

Turrini, Alessandro; Koltay, Gabor; Pierini, Fabiana; Goffard, Clarisse; Kiss, Aron

Working Paper

A decade of labour market reforms in the EU: Insights from the LABREF database

IZA Policy Paper, No. 88

Provided in Cooperation with:

IZA – Institute of Labor Economics

Suggested Citation: Turrini, Alessandro; Koltay, Gabor; Pierini, Fabiana; Goffard, Clarisse; Kiss, Aron (2014) : A decade of labour market reforms in the EU: Insights from the LABREF database, IZA Policy Paper, No. 88, Institute for the Study of Labor (IZA), Bonn

This Version is available at:

<https://hdl.handle.net/10419/104986>

Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

Terms of use:

Documents in EconStor may be saved and copied for your personal and scholarly purposes.

You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.

If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.

IZA Policy Paper No. 88

A Decade of Labour Market Reforms in the EU: Insights from the LABREF Database

Alessandro Turrini
Gabor Koltay
Fabiana Pierini
Clarisse Goffard
Aron Kiss

July 2014

A Decade of Labour Market Reforms in the EU: Insights from the LABREF Database

Alessandro Turrini

*European Commission, DG ECFIN
and IZA*

Gabor Koltay

European Commission, DG ECFIN

Fabiana Pierini

European Commission, DG ECFIN

Clarisse Goffard

European Commission, DG ECFIN

Aron Kiss

European Commission, DG ECFIN

**Policy Paper No. 88
July 2014**

IZA

P.O. Box 7240
53072 Bonn
Germany

Phone: +49-228-3894-0
Fax: +49-228-3894-180
E-mail: iza@iza.org

The IZA Policy Paper Series publishes work by IZA staff and network members with immediate relevance for policymakers. Any opinions and views on policy expressed are those of the author(s) and not necessarily those of IZA.

The papers often represent preliminary work and are circulated to encourage discussion. Citation of such a paper should account for its provisional character. A revised version may be available directly from the corresponding author.

ABSTRACT

A Decade of Labour Market Reforms in the EU: Insights from the LABREF Database^{*}

This paper analyses the determinants and impact of labour market reforms in the European Union over the period of 2000-2011. The source of information on reforms is the LABREF database developed in DG ECFIN of the European Commission in cooperation with the Economic Policy Committee of the ECOFIN Council. The database collects information on measures adopted by EU Member States. Despite limitations of count data on reform events, the evidence permits a number of interesting insights. The 2008 crisis triggered increased policy activity in most policy domains in a large number of EU countries, in particular in domains with macro-structural relevance (employment protection legislation, unemployment benefits, wage setting). Reforms tend to be more frequently carried out in countries characterised by disappointing labour market outcomes and a high initial level of regulation or fiscal burden on labour. Econometric evidence on the effects of selected reforms on aggregate labour market outcomes is broadly supportive of common priors: tax and benefit reforms tend to be followed after a time lag, by improved activity rates and lower unemployment.

JEL Classification: J20, J38, J48, J58, J68

Keywords: labour market, labour market reform, unemployment, financial crisis,
European Union

Corresponding author:

Alessandro Turrini
Directorate General for Economic and Financial Affairs
European Commission
B-1049 Brussels
Belgium
E-mail: alessandro.turrini@ec.europa.eu

^{*} Opinions expressed in this paper are the authors' and do not necessarily reflect views of the European Commission. We thank Adam Kowalski and Dimitri Lorenzani for excellent statistical assistance. We thank Alfonso Arpaia, Giuseppe Bertola, Anne Bucher, members of the Economic Policy Committee of the ECOFIN Council and the Employment Committee of the EPSCO Council, as well as participants at presentations at ECB, DG ECFIN, ETUI, IMF, for useful comments and suggestions.

1. Introduction

Since the onset of EMU, there was clear awareness that a successful monetary union would require reforming labour markets where needed in such a way as to ease adjustment in the face of asymmetric shocks and to permit the correction of macroeconomic imbalances. The need for such reforms has become urgent after the crisis in light of the highly asymmetrical impact on the financial sector, public finances, and the real economy of EU countries and as a consequence of the sudden unwinding of large external imbalances accumulated over the 2000s.

The need of timely and courageous labour market reforms was reflected in the identification of policy priorities at the EU level. Recommendations to put in place policies to counter the tremendous loss of output after the bankruptcy of Lehman Brothers in 2008 by means of strengthened temporary income support for the unemployed and short-time working schemes were included in the Commission European Economic Recovery Package. Reforms improving the functioning of the labour market, including by means of supportive labour taxation, employment protection frameworks aimed at favouring job creation and tackling segmentation, benefit and activation systems providing the unemployed with incentives to take up jobs, adjustment-friendly wage setting frameworks, feature prominently among the priorities identified in EU surveillance, including in the context of the EU Semester, the Macroeconomic Imbalance Procedure, and financial assistance programme conditionality.

Against the background of an increased urgency to reform labour markets, and broadly in line with the recommendations by European institutions, most Member States have stepped up their reform agenda both by stepping up existing interventions to support labour markets and by taking action to reform labour market institutions and regulation that are key to ensure effective adjustment but that are at the same time often politically costly because of their redistributive implications.

This increased reform activism calls for a proportionately increased effort to track the record of past reforms and assess their features, determinants and effects. Although relevant progress has been made in recent decades in measuring the impact of different policy settings on aggregate labour market outcomes (e.g., Nickell and Layard, 1999; Blanchard and Wolfers), the assessment of reforms remains a challenging task, most notably in light of the very heterogeneous character of the complex and varied set of policies that normally fall under the broad heading ‘reform’. The first and most important condition for an effective assessment of reforms is adequate information on the reform features and characteristics.

The aim of this paper is to describe recent reforms carried out in EU countries making use of the LABREF database that was set up by DG ECFIN of the European Commission in cooperation with the Economic Policy Committee of the ECOFIN Council. This database contains information on a large set of policy measures carried out between 2000 and 2011. As compared with other similar existing databases, it contains information on a larger set of reform characteristics.

Despite limitations of count data on reform events, the evidence permits a number of interesting insights. Countries with similar institutional settings have followed analogous reform patterns throughout the 2000s. The 2008 crisis triggered increased policy activism in most policy domains in a large number of EU countries, and in particular in domains with macro-structural relevance, notably employment protection legislation (EPL),¹ unemployment benefits, wage-setting frameworks. Regression analysis show that reforms tend to be more frequently carried out where justified by unsatisfactory labour market outcomes and by relatively strict initial regulations. Regression-based evidence on the effects produced by selected reforms on aggregate labour market outcomes is supportive of common priors: tax and benefit reforms tend to be followed with some lags by improved activity rates and lower unemployment.

The remainder of the paper is organised as follows. Section 2 discusses the measurement of economic reforms and describes the LABREF database. Section 3 presents the main trends of labour market reforms in the EU since 2000 by broad policy domains and country groups. Next, section 4 studies the economic determinants of reforms: how economic performance as captured by macroeconomic variables influences the emergence of specific reforms. Section 5 attempts to capture the effect of selected reform areas on key economic variables of interest. Section 6 concludes.

2. Measuring labour market reforms

2.1 Databases tracking labour market reforms

Reform databases can either be descriptive or indicator-based. Indicator-based databases aim at quantifying the level or stringency associated with existing regulations and institutions. These indicators provide a synthetic measure of the implications of the existing stock of

¹ In this paper 'employment protection', 'EPL' and 'job protection' are used interchangeably.

regulations and institutions. Reforms can only be measured indirectly, and in an aggregate fashion, by means of time differences in these indicators. While indicator-based databases permit a very effective synthesis of information for comparisons over time and across countries which make them suited for statistical analysis on macro data, they do not provide information at the level of the specific policy measures. In turn, descriptive databases collect information on enacted reforms on the basis of pre-defined criteria, with the aim of providing an exhaustive description of the main policy measures taken. These databases are useful especially to analyse the reform process, investigate commonalities and characteristics of reform strategies, and analyse the effects of reforms with alternative designs and features, notably on micro data.

