best of our knowledge, this is the first paper to provide a comprehensive analysis of different reform measures and their components for the same panel.

We formulate and test three main hypotheses, namely: integration promotes structural reforms, the Single Market and euro have different effects on reforms, and the economic effects of integration and reform differ across sectors and countries.

There are three main findings. Firstly, in line with previous studies we show that the Single Market and the euro foster reforms in product but do not in labour or financial markets.

Secondly, in contrast to previous studies (including the seminal paper in this literature, Alesina et al., 2010), we find that the Single Market is just as important as the euro in triggering reforms. This is confirmed when we use our more granular reform measures. Moreover, our results suggest that most estimates in the existing literature are better understood as short-run effects of European integration. We estimate that the long-run productivity effects are almost ten times larger than the short-run effects. We find that the effects of financial reforms on productivity growth are much stronger than both labour and product market reforms.

Thirdly, we find that the well-known difficulties in establishing robust effects of reforms appear to be driven more by country than by sector heterogeneity.

The rest of the paper is structured as follows. Section 2 presents the conceptual framework underpinning our three main hypotheses. Section 3 describes the data and explains the methodology. Section 4 presents and discusses the empirical results. Section 5 concludes.

2. Conceptual framework: Structural reforms and integration

This section presents the framework underpinning our three main hypotheses. Firstly, we discuss whether European integration triggered structural reforms in general (hypothesis 1) and whether the Single market and the euro had different effects on reforms more specifically (hypothesis 2). Secondly, we examine whether the economic effects of these reforms differed substantially across sectors, in addition to across countries (hypothesis 3).

2.1 Does European integration (Single Market and euro) promote structural reforms?

Our first hypothesis is that economic integration promotes structural product, labour and financial market reforms. Our second, yet closely related, hypothesis is that the Single Market (ESM) and the euro have different effects on reforms.[4]

The literature on the effects of economic integration on structural reforms shares many common features. It captures integration either by euro membership only (Bednarek-Sekunda et al., 2010; Schönfelder, 2018), by the Single Market membership only (Hoj et al., 2006; Flam, 2015), or by accounting separately for *both* euro membership and Single Market (IMF, 2004; Alesina et al., 2010; Galasso, 2014).[5] It broadly finds positive economic effects on product market reforms and mixed effects on labour market reforms while, as mentioned above, those on financial market reforms are seldom examined.[6]

The evidence on the impact of the Single Market to product market reforms is strong. The Single Market was implemented through sustained deregulation of product markets across Europe in the end of the 1980s and early 1990s through directives and regulations of the newly

[4] Campos et al. (2018) provide an extensive recent review of the structural reforms literature.
[5] Hoj et al. (2006) estimate a positive effect of the ESM (they do not consider the euro) on product market reforms but no impact on labour market reforms. The IMF (2004) finds that belonging to the EU leads to deregulation in the product market but is not systematically related to labour market reforms (this study does not distinguish ESM from euro membership).
[6] This distinction between the Single Market and the euro has also emerged in related contexts. For instance, Berger and Nitsch (2008) report that the Single Market is a more consequential driver of trade liberalisation than the introduction of the euro.

founded European Union (Baldwin and Seghezza, 1996, Grin 2003, Young 2015). That is, the European Single Market was implemented through the gradual deregulation and harmonisation of product markets. At the heart of this process was the gradual establishment of a sophisticated regulatory capacity led by the (increasingly) powerful European competition policy authority.[7] Gutiérrez and Philippon (2018) argue that EU markets have become more competitive than US markets because of what they call 'institutional drift,' namely the pooling of competition policy competencies.[8] Hence, one should expect a very tight link between the Single Market and product market reforms. On the other hand, seminal studies found that the euro has promoted product market reforms more than the ESM did (Alesina et al 2010).

The effects of the Single Market on labour market reforms are less clear. Labour market regulation remains a national competence as the free movement of people solely assures equal treatment for all citizens of Single Market countries. Dias da Silva et al. (2018) find non-significant effects of the Single Market on a range of structural reforms including employment protection legislation. However, they do not distinguish the effect of the ESM from the euro.

In principle, the link between European integration and domestic financial market could be as tight as for product market reform. Although free capital mobility within the EU has been a reality since the late 1980s, financial market segmentation has persisted, due to exchange rate risk until the EMU in 1999 and even after that date due to different regulations and institutions across the member states (Guiso et al., 2004). The Commission's Financial Services Action Plan launched in 1999 and completed in the mid-2000s increased harmonization of the EU securities regulation (Enriques and Gatti, 2008). To the best of our knowledge, quantitative empirical evidence of European integration on financial market reforms remains lacking. As

[7] "Effective control of state aid began only in the late 1980s, control of mergers in the early 1990s, and liberalization of [public] utilities in the late 1990s" (Wilks, 2015: 146).

[8] They rationalise these institutional changes with a simple political economy model arguing that supra-national is more effective than national competition policy because domestic producers know they interact less with foreign producers than among themselves so opportunities to retaliation are rarer. Indeed, the punishment for infringements is much more severe at the supra-national than at the national level.

the question of how the ongoing process of economic and monetary integration in Europe has influenced financial liberalization (and not *de facto* financial integration or financial development for which a large literature exists) is clearly relevant, one explanation for this gap in the literature could be publication bias due to the absence of statistically significant results. For instance, Bekaert et al. (2013) show that the Single Market is a more consequential driver of financial liberalisation than the introduction of the euro.

The literature on the effects of the Single Market on economic growth and productivity is inconclusive. This is due to well-established methodological difficulties (Eichengreen, 2007; Crafts, 2016). Campos et al. (2019) argue that country heterogeneity is the foremost problem. Using synthetic counterfactual analysis, they show that income per capita is on average 10% higher in the first ten years after joining the EU. However, they conclude that there is considerable heterogeneity across EU countries with Greece being the only country with lower income and productivity after EU membership. Yet that paper looks at EU rather than Single Market membership as we do here.

The seminal paper in the literature on the euro and structural reforms is Alesina et al. (2010). They analyse whether the adoption of the common currency trigger the liberalisation of labour and product markets but do not analyse financial market reforms. They discuss two reasons why euro membership could create incentives for the adoption of structural reforms as originally suggested, among others, by Bentolila and Saint-Paul (2000) and Obstfeld (1997). First, the adoption of a common currency increases price transparency and, by decreasing uncertainty related to exchange rate risks, reduces transaction costs. The common currency should increase trade, competition, and specialisation. Second, the loss of an autonomous monetary policy and thus the possibility of strategic devaluations ends one of a country's adjustment channels to (temporarily) regain international competitiveness, for example if real wage growth is out of line with productivity. To compensate for the loss of this adjustment channel, the demand for structural reforms might increase to lower relative prices or to increase

relative productivity. To contain costs, demands for deregulation in product markets might increase, especially for inputs such as energy, transportation and non-tradable services. To increase productivity, labour market reforms need to make real wages more flexible and increase labour mobility and flexibility (Bethold and Fehn, 1998).

Alesina et al (2010) also identify two counter-arguments that can explain a lack of impact of the euro on structural reforms. One is that the up-front cost of structural reforms under the euro increases when less expansionary aggregate demand counteracts the effects of structural reforms on the supply side (Bentolila and Saint-Paul, 2000). A second reason concerns the lack of labour market reforms or even an increase in labour market regulations. Obstfeld (1997) suggest that labour market reforms are enacted trying to counter-balance or compensate for changes in product market, for instance when unions are powerful.[9]

One well-known limitation of Alesina et al. (2010) is that it only assesses the short-term impacts of euro membership. This is because their data ends in 2003 which is only four years after the introduction of the euro. They find evidence that the (short-term) euro effect on product market reforms is larger than that of the European Single Market effect. Neither the euro nor the Single Market are significant drivers of labour market reforms. Their explanations for these differential effects hinge upon sectoral differences.

Like Alesina et al. (2010), Galasso (2014) finds that the effects of the euro are larger than the Single Market's in driving product markets, yet have no effects regarding labour markets reforms. He uses data until the global financial crisis in 2008 and focuses on crises as an important reform determinant.[10]

[9] As a further explanation for a lack of structural reforms in euro area countries, Fernández et al. (2013) show how the boom in the run-up to the financial and economic crisis beginning in 2007 relaxed the budget constraint for countries and made reform incentives vanish during that period.

[10] Schönfelder (2018) finds that the euro is an important determinant of product market reforms using a System GMM estimator. In an earlier study, Duval and Elmeskov (2005) find that a lack of monetary autonomy (EMU membership or other fixed-exchange rate regimes) has a significant negative impact on the probability of undertaking large structural reforms albeit mainly in large countries.

In line with a large empirical and theoretical literature about the growth effects of financial liberation at the time, Guiso et al. (2004) expect a 'growth dividend' from European integration. They argue that regulatory convergence due to European integration will likely raise the regulatory standards everywhere to state-of-the-art levels, which should stimulate local financial markets, foster internal competition, and open these markets to competitive pressure from foreign intermediaries. This should allow households and companies from all member states to access the credit and security markets of the more advanced countries of the EU, which are expected to increase economic growth. Empirically, the effects on growth largely depend on the use of *de jure* or *de facto* measures, and the type of financial deregulation, where the literature differentiates, among other things, between domestic regulation and financial openness.[11] In this paper, we consider *de jure* measures of domestic financial regulation for which the literature is much smaller than the one on *de facto* financial integration. Using *de jure* measures, Bekaert et al. (2005) and Henry (2007) provide evidence that stock market liberalizations are positively related to economic growth and investment. The results of Rajan and Zingales (1998), Galindo et al. (2007), Abiad et al. (2008), and Tressel (2008) suggest that the allocation of capital across firms and industries is more efficient in a more developed financial system.

In light of the above discussion on the individual effects of the Single Market and the euro on the implementation of reforms, one should expect that their effects on reforms are different. Some reforms are more likely following economic integration via the Single Market or via the euro and there may also be important sectoral differences in these effects.[12] We first discuss the heterogeneities related to different types of reforms.

Regarding product market reforms, we expect the Single Market to reduce domestic

[11] See Christiansen et al. (2013) for a more detailed discussion.
[12] For instance, mark-ups went down in the aftermath of the Single Market in manufacturing and construction but up in services (Badinger, 2007; Flamm, 2015).

barriers for entry and regulatory hurdles for international trade and investment, but not the extent of state control of the economy (Alesina et al., 2010). One observes public ownership chiefly in utilities and through state-owned enterprises in 'strategic' sectors. Changes in the extent of state control is more likely to be associated with changes in political factors (e.g., a newly elected government) than with the Single Market or the euro.

As for labour market reforms, we expect economic integration (either via the Single Market or via the euro) to have differential effects depending on the segment of the labour market or the type of contractual arrangement one is considering (Bednarek-Sekunda et al., 2010). In particular, we expect more deregulation of contracts for outsiders (i.e. recent entrants, temporary/part-timer contracts, youngsters, and less unionised) than for insiders (fixed-term and permanent contracts).[13] One reason for this is that it is politically very costly to change labour conditions for 'insiders,' either because of the stronger legal protection these jobs offer and/or because they are more likely to support trade unions as they have more to lose.

Regarding financial market reforms, we expect the Single Market to increase the homogeneity of financial market regulation by Member States to make the free movement of capital a reality. Similarly, the introduction of the common currency should have a similar effect of making financial reforms converge across countries (Kalemli-Ozcan et al 2010).

2.2 The economic effects of integration and reform differ across countries and sectors

Our third hypothesis is that the effects of structural reforms differ substantially across sectors (in addition to differences across countries). One reason for the elusiveness of the effects of integration that has been previously explored in the literature is country heterogeneity. The other potentially important source of heterogeneity observed in the literature are sectoral

[13] On this dichotomy: "higher persistence of unemployment in Europe than in the USA is often seen in the perspective of the insider-outsider theory, as is the role of unemployment persistence versus changes in the long-run unemployment equilibrium rate in explaining unemployment movements and the unemployment effect of labour turnover costs over different phases of the business cycle." (Lindbeck and Snower, 2001: 180).

differences (Lane 2006). Fernàndez-Villaverde et al. (2013) note that, in some peripheral European countries, capital flew into real estate and construction sector while in others it went into the financial sector.

Since Blanchard and Giavazzi (2003), the literature has focused on the long-term economic growth gains from easing barriers to entry in product markets (e.g. Ebell and Haefke, 2009; Fang and Rogerson, 2011; Felbermayr and Prat, 2011). One strand uses country-time or country-time-industry panel data and documents a significant positive effect of product market reform on growth in productivity, investment, employment and output (e.g. Aghion et al., 2009a; Alesina et al., 2005; Bassanini and Duval, 2009; Berger and Danninger, 2007; Bourlès et al., 2010; Conway et al., 2006; Inklaar et al., 2008; Nicoletti and Scarpetta, 2003).[14] These gains arise not only for the countries implementing the reforms (Cacciatore et al. 2012), but also for small trading partner countries within the euro area benefiting from spillovers (Gomes et al., 2013) and even for regions outside the euro area (Everaert and Schule, 2006; Bayoumi et al., 2004).[15]

There seems to be consensus that the economic impacts of product market deregulation on economic outcomes are larger than those of labour market reforms. For instance, Anderson et al. (2014) find that the impact of product market reforms on national GDP is twice as large as the impact of labour market reforms for core countries and about five times larger for countries in the periphery of the euro area. Labour market reforms aim at increasing labour force participation (Anderson et al., 2014) and at increasing productivity growth. Why would the effect of labour market reforms be more limited? Vergeer et al. (2015)'s result hint at employee's loyalty and commitment as explanations. They use firm-level data to show that more flexible labour relations reduce labour productivity growth in sectors where innovation is

[14] Some studies, like Barone and Cingano (2011) and Bourlès et al. (2013), address potential omitted variable bias by considering the indirect effects of the deregulation on those 'downstream' industries.

[15] A booming recent literature simulates the effects of structural reforms under circumstances of fiscal consolidation and/or a zero-lower bound (e.g. Gomes et al., 2013; Anderson et al., 2014; Andres et al., 2017; Papageorgiou and Vourvachaki, 2017; Vogel, 2017; Gomes, 2018).

'routinised.' For example, easier firing will diminish the loyalty and commitment of workers. This suggests that there is a "need to avoid either excessive regulation or excessive neglect of labour conditions" (Dabla-Norris et al., 2015: 4). Further results suggest that employment protection legislation can also increase employment (Bassanini and Duval, 2006, 2009).

Using industry- and firm-level data, Guiso et al. (2004) estimate sectoral and country-specific growth dividends assuming that the determinants of financial development (degree of creditors' protection, degree of shareholders' protection and judicial efficiency) are raised to the maximum EU standard. Gehringer (2015) carries out a sectoral growth analysis regarding the effects of financial openness in Europe. Using the EU-KLEMS data (1980–2009) for Austria, Belgium, France, Germany, Italy, The Netherlands, Spain and the UK, Gehringer (2015) finds that the effect of *de jure* and *de facto* financial integration on total factor productivity differs between the manufacturing and service sectors. *De jure* financial integration has a positive and statistically significant effect only on total and services TFP growth. She uses the Chinn and Ito (2008) *de jure* index of financial integration, which she interacts with the two major integration steps.

Reviewing the theoretical arguments for sectoral heterogeneity in the literature, it is noteworthy that the sector classifications in the literature differ widely. Alesina et al. (2010) focus on the distinction between tradables and non-tradables (goods and services). Others distinguish between the financial and the non-financial sector.[16] A third approach would be to separate capital- and labour-intensive sectors. Baldwin et al. (2005) find that the euro had the largest impact on trade for those industries characterised by increasing returns and imperfect competition, with trade in homogeneous products relatively less affected. Bugamelli et al. (2010) focus on the 22 subsectors of manufacturing in EU-KLEMS. Gehringer (2015) examines the effect of financial market regulation on both the manufacturing and the services sector. We

[16] One of the clearest gains from joining the euro area may arise from the creation of deeper and more liquid financial markets (Bael et al., 2004; Mian et al. 2019).

will now describe their arguments in more detail.

Alesina et al. (2010) argue that the differential effects of the euro and the European Single Market (ESM) on reforms may hinge upon sectoral differences. First, they make the point that the euro increases domestic competition through trade, starting from the tradable sectors, which then put pressure on upstream sectors through say demands for deregulation. Duval and Elmeskov (2005) also argue that the tradeable sector reacts directly to increased competition and transfers the pressure to intermediate goods producers. Second, Alesina et al. (2010) raise the possibility that the euro also increases competition in non-tradables through price transparency. In sum, a key theoretical insight from Alesina et al.'s (2010) argument is the possibility that different sectors react differently to the euro-induced reforms; yet they do not analyse these potential heterogeneities empirically.

Bugamelli et al. (2010) analyse whether after the euro those sectors that relied more heavily on devaluations pre-euro restructured more. Specifically, they suggest that the effects of the euro might differ between sectors where competition takes place through prices or through product differentiation. In their analysis of 22 sectors between 1998 and 2005, they find little support for the hypothesis that the euro has induced a reallocation of activities between sectors. They find that relative to the country and sector averages, the productivity growth differential between low- and high-skill sectors was higher in a high-devaluation country than in a low-devaluation one. They interpret this as evidence for euro-induced intra-sectoral restructuring. Bouis et al. (2016) consider industry level effects of product market regulation on growth. They find evidence for large increases in output and labour productivity as well as relative price declines. Bris et al. (2019) find that firms in industries that are more dependent on external financing have increased their debt financing more than firms that are less dependent on external financing. Gehringer (2015) argues that the modern service sector relies more on the knowledge-intensive production activities that are based upon information and communication technology (ICT) than the manufacturing sector. Furthermore, ICT

processes are both capital and blue-collar labour saving. Consequently, the demand for capital is lower for services and so are thus the expected benefits of improved capital access.

We now turn to the literature studying the total (direct and indirect) effect of the euro on economic outcomes. Ferreira-Lopes (2010) provides general equilibrium evidence that the UK and Sweden would have suffered welfare losses if they had joined the euro. Puzzello and Gomis-Porqueras (2018) use the synthetic control method to estimate the effect of the euro on income per capita of six early adopters of the euro. They find that Belgium, France, Germany and Italy would have gained without the euro, that GDP per capita of Ireland would have been lower, while the Netherlands would have been just as well off. Regarding trade, Saia (2017) finds that the single currency led to an increase in intra-European trade flows of between 19% and 55%. Using the synthetic control method, he further estimates that if Britain had adopted the euro, it would trade 16% more with euro area members, but also more with non-euro European economies. Larch et al. (2018) also find large and positive bilateral trade effects for the euro area. Terzi (2019) finds that the reduction in economic growth in the euro crisis countries has been more severe than pre-crisis imbalances and the lack of an independent monetary policy would have suggested. However, he did not analyse how the lack of structural reforms might have hampered recovery.

To sum up, we have shown that the literature has proposed a variety of theoretical arguments for sector-specific effects of European integration. For selected sectors or countries, there is empirical evidence of differences in the growth effects of European integration and global competition. However, an encompassing analysis of the economic effects of European integration at the sectoral level is still lacking and therefore a main lacunae the present paper tries to address.

3. Data and methodology

This section first discusses the data set we assembled for this paper and then presents our empirical approach. In our sectoral growth analysis, we use the most disaggregated sectors in the most encompassing sector-level data available (European Union Level analysis of Capital, Labour, Energy, Materials and Service Inputs, EU-KLEMS). Specifically, we analyse all the 32 sub-sectors in the EU-KLEMS to test the hypotheses above about the potentially different effects of the ESM and the euro across sectors.

3.1 Measuring Structural Reforms, Single Market and the euro

We measure structural reforms in the product, financial and labour markets by combining three datasets. The data for product market regulation is widely used while the ones for labour and financial market reforms have only been used in a handful of papers.