Descriptive databases

The International Labour Organisation (ILO) provides synthetic information on measures adopted in the fields of minimum wages, maternity protection and working time and referral to relevant regulations. The ILO also compiles the NATLEX database, providing a comprehensive record of abstracts of legislation and relevant information of national labour, social security and related human rights laws for over 190 countries.

The inventory of labour market reforms developed by the OECD in the framework of the evaluation of the OECD Jobs Strategy contains information on reforms in seven main policy areas grouped in two sub-periods (1995-1999 and 2000-2004).

The “*Social Reforms Database*” developed by the Fondazione Rodolfo De Benedetti in cooperation with IZA (FRDB-IZA) provides information on reform measures adopted in the EU countries starting from the eighties. The database collects information on the main qualitative features of reforms in four broad policy areas: EPL; public pension systems; non-employment benefits, migration policies.

Indicator-based databases

Structural indicators are increasingly used in policy analysis. While providing a very useful proxy for the extent of government intervention in the labour market, these indicators raise a number of measurement issues: (i) the choice of the weight attributed to the various aspects of regulation is somewhat arbitrary; (ii) only a subset of regulatory aspects is taken into account

and relevant country-specific features in the design of the regulations are not considered; (iii) the degree of enforcement of specific regulations is often not captured.

Indicators measuring the stringency of EPL have been developed by the OECD, which capture the most important features of regulation, both for regular and temporary contracts, and for collective dismissals, for most OECD countries since the eighties.

Indicators for labour market regulations are developed also in the framework of the Fraser Institute's "*Economic Freedom around the World*" database. Indices scoring the absence of anti-competitive restrictions in a number of domains are produced for a large number of countries across the world, starting from the seventies. The economic freedom index for the labour market is the combination of separate indicators on minimum wage, flexibility in hiring and firing, level of collective bargaining, unemployment insurance, and use of military conscription.

The World Bank "*Doing Business*" database provides scores for regulations hampering a business-friendly environment, with an attempt to capture also information on enforcement. Within the Doing Business framework, a number of indicators concerning labour market regulations for 85 countries in the early 2000s were developed by Botero et al. (2004). While the country coverage is large, the database spans a relatively short time series (it starts in 2003).

The Global Labor Survey (GLS) database (Chor and Freeman, 2005) conducted in 2004 at the Harvard Law School seeks to measure *de facto* labour practices around the world covering aspects of labour institutions such as employment regulations, employee benefits, wage setting, and builds indices of labour practices in ten broad areas for 33 countries.

2.2. The LABREF database

The aim of the LABREF database is to improve the information basis for surveillance of labour market policies in the framework of the EU economic policy coordination processes. The database was developed upon initiative of the European Commission's Directorate General for Economic and Financial Affairs (DG ECFIN) and the Labour Market Working Group (LMWG) attached to the Economic Policy Committee (EPC) of the ECOFIN Council in 2005.

LABREF is a descriptive database that records labour market and welfare policy measures introduced in EU member states. Compared with other similar databases, LABREF provides more information on the features and characteristics of the policy measures. The compilation of the database for each year is carried out in two steps. In the first step, information is collected by DG ECFIN, using publicly available national and international sources and classified according to the criteria agreed with the EPC.² In the second step, the information collected is sent for validation to national authorities via the EPC.

Currently, LABREF covers policy measures for the EU-27 over the 2000-2011 period (for Romania and Bulgaria, data start in 2003; the addition of Croatia is in progress). Information up to 2011 has been validated by the Members of the Economic Policy Committee of the ECOFIN Council. The database is accessible online.³ The extension to cover reforms up to 2013 is under way at the time of writing.

The measures reported in the database refer to information on enacted legislation (approved by Parliament), as well as executive or administrative acts, court rulings or agreements likely to have an impact on labour market performance, including measures entailing changes in the implementation framework of a previously adopted reform.⁴ The database does not record information on discussions of planned reforms or draft bills not yet passed.⁵

Scope and classification of reforms

The database collects information on a wide range of policy measures having implications for the labour market. Policy measures are organised into 49 policy fields and further grouped in 9 broad policy domains (see Appendix A). The breakdown of policy domains and fields covered by the database reflects standard classifications of labour market and welfare institutions (e.g., Nickell and Layard, 1999), but it is somewhat more comprehensive than

² Sources used to compile LABREF include ILO databases, information published by EIRO (European Industrial Relations Observatory of the Dublin Foundation for the Improvement of Working and Living Conditions), country reports by the OECD and IMF, National Action Plans for Employment annually set-up in the framework of the Employment Strategy, National Reform Programmes under the Lisbon Strategy, national legislation and other information available from the websites of the EU Ministries for Employment and Social Affairs.

³ The link is: http://ec.europa.eu/economy_finance/db_indicators/labref/index_en.htm.

⁴ In particular, reported reforms also encompass collective agreements, including cross-industry agreements, tripartite agreements (involving government, trade unions and employers' federations), sector-level collective agreements (whenever the agreement concluded in one sector is likely to set the patterns for negotiations in other sectors) and company agreements, provided that they have the potential to affect a large proportion of employees or to engender a change of regime in the medium term.

⁵ A single piece of legislation may cover several policy areas and may consequently include several 'reforms' to be recorded in LABREF.

existing databases, covering a wide typology of active labour market policies (public employment service functions, training, direct job creation and employment subsidies), welfare benefits (unemployment benefits, in-work benefits, short-time working schemes, social assistance, family allowances, sickness schemes), early withdrawal schemes (early retirement, disability benefits), labour mobility and migration policies.

Information on reforms

For each policy measure, information is recorded on the following:

- *General description:* The aim and main features of the reform are described. Reference to the text establishing the measure is reported (budget law, decree...). The specific information source used to fill the database is indicated.
- *Year of adoption:* the date when a reform measure is approved (by Parliament, government, social partners ...).
- *Timing of implementation:* this corresponds to the scheduled or expected timing of the implementation (i.e., entry into force, phasing-in...). Reforms in the planning phase are not recorded.
- *Scope:* Is the measure applied to new entrants only or to current incumbents as well?
- *Socio-economic group targeted:* *young people*. The database identifies whether policy initiatives target specifically the young.
- *Reform packages, interactions:* Is the measure embedded in a policy programme or part of a formal reform package? Does the reform require policy interventions in related areas? Is the measure embedded in a formal long-term policy programme?

Direction of reforms

Policy measures, even within each one of the 49 policy fields can be very heterogeneous as regarding their impact on labour market outcomes. For analytical purposes, a basic distinction has to be made concerning how the underlying policy setting is affected by the reform. Hence, a reform is said to have an “increasing” (resp., “decreasing”) direction whenever the enacted measure raises (resp. lowers) the scope and level of corresponding taxes or monetary benefits or the stringency of corresponding regulations (see Appendix B for the detailed criteria used in defining reform direction).

2.3. Creating a count database

For the purposes of the present analysis, the descriptive LABREF is turned into a panel count database. For each country, in each year, and each field and domain, the total number of reforms is recorded, and the count is performed separately for reforms increasing or decreasing the underlying policy settings.

In the present paper, only reforms with relevant direct impact on labour market outcomes are considered. Immigration and mobility policies are not examined.

In the remainder of the paper, information on countries is sometimes provided in aggregate form, making reference to country groups that are selected in such a way to isolate groups of countries characterised by relatively homogenous labour market institutions.⁶

It is important to highlight a number of limitations of reform count data in deriving conclusions and making judgements. Recording a larger number of reforms in a given country, in a given period, does not necessarily imply that more extensive or effective policy actions have been put in place.

Some of the problems are linked to inevitable risks of missing information or ambiguous classification or determination of reform direction. More fundamentally, reforms are far from being homogenous objects. In LABREF, a reform corresponds to: (i) a change taking place in one policy field; (ii) as a result of an autonomous legislative, executive or administrative act, or agreement, or court ruling. It follows that, while that database takes into account the possible presence of multiple measures in a single policy act (e.g., ‘umbrella laws’, reform packages), no account is taken of the fact that reform counting can create a bias in favour of gradual reform strategies (spread over time, in different formal acts).