To measure changes in product market regulation (PMR), we employ the widely used index for energy, transport and communication regulation (ETCR) from the OECD (2017). The data is collected through a questionnaire sent to governments in all OECD and in major non-OECD countries. In using this data set we follow the OECD (2017) recommendation, instead of using the sector-wide regulation indices that are also common but are only available for four years (1998, 2003, 2008 and 2013). Usage of the latter data involves linear interpolation, especially backwards and often back to at least 1990.

The ETCR index covers seven sectors (telecoms, electricity, gas, post, rail, air passenger transport, and road freight). It is based on information on entry barriers, public ownership, market shares (only for the telephone, gas, and railroad sectors), and price controls (only for the road freight sector). In addition to an aggregate PMR indicator, we also study three underlying components so as to get a more granular view of the effects European economic integration policies have had on structural reforms in product markets: ‘entry barriers’ covering market shares and entry barriers, ‘public ownership’ covering the extent of public ownership,

and a third dimension 'price controls.'

For labour market reforms, we use Adams et al.'s (2018) CBR labour regulation data. It provides a much larger country and time coverage than other datasets.[17] Their measures of labour market regulation (LMR) cover labour market laws and regulations. These meticulously documented *de jure* measures code individual piece by individual piece of legislation for every year from 1970 to 2015 in 117 countries.[18] The data set contains 40 different variables capturing different aspects of labour market regulations and are divided in: (A) regulations about different terms of employment, (B) regulations of working time, (C) dismissal laws, (D) employee representation, and (E) collective action.

Using this data set, we construct three measures of labour market regulations. Our first and most aggregate measure is the average of the sub-dimensions A, B, and C. We focus on these three sub-dimensions, because they better reflect our hypotheses and also because there are only marginal changes over time in the remaining two sub-dimensions D and E. Second, we further separate the indicators in sub-dimension A into those laws and regulations that govern 'part-time and agency contracts' and those for 'permanent and fixed-term contracts'.[19] Third, we construct the variable 'legislation on dismissals and working time' as the average of sub-dimensions B and C.

In order to measure financial market reforms (FMR), we use Denk and Gomes' (2017) data which extends the IMF's *de jure* financial reform index of Abiad et al. (2010) by ten years from 2006 to 2015.[20] The data includes seven indices related to the financial sector: credit controls, interest rate controls, entry barriers, capital account liberalisation, privatization,

[17] The OECD labour market reform index is widely used (e.g. Alesina et al., 2010) as a summary indicator of the extent of protection provided by employment legislation for all contracts, covering both indefinite contract (regular) workers and fixed-term contract (temporary) workers. The IMF provides a narrative database of 'major' labour and product market reforms (Duval et al., 2018).

[18] See Campos et al. (2018) for a detailed discussion.

[19] The 'part-time and agency contracts' indicator is constructed as average of A1, A2, A3, A7, A8 and the 'permanent and fixed-term contracts' as the average of A4, A5, A6.

[20] Closely following the same methodological approach, questions, original coding rules and data sources that Abiad et al. (2010) used, Denk and Gomes (2017) extend the data up to 2015.

security market regulation, and banking supervision. Each of these indices is constructed through a set of standardized questions with discrete responses that are aggregated to represent the extent of liberalization in each area. We use the Denk and Gomes (2017) data as our measure of domestic financial reform and construct three more granular measures based on their data: 'Credit market controls' covers reforms in the credit market and interest rate controls. The measure of 'market structure' includes information about entry barriers for banking, capital account liberalisation and bank privatization. The third dimension of financial regulation, 'regulation and supervision', includes security market regulation and banking supervision.

[Insert Table 1 about here]

We normalise all product, labour and financial market regulation measures to vary between 0 and 10 with higher values indicating more regulation. This makes them regulation rather than liberalisation indicators. Table 1 reports summary statistics and Table A.1 lists the sources and definitions.[21] Table 1 shows that, after normalisation to values between zero and 10, our regulation variables experience their highest average values for 'public ownership' (7.26 average) and their lowest for 'credit controls' (2.03). We observe the most variation in regulation in 'market structure' and 'regulation and supervision' (3.1 standard deviation), while the variation we see in 'legislation on firing costs and working time' is the least (1.49).

Table A.2 reports the pairwise correlations between the LMR, FMR and PMR measures. The three PMR sub-indices are highly correlated with the aggregate PMR index (0.92). 'Public ownership' is the least correlated with the other PMR sub-indices (0.74). The correlation of the aggregate LMR index with its sub-indices is also high (ranging from 0.78 to 0.91). The regulation of permanent contracts work is positively correlated with regulation of part-time work (0.72), but less with legislation on firing costs and working time (0.59). Indeed, the lowest correlation (0.51) we observe is between permanent/fixed-term contracts on one hand and firing

[21] Our sample for the analysis of reforms includes up to 36 countries covering at most 1971-2013.

costs on the other. The correlation of the aggregate FMR index with its sub-indices hovers around 0.90 while the sub-indices show correlation coefficients between 0.70 and 0.76.

Figures 1, 2 and 3 show the cross-country and time-series variation of the aggregate regulation variables: There is a downward trend in product and financial market regulation over time (bottom panel of Figures 1 and 3) with considerable variation within and across countries (upper panel of Figures 1 and 3). Although it can be observed for all PMR sub-indices since the late 1980s, deregulation is most pronounced for 'entry barriers' and least so for 'public ownership' (Figures A.1 and A.3).

[Insert Figure 1 about here]

In contrast, there is no pronounced time-trend in average labour market regulation but considerable heterogeneity across countries in the level of LMR and in reforms (Figure 2). This overshadows considerable differences in the LMR sub-indices (Figure A.2): average regulation of 'part-time and agency contracts' as well as average regulation of 'permanent and fixed-term contracts' instead increase starting in the early 2000s.

[Insert Figure 2 about here]

[Insert Figure 3 about here]

We now turn to the definition of our other main variables of interest, namely membership in the euro and the ESM. For the euro, we code a binary indicator for membership in the euro that turns one when a country actually adopts the euro as currency (rather than upon joining the European Monetary System as accounting currency).[22] Regarding Single Market membership, our ESM dummy variable turns one in 1992 (Baldwin, 1989; Grin, 2003). More precisely, all states that are member of the EU in 1991 are assigned to be ESM members in

[22] We agree with the argument in El Shagi et al. (2016) that it is economically reasonable to distinguish between the euro as a joint currency and the European Exchange Rate Mechanism (ERM) including its successor, ERM II. In other words, we do not consider that ERM II membership was a close substitute for membership in the European Monetary Union.

1992. Austria, Finland, and Sweden are also considered ESM members from 1992 onwards because they are members of the European Economic Area (although they join the European Union only in 1995). Notice that this categorisation differentiates EU membership from Single Market membership.[23]

Figure 4 shows in detail how we coded membership in the Single Market and the euro. Notice that all euro members have first been members of the Single Market, but not the other way around. Our longer time-series naturally generates (more) temporal variation in euro (and Single Market) membership compared to earlier studies such as Alesina et al. (2010). Table 1 shows that about a third of the country-year observations are assigned Single Market membership, while seventeen percent of observations fall into the euro area.

[Insert Figure 4 about here]

One of the main standard explanations in terms of potential determinants of structural reforms are economic crises (Drazen and Grilli, 2003). We use several measures to control for crisis periods and severity. To preserve our panel dimensions, we opted to use Laeven and Valencia's (2012) rather than other crises data.[24] First, we use a dummy that is one in any country-year with a banking crisis. Second, we expect that the reform-triggering effect of a crisis may increase with its intensity. We construct the average yearly GDP loss by dividing the total GDP loss associated with a banking crisis by the duration of the crisis in years. Third, we control for the unemployment rate to capture the effects of crisis of the real economy.[25] This

[23] The EU enlargement in Eastern Europe leads to ten countries joining the ESM in 2004, two in 2007 and Croatia in 2013.

[24] There has been criticism of the current efforts to measure crisis but we use Laeven and Valencia (2012) as it remains the most widely used measure in the literature. The main criticisms are that they do not always capture duration of the crisis and that they are restricted to economic aspects when in many cases the political aspects may be more important.

[25] As described in the Definitions and Sources (Table A.1), we use a combination of sources to keep the panel as large as possible. In particular, we use unemployment data from the IMF (2019 and earlier releases) and replace missing values first with OECD (2019) short-term labour market statistics. The panel dimensions are further completed with the information from the World Bank Development Indicators (WDI, 2019). The correlation of these unemployment variables is larger than 0.99 for the first two sources, while the WDI data correlates with 0.94 with IMF and 0.99 with OECD data.

also captures possible delays of the effects of banking crisis on the real economy. Finally, we include a dummy for the post-2009 period to allow for a potential different trend in value added growth in line with arguments about the aftermath of the global financial crisis. Table 1 also provides summary statistics for these four variables. We observe a banking crisis in about one-tenth of all country-years while a similar share of years are post-2009 years. The maximum crisis-related annual GDP loss amounts to almost 29 percent while the unemployment rate varies between zero and more than 27 percent with an average of around 7 percent.

The literature argues that countries tend to reform more when openness increases. We employ an encompassing measure of political and economic openness that has been widely used in the literature, the aggregate KOF globalisation index. It is based on 43 variables that measure *de jure* and *de facto* globalisation for the economic, social and political dimensions (Gygli et al., 2019; Dreher, 2006). Following among others Potrafke (2013), we control for the political ideology of the government using an indicator that is one whenever the ideology of the party in power (or is the senior coalition party) is left-wing (Cruz et al., 2018).[26] Table 1 shows that the ideology of the party in power is left-wing in around one third of all country-years. The KOF globalisation index ranges from around 35 to 90 on the 1 to 100 scale.

One contribution of this paper is to paint a more differentiated picture of the economic effects of the Single Market and the euro by explicitly looking at sectoral heterogeneity. To do so, we make use of the industry-level data provided by the EU-KLEMS, 2017 release for European countries for the years 1995-2014 (van Ark and Jäger, 2017). The data contain productivity, employment and value-added measures at the sectoral level. We expand our data backwards using the 2012 release of EU-KLEMS (O'Mahony and Timmer, 2009). This extends

[26] Potrafke (2010a) finds that market-oriented governments deregulate product markets more. For labour markets, Potrafke (2010b) finds globalisation to be unrelated to most aspects of labour market regulation except for a negative relationship with the protection of regular employment contracts when globalisation proceeds rapidly. Domestic factors such as government ideology and unemployment are found to be important determinants of labour market institutions and deregulation in OECD countries. Potrafke (2013) does not find that globalisation induced labour market deregulation.

the length of the data by a decade back to 1985.[27] As discussed above, the literature offers a plethora of ways to distinguish between sectors that may react differently to European integration. We therefore opted for the most transparent approach and analysed the 32 sub-sectors available in the EU-KLEMS at this most disaggregated level. Table 1 shows that value added growth varies between -23 and 32 percent across countries, sector and years. It also provides the logged values for sectoral value added and sectoral employment.[28]

3.2 Empirical Strategy

We are interested in the effects of European integration on structural reforms as well as on their effects on economic performance at the sectoral level. Specifically, we focus on the reform-channel through which the ESM or the euro might affect sectoral valued added growth. We carefully distinguish three types of structural reforms and different dimensions therein, consider the different steps of European integration, and allow for sectoral- and country-heterogeneous effects on economic outcomes.

We update and extend the evidence on European integration and structural reforms by bringing together the literature on reform determinants and on the economic consequences of reforms. [29] Consequently, we first analyse the importance of the ESM and euro as determinants of different dimensions of labour, financial and product market reforms. We first look at this issue in the standard empirical framework used by Alesina et al. (2010) and others. We then go one step further by tracking their effects in an event study type of framework that has not been applied in this literature before. It identifies more precisely the magnitude and the dynamics of

[27] Given the different base years in use in these different vintages, we use growth rates derived from the 2012 release to extrapolate the 2017 release backward in time. We use the bridge table kindly provided by the Groningen Growth and Development Centre to translate the NACE Rev. 1 to the NACE Rev. 2 industry classification. Due to a very limited number of observations sector U ('Activities of extraterritorial organizations and bodies') is excluded from our analysis.

[28] To circumvent that our results are driven by extremely low or high growth rates, we have removed the upper and lower 1 percentiles of the value added and employment growth distributions.

[29] Although our study is of a cross-country econometric nature, we believe many readers would profit from reading it in conjunction or complemented by more anecdotal evidence. Part III of Campos et al (2020) contains detailed case studies covering about 10 European countries.

these effects around the year of membership. Second, we regress the regulation variables on measures of sectoral value added. We explain our approach in more detail in what follows.

We examine the reform-inducing role of the ESM and the euro with Ordinary Least Squares (OLS) following Alesina et al. (2010) before zooming in on the reform dynamics. Specifically, the dependent variable is the change in any one of the regulation measures in a country *c* in year *t*. The baseline fixed-effects OLS equation looks as follows:

$$\Delta Regulation_{ct} = \beta\, Regulation_{ct-1} + \gamma\, ESM_{ct} + \delta\, euro_{ct} + X_{ct}\theta + \mu_c + \sigma_t + \varepsilon_{ct}\,. \qquad (1)$$

The full model includes our variables of interest, the ESM dummy and the euro dummy. The base model always includes the lagged value of the regulation indicator, and a set of covariates *X*. The lagged regulation index aims to account for the fact that initial conditions may affect the benefits and costs of reforms. For instance, the benefits of regulation may be perceived as lower when the market is highly liberal. Alternatively, higher initial regulation may increase the cost in terms of rents. This can make liberalisation more difficult.[30] As covariates, we include three measures of economic conditions (a banking crisis dummy, a crisis intensity variable, and the unemployment rate), an encompassing measure of political and economic openness (the aggregate KOF globalisation index), and the political ideology of the government.

Year-fixed effects σ_t account for common factors that could have induced all countries to adopt structural reforms in a given year such as similar policy responses to global macroeconomic events. Country-fixed effects μ_c ensure that the estimated coefficients do not suffer from time-invariant country-specific omitted variables such as the likelihood to adopt reforms. Robust standard errors are clustered at the country level.

As compared to the seminal results of Alesina et al.(2010), the fixed-effect OLS results

[30] Bonfiglioli and Gancia (2018) justify their inclusion of the lagged liberalisation index (i.e. the inverse of a regulation index) because it helps comparability with the empirical literature on both structural and fiscal reforms, where this term is standard.

we generate are based on a new country-year panel data that is extended in both dimensions. This allows us to show what drives the differences between our results and those in the existing literature.

We then examine the dynamics of reform adoption around the time of membership using an event type of analysis framework (MacKinlay, 1997). This approach provides several additional insights. First, it allows to provide some plausibility that the untestable 'common trend' assumption holds. This further allows for causal inference about the effects of the ESM and the euro. The central identifying assumption is that we would have observed the same reform outcomes in the ESM and euro members as in non-members had they not participated in these integration steps. We flexibly assess how the outcomes of the ESM and euro members evolve before and after their membership. To this end, we generalise Equation (1) to an event study type of model by interacting the ESM and the euro membership dummies with a dummy for the five years before and after membership and include a dummy for ESM and euro membership of more than five years. The model takes the following form with *T* referring to the country-specific year of ESM membership and *Z* to the country-specific year of euro membership (see Figure 3):

$$\Delta Regulation_{ct} = \beta\, Regulation_{ct-1} + (\sum_{k=t-5}^{t+5} \gamma_k\, ESM_{ck} + \sum_{k=t+6}^{2013} \gamma\, ESM_{ck}) \times [I(t = T)] + (\sum_{k=t-5}^{t+5} \delta_k\, euro_{ck} + \sum_{k=t+6}^{2013} \delta\, ESM_{ck}) \times [I(t = Z)] + X_{ct}\theta + \mu_c + \sigma_t + \varepsilon_{ct}\,. \quad (2)$$

The estimates of the coefficients γ and δ are the parameters of interest and I is the indicator function. For t ≥ T, the coefficient γ reveals ESM membership effect and for t ≥ Z, the coefficient δ reveals euro membership effects. As there should be no impact prior to membership, we should find $\gamma = 0$ ($\delta = 0$) for t ≤ T (t ≤ Z). However, we do not interpret our findings as causal effects as we do not address the problem of non-random selection into membership status. The endogeneity of membership makes us interpret the results as correlations although common pre-trends would mitigate concerns about severe endogeneity of

membership to reforms.

Finally, we analyse the effects of reforms on sectoral growth in real value added (*VA*) at the sector-country-year level. Our baseline OLS regression for the second stage looks as follows:

$$VA\ growth_{sct} = \alpha\, VA_{sct-1} + \eta\, Emp_{sct-1} + \beta\, LMR_{ct-1} + \psi\, PMR_{ct-1} + \varphi\, FMR_{ct-1} + \gamma\, ESM_{ct} + \delta\, euro_{ct} + X_{ct}\theta + \mu_c + \sigma_t + \tau_s + \varepsilon_{sct}\ . \quad (3)$$

PMR, FMR and LMR alternatively represent the aggregate or disaggregate product, financial and labour market regulation indicators described above. In addition to the covariates *X* defined above, we include the logged and lagged values of sector-specific value added, sector-specific employment, and sector-specific investment to control, respectively, for the past level of productivity, adjust for changes in the number of people working in a sector, and for the capital stock of a sector.

Sector-fixed effects τ_s account for common time trends in sectors, σ_t absorbs common shocks and country-fixed effects μ_c ensure that the estimated coefficients do not suffer from country-specific time-constant factors such as culture. Robust standard errors are clustered at the country level. We consider two different samples. In the main specifications, all 32 sectors available in the EU-KLEMS according to the ISIC Rev. 4 (NACE Rev. 2) industry classification are used.[31] We thereby allow spillover effects of deregulation in these seven key input industries to the rest of the economy. We alternatively analyse the direct effect of the sector-specific deregulation by restricting the sample to those seven non-manufacturing industries on which the ECTR PMR is based, which leaves us with four sectors.[32]

As we noted above, the literature suggests that country-heterogeneity might be the reason for the elusive effects of European integration, especially of the euro, yet it remains

[31] These sectors are listed in Table 2 of the codebook (as accessed August 29, 2019.): http://www.euklems.net/TCB/2018/Methology_EUKLEMS_2017_revised.pdf

[32] We use the following sector codes for the seven industries: Telecoms: J61, Electricity: D-E, Gas: D-E, Post: H53, Rail: H49-52, Air passenger transport: H49-52, Road freight: H49-52.

silent on the possibility of heterogeneous sectoral effects. We test for the importance of these heterogeneities by interacting either all sectoral or all country dummies with the ESM dummy, the euro dummy, the LMR, the FMR and the PMR.[33] Our extended model then looks as follows, with *h* referring alternatively to the sector *s* or the country *c*:

$$VA\ growth_{sct} = \alpha VA_{sct-1} + \eta Emp_{sct-1} + \beta_h\,(LMR_{ct-1} \times \omega_h) + \psi_h\,(PMR_{ct-1} \times \omega_h) + \varphi\,(FMR_{ct-1} \times \omega_h) + (ESM_{ct} \times \omega_h)\,\gamma_h + (euro_{ct} \times \omega_h)\delta_h + \boldsymbol{X}_{ct}\theta + \mu_c + \sigma_t + \tau_s + \varepsilon_{sct}\,. \quad (4)$$

We are most interested in the coefficient vectors γ_h and δ_h that provide the differential effect for the sectors and countries we discuss in the next section.