⁶ The analysis is based on the country taxonomy proposed by Esping-Andersen (1990) and European Commission (2007) where countries are classified into five groups on the basis of socio-economic systems. This classification covers 22 EU countries which are classified into five groups on the basis of principal component analysis. The five remaining EU countries were allocated as follows: Malta and Cyprus were allocated to the Anglo-Saxon group of countries, Luxembourg to the Continental group; Romania and Latvia to the Central, Eastern group of countries. Note that in the Esping-Andersen taxonomy the Netherlands is classified as a Nordic country, while Greece as an Eastern country.

3. EU labour market reforms 2000-2011: stylized facts

This section looks at the evolution of reforms and their characteristics, and to their distribution across different policy domains and country groups, with a view to distil a number of stylised facts.

3.1. Broad patterns: time, domains, country groups

Graph 1 shows the evolution of the average number of reforms for each policy domain, distinguishing by country groups. The height of the bars under each policy domain indicates the average number of reforms in that domain which were carried out in a representative EU country in the corresponding year. The colour code within the bars shows the distribution of the reforms across country groups. A first look at the graphs reveals that the *frequency of policy interventions varies considerably across policy domains*. On average, most reforms were undertaken in the active labour market policy and labour taxation domains, while early withdrawal and wage setting reforms are relatively infrequent.

In most policy domains, the number of reforms exhibits an increasing trend. This appears to be to a large extent linked to the *increased number of reforms during the crisis*, as policy activism seems to peak in 2008-2009. Two policy domains are exceptions to this trend: early withdrawal and working time reforms. In these domains there are significantly less reforms during the crisis period.

When looking at the *distribution of reforms across country groups*, two observations stand out. First, although reform activity is relatively broad-based and takes place to some extent in all country groups, *reforms do not always occur simultaneously in all country groups*: in some periods some country groups are more concerned than others (Graph 2). In particular, Southern and Continental countries had a more intense reform activity starting from the middle of the decade. Second, the distribution of reforms across domains is not the same for the different country groups (Graph 3). Continental countries were the most active in the domains of working time and other welfare benefits. In all other remaining domains, the group of Southern countries recorded the highest frequency of reforms, most notably EPL. Some country groups do not undertake reforms in some policy domains for a large part of the observed period. For example, there are very few reforms concerning early withdrawal instruments by Anglo-Saxon countries or concerning job protection by Nordic countries.

Given that country groups are defined on the basis of similar labour market institutions, these differences reflect the fact that the *timing and domain of reforms is linked to the interplay between shocks and the main features of existing institutions*.

Across the whole sample, the *distribution of reforms across policy domains* appears to be broadly *stable*, especially until 2008, as Graph 4 shows. Until 2008, the only trend that can be observed is the gradual decline in the incidence of working time and early withdrawal reforms and a parallel increase in labour taxation and other welfare-related benefit reforms. The latter also include short-time working schemes, which were implemented simultaneously by a number of EU countries as a response to the crisis in 2008 and 2009 (as revealed by the sudden increase in these years of policy measures in the "other benefit" domain, Graph 1).

No trend is apparent concerning the scope of reforms, i.e., the fraction of reforms targeted to the whole population, incumbents, or new entrants only (Graph 5): most reforms extend to the whole population over the whole decade. Nevertheless, there were periods when measures targeted mostly new entrants, most notably in the early withdrawal domain, and, to a lesser extent, in the active labour market policy, job protection and unemployment benefit domains.

3.2. The direction of reforms

Information on the direction of the policy measures provides additional insight into the nature and purpose of labour market reforms during the last decade. Graph 6 shows the evolution of the average number of reforms in each domain, distinguishing by direction. The bars shaded in light (green) colour refer to the average number of reforms in the various domains, in a given year, that took place in a representative EU country and that contributed to increase the underlying policy settings (e.g., underlying tax or benefit or stringency of regulation). Correspondingly, the bars in dark (blue) colour report, on the negative portion of the vertical axis of the graph, the number of reforms decreasing underlying policy settings that took place in a given domain and year.

A first message from Graph 6 is that there are considerable *differences across policy domains regarding the direction of measures*. In some policy domains reforms normally take place in one direction only. For instance, while most reforms strengthened ALMPs, a large majority of reforms contributed to reduce labour taxation or the stringency of regulations concerning working time. In contrast, in other domains (job protection, unemployment benefits, wage setting) there is a more balanced distribution of reforms in terms of direction of their effects

on underlying policy settings over the period. Finally, it is visible a *reversion in the direction of a number of reforms over the crisis period*. Reforms concerning labour taxes and unemployment and other welfare were generally aimed at raising generosity at the start of the crisis, but the direction changed since 2010: the tightening of government budgets translated into a higher frequency of reforms raising the tax wedge or reducing benefits generosity. In this same period, reforms reducing the extent of regulations for what concerns EPL, wage setting and working time became more frequent, confirming the evolution of reforms priorities in a number of countries.

3.3. The two phases of the reform response after the crisis

Overall, the descriptive evidence suggests that *following the crisis*, the reform response was characterised by *two distinct phases*, reflecting the evolution of priorities and constraints.

- *Immediately after the crisis* hit and countries entered recessions (the 2008-2009 period) reforms became *more frequent in the domains of active labour market policies, labour taxation, other welfare-related benefits, and unemployment benefits*. The broad aim of the measures put in place in this first phase was that of cushioning the labour market impact of the recession, notably by preventing excessive job shedding in the face of a shock perceived as mostly temporary and by strengthening social safety nets. Including following the recommendations in EU Economic Recovery Package, a number of countries put in place or beefed up existing short-time working schemes (recorded among “Other welfare-related benefits”), with the purpose of cushioning the impact of the crisis on firms labour costs while containing job shedding.
- In a second phase after the crisis (the 2010-2011 period), a different composition of reforms by domain becomes visible. *As the crisis dragged on*, labour market reforms became *more frequent in the domain of job protection, wage setting, and working time*, notably in Southern European countries. On the one hand, the perception that the crisis involved a persistent aggregate demand contraction especially in countries concerned by current account reversals and debt crises prompted reforms aimed at improving the adjustment capacity of the labour market. On the other hand, the perception of tightening fiscal constraints implied a reduced frequency of measures aimed at cushioning the labour market impact of the crisis via the budget (tax wedge reductions, active and passive labour market policies).

3.4. Taking a closer look: policy fields, cross-country comparisons

To obtain a more detailed picture of patterns and trends in reforms, it is worthwhile to look at policy *fields* with the most relevant *macro-structural* impact: those in the unemployment benefit, job protection and wage setting policy domains.

Graph 7 shows the frequency and direction of reforms in policy fields within the unemployment benefits domain. It reveals that most measures in the field of duration and entitlement were decreasing generosity. The coverage of benefits was instead predominantly increased. The balance between measures raising and reducing replacement rates shifted as the crisis unfolded: initially a higher number of measures raised benefits; as the crisis dragged on, measures reducing benefits became relatively more frequent.

Graph 8 shows the frequency and direction of reforms within the job protection (EPL) domain. It reveals an increased frequency of reforms addressing the EPL regime for permanent contracts since 2006, with a broadly-balanced frequency of measures in terms of directions. Regarding fixed-term contracts, in the past decade the incidence of measures relaxing conditions is almost systematically below that of measures tightening conditions, which may reflect, in a number of cases, a gradual adjustment to past reforms relaxing conditions for fixed term contracts with the implication of raising employment while at the same time creating segmentation.

The time evolution of measures affecting wage setting previously highlighted for the whole domain of wage setting frameworks (including also social pacts and tripartite agreements) is even clearer when focusing on the field of government intervention aimed at reforming the wage setting system (Graph 9). This evidence suggests a shift in the positioning of governments on the wage-employment trade-off during periods of high unemployment (crisis years).

Finally, it is worthwhile comparing reform directions across countries within each policy domain. Graph 10 provides some interesting insights. The comparison of reform patterns within homogenous country groups reveal some similarities, thus confirming that institutional factors play a role in driving reform patterns. However, even within country groups, the direction of reforms is quite heterogeneous for unemployment benefit and wage setting reforms. Anglo-Saxon countries barely reduced job protection, while Southern Countries carried out frequently such reforms. Eastern and Continental countries relied relatively

strongly on generosity-decreasing welfare benefit reforms. In Continental countries, measures aimed at easing working time regulation were comparatively more frequent.

3.5. Comparing LABREF to other databases

To benchmark the information from LABREF, a comparison was performed with the only analogous database, namely the Social Reforms Database compiled by the Fondazione Rodolfo Debenedetti and IZA (henceforth FRDB-IZA database).⁷ The coverage of LABREF and FRDB-IZA data overlap only partially. The FRDB-IZA database contains information for 14 EU countries over the period 1980-2007 (the 15 EU countries before the 2004 enlargement bar Luxembourg); LABREF covers EU-27 countries (all but Croatia) over the period 2000-2011. Hence, the comparison is made for the 14 EU countries contained in FRDB-IZA database for the 2000-2007 period.

To make the comparison possible, five comparable policy ‘subdomains’ were created as follows: active labour market policies (ALMP), employment protection legislation (EPL), unemployment benefit (UB), other welfare-related benefits, and early withdrawal (see Table C.1 in Appendix C). Table 1 reports correlation coefficients between reform count data from the two databases. The overall correlation between the number of reforms recorded in both databases is 0.5. Correlation coefficients across subdomains vary between 0.31 (welfare benefits) and 0.64 (UB), correlation coefficients across countries vary between 0.22 (UK) and 0.74 (Belgium). While these coefficients indicate a fair degree of correlation between the number of reforms recorded in both databases, the fact that the correlation is not perfect could be linked to differences in the criteria followed to identify reforms as separate entries.⁸

The information from the LABREF database has also been compared to changes in a number of indicators of labour market policy, namely the tax wedge of the average wage earner, the overall EPL indicator compiled by the OECD, as well as measures of spending on active and passive labour market policies. Such a comparison allows gauging by how much these

⁷ The data base is available under link http://www.frdb.org/language/eng/topic/data-sources/dataset/international-data/doc_pk/9027.

⁸ One database may record a reform ignored by the other as too minor. Composite reforms may be broken down to a different number of reform measures by different databases depending on their systems of classification. It is possible that the same reform is recorded in different years in different databases. It appears that generally LABEF records more reforms measures than the FRDB-IZA database.

indicators change in correspondence with events recorded as reforms in the LABREF database.

To take into account the fact that in a given year, in a given country, different reforms may coexist with different directions, a “reform stance” variable is generated as the number of reforms with *increasing* direction net of the number of reforms with *decreasing* direction in a given policy domain. To assess the relation between the LABREF reform stance and labour market policy indicators, simple descriptive panel regressions have been run. Table 2 shows that the LABREF reform stance variable is statistically significant in all policy domains and the sign is the expected one.

4. Searching for the determinants of labour market reforms

When and where are labour market reforms more likely to take place? What are the characteristics of countries exhibiting higher reform intensity? During which periods are reforms more frequent? What factors trigger reforms?

The co-movement between the number of reforms and the most relevant labour market variable for policy makers, unemployment, suggests that reforms are more frequent in periods when unemployment is high or on the rise (Graph 11). This is particularly evident after the 2008 recession in most countries. The graph shows, however, that the timing of the policy response differs somewhat across countries, with cases in which increased reform action takes place with some lag after the increase in unemployment (e.g., IE, PT), while in other cases reform activism was intense already before the occurrence of periods on unemployment growth (e.g., ES, FR).

The medium-term link between unemployment and reforms can be synthetically captured by a cross-country scatterplot. Graph 12 confirms the expected relation. The average reform intensity over the sample period tends to be higher in countries characterized on average by a higher unemployment rate. The cross-country positive relation between reforms and unemployment is quite strong, post-transition Poland and Slovakia being outliers in light of the high unemployment rates in early 2000s.

A number of additional cross-country correlations appear of interest, as reported in Table 3. Factors considered include labour market outcomes and other macro-fiscal relevant characteristics, including income per capita, GDP growth, debt and fiscal stance.

As expected, unsatisfactory labour market outcomes are correlated with more intense reform activity. Most importantly, reforms are more frequent in countries with high unemployment. Reforms are also more frequent in countries with segmented labour markets. Reforms appear to be less frequent in countries with a high growth rate. As for income per capita, the relation is negative but weak. Finally, countries with higher government debt and, to a lesser extent, those with a higher deficit appear to implement more reforms on average, while the correlation between the change of the fiscal stance over the decade and the number of labour market reforms is close to zero (thus not supporting the often claimed trade-off between fiscal consolidation and reforms).

In light of the considerable heterogeneity of reforms by policy domain, reform determinants are to be analysed separately for the different policy domains. In order to focus the discussion, three policy domains are analysed: labour taxation, unemployment benefits, and EPL. Regression analysis is used to test the effect of selected labour market outcomes, macroeconomic conditions, and existing policy settings on the '*reform stance*' in each policy domain. The reform stance is defined as the difference between the number of reforms with a direction increasing the underlying policy and the number of reforms decreasing it. In a separate regression, it is investigated how the same economic determinants affect the total number of reforms over all domains. The explanatory variables are all lagged one period to tackle the risk of reverse causation.

Table 4 reports the results of the pooled regressions analysing reform determinants. Column (1) shows the determinants of the overall number of reforms, while columns (2) to (4) show the determinants of the reform stance in the three policy domains.

Overall reform activism has clearly increased during the crisis, as indicated by the large and significant estimated effect of the crisis dummy (taking a value of 1 for years after 2007; see column (1)). Reforms are in general more frequent if unemployment is high and potential growth is low. The spread between domestic and German interest rates is also associated with a higher frequency of reforms.

Looking at the determinants of reforms by policy fields, the economic environment affects policy action in the various domains in the expected way, although the effects are mostly not statistically significant at conventional levels. High unemployment is associated with reforms decreasing the tax burden on labour, increasing generosity of unemployment benefits and slightly loosening employment protection. Low potential growth is associated with reforms aiming at reduced EPL strictness. Results are quite intuitive regarding the effect of the fiscal

situation on reform activism. While government deficits do not significantly affect the total number of reforms and the policy stance in the EPL domain, lower deficits are associated with reforms easing of tax burden and increasing the generosity of the unemployment benefit system.

Finally, reform action is also linked to the existing policy context. The tax burden on labour is more likely to be eased in countries with a high tax wedge; rules of the unemployment benefit system are more likely to be tightened in countries where expenditure over GDP is high; and employment protection is more likely to be loosened in countries where it was strict in the first place.

Overall, the analysis of LABREF data confirms the view that reforms are carried out mostly when and where justified both on the ground of structural regulatory and institutional factors and on the ground of labour market outcomes. Other macro-fiscal conditions play a role, too. Reform activism is generally associated with low GDP growth and high unemployment.

5. Assessing the impact of reforms: some prima-facie evidence

This section discusses the effect of reforms on outcomes. A thorough assessment of the impact of changes in policy frameworks requires the use of disaggregated data: only in this way is it possible to identify the effect of reforms by comparing the specific outcome variables affected by the reforms between those population groups, sectors, individuals, that are concerned and those that are not (e.g., Imbens and Wooldridge, 2009). The findings from the analysis in the previous section also show quite clearly the risks of reverse causation when running analysis on aggregate outcome variables: unsatisfactory outcomes trigger reforms, and reforms at the same time produce effects on those outcomes over time. In light of these arguments, the LABREF database has been used in past analysis to assess policy effects with the help of disaggregated data, including the impact of reforms across different gender and age groups (Arpaia et al., 2009) and on marginally attached workers (European Commission, 2008).