3.3 Endogeneity of Single Market and euro membership

We are well-aware of the empirical and identification challenges of our approach. First, the decisions of EU member states to adopt the euro is endogeneous. However, the exact year of ESM membership and euro adoption can be considered as exogenous to current regulation levels and productivity growth of a given country as they depend on a multiannual if not decade-long negotiations outcome and is not discretionary in the short-term. Moreover, the decision to adopt the euro has become less discretionary for more recent EU members. Regarding the decision to join the ESM, the treatment and especially the timing of the completion of the Single Market in 1992 can be considered as largely exogenous. This holds especially for the small states that were already members of the European Communities and countries associated through the European Economic Area (EEA). These countries joined the ESM because they had legally bounded themselves to implement the *acquis communautaire* on which they had highly limited (or, for the EEA countries, no) influence. Finally, the results from the event study framework below show that there does not seem to be 'anticipation effect' in terms of reforming

[33] We also ran regression in which the ESM / euro and LMR / PMR are interacted with each other, but we did not find any significant results.

before membership. In contrast to previous studies, our extended panel allows us to observe multiple entries into both institutional frameworks. This generates substantially more variation as entries occur at different points in time (Figure 3).

4. Empirical results

This section presents our econometric results. We interpret our results as correlation evidence even in cases where we use terms like 'effect' or 'impact'.

4.1 European integration and structural reforms

Tables 2 to 4 show our baseline OLS results with fixed effects. We regress product market (Table 2), labour market (Table 3) and financial market reform indicators (Table 4) on European integration dummies (Single Market and euro) and the control variables as specified in Equation (1). The results in column 1 are based on the full sample of 32 countries covering up to 38 years.

[Insert Table 2 about here]

As discussed above, Alesina et al. (2010) present the seminal results in this literature. We therefore conduct a detailed comparison between their results and ours in order to understand any differences that emerge.[34] Recall they find that ESM and the euro both reduce product market deregulation with the euro effect being much larger. This finding has been replicated by almost every study in this literature. Their estimates imply that for a country that is a member of both the Single Market and the euro area, the level of regulation decreases by 0.25 points (on their original 0 to 6 scale). This translates to a 0.42 points decrease as our regulation variables have been normalised to range between 0 and 10. Their estimate of the Single Market effect is 0.06 points on their scale, which is equivalent to 0.11 on our scale.

[34] Specifically, we compare our results to theirs in columns 1 and 4 of Table 1 in Alesina et al. (2010).

We find that our results differ in several ways (Column 1 of Table 2). First, we find no statistically significant effect of the euro on product market deregulation while Alesina et al. (2010) found the euro effect to be three times as large as that of the Single Market. Second, we find statistically significant results showing that Single Market membership decreases product market regulation by 0.087 points, which is slightly smaller than Alesina et al.'s (2010) estimate of 0.11 (when using our scale).

What can explain these differences? Column 2 in Table 2 re-runs the specification above using our data set but using a more restricted sample of countries (19 countries only) and time window (theirs end in 2003), which are those country and years used by Alesina et al. (2010). Using this restricted sample, column 2 shows a large and statistically significant negative deregulation effect of the euro which is even larger than that of the ESM in column 2. This is indeed what Alesina et al. find in their original paper. The ESM dummy also increased compared to column 1. In short, our ESM effect in column 2 is now closer to their estimated effect size: 0.13 rather than Alesina et al. (2010)'s 0.11 (scale-adjusted) while their euro effect remains almost double the size of what we estimate in column 2 (0.16 rather than Alesina et al.'s (2010) 0.31 (scale-adjusted)).

In order to probe further into these differences, Columns 3 and 4 explore whether they are driven by our larger country- or time-dimensions, respectively. We find that the euro effect of column 2 is robust but substantially reduces in size using our much extended time horizon. The ESM effect of column 1, however, seems driven by both the longer time window and the larger set of countries we use here. In contrast, the average effect of the euro turns insignificant at conventional levels only when using the full sample. Both the precision and size of the euro coefficient are already much reduced with the longer time horizon in column 4.

[Insert Table 3 about here]

Table 3 focuses on the effects of European integration on labour market reforms. We replicate the sample changes in Table 2 with the LMR instead of the PMR as dependent

variable. For our full country sample and longer time window (column 1), we do not find that the euro has affected labour market regulation while columns 2-4 suggest that average labour market regulation has actually increased in response to the Single Market, although no statistically or economically significant effect of the euro on labour market regulation is found in any of the samples. As Alesina et al. (2010) look only at unemployment benefits and employment protection as two measures of labour market regulation, our coefficients are less directly comparable than in the case of PMR.[35]

[Insert Table 4 about here]

Table 4 considers the effects of European integration on financial market reforms by replicating the sample changes as for the other regulation variables with FMR as dependent variable. For all samples, there is no evidence for any impacts of either the euro or the Single Market on FMR. Alesina et al. (2010) do not consider the effects of European integration on financial market reforms so that any comparison becomes obsolete.

We conclude, in line with the rest of the literature, that the effects of both the euro and the ESM in terms of labour market reforms tend to be much more imprecisely estimated than in the case of product market reforms. Moreover, we also find that the effects of the Single Market on reforms are much more sensitive to using the full sample than the economically and statistically insignificant coefficient for euro membership. Also, financial market regulation seems unrelated to the two major steps of European integration.

Another advantage of our longer time series with more recent data is the possibility of estimating and comparing short- and long-run effects. We find important differences between the estimates of the long-run effects of European integration. As the last rows of Tables 2-4 show, throughout this exercise we find that the long-run estimates are about ten times the

[35] Alesina et al. (2010) show results with unemployment benefits as dependent variable in Table 5 and with employment protection regulation in Table 6.

magnitude of the short-term ones.[36] The PMR results from our preferred specification in column 1 of Table 2 suggest a larger long-term effect of the Single Market than of the euro. As above, this conclusion reverts when we shorten the sample across different dimensions (as in columns 2-4). For the case of labour market reforms, we find that the long-term effects of the Single Market are about ten times larger than that of the euro. The long-term results for variants of Alesina et al.'s (2010) sample (Table 3, 2-4) fluctuate widely, changing most dramatically when we use the full time period and Alesina et al.'s (2010) reduced sample of countries. The sign of the long-term effects of European integration on financial market reforms changes depending on the sample but is negative in a majority of cases. The size of the effect also fluctuates widely and it is sample-specific whether the effect of the euro or that of the Single Market is larger.

Tables 2-4 also contain various results regarding the determinants of structural reforms. Regarding globalisation, which we capture by the widely used KOF index, our findings are in line with the rest of the literature in the sense that they show that globalisation is associated with increasing product and labour market regulation.[37] We run sensitivity analyses including the *de jure* and *de facto* globalization indices separately or and removing the variable entirely.[38] We find that more left-wing orientation of the party of the Chief Executive is associated with increases in regulation except for financial market regulation (Alesina et al 2010). Crises have of course received enormous attention in this literature and we have tried to address their potential role using three different variables. The unemployment rate as a proxy for economic

[36] These long-run effects are calculated in the standard way by the formula $(\gamma \text{ or } \delta)/\big(1-(1+\beta)\big)$ which uses the parameters estimated in Equation (1) and presented in
Table 2.

[37] The largely unchanged results for financial market regulation thus contrast with Sinn's (2003) argument that national systems of banking regulation may erode in the competition between states.

[38] First, regarding the *de jure* and *de facto* measures, we find a robustly significant and positive effect of *de jure* globalization on LMR and a statistically significant negative effect of *de facto* globalization although with a substantially smaller coefficient (Table A.10). Table A.11 shows that for PMR, the positive coefficients for *de jure* globalization and negative ones for de facto globalization are not robust results across the four samples we use by mimicking Tables 2-5. FMR does not seem to relate to either *de jure* or *de facto* globalization (Table A.12). Second, we investigate the argument that our results are biased as openness could be an outcome of reforms, which would make it endogenous. When we remove the KOF globalization indicator from our specifications (Tables A.13-A.15), our results are virtually unchanged.

downturns is negatively throughout but significant only for product and labour market regulation. Banking crises and their economic costs are not robustly related to product market regulation or labour market reforms. Financial market regulation increases following banking crisis while the extent of the crisis has no robust effect.

[Insert Table 5 about here]

Table 5 shows our attempt to go deeper in our understanding of the dynamics of our reform indicators by focusing on its main sub-components.[39] It shows the results for the disaggregated regulation measures using the full sample. We find that the Single Market reduces 'credit controls' and product market regulation for all its components except 'public ownership'. Single Market membership increases regulation of 'part-time and agency contracts' and 'permanent and fixed-term contracts.' In contrast, we do not find any evidence of a regulation-reducing effect of the euro.

[Insert Figure 5 about here]

Figure 5 shows the effects of European integration on aggregate product market regulation around the years of membership with five percent confidence intervals in an event study setting. The top panel focuses on aggregate product market regulation with the left (right) side showing the coefficients for the ESM (euro) dummy (as from the regressions in Table A.6). We find that the ESM is significantly associated with deregulation in the first and second year of membership while the effect of the euro area is contemporaneous only. The middle panel shows that in this event study type of framework, labour market regulation is virtually unaffected by European integration, which is in stark contrast with product market reforms. The bottom panel shows that while the coefficient size for financial regulation changes abruptly with entry in the Single Market, this effect is not statistically significant at the 95 percent

[39] See further details in Appendix Tables A.3 – A.5.

confidence level. Around the time of euro membership, financial market regulation is statistically unaffected with the exception of a small and only marginally significant negative effect three years after entering the common currency area.

4.2 Sector and country heterogeneities in the economic effects of European integration

This section analyses the effects of European integration and of structural reforms on the real economy. Table 6 looks at average effects for all sectors using the specification defined in Equation (3). Our dependent variable is value-added growth with columns 1 and 2 using 32 sectors while columns 3 and 4 focus on the four sectors on which the PMR index is based. In line with the literature reviewed above, the average effects of European integration are largely elusive. Using all sectors, we find no significant effects of either European integration or reforms on value added growth when we include the aggregated regulation indices. The coefficient for the Single Market increases in size and turns statistically significant at the ten percent level when we use the disaggregated regulation indices. Increasing 'regulation and supervision' of the financial market and 'legislation on firing costs and working time' in the previous year are associated positively with valued-added growth while strong regulation of 'permanent and fixed-term contracts' and 'part-time and agency contracts' are negatively correlated. In the restricted sample used in columns 3 and 4, we neither confirm the effect of the ESM on value-added growth nor on those of most of the disaggregated regulation indices. The only exception is regulation on 'permanent and fixed-term contracts' which now has a stronger negative effect on value-added growth. In addition, we find that regulation on 'market structure' increases value-added growth.[40]

[40] We have also investigated whether accounting for potential complementarities among these reforms changes the results or generates new insights, but our main results are unaffected and the coefficients on interactions terms are insignificant. We further examined the effects when we drop both sectoral investment and sectoral employment. This confirms that the growth effects of European integration are elusive. The aggregated and disaggregated structural reform indices have no or no robust effect on value-added growth.

[Insert Table 6 about here]

The lack of average effects is less surprising in light of the literature that blames country heterogeneity or sector heterogeneity or both. As discussed above, the literature provides various arguments for heterogeneous effects. We first analyse the importance of sector heterogeneity before turning to country heterogeneity. Because the literature has not compared these two potentially important sources of heterogeneities, we try to conclude something about their relative – if any – importance.

[Insert Figure 6 about here]

Figure 6 displays the interaction coefficients estimated from specification (4) and as shown in Table A.7. As it can be clearly seen, there is virtually no sector heterogeneity with regard to the effects of the Single Market, product or labour market regulation at conventional levels of statistical significance. In contrast, the upper-right figure suggests that there is sectoral heterogeneity regarding the effects of the euro. Several sub-sectors of manufacturing (those with a classification starting with C) are found to be negatively affected by the common currency. In contrast, mining and quarrying (A) and the professional, administrative and scientific services (L) seem to have benefited from the euro. Nevertheless, our evidence does not support the conclusion that sectoral heterogeneity is the root cause for the elusive effect of European integration and structural reforms on value-added growth – despite all the arguments made in the literature. So is country heterogeneity to blame after all?

[Insert Figure 7 about here]

Figure 7 shows coefficients when we interact our four variables of interest with country dummies.[41] Our results suggest that it is indeed country heterogeneities that seem to carry the

[41] As we saturate the model, multicollinearity causes some of the country dummies to drop out and are therefore not reported in the Figure.

bulk of the burden for the insignificant effects from European integration providing further confirmation to the results in Campos et al. (2019) discussed above.

5. Conclusions

There has been a heated debate of the net benefits from economic integration and globalisation. Country heterogeneity is often mentioned as a major reason for the various difficulties in obtaining precise estimates. Analyses of the aggregate effect of adopting the euro and of the introduction of the Single Market have largely proven elusive. In this paper, we test the idea that the difficulties in identifying the effects of European economic integration mainly stem from different economic sectors reacting in heterogeneous ways.

Using a much larger sample of countries, longer time windows, a more sophisticated empirical approach mixing standard fixed-effects panel and event study estimation, more granular reform measures and sector-level outcomes than most existing studies, we put forward three main conclusions. Firstly, our estimates confirm previous studies showing that the Single Market and the euro have triggered product but neither labour nor financial market reforms. Secondly, yet in contrast to the existing literature, we find that the Single Market is not less important than the euro in triggering structural reforms. This difference between ours and previous results is explained by our larger sample of countries and the extended time window and is confirmed by our more granular and detailed measures of reforms. Thirdly, we show that the well-known difficulties in establishing robust effects of reforms seem to be substantially more driven by country than by sector heterogeneity.

We offer four main suggestions for future research. Firstly, we focused on product, financial and labour market reforms, but future work should broaden this range and also include other reforms (such as tax and trade). Secondly, future research should try to study the role of firm heterogeneity in explaining the heterogeneity of responses to European integration and structural reforms. Thirdly, we have followed the literature above in stressing the role of banking crises, in particular, and economic crises in general. Future work should look into the

relative importance of political and economic crises in driving structural reforms. A fourth suggestion is to evaluate the effects of major recent (GFC and COVID) on reforms and their economic effects, once the necessary data is available in a few years from now. So far, the literature simulates the effects of structural reforms under circumstances of fiscal consolidation and a zero-lower bound (e.g. Gomes et al., 2013; Anderson et al., 2014; Andres et al., 2017; Papageorgiou and Vourvachaki, 2017; Vogel, 2017; Gomes, 2018). It will be important in the future to check the ex-post accuracy of these simulations.

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Tables

Table 1: Descriptive statistics

	Obs	Avg.	St.Dev.	Min.	Max.
Aggregate product market regulation (PMR) (normalised)	1'287	7.01	2.33	1.27	10.00
Public ownership (PMR) (normalised)	1'287	7.26	2.29	1.25	10.00
Price controls (PMR) (normalised)	1'287	6.77	2.66	1.14	10.00
Entry barriers (PMR) (normalised)	1'287	6.31	3.09	0.71	10.00
Aggregate labour market regulation (LMR) (normalised)	1'389	4.90	1.56	1.32	8.33
Part-time and agency contracts (LMR) (normalised)	1'389	5.45	2.11	1.00	10.00
Permanent and fixed-term contracts (LMR) (normalised)	1'389	3.46	3.07	0.00	9.67
Legislation on firing costs and working time (LMR) (normalised)	1'389	4.99	1.49	0.84	7.97
Financial market regulation (FMR) (normalised)	1'273	2.60	2.61	0.00	10.00
Credit market controls (FMR) (normalised)	1'273	2.03	3.04	0.00	10.00
Market structure (FMR) (normalised)	1'309	2.77	2.69	0.00	10.00
Regulation and supervision (FMR) (normalised)	1'309	3.08	3.05	0.00	10.00
European Single Market (ESM) membership	1'548	0.29	0.46	0.00	1.00
Euro area membership	1'548	0.15	0.35	0.00	1.00
KOF Globalisation Index	1'484	72.28	12.02	34.72	90.97
Orientation of the Chief Executive Party is left-wing	1'328	0.36	0.48	0.00	1.00
Unemployment rate	1'286	7.29	4.27	0.00	27.48
Dummy for banking crisis	1'548	0.10	0.30	0.00	1.00
Average percentage GDP loss during banking crisis	1'548	0.75	3.02	0.00	28.79
Sectoral valued added growth	15'794	2.24	7.12	-23.04	32.01
log Sectoral valued added	15'794	8.94	2.29	-0.92	14.58
log Sectoral employment	16'779	4.73	1.65	-3.22	9.87
log Sectoral investment	11'443	7.71	1.86	-0.51	14.24

Notes: The last three variables vary at the sector level and are restricted to 21 EU countries, 32 sectors and the years 1980-2013. All other variables are at the national level and cover up to 36 countries and the period 1971-2013.

Table 2: Main regression results explaining product (PMR) with comparisons to Alesina et al's (2010) sample

	(1)	(2)	(3)	(4)
	Change in Aggregate PMR			
VARIABLES	main	Alesina	Al-cnt	Al-yrs
Reform indicator (t-1)	-0.0562***	-0.0759***	-0.0767***	-0.0667***
	(-5.538)	(-4.551)	(-6.602)	(-5.123)
Dummy for ESM countries	-0.0872**	-0.135**	-0.113*	-0.0911*
	(-2.557)	(-2.285)	(-1.989)	(-1.989)
Dummy for euro membership	-0.0580	-0.160*	-0.156***	-0.104*
	(-1.567)	(-2.009)	(-3.061)	(-1.703)
KOF Globalisation Index	0.00286	0.0102***	0.00962***	0.00693***
	(1.252)	(4.516)	(4.973)	(2.780)
Orientation of the Chief Executive Party is left-wing	0.0547***	0.0401	0.0437**	0.0440*
	(2.868)	(1.410)	(2.262)	(1.841)
Unemployment rate (IMF/OECD/WB)	-0.0105***	-0.00658*	-0.00464	-0.0145***
	(-3.021)	(-1.776)	(-1.566)	(-2.988)
Dummy for banking crisis	0.0804*	-0.183*	-0.0386	0.119*
	(1.836)	(-2.038)	(-0.712)	(1.752)
Average percentage GDP loss during banking crisis	-0.0100**	0.00605	-0.00513	-0.0146**
	(-2.640)	(0.553)	(-0.975)	(-2.632)
Adjusted R-squared	0.437	0.483	0.473	0.467
Number of Observations	1039	471	658	722
Number of Countries	32	19	19	32
Number of Years	38	28	38	28
Long-run ESM effect	-1.551	-1.780	-1.478	-1.366
Long-run EA effect	-1.032	-2.104	-2.028	-1.556

Notes: The dependent variable is the aggregate product market regulation (PMR). The sample changes across columns with respect to the time and/or country coverage to understand the source of the differences with Alesina et al.'s (2010) results. Country- and year-fixed effects included. Standard errors are clustered at the country level. *** p<0.01, ** p<0.05, * p<0.1. p-values are shown for test statistics.

Table 3: Main regression results explaining labour market reforms (LMR) with comparisons to Alesina et al's (2010) sample

	(1)	(2)	(3)	(4)
	Change in Aggregate LMR			
VARIABLES	main	Alesina	Al-cnt	Al-yrs
Reform indicator (t-1)	-0.0882***	-0.137***	-0.0825***	-0.114***
	(-6.431)	(-3.478)	(-5.026)	(-3.941)
Dummy for ESM countries	0.0251	0.104*	0.0823*	0.0712*
	(0.872)	(1.989)	(1.778)	(1.991)
Dummy for euro membership	0.00224	0.0334	-0.00101	0.0188
	(0.0572)	(0.590)	(-0.0225)	(0.387)
KOF Globalisation Index	0.00417***	0.00836**	0.00436**	0.00651***
	(3.051)	(2.721)	(2.598)	(2.870)
Orientation of the Chief Executive Party is left-wing	0.0687***	0.0692**	0.0681***	0.0497**
	(3.422)	(2.255)	(3.191)	(2.051)
Unemployment rate (IMF/OECD/WB)	-0.00555*	-0.0210**	-0.0115**	-0.0115**
	(-1.750)	(-2.762)	(-2.703)	(-2.496)
Dummy for banking crisis	-0.0202	0.000416	-0.0322	-0.0115
	(-0.715)	(0.00878)	(-1.048)	(-0.264)
Average percentage GDP loss during banking crisis	0.00177	0.00405	0.00331	0.00153
	(0.545)	(0.796)	(1.391)	(0.271)
Adjusted R-squared	0.094	0.092	0.076	0.101
Number of Observations	1111	504	701	764
Number of Countries	35	20	20	35
Number of Sectors	1	1	1	1
Number of Years	39	29	39	29
Long-run ESM effect	0.284	0.760	0.997	0.623
Long-run EA effect	0.0254	0.244	-0.0123	0.164

Notes: The dependent variable is the aggregate labour market regulation (LMR) index. The sample changes across columns with respect to the time and/or country coverage to understand the source of the differences with Alesina et al.'s (2010) results. Country- and year-fixed effects included. Standard errors are clustered at the country level. *** p<0.01, ** p<0.05, * p<0.1. p-values are shown for test statistics.