Notwithstanding their limitations, attempts to assess the impact of reforms on macro data are quite common, because they are helpful in providing a synthetic, prima-facie gauge on the direction and order of magnitude of reform effects (e.g., Layard and Nickell, 1999; Nunziata, 2002; Belot and van Ours, 2004; Bassanini and Duval, 2006, Bouis and Duval, 2011, Bouis et al., 2012, Bernal-Verdugo et al., 2012).

The present paper focuses on how reforms affect the activity rate and the unemployment rate. While a typical disaggregated policy evaluation focuses on one reform observation, in a macro dataset like LABREF there are several reforms recorded in the same year. It follows that outcomes could be the result of multiple measures taken simultaneously within a given domain at a given point in time.

The most straightforward aggregator of reform measures is the count of the number of reforms. With a view to take into account of the different direction of reforms, the ‘*reform stance*’ is used to that purpose: the difference in the number of reforms increasing the underlying policy and the number of reforms decreasing it. Clearly, some reforms are more significant than others; the estimated coefficients reflect the effect of the ‘average’ reform measure on labour market outcomes (the direction of measures taken into account).

The regression analysis follows the strategy of Bouis et al. (2012) and Teulings and Zubanov (2013), as adjusted to our database of relatively short time span. This strategy estimates the Impulse Response Function (IRF) directly, rather than recursively because the recursive method is more sensitive to misspecification error. The estimated regressions are given as:

$$Y_{i,t+k} - Y_{i,t} = \alpha_k + \beta_{k,j} \Delta Y_{i,t} + \eta_k OG_{i,t} + \sum_d \theta_{k,d} ref_{i,d,t} + \gamma_{i,k} + \gamma_{t,k} + \varepsilon_{i,t,k}. \quad (1)$$

This defines k regressions, where the k -th regression estimates the effect of reforms on the cumulative change of outcome variable Y from year t to $t+k$. The main explanatory variables $ref_{i,d,t}$ represent the reform stance in country i , year t and policy domain d . The cyclical position is taken into account by the change of the outcome variable from year $t-1$ to t ($\Delta Y_{i,t}$) and the output gap in year t . The estimations include country effects $\gamma_{i,k}$ (to control for country-specific trends) and year effects $\gamma_{t,k}$ (an additional control for the European business cycle).

The regressions are estimated with the least square dummy variable method with standard errors clustered by country.⁹ Results are displayed in Tables 5 and 6; the implied impulse response functions are depicted in Graphs 13 to 16.

Activity rates are put in relation with tax and benefit reforms (Table 5 and Graphs 13 and 14). Reforms reducing the tax wedge have a statistically significant impact on the activity rate, which remains relatively constant over time. Reforms increasing the generosity of social

⁹ In light of the limited cross section dimension of the database, GMM estimation does not have a major impact in reducing the bias associated with fixed effect regressions in the presence of the lagged dependent variable (e.g., Judson and Owen, 1999).

benefits also have the expected negative impact on activity rates, but the effect does not reach statistical significance and takes time to materialize (growing from the first to the fourth year after the reform), probably in light of the fact that these reforms mostly concern new beneficiaries or foresee a gradual phasing out of benefits for current beneficiaries.

Tax wedge and unemployment benefit reforms appear to help reducing the unemployment rate (Table 6 and Graphs 15 and 16). The average effect of unemployment benefit reform increases over time and is relatively large in magnitude, but is estimated relatively imprecisely which means that the effect is not statistically significant. The estimated effect of labour tax reform is even smaller, more gradual and uncertain.

It is important to take these results with the necessary degree of caution. Aggregate approaches to assess the impact of reforms have limited power in identifying the effect of reforms because they do not allow measuring the impact on what is directly changed by policy measures and do not permit separating the effects between the population affected by the reform and the one which is instead not affected. Hence, rather than a proper quantification of the reform impact, aggregate analysis provides a statistical account of the extent to which the dynamics of relevant labour market outcome variables were affected by the adoption of a certain number of reforms of a certain type. In light of the relatively small sample size and the indirect link between reform indicators and outcome variables, it is not surprising that in many cases statistical significance is not reached.

Nevertheless, the results from aggregate analysis presented in this section appear in line with *a priori* expectations of reform impact, which is reassuring in that it confirms priors often implicitly or explicitly underlying reform action by governments or policy advice and recommendations by experts, think tanks and policy institutions. The results also provide a number of insights, notably regarding the time pattern of reform effects, which deserve further investigation.

6. Conclusions

The increased reform activism by EU member states in the recent past calls for stepping up efforts to track the record of past reforms and assess their features, determinants and effects. Such an assessment is challenging, most notably in light of the much differentiated character of the multi-faceted set of measures that normally fall under the broad heading ‘reform’.

The rich information contained in the LABREF database, developed by DG ECFIN of the European Commission in cooperation with the Economic Policy Committee, allows tracking labour market reforms in the EU over the past decade.

Despite limitations of count data in assessing reform intensity, the analysis reveals a number of noteworthy trends and regularities that broadly confirm expectations:

- Countries with similar institutional settings tend to follow analogous reform patterns. Reforms tend to be more frequent when the environment is characterised by unsatisfactory labour market outcomes (notably high and growing unemployment) and a high initial level of regulations or fiscal burden on labour. Other macro-fiscal conditions play a less clear-cut role.
- The 2008 crisis triggered reforms in most policy domains in a large number of EU countries. External pressure from markets, increased uncertainty on economic prospects, and supra-national surveillance contributed to win resistance to reforms.¹⁰ In a first phase reforms were mostly aimed at cushioning the impact of the crisis on employment; in a second phase reforms aimed at increasing the adjustment capacity of labour markets (EPL, working time, wage setting) became more frequent, while reforms reducing the labour taxation or raising entitlements became less frequent, in light of tightening budget constraints.
- Empirical evidence of the effects produced by selected reforms on aggregate labour market outcomes is supportive of common priors: tax and benefit reforms tend to be followed with some lags by improved activity rates and lower unemployment.

Further analysis on the LABREF database could aim at exploring the role of policy complementarities in driving labour market outcomes (e.g., Bassanini and Duval, 2009) and, more fundamentally, at assessing the effect of reforms on labour market outcomes using micro-level data that allow better identifying the impact of the policy across population groups.

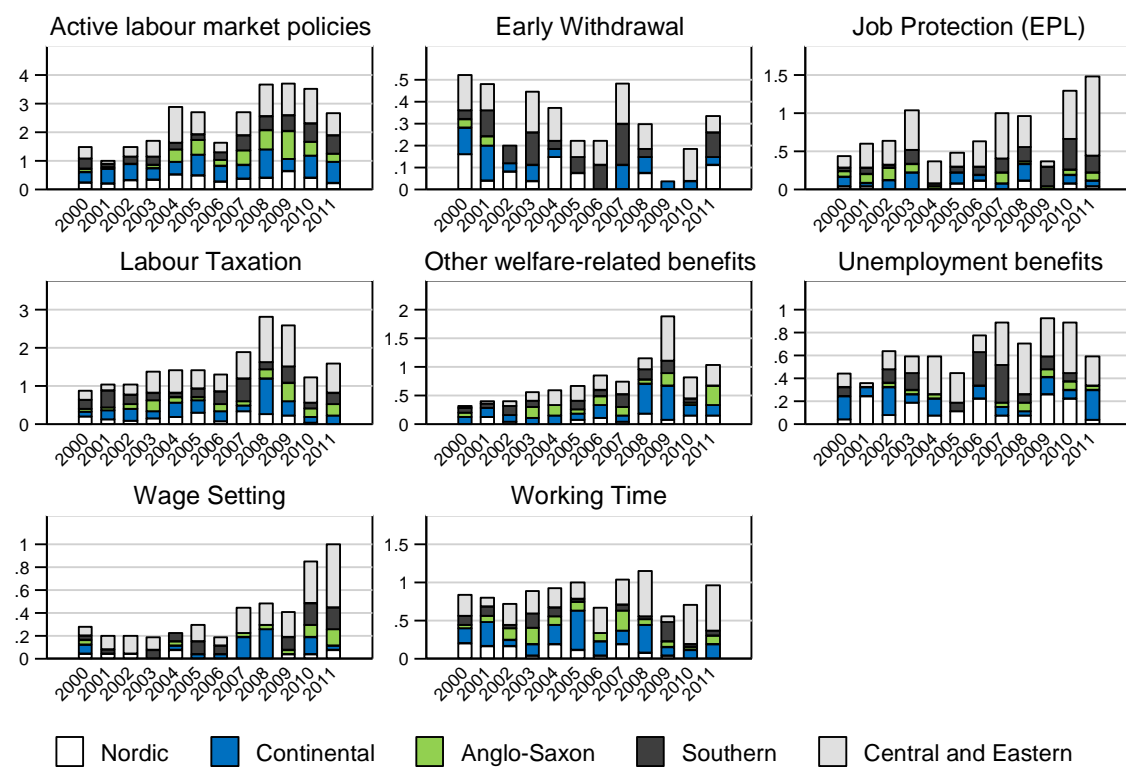
¹⁰ See also detailed analyses by Buti et al. (2010), Bonfiglioli and Gancia (2011).

References

- Arpaia, A., E. Perez and K. Pichelmann (2009), "Understanding Labour Income Share Dynamics in Europe", *MPRA Working Paper* No. 15649.
- Bassanini, A. and R. Duval (2006), "The Determinants of Unemployment Across OECD Countries: Reassessing the Role of Policies and Institutions", *OECD Economic Studies*, 42, 7-86.
- Bassanini, A. and Duval, R., (2009), "Unemployment, Institutions, and Reform Complementarities: Re-assessing the Aggregate Evidence for OECD Countries," *Oxford Review of Economic Policy* No. 25, pp. 40–59.
- Belot, M. and J. Van Ours (2004), "Does the Recent Success of Some OECD Countries in Lowering their Unemployment Rates Lie in the Clever Design of their Labour Market Reform?", *Oxford Economic Papers*, 56(4), 621-42.
- Bernal-Verdugo, L., D. Furceri, and D. Guillaume (2012), "Labor Market Flexibility and Unemployment: New Empirical Evidence of Static and Dynamic Effects", IMF Working Paper, WP/12/64
- Blanchard, O. and Wolfers, J., 2000, "The Role of Shocks and Institutions in the Rise of European Unemployment: The Aggregate Evidence," *Economic Journal* No. 110, Vol. 462, 1–33.
- Bonfiglioli, A. and G. A. Gancia (2011), "The Political Cost of Reforms", *CEPR Discussion Paper* No. 8421.
- Botero, J., S. Djankov, R. La Porta, F. Lopez-de-Silanes and A. Shleifer (2004), "The Regulation of Labor", *Quarterly Journal of Economics*, 119, 1339-1382.
- Bouis, R. and R. Duval (2011), "Raising Potential Growth after the Crisis: A Quantitative Assessment of the Potential Gains from Various Structural Reforms in the OECD Area and Beyond", *OECD Economics Department Working Paper* No. 835.
- Bouis, R., O. Causa, L. Demmou, R. Duval, A. Zdzienicka (2012), "The Short-Term Effects of Structural Reforms: An Empirical Analysis." *OECD Economic Department Working Papers*, No. 949.
- Buti, M., A. Turrini, P. Van den Noord and P. Biroli (2010), "Reforms and Re-Elections in OECD Countries", *Economic Policy*, vol. 25, Issue 61, 61-116, January 2010.

- Chor, D. and R. Freeman (2005), "The 2004 Global Labor Survey: Workplace Institutions and Practices Around the World", *NBER Working Paper* No. 11598.
- Esping-Andersen, G. (1990), "The Three Worlds of Welfare Capitalism", Cambridge: Polity Press & Princeton: Princeton University Press.
- Høj, J., V. Galasso, G. Nicoletti and T. Dang (2006), "The Political Economy of Structural Reform: Empirical Evidence from OECD Countries", *OECD Economics Department Working Paper 501*, Paris: OECD Publishing.
- Imbens, G. W. and J. Wooldridge (2009), "Recent Developments in the Econometrics of Program Evaluation", *Journal of Economic Literature*, 47, 5-86.
- Judson, R. A., and Owen, A. L. (1999) "Estimating dynamic panel data models: a guide for macroeconomists," *Economics Letters*, 65(1), 9-15.
- Nickell S. and R. Layard (1999), "Labour Market Institutions and Economic Performance", *Handbook of Labour Economics*, vol. 3, 3029-3084, Amsterdam: Elsevier.
- Nunziata, L., 2002, "Unemployment, Labour Market Institutions and Shocks," Nuffield College Working Papers in Economics No. 16.
- Teulings, C. N. and N. Zubanov (2013), "Is Economic Recovery a Myth? Robust Estimation of Impulse Responses", *Journal of Applied Econometrics*, 1099-1255.

Graph 1: The average number of reforms adopted by EU Member States, by policy domain, year, and country group



Source: DG ECFIN LABREF database.

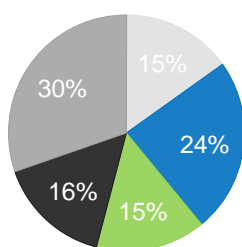
Graph 2: The average number of reforms adopted by EU Member States, by year and country group



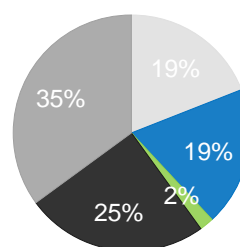
Source: DG ECFIN LABREF database.

Graph 3: Distribution of reforms across policy domains and country groups

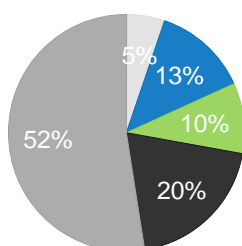
Active labour market policies



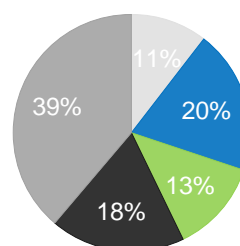
Early Withdrawal



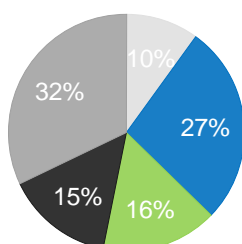
Job Protection (EPL)



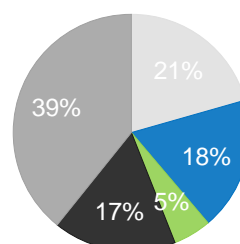
Labour Taxation



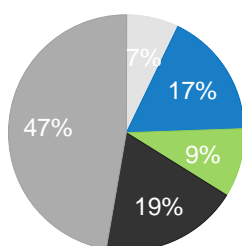
Other welfare-related benefits



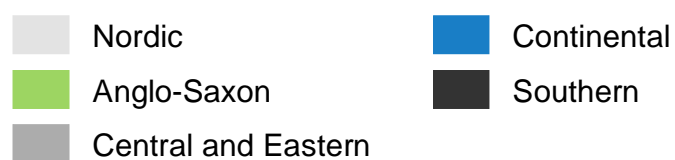
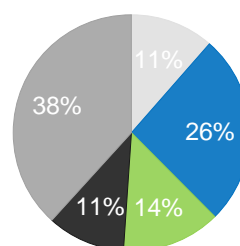
Unemployment benefits