Table 4: Main regression results explaining financial market reforms (FMR) with comparisons to Alesina et al's (2010) sample

	(1)	(2)	(3)	(4)
	Change in Aggregate FMR			
VARIABLES	main	Alesina	Al-cnt	Al-yrs
Reform indicator (t-1)	-0.113***	-0.105***	-0.0862***	-0.144***
	(-7.351)	(-5.765)	(-5.661)	(-7.357)
Dummy for ESM countries	0.0169	-0.111	-0.0589	-0.117
	(0.257)	(-1.092)	(-0.690)	(-1.015)
Dummy for euro membership	-0.0392	-0.0439	-0.0810	0.0508
	(-0.882)	(-0.750)	(-1.474)	(0.650)
KOF Globalisation Index	0.00466	0.00347	0.00505*	0.00553
	(1.608)	(0.936)	(1.884)	(1.182)
Orientation of the Chief Executive Party is left-wing	-0.00550	-0.0326	-0.0112	-0.00783
	(-0.193)	(-0.841)	(-0.486)	(-0.149)
Unemployment rate (IMF/OECD/WB)	-0.00701	0.00212	-0.00149	-0.00924
	(-1.542)	(0.198)	(-0.262)	(-0.945)
Dummy for banking crisis	0.245**	0.314**	0.0897	0.424***
	(2.523)	(2.454)	(1.084)	(2.968)
Average percentage GDP loss during banking crisis	-0.00478	-0.0322*	-0.00384	-0.0113
	(-0.637)	(-1.882)	(-0.484)	(-0.971)
Adjusted R-squared	0.257	0.284	0.277	0.284
Number of Observations	1067	484	721	664
Number of Countries	34	20	20	34
Number of Sectors	1	1	1	1
Number of Years	41	29	41	29
Long-run ESM effect	0.150	-1.058	-0.684	-0.811
Long-run EA effect	-0.347	-0.418	-0.939	0.352

Notes: The dependent variable is the aggregate financial market regulation (FMR) index. The sample changes across columns with respect to the time and/or country coverage to understand the source of the differences with Alesina et al.'s (2010) results. Country- and year-fixed effects included. Standard errors are clustered at the country level. *** p<0.01, ** p<0.05, * p<0.1. p-values are shown for test statistics.

Table 5: Regression results explaining disaggregated product (PMR) and labour (LMR) market reforms

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Change in PMR			Change in LMR			Change in FMR		
VARIABLES	Public ownership	Price controls	Entry barriers	Part-time	Fix-term	Dismissals and hours	Credit controls	Market structure	Regulation supervision
Reform indicator (t-1)	-0.0738***	-0.0790***	-0.0984***	-0.106***	-0.124***	-0.0999***	-0.156***	-0.119***	-0.183***
	(-6.694)	(-7.127)	(-9.690)	(-7.537)	(-6.244)	(-4.523)	(-7.136)	(-5.519)	(-11.82)
Dummy for ESM countries	-0.0572	-0.144***	-0.167***	0.141*	0.177*	-0.0250	-0.156*	0.0159	0.0947
	(-1.061)	(-3.136)	(-3.057)	(2.023)	(1.914)	(-0.826)	(-1.710)	(0.155)	(1.120)
Dummy for euro membership	-0.0607	-0.0585	-0.113	0.0418	-0.0550	0.00904	-0.0440	-0.0272	-0.0638
	(-1.248)	(-1.133)	(-1.493)	(0.522)	(-0.483)	(0.254)	(-0.981)	(-0.326)	(-0.857)
KOF Globalisation Index	0.00602***	0.00343	0.00511	0.00656***	9.88e-05	0.00517**	0.0109**	0.00532	0.00838*
	(2.775)	(1.072)	(1.396)	(3.115)	(0.0255)	(2.702)	(2.341)	(1.286)	(1.825)
Orientation of the Chief Executive Party is left-wing	0.0735***	0.0309	0.0395	0.145***	0.0694	0.0476**	-0.0222	-0.000243	0.0286
	(3.105)	(1.260)	(1.098)	(3.537)	(1.071)	(2.570)	(-0.425)	(-0.00544)	(0.655)
Unemployment rate (IMF/OECD/WB)	-0.00990	-0.0120***	-0.0180***	0.00690	-0.0173	-0.00766***	-0.00803	-0.00605	-0.0159**
	(-1.603)	(-3.175)	(-4.571)	(0.942)	(-1.573)	(-2.941)	(-1.059)	(-0.846)	(-2.253)
Dummy for banking crisis	0.145**	0.0277	0.0262	-0.163**	0.134*	-0.000588	0.236**	0.326*	0.281**
	(2.365)	(0.490)	(0.344)	(-2.570)	(1.760)	(-0.0178)	(2.283)	(1.954)	(2.614)
Average percentage GDP loss during banking crisis	-0.0121*	-0.00893*	-0.00737	0.0150	-0.00988	-1.80e-06	-0.00857	-0.00143	-0.0141
	(-1.918)	(-2.004)	(-1.156)	(1.394)	(-1.280)	(-0.000631)	(-1.408)	(-0.106)	(-1.474)
Adjusted R-squared	0.198	0.430	0.366	0.097	0.096	0.050	0.173	0.155	0.240
Number of Observations	1039	1039	1039	1111	1111	1111	1067	1097	1097
Number of Countries	32	32	32	35	35	35	34	34	34
Number of Years	38	38	38	39	39	39	41	41	41
Long-run ESM effect	-0.775	-1.827	-1.701	1.327	1.427	-0.250	-0.999	0.134	0.518
Long-run EA effect	-0.823	-0.741	-1.144	0.394	-0.444	0.0905	-0.281	-0.229	-0.349

Notes: The dependent variable is the disaggregated product market regulation (PMR) measures (columns 1-3), the disaggregated labour market regulation (LMR) measures (columns 4-6) and the disaggregated financial market regulation (FMR) measures (columns 7-9). All columns are based on the full sample. Country- and year-fixed effects included. Standard errors are clustered at the country level. *** p<0.01, ** p<0.05, * p<0.1. p-values are shown for test statistics. The last two rows show the long-run effects calculated using the relevant coefficient estimates for the dummy variable and the initial reform indicator: $(\gamma \text{ or } \delta)/\big(1-(1+\beta)\big)$.

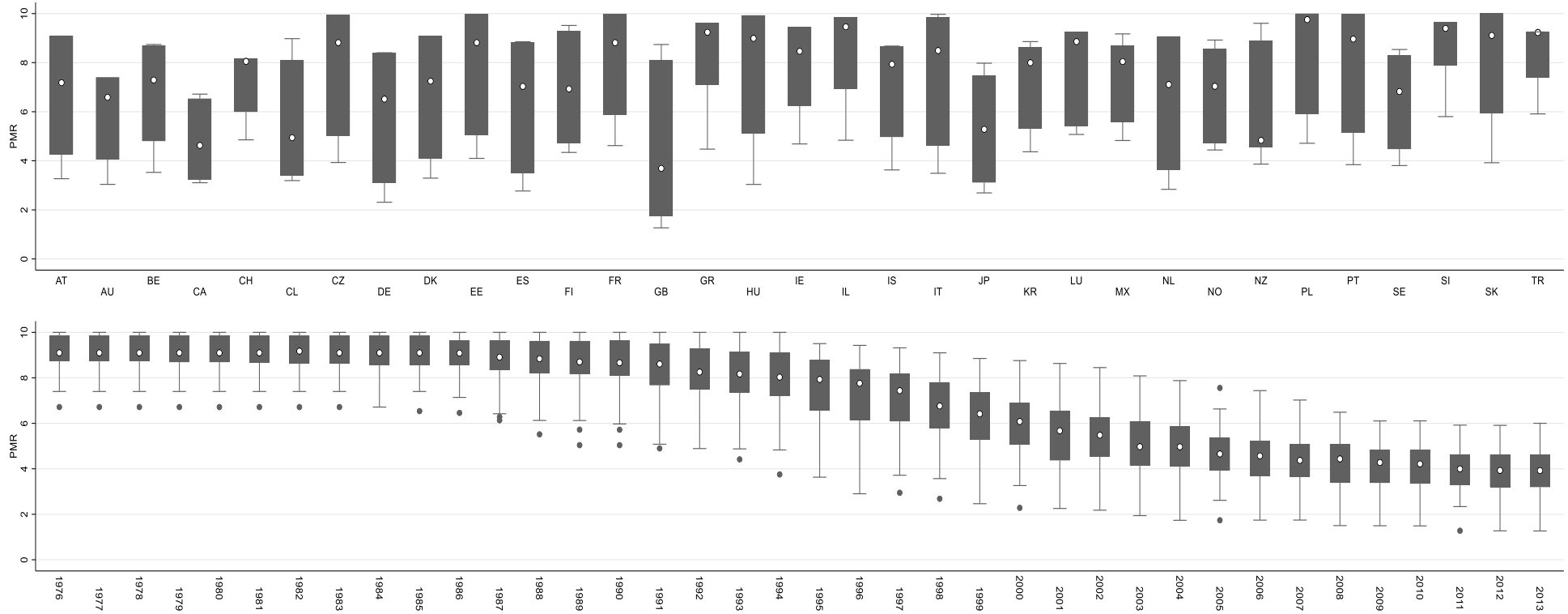
Table 6: The effects of euro and Single Market membership and product (PMR), labour (LMR) and financial (FMR) market reforms on value added growth at the sectoral level

	(1)	(2)	(3)	(4)
	Change in Value added growth			
VARIABLES	All sectors		4 sectors	
log Value added (t-1)	-2.106***	-2.151***	-1.991**	-2.000**
	(-5.692)	(-5.907)	(-2.458)	(-2.458)
Dummy for ESM countries	1.162	1.585*	1.068	1.052
	(1.369)	(1.890)	(0.501)	(0.423)
Dummy for euro membership	-0.166	-0.183	0.596	0.385
	(-0.486)	(-0.470)	(0.858)	(0.563)
FMR	0.393		0.304	
	(1.055)		(0.559)	
FMR - Credit market controls		0.116		0.0672
		(0.598)		(0.245)
FMR - Market structure		0.0124		-0.0369
		(0.0645)		(-0.138)
FMR - Regulation and supervision	-0.473		-1.255	
	(-1.071)		(-1.452)	
PMR		-0.375*		-0.248
		(-2.048)		(-0.484)
PMR - Public ownership		0.538*		-0.0270
		(1.946)		(-0.0399)
PMR - Price controls		-0.122*		-0.412**
		(-1.895)		(-2.675)
LMR	0.458**		0.755*	
	(2.325)		(2.044)	
LMR - Part-time and agency contracts		-0.0261		-0.0514
		(-0.224)		(-0.225)
LMR - Permanent and fixed-term contracts		0.166		0.516**
		(1.199)		(2.690)
LMR - Legislation on firing costs and working time		0.276**		-0.0181
		(2.344)		(-0.0811)
log Employment (t-1)	0.617**	0.611**	1.408	1.403
	(2.269)	(2.237)	(1.112)	(1.141)
KOF Globalisation Index	0.0484	0.0389	0.0720	0.0687
	(1.071)	(0.840)	(0.623)	(0.603)
Orientation of the Chief Executive Party is left-wing	0.380	0.323	0.674	0.561
	(1.467)	(1.246)	(1.170)	(0.985)
Unemployment rate (IMF/OECD/WB)	-0.0479	-0.0376	-0.246**	-0.241**
	(-0.680)	(-0.505)	(-2.535)	(-2.587)
Dummy for banking crisis	-1.220*	-1.201*	-0.696	-0.735
	(-1.951)	(-1.955)	(-0.452)	(-0.443)
Average percentage GDP loss during banking crisis	-0.0387	-0.0388	-0.0374	-0.0213
	(-0.550)	(-0.632)	(-0.205)	(-0.125)
log Investment (t-1)	1.068***	1.109***	0.549	0.603
	(3.844)	(3.969)	(0.514)	(0.554)
Adjusted R-squared	0.232	0.234	0.345	0.345
Number of Observations	11443	11443	1211	1211
Number of Countries	21	21	17	17
Number of Sectors	32	32	4	4
Number of years	34	34	34	34
F-test all pmr zero		0.829		0.964
F-test all lmr zero		0.0155		0.0290
F-test all fmr zero		0.0224		0.0768

Notes: The dependent variable is sectoral value added growth for all 32 sector available in the EU-KLEMS data (columns 1-2) or only those 4 sectors for which the OECD product market regulation (PMR) indicator is based on (columns 3-4). All columns are based on the full sample of country-years. Country-, sector- and year-fixed effects included. Standard errors are clustered at the country level. *** p<0.01, ** p<0.05, * p<0.1. p-values are shown for test statistics. The last two rows report p-values of F-tests in which the coefficient of the respective regulation variables are all set at zero.

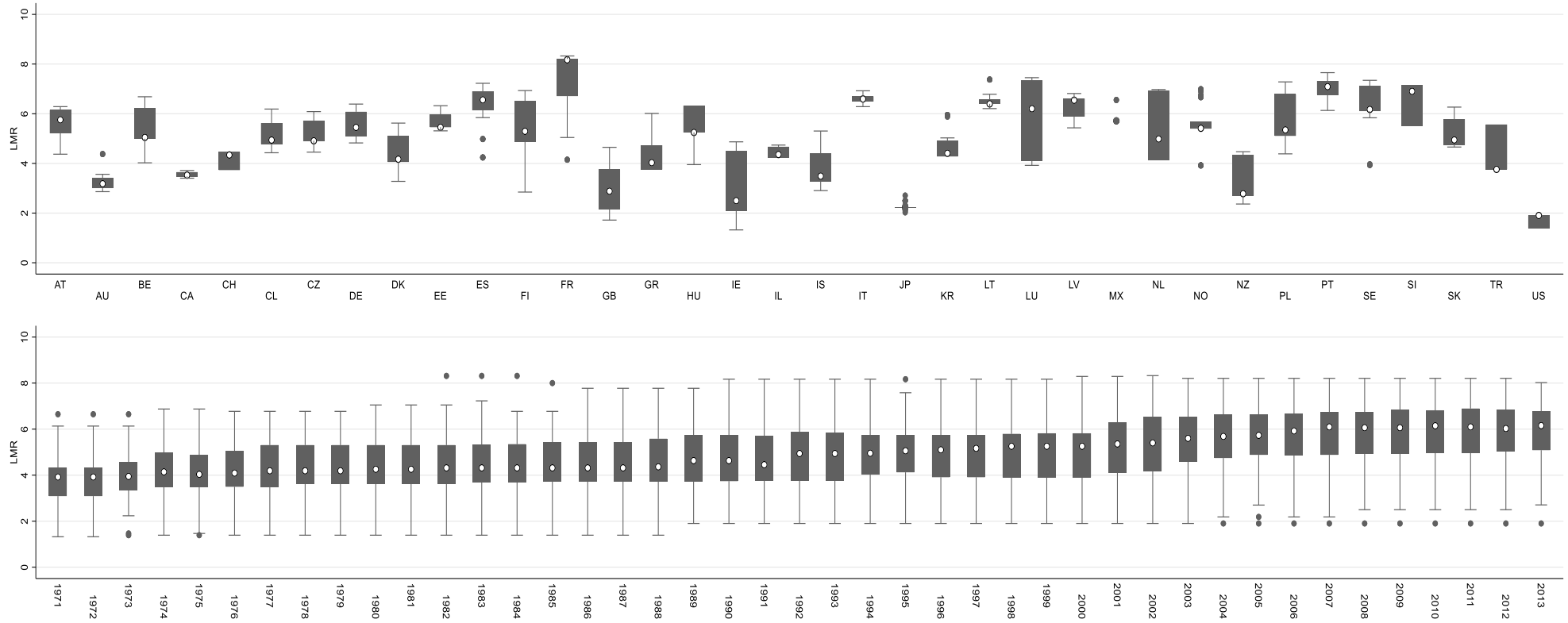
Figures

Figure 1: Country and time variation in the aggregate product market regulation (PMR) variable



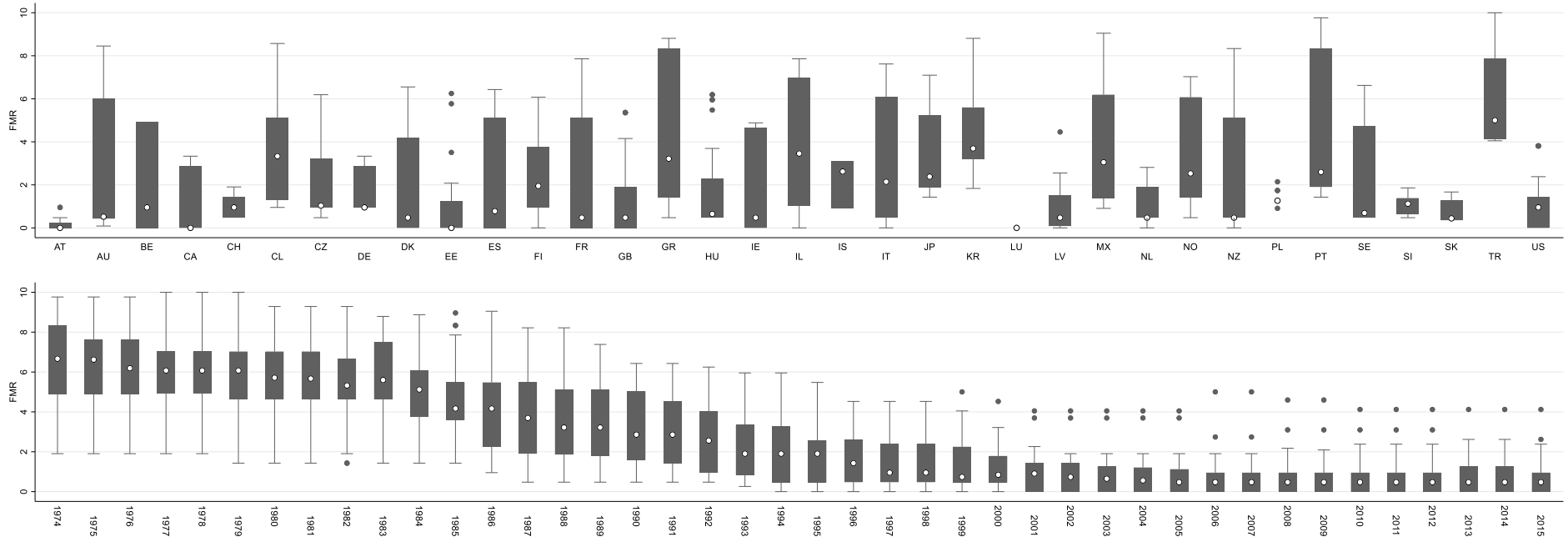
Notes: The upper and lower parts show box plots grouped at the country or the year level, respectively.