Wage Setting

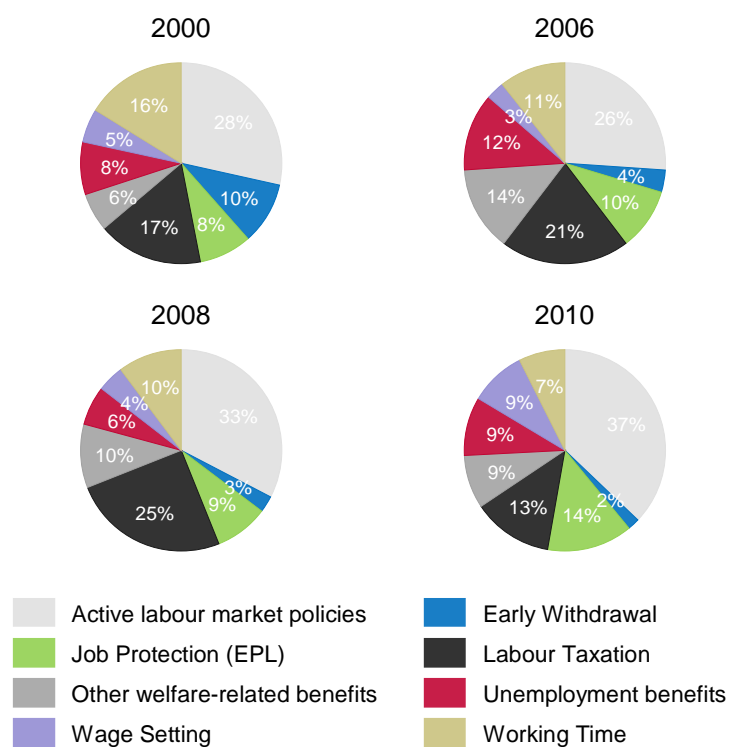


Working Time



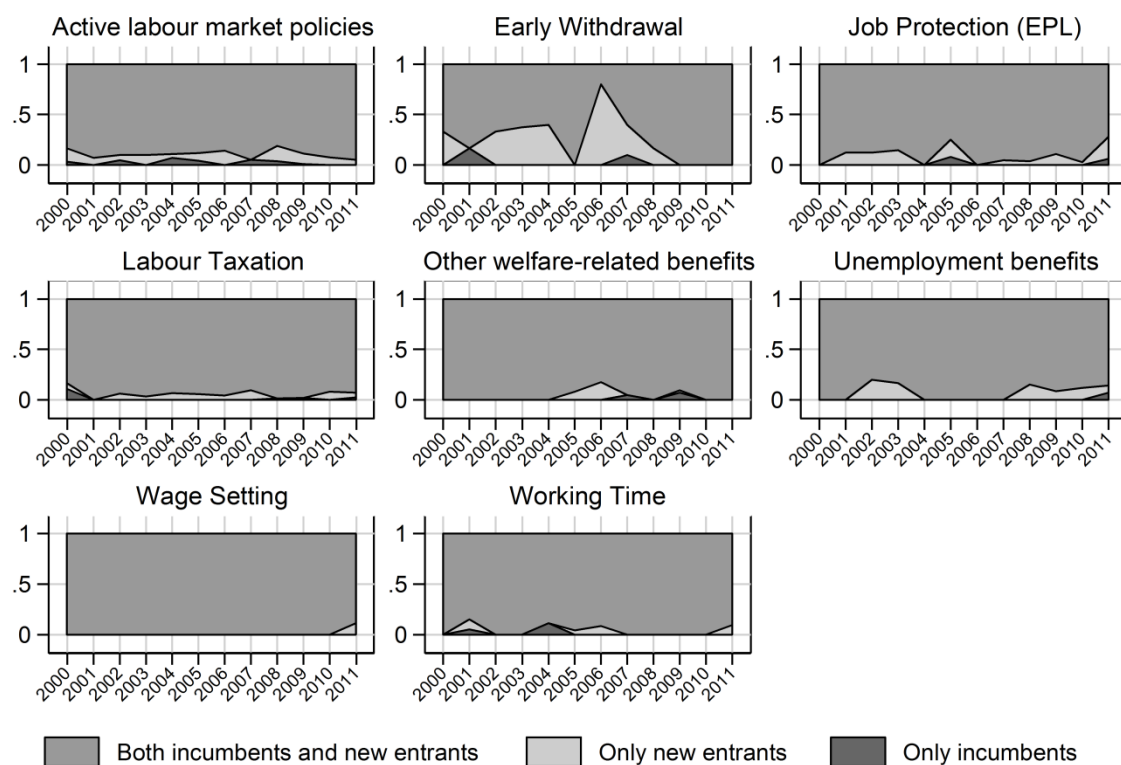
Source: DG ECFIN LABREF database.

Graph 4: Distribution of reforms across policy domains over the years

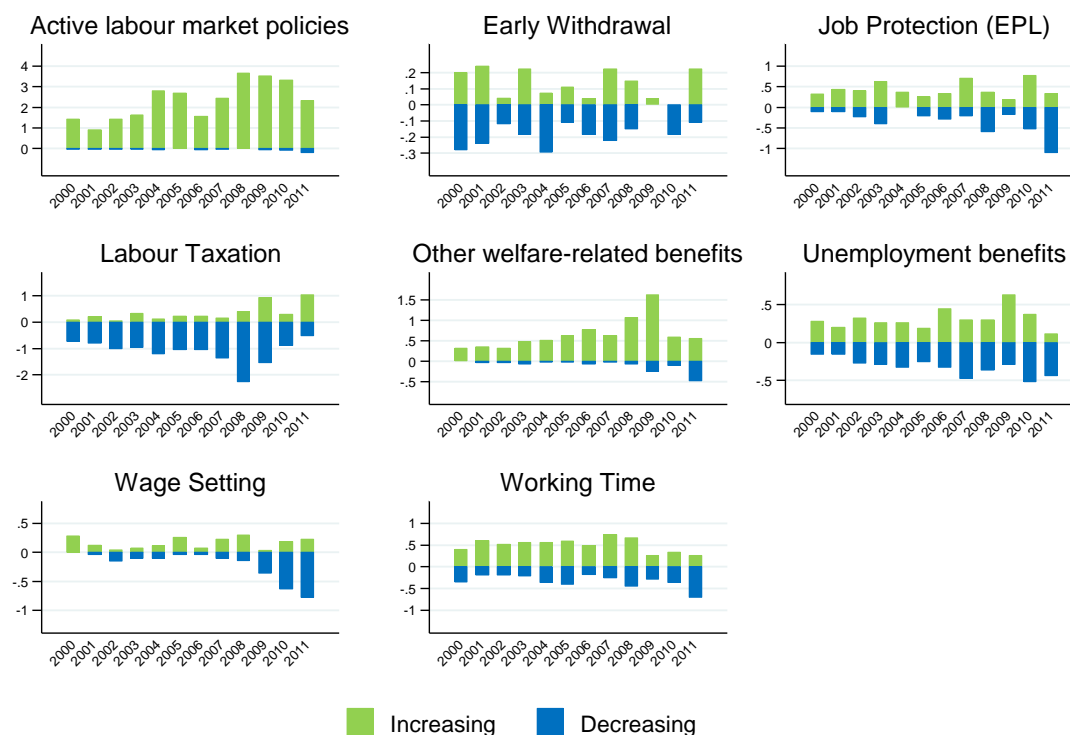


Source: DG ECFIN LABREF database.