Figure 2: Country and time variation in the aggregate labour market regulation (LMR) variable



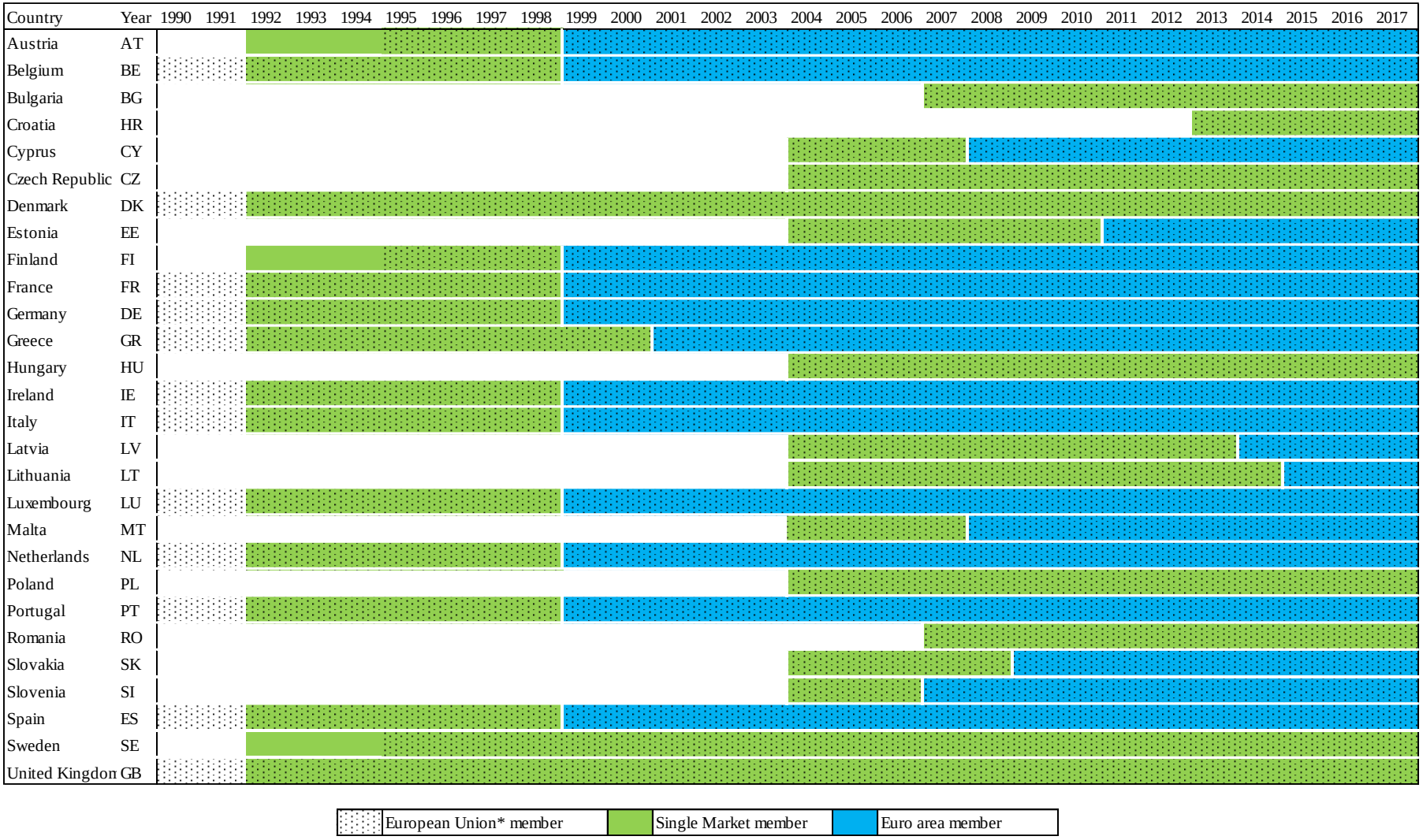
Notes: The upper and lower parts show box plots grouped at the country or the year level, respectively.

Figure 3: Country and time variation in the aggregate financial market regulation (FMR) variable



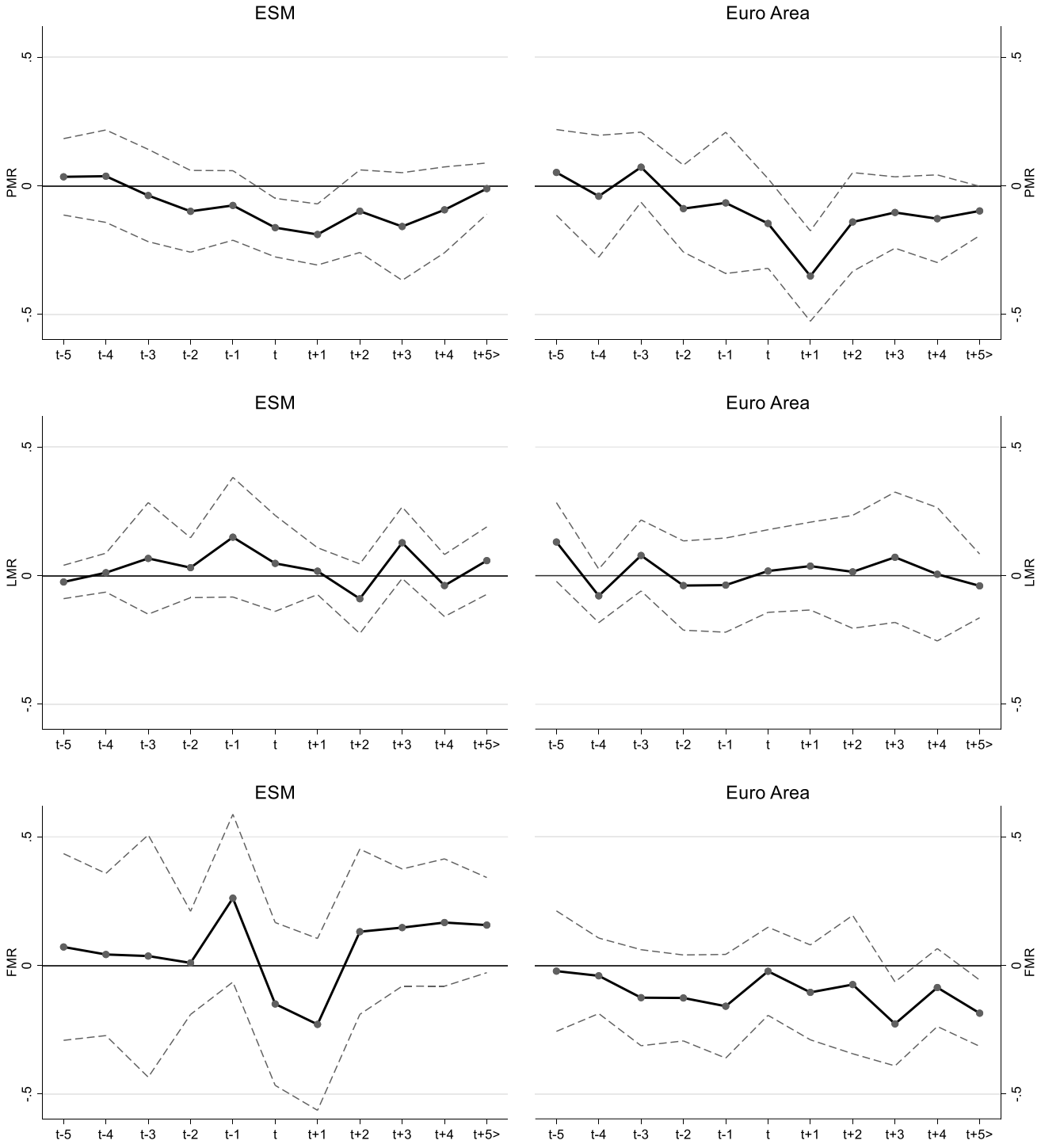
Notes: The upper and lower parts show box plots grouped at the country or the year level, respectively.

Figure 4: ESM and euro entries



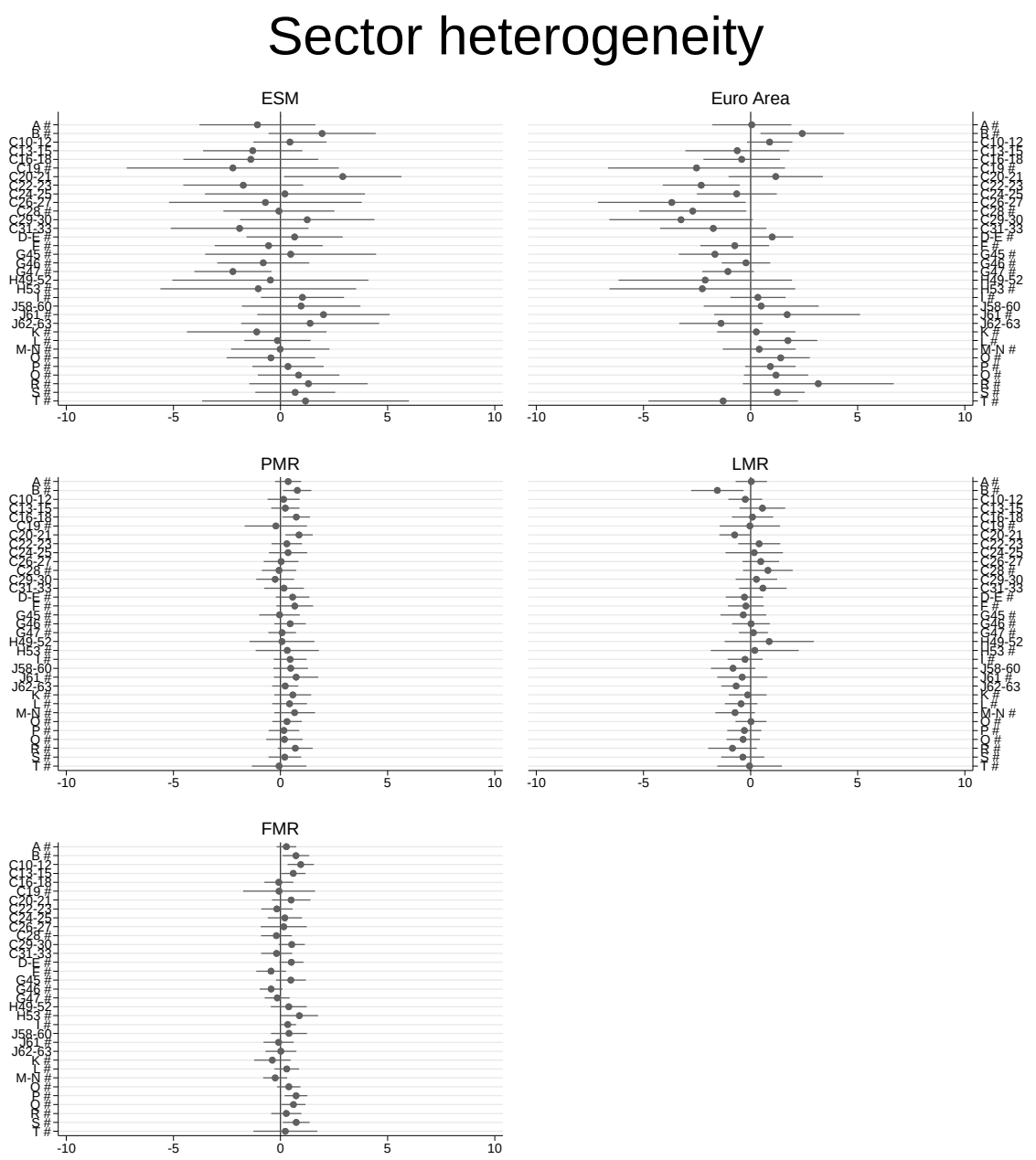
Notes: * Technically the European Union starts in 1992. It is called the European Community before.

Figure 5: Timing of ESM and euro effect on product (PMR), labour (LMR) and financial (FMR) market regulation



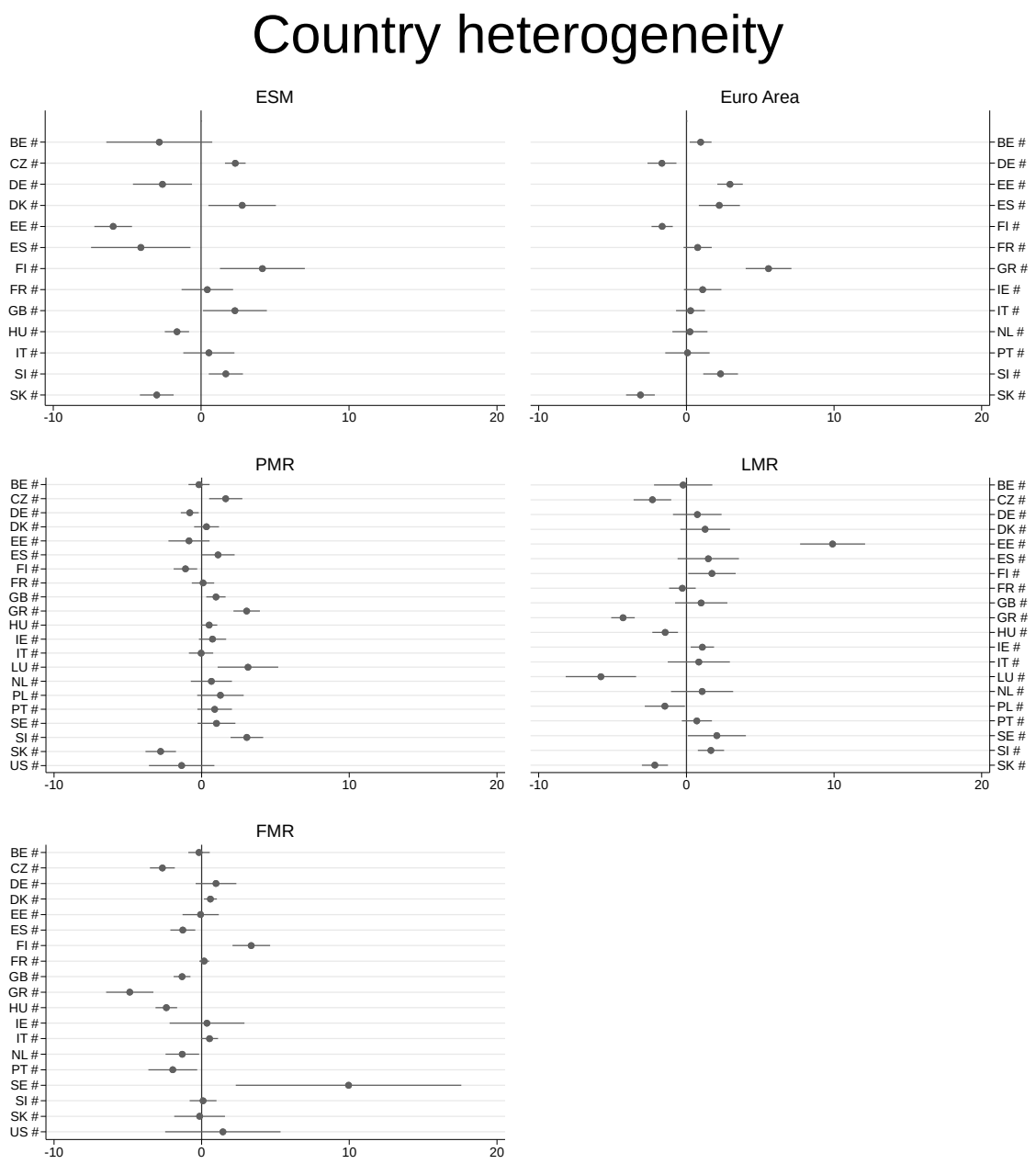
Notes: The coefficient plots show the estimated coefficient and a 95% confidence interval. The full regression results are shown in Table A..

Figure 6: Sector heterogeneity



Notes: The coefficient plots show the estimated coefficients for the interaction between the sector dummies and the variables depicted in the title of the respective part (i.e., ESM, euro, PMR, FMR and LMR). 95% confidence intervals are shown. Table A.7 contains the full regression result.

Figure 7: Country heterogeneity



Notes: The coefficient plots show the estimated coefficients for the interaction between the country dummies and the variables depicted in the title of the respective part (i.e., ESM, euro, PMR, FMR and LMR). 95% confidence intervals are shown. Tables A.8 and A.9 show the underlying regression results.

Online Appendix

(not for publication)

Tables

Table A.1: Sources and definitions

Variable name	Definition	Source
Product market regulation (PMR) index	Measure of regulatory structures and policies that promote or inhibit competition in the energy, transport and communication sectors. The data is collected through a questionnaire sent to governments in all OECD and in major non-OECD countries. The index includes information on seven sectors (telecoms, electricity, gas, post, rail, air passenger transport, and road freight) each of which is are based on two to four subcategories. We normalise the original 6-step variable to vary between 1 and 10 with higher values indicating more regulation .	OECD (2017)
PMR - Public ownership	This dimension of the PMR index includes information about the extent of public owernship and is normalised to vary between 1 and 10 with higher values indicating more regulation .	OECD (2017)
PMR - Price controls	This dimension of the PMR index includes information all regluatations expect those related to public ownership. The variable is normalised to vary between 1 and 10 with higher values indicating more regulation .	OECD (2017)
PMR - Entry barriers	This dimension of the PMR index includes information about entry barriers and is normalised to vary between 1 and 10 with higher values indicating more regulation .	OECD (2017)
Labour market regulation (LMR) index	Index variables based on the average of the value for dimensions A, B, and C. The original CBR index consists of 40 variables categorized in five sub-dimensions. These are: (A) Different terms of employment (permanent and part-time work), (B) working time, (C) dismissal laws (firing costs), (D) employee representation, and (E) collective action. We multiply by ten the original variable that varies between 1 and 2 so that it now varies between 1 and 10. Higher values indicate more regulation.	Adams et al.'s (2018)
LMR - Permanent and fixed-term contracts	Variable coded from those variables in sub-dimension A that covers laws and regulations governing permanent work (A4, A5, A6).	Own coding based on Adams et al.'s (2018)
LMR - Part-time and agency contracts	Variable coded from those variables in sub-dimension A that covers laws and regulations governing temporary contracts (A1, A2, A3, A7, A8).	Own coding based on Adams et al.'s (2018)
LMR - Legislation on firing costs and working time	Average of the values of dimensions B and C of the CBR index.	Own coding based on Adams et al.'s (2018)
Financial market regulation (FMR) index	The aggregate financial reform index is the simple average of the policy changes along the seven dimensions: Credit controls, interest rate controls, banking sector entry barriers, capital account controls, privatization, regulation of securities markets, prudential regulation and bank supervision	Denk and Gomes (2017)
FMR - Credit market controls	Simple average of the annual country score in the dimensions credit controls (restrictiveness of bank reserve requirements and the existence of either mandatory amounts of credit lending or credit subsidies to specific sectors) and interest rate controls (restrictions for banks in setting lending and deposit rates)	Denk and Gomes (2017)
FMR - Market structure	Simple average of the annual country score in the dimensions banking sector entry barriers (barriers to entry for foreign and domestic banks into the domestic banking system, restrictions on the geographic area where banks can operate and restrictions on the scope of bank activities), capital account liberalisation (degree of restrictions to international capital movements) and privatization (extent to which the government directly participates in banking activities through the ownership of bank assets.)	Denk and Gomes (2017)
FMR - Regulation and supervision	Simple average of the annual country score in the dimensions regulation of securities markets (regulation of bond, equity and derivative markets) and banking supervision (compliance of a country's capital adequacy rules with the Basel standard, the independence and scope of responsibility of the banking supervisory authority and the effectiveness of bank inspections).	Denk and Gomes (2017)

(continued on next page)

Variable name	Definition	Source
Dummy for euro membership	Binary indicator that turns one when a country adopts the Euro as official currency.	Own coding based on EU sources
Dummy for ESM countries	Binary indicator that turns one when a country enters the European Single Market which we consider completed in 1992 with the Treaty of Maastricht. We code all EU member states in 1992 as ESM members from 1993 onwards. Austria, Finland, and Sweden are considered also as ESM members from 1993.	Own coding based on EU sources
Dummy for banking crisis	Binary indicator that turns one in years of a banking crisis.	Laeven and Valencia (2012)
Average percentage GDP loss during banking crisis	Continuous variable constructed by dividing the total GDP loss associated with a banking crisis by the duration of the crisis episode in years.	Laeven and Valencia (2012)
KOF globalisation index	The aggregate index is based on 43 variables measuring de jure and de facto globalisation for the economic, social and political dimensions.	Gygli et al. (2019)
Post-financial crisis	Binary indicator that turns one for all countries following the global financial crisis, i.e. from 2009 to the end of the sample.	Own coding
Orientation of the Chief Executive Party is Left-wing	Binary indicator that is one in country-years in which the ideology of the party in power (or is the senior coalition party) is left-wing.	Database of Political Institutions 2017 (Cruz et al. 2018)
Unemployment rate (%)	Unemployment rate defined by either the national definition, the ILO harmonized definition, or the OECD harmonized definition. The main source is the IMF. Missing observations are filled using OECD statistics and subsequently World Bank statistics.	IMF (2019), OECD (2019), World Bank Development Indicators (2019)
Sectoral value-added (growth)	Sectoral value added (or its growth rate) for 33 sectors. We expand the 2017 release data backwards using the growth rates from the 2012 release of EUKLEMS to extend the data back to 1985. A bridge table is used to assign sectors according to ISICrev.3.1 to those of ISICrev.4. We use the one-year lag of the natural logarithm of value added as explantatory variable as specified in equations (3) and (4).	van Ark and Jäger (2017); O'Mahony and Timmer (2009)
Sectoral employment	Sectoral employment for 33 sectors. We expand the 2017 release data backwards using the growth rates from the 2012 release of EUKLEMS to extend the data back to 1985. A bridge table is used to assign sectors according to ISICrev.3.1 to those of ISICrev.4. We use the one-year lag of the natural logarithm of the number of employed people as explantatory variable as specified in equations (3) and (4).	van Ark and Jäger (2017); O'Mahony and Timmer (2009)
Sectoral investment	Sectoral investment for 33 sectors. We expand the 2017 release data backwards using the growth rates from the 2012 release of EUKLEMS to extend the data back to 1985. A bridge table is used to assign sectors according to ISICrev.3.1 to those of ISICrev.4. We use the one-year lag of the natural logarithm of gross fixed capital formation as explantatory variable as specified in equations (3) and (4).	van Ark and Jäger (2017); O'Mahony and Timmer (2009)

Table A.2: Correlation matrix for PMR and LMR variables

Product market regulation	(1)	(2)	(3)	(4)
(1) Aggregate product market regulation (PMR)	1			
(2) Public ownership (PMR)	0.93	1		
(3) Price controls (PMR)	0.95	0.77	1	
(4) Entry barriers (PMR)	0.94	0.76	0.99	1

Measures of labor market regulation	(1)	(2)	(3)	(4)
(1) Aggregate labour market regulation (LMR)	1			
(2) Part-time and agency contracts (LMR)	0.80	1		
(3) Permanent and fixed-term contracts (LMR)	0.78	0.69	1	
(4) Legislation on firing costs and working time (LMR)	0.92	0.55	0.53	1

Financial market regulation	(1)	(2)	(3)	(4)
(1) Aggregate financial market regulation (FMR)	1			
(2) Credit market controls (FMR)	0.89	1		
(3) Market structure (FMR)	0.92	0.70	1	
(4) Regulation and supervision (FMR)	0.91	0.74	0.76	1

Table A.3: Regression results for disaggregated PMR measures based on the sample of Alesina et al. (2010)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	ΔPMR - Public ownership			ΔPMR - Price controls			ΔPMR - Entry barriers		
VARIABLES	Alesina	Al-cnt	Al-yrs	Alesina	Al-cnt	Al-yrs	Alesina	Al-cnt	Al-yrs
Reform indicator (t-1)	-0.0703***	-0.0704***	-0.0695***	-0.151***	-0.140***	-0.111***	-0.134***	-0.132***	-0.131***
	(-6.002)	(-7.353)	(-6.385)	(-6.242)	(-7.103)	(-5.230)	(-5.551)	(-7.718)	(-8.165)
Dummy for ESM countries	-0.145	-0.136	-0.115*	-0.106	-0.0817	-0.0759	-0.0617	-0.00387	-0.0663
	(-1.700)	(-1.542)	(-1.767)	(-1.452)	(-1.481)	(-1.312)	(-0.564)	(-0.0385)	(-0.911)
Dummy for euro membership	-0.0933	-0.133*	-0.0727	-0.239**	-0.222**	-0.135	-0.342**	-0.304**	-0.230*
	(-0.824)	(-1.765)	(-0.930)	(-2.512)	(-2.857)	(-1.622)	(-2.383)	(-2.520)	(-1.864)
KOF Globalisation Index	0.00968***	0.00898***	0.00797***	0.0195***	0.0172***	0.0117***	0.0174***	0.0159***	0.0144***
	(5.321)	(5.792)	(3.460)	(5.415)	(5.302)	(3.208)	(5.964)	(6.405)	(4.859)
Orientation of the Chief Executive Party is left-wing	0.0464	0.0544*	0.0657*	0.0333	0.0282	0.0186	0.0375	0.0388	0.0251
	(1.051)	(2.077)	(2.031)	(1.063)	(1.088)	(0.590)	(0.927)	(1.067)	(0.580)
Unemployment rate (IMF/OECD/WB)	-0.00884	-0.00558	-0.0117	-0.00858	-0.00765	-0.0189***	-0.0129	-0.0139***	-0.0249***
	(-1.534)	(-1.359)	(-1.301)	(-1.175)	(-1.397)	(-3.462)	(-1.683)	(-3.047)	(-3.943)
Dummy for banking crisis	0.0890	0.0702	0.214**	-0.469***	-0.168*	0.0289	-0.589**	-0.140	-0.00407
	(1.166)	(0.855)	(2.461)	(-4.142)	(-2.027)	(0.329)	(-2.730)	(-1.106)	(-0.0360)
Average percentage GDP loss during banking crisis	-0.00741	-0.0114	-0.0116*	0.0239	0.00185	-0.0174**	0.0266	0.000864	-0.0162
	(-0.798)	(-1.175)	(-1.698)	(1.709)	(0.304)	(-2.530)	(1.115)	(0.0898)	(-1.531)
Adjusted R-squared	0.232	0.239	0.231	0.472	0.455	0.449	0.416	0.385	0.389
Number of Observations	471	658	722	471	658	722	471	658	722
Number of Countries	19	19	32	19	19	32	19	19	32
Number of years	28	38	28	28	38	28	28	38	28
Long-run ESM effect	-2.061	-1.933	-1.654	-0.700	-0.585	-0.681	-0.460	-0.0294	-0.505
Long-run EA effect	-1.328	-1.881	-1.046	-1.581	-1.589	-1.207	-2.546	-2.311	-1.749

Notes: The dependent variable is any of the disaggregated product market regulation (PMR) measures. The sample changes across columns with respect to the time and/or country coverage to understand the source of the differences with Alesina et al.'s (2010) results. Country- and year-fixed effects included. Standard errors are clustered at the country level. *** p<0.01, ** p<0.05, * p<0.1. p-values are shown for test statistics. The last two rows show the long-run effects calculated using the relevant coefficient estimates for the dummy variable and the initial reform indicator: $(\gamma \text{ or } \delta)/(1-(1+\beta))$.

Table A.4: Regression results for disaggregated LMR measures based on Alesina et al.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	ΔLMR - part-time			ΔLMR - fixed-term			ΔLMR - dismissals and hours		
VARIABLES	Alesina	Al-cnt	Al-yrs	Alesina	Al-cnt	Al-yrs	Alesina	Al-cnt	Al-yrs
Reform indicator (t-1)	-0.185***	-0.135***	-0.133***	-0.216***	-0.136***	-0.177***	-0.145**	-0.0918**	-0.144***
	(-4.383)	(-7.028)	(-3.416)	(-3.318)	(-3.839)	(-3.999)	(-2.614)	(-2.705)	(-3.545)
Dummy for ESM countries	0.158*	0.136*	0.0965	0.529**	0.431*	0.353***	0.0499	0.0536	0.0437
	(1.868)	(1.784)	(1.248)	(2.435)	(2.074)	(2.789)	(0.947)	(1.196)	(0.962)
Dummy for euro membership	0.271*	0.142	0.202	-0.00222	-0.0583	-0.0699	-0.0210	-0.0226	-0.00897
	(1.997)	(1.434)	(1.586)	(-0.0107)	(-0.361)	(-0.419)	(-0.453)	(-0.708)	(-0.190)
KOF Globalisation Index	0.0141***	0.00914***	0.00872**	0.00506	0.00170	0.00220	0.00927**	0.00519*	0.00913***
	(3.617)	(4.237)	(2.402)	(1.543)	(0.658)	(0.606)	(2.239)	(1.908)	(3.109)
Orientation of the Chief Executive Party is left-wing	0.128***	0.148***	0.107***	0.0637	0.122	0.00575	0.0581	0.0386*	0.0468*
	(2.914)	(3.055)	(2.962)	(0.667)	(1.638)	(0.0732)	(1.658)	(1.962)	(1.734)
Unemployment rate (IMF/OECD/WB)	-0.0127	-0.00339	-0.000183	-0.0648**	-0.0360**	-0.0402**	-0.0178**	-0.0111**	-0.0113***
	(-1.254)	(-0.529)	(-0.0222)	(-2.334)	(-2.362)	(-2.467)	(-2.557)	(-2.611)	(-2.771)
Dummy for banking crisis	-0.115	-0.216**	-0.0679	-0.0557	-0.0399	0.173*	0.0311	0.0153	-0.0264
	(-0.895)	(-2.460)	(-0.744)	(-0.266)	(-0.367)	(1.715)	(0.624)	(0.466)	(-0.551)
Average percentage GDP loss during banking crisis	0.00507	0.0202**	0.00882	0.0286	0.0158**	-0.0107	0.00237	-0.00153	0.00167
	(0.393)	(2.184)	(0.432)	(1.607)	(2.204)	(-0.931)	(0.367)	(-0.595)	(0.454)
Adjusted R-squared	0.138	0.107	0.068	0.123	0.093	0.111	0.038	0.022	0.066
Number of Observations	504	701	764	504	701	764	504	701	764
Number of Countries	20	20	35	20	20	35	20	20	35
Number of Years	29	39	29	29	39	29	29	39	29
Long-run ESM effect	0.852	1.009	0.727	2.445	3.164	1.993	0.345	0.584	0.303
Long-run EA effect	1.467	1.055	1.525	-0.0102	-0.428	-0.394	-0.145	-0.246	-0.0623

Notes: The dependent variable is any of the disaggregated labour market regulation (LMR) measures. The sample changes across columns with respect to the time and/or country coverage to understand the source of the differences with Alesina et al.'s (2010) results. Country- and year-fixed effects included. Standard errors are clustered at the country level. *** p<0.01, ** p<0.05, * p<0.1. p-values are shown for test statistics. The last two rows show the long-run effects calculated using the relevant coefficient estimates for the dummy variable and the initial reform indicator: $(\gamma \text{ or } \delta)/\big(1-(1+\beta)\big)$.

Table A.5: Regression results for disaggregated FMR measures based on the sample of Alesina et al. (2010)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	ΔFMR - Credit markt controls			ΔFMR - Market structure			ΔFMR - Regulation and supervision		
VARIABLES	Alesina	Al-cnt	Al-yrs	Alesina	Al-cnt	Al-yrs	Alesina	Al-cnt	Al-yrs
Reform indicator (t-1)	-0.158***	-0.148***	-0.179***	-0.102***	-0.0745***	-0.167***	-0.209***	-0.185***	-0.224***
	(-5.056)	(-5.316)	(-6.541)	(-5.193)	(-5.332)	(-5.958)	(-7.207)	(-7.571)	(-12.08)
Dummy for ESM countries	-0.269	-0.220	-0.188	-0.0930	-0.0364	-0.179	-0.00722	0.0463	0.00418
	(-1.644)	(-1.584)	(-1.163)	(-0.724)	(-0.282)	(-1.110)	(-0.0384)	(0.283)	(0.0265)
Dummy for euro membership	0.0389	-0.0333	0.0513	-0.0847	-0.0955	0.0344	-0.175	-0.213**	0.0255
	(0.449)	(-0.528)	(0.526)	(-0.802)	(-1.080)	(0.249)	(-1.612)	(-2.390)	(0.180)
KOF Globalisation Index	0.00926	0.0114*	0.0112	0.00681*	0.00376	0.0122**	0.0193***	0.0157***	0.0180***
	(1.202)	(1.988)	(1.510)	(1.837)	(1.060)	(2.678)	(4.181)	(4.131)	(4.020)
Orientation of the Chief Executive Party is left-wing	-0.0879	-0.0451	-0.0223	0.0254	-0.000962	0.0443	0.0130	0.0296	0.0135
	(-0.823)	(-0.671)	(-0.232)	(0.417)	(-0.0288)	(0.582)	(0.191)	(0.704)	(0.186)
Unemployment rate (IMF/OECD/WB)	0.00309	-0.00307	-0.0145	0.00297	0.00333	-0.00699	-0.0128	-0.0185*	-0.0203*
	(0.142)	(-0.257)	(-0.953)	(0.275)	(0.674)	(-0.498)	(-0.902)	(-2.043)	(-1.898)
Dummy for banking crisis	0.295	0.0698	0.374**	0.426**	0.147	0.598**	0.0156	-0.0462	0.436**
	(1.633)	(0.841)	(2.355)	(2.516)	(1.110)	(2.510)	(0.0934)	(-0.485)	(2.358)
Average percentage GDP loss during banking crisis	-0.0389	-0.00824	-0.00518	-0.0184	-0.00216	-0.00718	-0.0233	0.00399	-0.0359*
	(-1.132)	(-1.046)	(-0.361)	(-1.104)	(-0.174)	(-0.346)	(-1.425)	(0.791)	(-1.771)
Adjusted R-squared	0.165	0.177	0.165	0.171	0.155	0.192	0.215	0.212	0.259
Number of Observations	484	721	664	504	741	694	504	741	694
Number of Countries	20	20	34	20	20	34	20	20	34
Number of years	29	41	29	29	41	29	29	41	29
Long-run ESM effect	-1.703	-1.492	-1.052	-0.914	-0.489	-1.068	-0.0346	0.250	0.0187
Long-run EA effect	0.246	-0.225	0.287	-0.833	-1.282	0.206	-0.838	-1.151	0.114

Notes: The dependent variable is any of the disaggregated product market regulation (FMR) measures. The sample changes across columns with respect to the time and/or country coverage to understand the source of the differences with Alesina et al.'s (2010) results. Country- and year-fixed effects included. Standard errors are clustered at the country level. *** p<0.01, ** p<0.05, * p<0.1. p-values are shown for test statistics. The last two rows show the long-run effects calculated using the relevant coefficient estimates for the dummy variable and the initial reform indicator: $(\gamma \text{ or } \delta)/\big(1-(1+\beta)\big)$.

Table A.6: Detailed regression results underlying Figure 5

VARIABLES	(1) ΔPMR		(2) ΔLMR		(3) ΔFMR	
Reform indicator (t-1)	-0.0538***		-0.0881***		-0.112***	
	(-5.208)		(-6.515)		(-7.442)	
KOF Globalisation Index	0.00387*		0.00383**		0.00483	
	(2.013)		(2.632)		(1.661)	
Orientation of the Chief Executive Party is left-wing	0.0531***		0.0657***		-0.00713	
	(3.162)		(3.435)		(-0.267)	
Unemployment rate (IMF/OECD/WB)	-0.0102***		-0.00522		-0.00510	
	(-2.974)		(-1.652)		(-1.105)	
Dummy for banking crisis	0.0594		-0.0104		0.253**	
	(1.327)		(-0.363)		(2.694)	
Average percentage GDP loss during banking crisis	-0.00900**		0.00109		-0.00527	
	(-2.533)		(0.324)		(-0.718)	
	ESM	Euro area	ESM	Euro area	ESM	Euro area
t-5	0.0351	0.0523	-0.0245	0.131*	0.0719	-0.0219
	(0.482)	(0.639)	(-0.765)	(1.738)	(0.403)	(-0.190)
t-4	0.0376	-0.0404	0.0116	-0.0785	0.0428	-0.0402
	(0.427)	(-0.348)	(0.313)	(-1.530)	(0.276)	(-0.557)
t-3	-0.0376	0.0726	0.0672	0.0786	0.0367	-0.125
	(-0.427)	(1.086)	(0.629)	(1.156)	(0.158)	(-1.365)
t-2	-0.0990	-0.0885	0.0311	-0.0384	0.0101	-0.126
	(-1.270)	(-1.068)	(0.542)	(-0.449)	(0.103)	(-1.537)
t-1	-0.0762	-0.0662	0.150	-0.0366	0.262	-0.158
	(-1.150)	(-0.492)	(1.307)	(-0.407)	(1.633)	(-1.600)
t	-0.162***	-0.146*	0.0478	0.0181	-0.150	-0.0225
	(-2.911)	(-1.711)	(0.520)	(0.229)	(-0.962)	(-0.267)
t+1	-0.189***	-0.351***	0.0175	0.0372	-0.229	-0.105
	(-3.244)	(-4.066)	(0.391)	(0.443)	(-1.395)	(-1.153)
t+2	-0.0985	-0.140	-0.0896	0.0148	0.131	-0.0741
	(-1.251)	(-1.492)	(-1.347)	(0.137)	(0.831)	(-0.561)
t+3	-0.158	-0.104	0.128*	0.0716	0.147	-0.227***
	(-1.539)	(-1.523)	(1.874)	(0.574)	(1.317)	(-2.831)
t+4	-0.0933	-0.128	-0.0384	0.00555	0.167	-0.0857
	(-1.140)	(-1.528)	(-0.648)	(0.0434)	(1.372)	(-1.151)
t+5>	-0.0107	-0.0976**	0.0585	-0.0397	0.157*	-0.185***
	(-0.219)	(-2.076)	(0.907)	(-0.650)	(1.727)	(-2.929)
Adjusted R-squared	0.444		0.095		0.257	
Number of Observations	1039		1111		1067	
Number of Countries	32		35		34	
Number of years	38		39		41	

Notes: Country- and year-fixed effects included. Standard errors are clustered at the country level. *** p<0.01, ** p<0.05, * p<0.1. p-values are shown for test statistics. The ESM and Euro area results are from the same regression but they are reported side-by-side for exposition only.

Table A.7: Detailed regression results analysing sector heterogeneity (Figure 6Figure 6)

VARIABLES	Real value added (%-change)	
	Coeff.	t-stat
log Real value added (t-1)	-1.0347***	(-5.17)
KOF Globalisation Index	0.0824**	(2.17)
Orientation of the Chief Executive Party is left-wing	0.3849	(1.68)
Unemployment rate (IMF/OECD/WB)	-0.08876*	(-1.77)
Dummy for banking crisis	-1.0447*	(-1.9)
Average percentage GDP loss during banking crisis	-0.0258	(-0.54)

	ESM		Euro		FMR		PMR		LMR	
Interaction effects	Coeff.	t-stat	Coeff.	t-stat	Coeff.	t-stat	Coeff.	t-stat	Coeff.	t-stat
C19	-2.2235	(-0.93)	-2.5236	(-1.27)	-0.2173	(-0.31)	-0.0326	(-0.05)	-0.0649	(-0.08)
C20-21	2.9074**	(2.2)	1.1721	(1.1)	0.8664**	(2.82)	-0.7418**	(-2.15)	0.4963	(1.15)
C22-23	-1.7379	(-1.29)	-2.3037**	(-2.65)	0.2965	(0.87)	0.3989	(0.84)	-0.1686	(-0.48)
C24-25	0.2075	(0.12)	-0.6466	(-0.72)	0.3518	(0.82)	0.1682	(0.26)	0.2034	(0.53)
C26-27	-0.707	(-0.33)	-3.6803**	(-2.21)	0.0311	(0.08)	0.479	(1.16)	0.1499	(0.29)
C28	-0.0744	(-0.06)	-2.6983**	(-2.24)	-0.0679	(-0.18)	0.8086	(1.45)	-0.191	(-0.56)
C29-30	1.2463	(0.82)	-3.2458*	(-2.01)	-0.2504	(-0.59)	0.2709	(0.58)	0.5251*	(1.79)
C31-33	-1.9102	(-1.23)	-1.7427	(-1.45)	0.1618	(0.36)	0.5732	(1.07)	-0.1831	(-0.52)
D-E	0.6594	(0.61)	1.0087**	(2.13)	0.5663	(1.5)	-0.2868	(-0.68)	0.5085*	(1.86)
F	-0.5546	(-0.46)	-0.7392	(-0.96)	0.6656	(1.61)	-0.2191	(-0.54)	-0.4411	(-1.31)
G45	0.4746	(0.25)	-1.6628*	(-2.04)	-0.0445	(-0.1)	-0.3399	(-0.66)	0.4838	(1.44)
G46	-0.8043	(-0.78)	-0.2167	(-0.4)	0.449	(1.27)	0.0199	(0.05)	-0.4381	(-1.7)
G47	-2.2216**	(-2.57)	-1.0598*	(-1.83)	0.0787	(0.25)	0.1328	(0.41)	-0.1534	(-0.54)
H49-52	-0.471	(-0.21)	-2.1183	(-1.09)	0.0693	(0.09)	0.8693	(0.86)	0.3865	(0.95)
H53	-1.0364	(-0.47)	-2.2515	(-1.08)	0.3158	(0.44)	0.1926	(0.19)	0.8793**	(2.09)
I	1.0258	(1.1)	0.3424	(0.55)	0.4508	(1.22)	-0.258	(-0.65)	0.3374*	(1.82)
J58-60	0.9585	(0.72)	0.4956	(0.38)	0.4742	(1.22)	-0.8179	(-1.64)	0.3972	(0.98)
J61	2.006	(1.35)	1.7077	(1.04)	0.7281	(1.46)	-0.3887	(-0.69)	-0.0895	(-0.26)
J62-63	1.3833	(0.89)	-1.3816	(-1.47)	0.2219	(0.76)	-0.6761*	(-2.02)	0.0163	(0.05)
K	-1.1097	(-0.71)	0.2643	(0.3)	0.5751	(1.38)	-0.1344	(-0.32)	-0.3808	(-0.93)
L	-0.1397	(-0.19)	1.7444**	(2.64)	0.4203	(1.08)	-0.4434	(-1.21)	0.294	(1.06)
M-N	-0.0118	(-0.01)	0.4017	(0.49)	0.6589	(1.44)	-0.7237	(-1.62)	-0.2471	(-0.92)
O	-0.4472	(-0.45)	1.4068**	(2.15)	0.3034	(0.92)	0.0165	(0.05)	0.3876	(1.49)
P	0.3488	(0.43)	0.9231	(1.62)	0.1592	(0.46)	-0.2924	(-0.76)	0.7262**	(2.84)
Q	0.8472	(0.92)	1.189	(1.64)	0.1859	(0.45)	-0.3486	(-0.93)	0.6031**	(2.24)
R	1.3048	(0.98)	3.1594*	(1.86)	0.6894*	(1.75)	-0.8476	(-1.55)	0.2705	(0.8)
S	0.6882	(0.77)	1.2471*	(2.03)	0.2005	(0.55)	-0.3632	(-0.75)	0.7339**	(2.42)
T	1.1679	(0.5)	-1.2817	(-0.76)	-0.0669	(-0.11)	-0.0492	(-0.07)	0.2233	(0.31)

Adjusted R-squared	0.242
Number of Observations	15928
Number of Countries	23
Number of Sectors	33
Number of Years	34
F-statistic all ESM coefficients equal	61
F-statistic all euro area coefficients equal	110.5
F-statistic all PMR coefficients equal	62.43
F-statistic all LMR coefficients equal	47.59
F-statistic all FMR coefficients equal	427.8

Notes: The dependent variable is sectoral value added growth for all 32 sector available in the EU-KLEMS data. The regression is based on Equation 4 in the paper and includes interaction with the 13 sector dummies with the ESM dummy, the euro dummy and the two aggregate regulation measures. All columns are based on the full country-year sample. Country-, sector- and year-fixed effects included. Standard errors are clustered at the country level. *** p<0.01, ** p<0.05, * p<0.1. p-values are shown for test statistics. The last four rows report F-statistics testing whether all coefficients of the respective variable are equal to each other. All F-statistics are significant at normal significance levels. All results are from the same regression but they are reported side-by-side for exposition only.

Table A.8: Detailed regression results analysing country heterogeneity (Figure 7)

VARIABLES	Real value added (%-change)	
	Coeff.	t-stat
log Real value added (t-1)	-0.9722***	(-5.11)
KOF Globalisation Index	0.111	(1.44)
Orientation of the Chief Executive Party is left-wing	-0.1237	(-0.58)
Unemployment rate (IMF/OECD/WB)	0.0066	(0.1)
Dummy for banking crisis	-0.638	(-1.32)
Average percentage GDP loss during banking crisis	-0.0749	(-1.72)

	ESM		Euro		FMR		PMR		LMR	
Interaction effects	Coeff.	t-stat	Coeff.	t-stat	Coeff.	t-stat	Coeff.	t-stat	Coeff.	t-stat
BE	-2.826	(-1.64)	0.965**	(2.7)	-0.1783	(-0.52)	-0.2204	(-0.23)	-0.1756	(-0.5)
CZ	2.3047***	(6.86)			1.6328***	(3.01)	-2.2987***	(-3.76)	-2.6535***	(-6.54)
DE	-2.6125**	(-2.72)	-1.6571***	(-3.53)	-0.8014**	(-2.74)	0.7394	(0.93)	0.9734	(1.47)
DK	2.7762**	(2.53)			0.3304	(0.81)	1.2673	(1.56)	0.5946***	(2.87)
EE	-5.9477***	(-9.77)	2.9518***	(7.1)	-0.851	(-1.27)	9.8996***	(9.35)	-0.0684	(-0.12)
ES	-4.0746**	(-2.52)	2.2285***	(3.33)	1.1153*	(2.08)	1.4852	(1.49)	-1.2768***	(-3.16)
FI	4.1465***	(3.01)	-1.6438***	(-4.76)	-1.0931**	(-2.84)	1.7295**	(2.24)	3.3606***	(5.48)
FR	0.4224	(0.51)	0.7595	(1.65)	0.0979	(0.27)	-0.2689	(-0.62)	0.1754	(1.09)
GB	2.2857**	(2.2)			0.9724***	(3.09)	0.9986	(1.17)	-1.3233***	(-4.84)
GR			5.5616***	(7.47)	3.0527***	(7.1)	-4.2927***	(-11.14)	-4.8671***	(-6.32)
HU	-1.6305***	(-4.14)			0.5096*	(1.95)	-1.4391***	(-3.43)	-2.3869***	(-6.82)
IE			1.1016*	(1.81)	0.7386	(1.68)	1.083**	(2.85)	0.3634	(0.3)
IT	0.5261	(0.63)	0.2834	(0.6)	-0.0345	(-0.09)	0.8425	(0.83)	0.54*	(1.96)
LU					3.1427***	(3.19)	-5.7878***	(-5.05)		
LV										
NL			0.2377	(0.42)	0.6633	(0.99)	1.0628	(1.05)	-1.3104**	(-2.4)
PL					1.2737	(1.68)	-1.4602**	(-2.24)		
PT			0.0725	(0.1)	0.8876	(1.57)	0.705	(1.44)	-1.9512**	(-2.45)
SE					1.0064	(1.63)	2.0592**	(2.18)	9.9555**	(2.71)
SI	1.6718***	(3)	2.3153***	(4.09)	3.0654***	(5.76)	1.6608***	(3.9)	0.0984	(0.22)
SK	-2.9972***	(-5.44)	-3.1118***	(-6.63)	-2.7754***	(-5.59)	-2.136***	(-5.05)	-0.134	(-0.16)
US					-1.3528	(-1.27)			1.4406	(0.77)

Adjusted R-squared	0.242
Number of Observations	15309
Number of Countries	22
Number of Sectors	32
Number of Years	34
F-statistic all ESM coefficients equal	238.6
F-statistic all euro area coefficients equal	46.69
F-statistic all PMR coefficients equal	4389
F-statistic all LMR coefficients equal	600.4
F-statistic all FMR coefficients equal	367.3

Notes: The dependent variable is sectoral value added growth for all 32 sector available in the EU-KLEMS data. The regression is based on Equation 4 in the paper, includes interaction with the country dummies with the ESM dummy, the euro dummy and the two aggregate regulation measures and excludes Austria. All columns are based on the full country-year sample. Country-, sector- and year-fixed effects included. Standard errors are clustered at the country level. *** p<0.01, ** p<0.05, * p<0.1. p-values are shown for test statistics. The last four rows report F-statistics testing whether all coefficients of the respective variable are equal to each other. All F-statistics are significant at conventional levels of significance. All results are from the same regression but they are reported side-by-side for exposition only.

Table A.9: Detailed regression results analysing country heterogeneity (including maximum number of countries)

VARIABLES	Real value added (%-change)	
	Coeff.	t-stat
log Real value added (t-1)	-0.9647***	(-5.08)
KOF Globalisation Index	0.1583	(0.96)
Orientation of the Chief Executive Party is left-wing	-0.0501	(-0.22)
Unemployment rate (IMF/OECD/WB)	0.00004	(0)
Dummy for banking crisis	-0.5374	(-1.23)
Average percentage GDP loss during banking crisis	-0.0791*	(-2.01)

	ESM		Euro		FMR		PMR		LMR	
Interaction effects	Coeff.	t-stat	Coeff.	t-stat	Coeff.	t-stat	Coeff.	t-stat	Coeff.	t-stat
AT	9.0619	(0.38)			-0.4765	(-0.79)	-1.6597	(-0.82)	-0.7159	(-1.19)
BE	-2.4729	(-1.61)	1.2218**	(2.25)	-0.0237	(-0.06)	-0.0171	(-0.02)	-0.1536	(-0.44)
CZ	2.1343***	(5.85)			1.6804**	(2.83)	-2.2289***	(-3.54)	-2.7084***	(-7.35)
DE	-2.5543**	(-2.69)	-1.6543***	(-3.18)	-0.7589**	(-2.21)	0.7679	(0.98)	0.9499	(1.4)
DK	2.81**	(2.61)			0.3333	(0.81)	1.3147	(1.65)	0.6049**	(2.53)
EE	-6.2145***	(-8.07)	2.758***	(4.7)	-0.8542	(-1.24)	9.875***	(9.15)	-0.0739	(-0.13)
ES	-4.0107**	(-2.48)	2.2944***	(3.39)	1.1928*	(2.02)	1.6368	(1.5)	-1.2234**	(-2.49)
FI	4.3217***	(3.23)	-1.5845***	(-4.07)	-1.0207**	(-2.27)	1.8707**	(2.36)	3.4223***	(4.82)
FR	0.5153	(0.61)	0.8311*	(1.75)	0.126	(0.32)	-0.3259	(-0.74)	0.1745	(1.04)
GB	2.4367**	(2.39)			1.0026**	(2.84)	0.9878	(1.17)	-1.3417***	(-4.57)
GR			5.673***	(7.48)	3.0476***	(6.8)	-4.3996***	(-10.96)	-4.826***	(-6.68)
HU	-1.8298***	(-3.6)			0.5181*	(1.77)	-1.4992***	(-3.71)	-2.3983***	(-7.03)
IE			1.1675*	(1.79)	0.6581	(1.54)	1.0173**	(2.63)	0.1084	(0.08)
IT	0.6917	(0.87)	0.3098	(0.61)	-0.032	(-0.08)	0.9702	(0.94)	0.5997	(1.61)
LU					3.4491**	(2.79)	-5.3897***	(-3.54)		
LV										
NL			0.3487	(0.52)	0.6648	(0.96)	1.0204	(1.01)	-1.4011**	(-2.6)
PL					1.3906*	(1.77)	-1.4872**	(-2.32)		
PT			0.1142	(0.15)	0.8969	(1.58)	0.5693	(1.17)	-1.9129**	(-2.48)
SE					0.9792	(1.65)	2.1046**	(2.3)	10.2615***	(2.9)
SI	1.5383**	(2.28)	2.2697***	(4.06)	3.1587***	(5.5)	1.6022***	(3.59)	0.1307	(0.32)
SK	-3.2401***	(-3.77)	-3.1141***	(-6.98)	-2.6781***	(-4.81)	-2.1685***	(-4.99)	-0.1361	(-0.17)
US					-0.8931	(-0.73)			0.6204	(0.32)

Adjusted R-squared	0.240
Number of Observations	15928
Number of Countries	23
Number of Sectors	32
Number of Years	34
F-statistic all ESM coefficients equal	2112
F-statistic all euro area coefficients equal	89.01
F-statistic all PMR coefficients equal	43013
F-statistic all LMR coefficients equal	8436
F-statistic all FMR coefficients equal	1163

Notes: The dependent variable is sectoral value added growth for all 32 sector available in the EU-KLEMS data. The regression is based on Equation 4 in the paper, includes interaction with the country dummies with the ESM dummy, the euro dummy and the two aggregate regulation measures and includes Austria. This table is reported to show that the results reported and discussed in the main paper (and in Table A.8 above) are conservative. They are conservative in the sense that the results in Figure 7 and Table A.8 suggest a substantially smaller degree of country heterogeneity than those supported by Table A.9 which also includes the Austrian data which is scarce (see footnote 41). This further strengthens our finding that country- is larger than sector-heterogeneity. All columns are based on the full country-year sample. Country-, sector- and year-fixed effects included. Standard errors are clustered at the country level. *** p<0.01, ** p<0.05, * p<0.1. p-values are shown for test statistics. The last four rows report F-statistics testing whether all coefficients of the respective variable are equal to each other. All F-statistics are significant at conventional levels of significance. All results are from the same regression but they are reported side-by-side for exposition only.

Table A.10: Regression results for the PMR measure (Table 2) with the disaggregated KOF globalization index

	(1)	(2)	(3)	(4)
	Change in Aggregate PMR			
VARIABLES	main	Alesina	Al-cnt	Al-yrs
Reform indicator (t-1)	-0.0566***	-0.0752***	-0.0794***	-0.0667***
	(-5.651)	(-4.337)	(-6.654)	(-5.131)
Dummy for ESM countries	-0.0885**	-0.125*	-0.101*	-0.0896*
	(-2.526)	(-2.044)	(-1.770)	(-1.907)
Dummy for euro membership	-0.0622	-0.157*	-0.154***	-0.103
	(-1.665)	(-1.943)	(-3.021)	(-1.622)
KOF Globalisation Index, de jure	0.0546***	0.0421	0.0444**	0.0440*
	(2.866)	(1.491)	(2.275)	(1.833)
KOF Globalisation Index, de facto	-0.0107***	-0.00529	-0.00343	-0.0145***
	(-3.009)	(-1.380)	(-1.131)	(-2.871)
Orientation of the Chief Executive Party is left-wing	0.0779*	-0.182*	-0.0436	0.119*
	(1.747)	(-1.863)	(-0.819)	(1.749)
Unemployment rate (IMF/OECD/WB)	-0.00996**	0.00601	-0.00509	-0.0146**
	(-2.599)	(0.513)	(-1.054)	(-2.634)
Dummy for banking crisis	0.00265	0.000613	0.000947	0.00302
	(1.008)	(0.185)	(0.347)	(0.900)
Average percentage GDP loss during banking crisis	0.000407	0.00947**	0.00898***	0.00391
	(0.171)	(2.695)	(3.317)	(1.314)
Adjusted R-squared	0.437	0.483	0.474	0.467
Number of Observations	1039	471	658	722
Number of Countries	32	19	19	32
Number of years	38	28	38	28
Long-run ESM effect	-1.563	-1.664	-1.271	-1.342
Long-run EA effect	-1.100	-2.083	-1.940	-1.538

Notes: The dependent variable is the aggregate product market regulation (PMR). The sample changes across columns with respect to the time and/or country coverage to understand the source of the differences with Alesina et al.'s (2010) results. Country- and year-fixed effects included. Standard errors are clustered at the country level. *** p<0.01, ** p<0.05, * p<0.1. p-values are shown for test statistics.

Table A.11: Regression results for the LMR measure (Table 3) with the disaggregated KOF globalization index

	(1)	(2)	(3)	(4)
	Change in Aggregate LMR			
VARIABLES	main	Alesina	Al-cnt	Al-yrs
Reform indicator (t-1)	-0.0914***	-0.143***	-0.0863***	-0.114***
	(-6.428)	(-3.708)	(-5.139)	(-3.846)
Dummy for ESM countries	0.0234	0.0943*	0.0732	0.0591*
	(0.843)	(1.901)	(1.604)	(1.708)
Dummy for euro membership	-0.0103	0.0308	-0.00399	0.00984
	(-0.271)	(0.541)	(-0.0891)	(0.205)
KOF Globalisation Index, de jure	0.0689***	0.0679**	0.0674***	0.0491**
	(3.397)	(2.252)	(3.130)	(2.038)
KOF Globalisation Index, de facto	-0.00637*	-0.0228**	-0.0130**	-0.0119**
	(-1.967)	(-2.829)	(-2.722)	(-2.543)
Orientation of the Chief Executive Party is left-wing	-0.0294	-0.00805	-0.0305	-0.0136
	(-1.073)	(-0.150)	(-0.895)	(-0.314)
Unemployment rate (IMF/OECD/WB)	0.00217	0.00487	0.00359	0.00126
	(0.668)	(0.879)	(1.260)	(0.222)
Dummy for banking crisis	0.00610***	0.00973*	0.00646*	0.00660***
	(3.286)	(2.089)	(1.808)	(2.905)
Average percentage GDP loss during banking crisis	-0.00133	-0.000970	-0.00185	-6.36e-05
	(-0.827)	(-0.215)	(-0.595)	(-0.0245)
Adjusted R-squared	0.097	0.094	0.078	0.102
Number of Observations	1111	504	701	764
Number of Countries	35	20	20	35
Number of Sectors	1	1	1	1
Number of years	39	29	39	29
Long-run ESM effect	0.256	0.660	0.848	0.520
Long-run EA effect	-0.113	0.215	-0.0462	0.0866

Notes: The dependent variable is the aggregate product market regulation (LMR). The sample changes across columns with respect to the time and/or country coverage to understand the source of the differences with Alesina et al.'s (2010) results. Country- and year-fixed effects included. Standard errors are clustered at the country level. *** p<0.01, ** p<0.05, * p<0.1. p-values are shown for test statistics.

Table A.12: Regression results for the FMR measure (Table 4) with the disaggregated KOF globalization index

	(1)	(2)	(3)	(4)
	Change in Aggregate FMR			
VARIABLES	main	Alesina	Al-cnt	Al-yrs
Reform indicator (t-1)	-0.123***	-0.114***	-0.0882***	-0.159***
	(-7.265)	(-6.224)	(-5.714)	(-8.097)
Dummy for ESM countries	-0.00638	-0.145	-0.0700	-0.209*
	(-0.101)	(-1.433)	(-0.842)	(-1.856)
Dummy for euro membership	-0.0806*	-0.0620	-0.0869	-0.0198
	(-1.789)	(-1.038)	(-1.555)	(-0.264)
KOF Globalisation Index, de jure	-0.00118	-0.0306	-0.0110	-0.000786
	(-0.0405)	(-0.759)	(-0.477)	(-0.0148)
KOF Globalisation Index, de facto	-0.0102**	-0.00221	-0.00276	-0.0142
	(-2.369)	(-0.197)	(-0.502)	(-1.627)
Orientation of the Chief Executive Party is left-wing	0.225**	0.296*	0.0895	0.431***
	(2.329)	(2.061)	(1.040)	(3.000)
Unemployment rate (IMF/OECD/WB)	-0.00376	-0.0302	-0.00353	-0.0141
	(-0.489)	(-1.617)	(-0.418)	(-1.214)
Dummy for banking crisis	0.0134***	0.0143*	0.00608	0.0259***
	(3.383)	(2.032)	(1.477)	(4.487)
Average percentage GDP loss during banking crisis	-0.00662*	-0.00917	-0.000677	-0.0171***
	(-1.947)	(-1.292)	(-0.161)	(-3.010)
Adjusted R-squared	0.261	0.285	0.277	0.296
Number of Observations	1067	484	721	664
Number of Countries	34	20	20	34
Number of Sectors	1	1	1	1
Number of years	41	29	41	29
Long-run ESM effect	-0.0518	-1.269	-0.794	-1.312
Long-run EA effect	-0.655	-0.541	-0.985	-0.124

Notes: The dependent variable is the aggregate product market regulation (FMR). The sample changes across columns with respect to the time and/or country coverage to understand the source of the differences with Alesina et al.'s (2010) results. Country- and year-fixed effects included. Standard errors are clustered at the country level. *** p<0.01, ** p<0.05, * p<0.1. p-values are shown for test statistics.

Table A.13: Regression results for the PMR measure (as in Table 2) without the KOF globalization index

	(1)	(2)	(3)	(4)
	Change in Aggregate PMR			
VARIABLES	main	Alesina	Al-cnt	Al-yrs
Reform indicator (t-1)	-0.0456***	-0.0227*	-0.0327***	-0.0357***
	(-4.533)	(-2.061)	(-3.103)	(-3.712)
Dummy for ESM countries	-0.0734**	-0.145**	-0.106	-0.0809*
	(-2.241)	(-2.104)	(-1.681)	(-1.801)
Dummy for euro membership	-0.0582	-0.133	-0.110**	-0.106*
	(-1.669)	(-1.579)	(-2.178)	(-1.765)
Orientation of the Chief Executive Party is left-wing	0.0611***	0.0464	0.0537**	0.0561**
	(3.382)	(1.630)	(2.834)	(2.397)
Unemployment rate (IMF/OECD/WB)	-0.0101***	-0.00482	-0.00167	-0.0143***
	(-3.119)	(-1.318)	(-0.693)	(-3.203)
Dummy for banking crisis	0.0731*	-0.200**	-0.0271	0.0947
	(1.771)	(-2.503)	(-0.526)	(1.533)
Average percentage GDP loss during banking crisis	-0.00961**	0.00564	-0.00596	-0.0131**
	(-2.718)	(0.550)	(-1.319)	(-2.649)
Adjusted R-squared	0.436	0.470	0.458	0.460
Number of Observations	1052	471	658	735
Number of Countries	32	19	19	32
Number of years	38	28	38	28
Long-run ESM effect	-1.608	-6.385	-3.242	-2.268
Long-run EA effect	-1.277	-5.839	-3.350	-2.981

Notes: The dependent variable is the aggregate product market regulation (PMR). The sample changes across columns with respect to the time and/or country coverage to understand the source of the differences with Alesina et al.'s (2010) results. Country- and year-fixed effects included. Standard errors are clustered at the country level. *** p<0.01, ** p<0.05, * p<0.1. p-values are shown for test statistics.

Table A.14: Regression results for the LMR measure (as in Table 3) without the KOF globalization index

	(1)	(2)	(3)	(4)
	Change in Aggregate LMR			
VARIABLES	main	Alesina	Al-cnt	Al-yrs
Reform indicator (t-1)	-0.0718***	-0.0682**	-0.0583***	-0.0743***
	(-4.773)	(-2.783)	(-4.065)	(-3.525)
Dummy for ESM countries	0.0300	0.0766*	0.0700	0.0547*
	(1.126)	(1.840)	(1.693)	(1.776)
Dummy for euro membership	-0.00458	0.0358	0.00447	0.00703
	(-0.130)	(0.819)	(0.118)	(0.161)
Orientation of the Chief Executive Party is left-wing	0.0735***	0.0680**	0.0717***	0.0541**
	(3.792)	(2.338)	(3.407)	(2.282)
Unemployment rate (IMF/OECD/WB)	-0.00430	-0.0161**	-0.00939**	-0.00892*
	(-1.327)	(-2.279)	(-2.305)	(-1.950)
Dummy for banking crisis	-0.0327	-0.000455	-0.0274	-0.0270
	(-1.181)	(-0.0121)	(-1.101)	(-0.614)
Average percentage GDP loss during banking crisis	0.00214	0.00148	0.00193	0.00243
	(0.680)	(0.420)	(1.003)	(0.423)
Adjusted R-squared	0.087	0.066	0.067	0.086
Number of Observations	1113	504	701	766
Number of Countries	35	20	20	35
Number of Sectors	1	1	1	1
Number of years	39	29	39	29
Long-run ESM effect	0.419	1.122	1.202	0.736
Long-run EA effect	-0.0639	0.525	0.0766	0.0947

Notes: The dependent variable is the aggregate product market regulation (LMR). The sample changes across columns with respect to the time and/or country coverage to understand the source of the differences with Alesina et al.'s (2010) results. Country- and year-fixed effects included. Standard errors are clustered at the country level. *** p<0.01, ** p<0.05, * p<0.1. p-values are shown for test statistics.

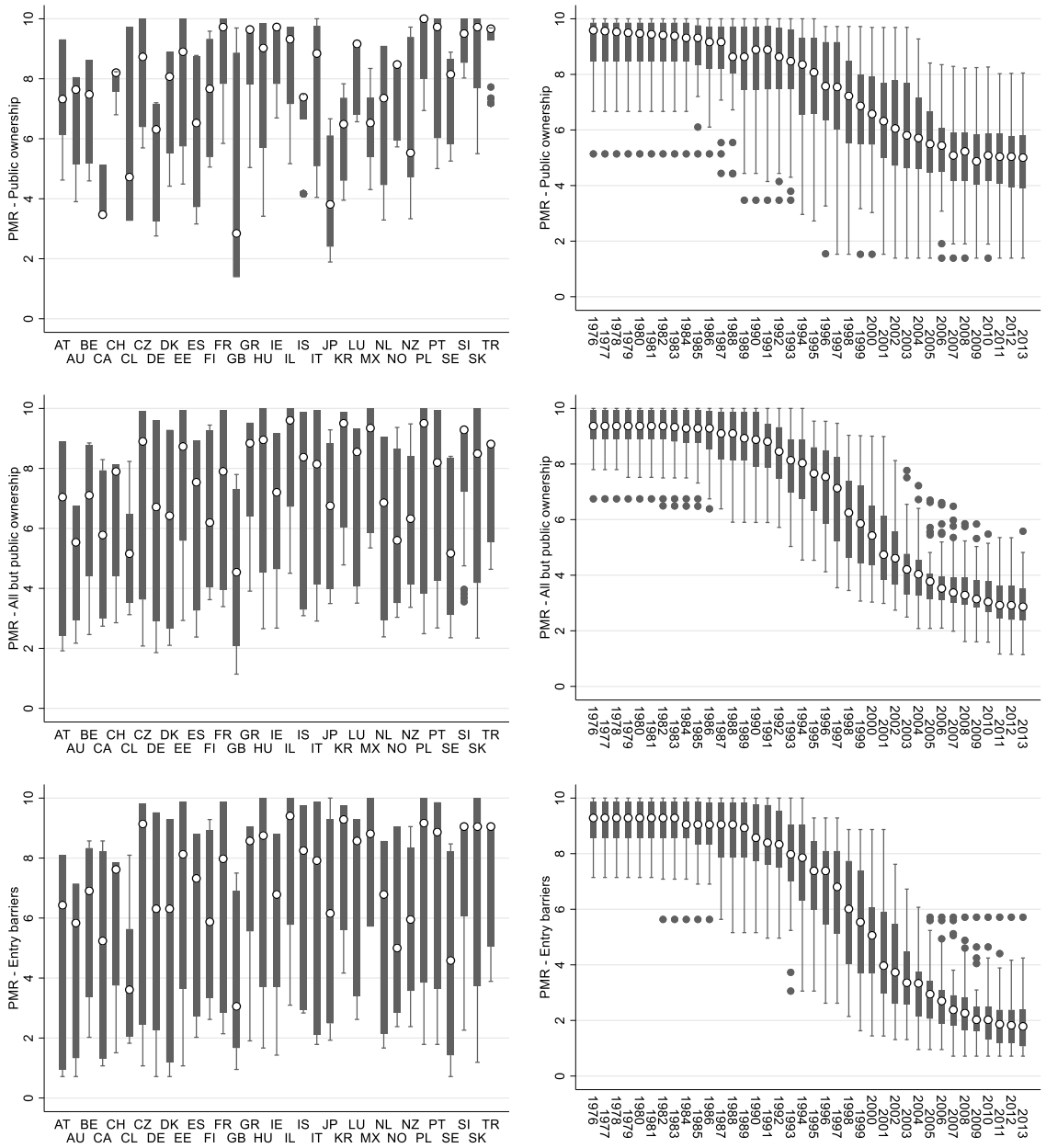
Table A.15: Regression results for the FMR measure (as in Table 4) without the KOF globalization index

	(1)	(2)	(3)	(4)
	Change in Aggregate FMR			
VARIABLES	main	Alesina	Al-cnt	Al-yrs
Reform indicator (t-1)	-0.111***	-0.0997***	-0.0772***	-0.140***
	(-7.238)	(-5.613)	(-6.242)	(-6.908)
Dummy for ESM countries	0.0257	-0.106	-0.0496	-0.125
	(0.412)	(-1.083)	(-0.633)	(-1.117)
Dummy for euro membership	-0.0341	-0.0272	-0.0564	0.0728
	(-0.832)	(-0.427)	(-1.016)	(0.904)
Orientation of the Chief Executive Party is left-wing	0.00198	-0.0337	-0.00578	-0.00690
	(0.0756)	(-0.874)	(-0.266)	(-0.134)
Unemployment rate (IMF/OECD/WB)	-0.00564	0.00351	0.000833	-0.00735
	(-1.189)	(0.333)	(0.143)	(-0.770)
Dummy for banking crisis	0.237**	0.310**	0.0966	0.403***
	(2.437)	(2.429)	(1.231)	(2.884)
Average percentage GDP loss during banking crisis	-0.00468	-0.0323*	-0.00489	-0.0100
	(-0.626)	(-1.895)	(-0.650)	(-0.866)
Adjusted R-squared	0.264	0.285	0.275	0.293
Number of Observations	1069	484	721	666
Number of Countries	34	20	20	34
Number of Sectors	1	1	1	1
Number of years	41	29	41	29
Long-run ESM effect	0.231	-1.065	-0.643	-0.896
Long-run EA effect	-0.306	-0.273	-0.731	0.522

Notes: The dependent variable is the aggregate product market regulation (FMR). The sample changes across columns with respect to the time and/or country coverage to understand the source of the differences with Alesina et al.'s (2010) results. Country- and year-fixed effects included. Standard errors are clustered at the country level. *** p<0.01, ** p<0.05, * p<0.1. p-values are shown for test statistics.

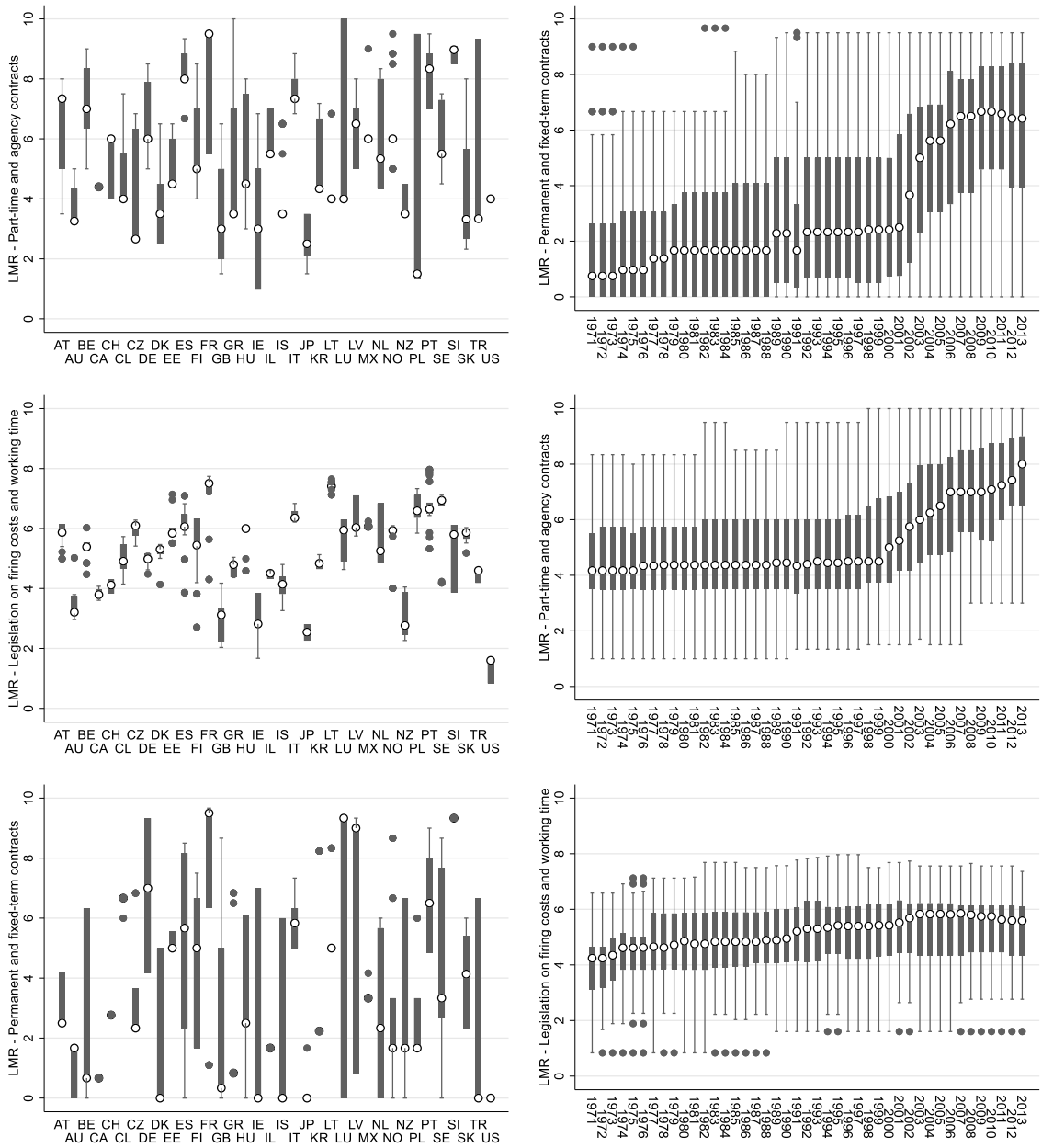
Figures

Figure A.1: Country and time variation in the disaggregated PMR variables



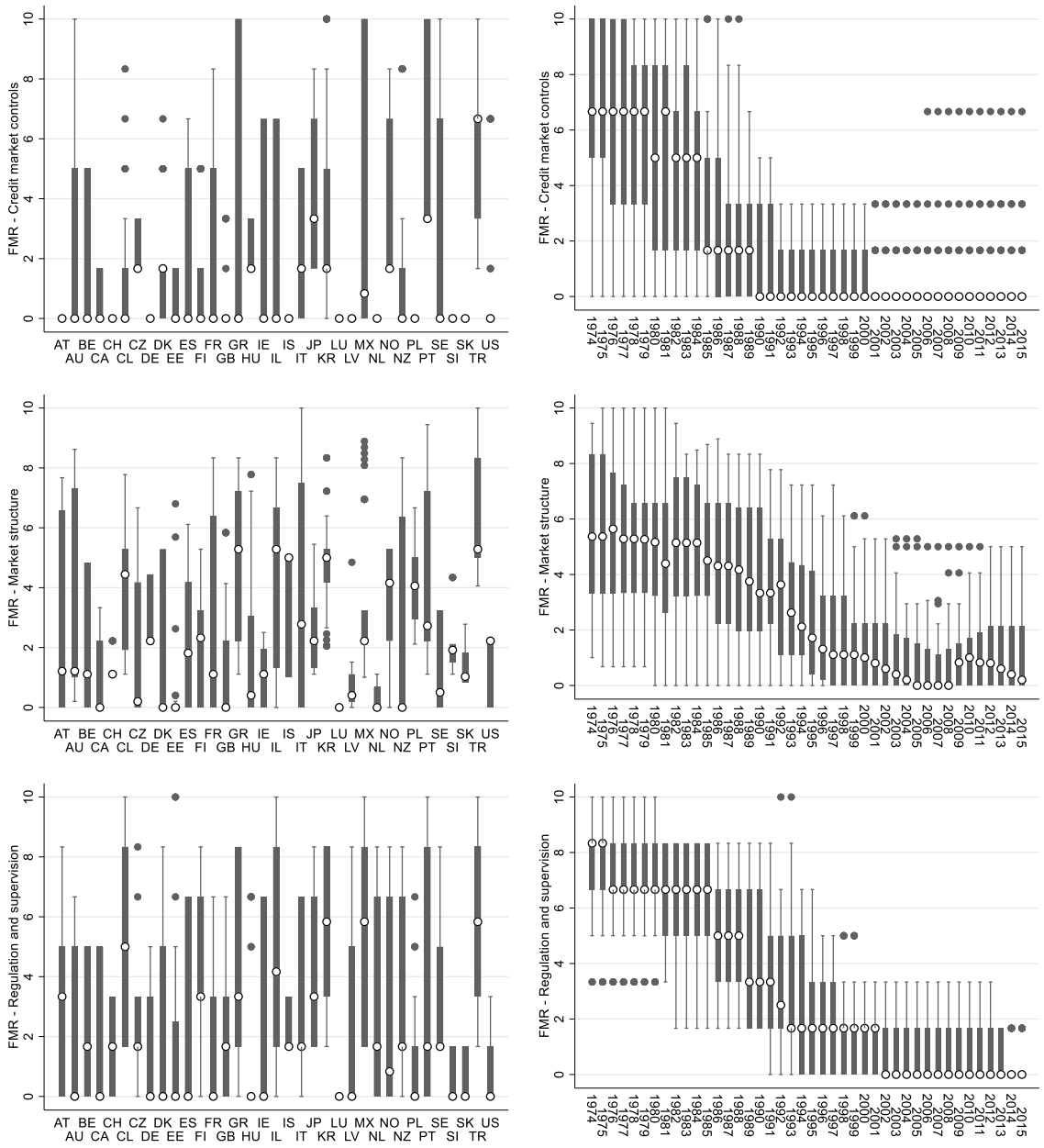
Notes: The left and right parts show box plots grouped at the country or the year level, respectively.

Figure A.2: Country and time variation in the disaggregated LMR variables



Notes: The left and right parts show box plots grouped at the country or the year level, respectively.

Figure A.3: Country and time variation in the disaggregated FMR variables



Notes: The left and right parts show box plots grouped at the country or the year level, respectively.