Graph 5: Fraction of reforms aimed at new entrants and incumbents

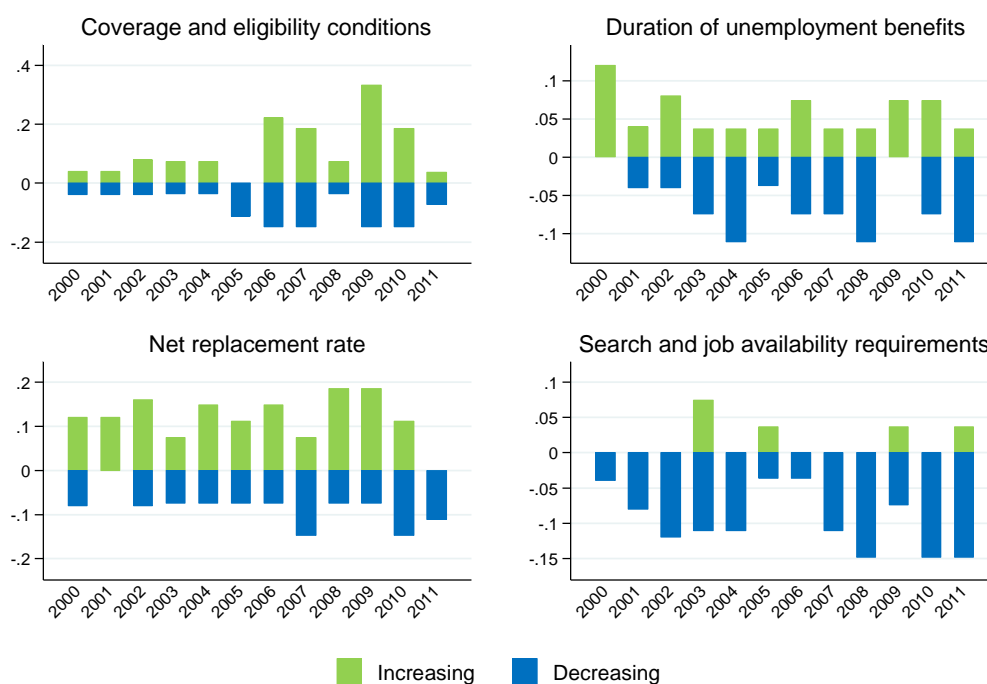


Graph 6: Direction of reforms by domain and year (average number of reforms adopted by EU MS)



Source: DG ECFIN LABREF database.

Graph 7: Direction of reforms in the unemployment benefit domain (average number of reforms adopted by EU MS)



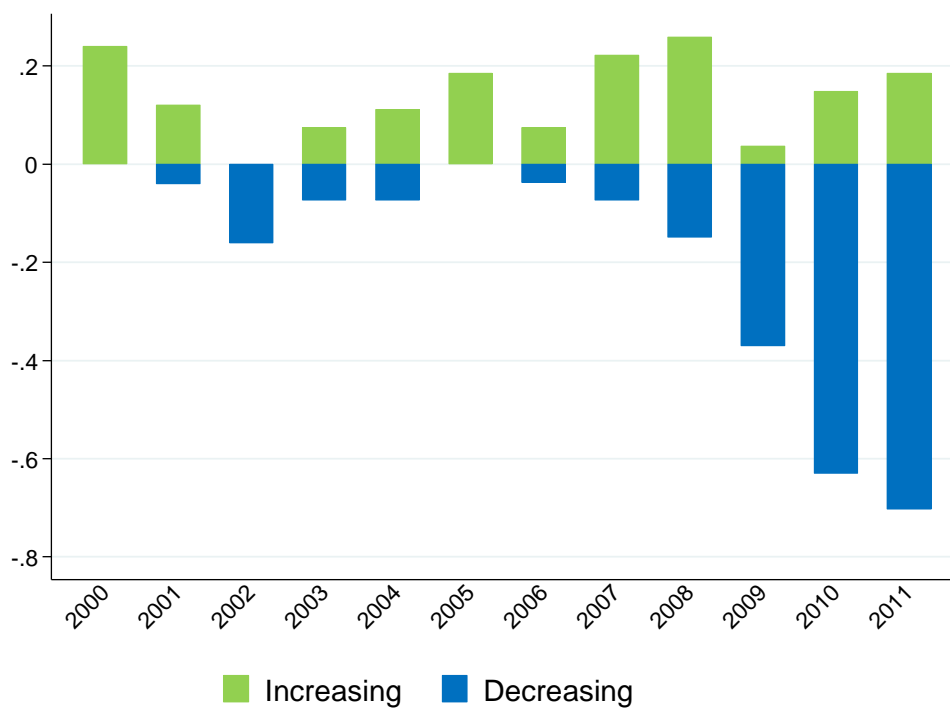
Source: DG ECFIN LABREF database.

Graph 8: Direction of reforms in the job protection domain (average number of reforms across the EU)



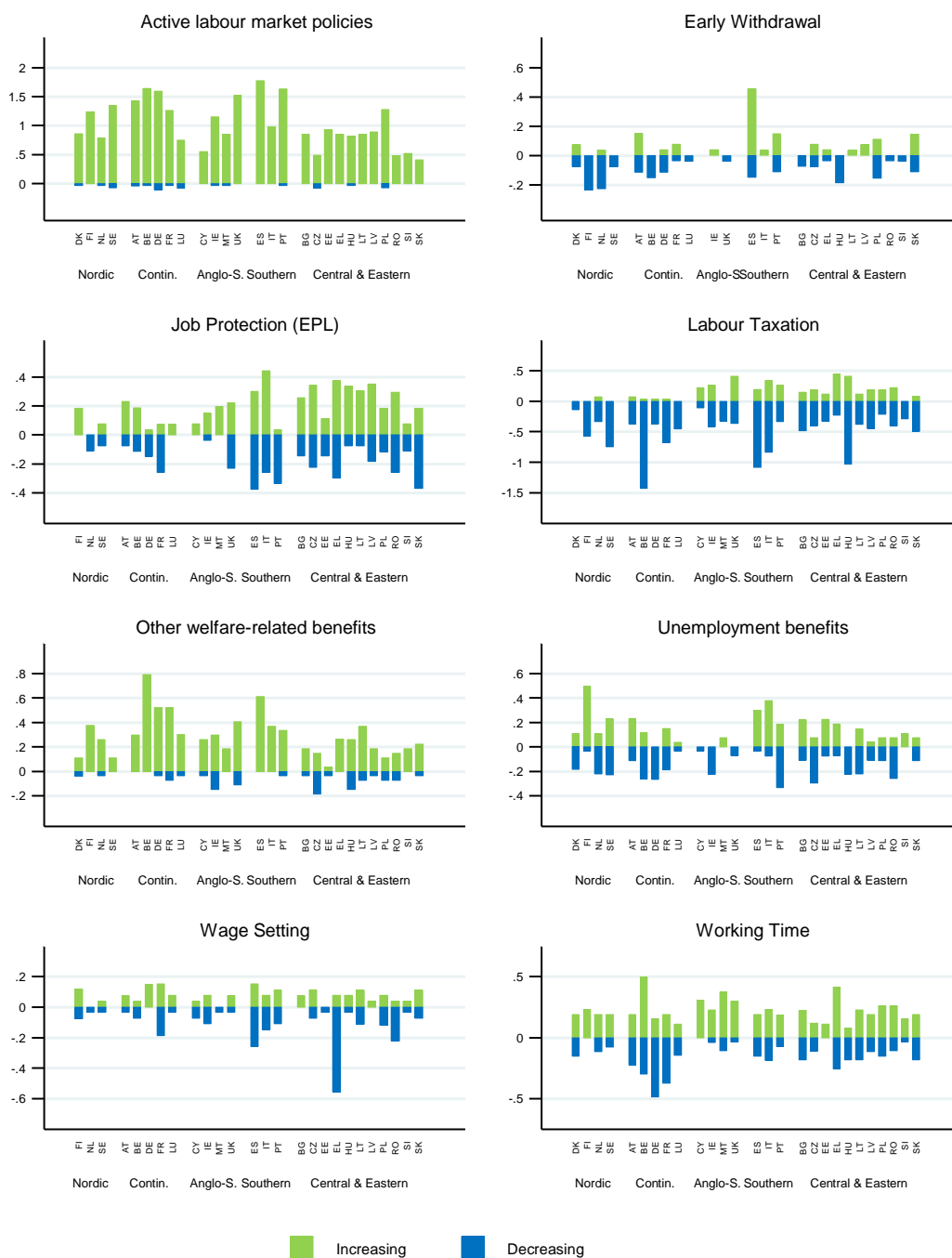
Source: DG ECFIN LABREF database.

Graph 9: Government intervention in wage setting (average number of reforms across the EU)



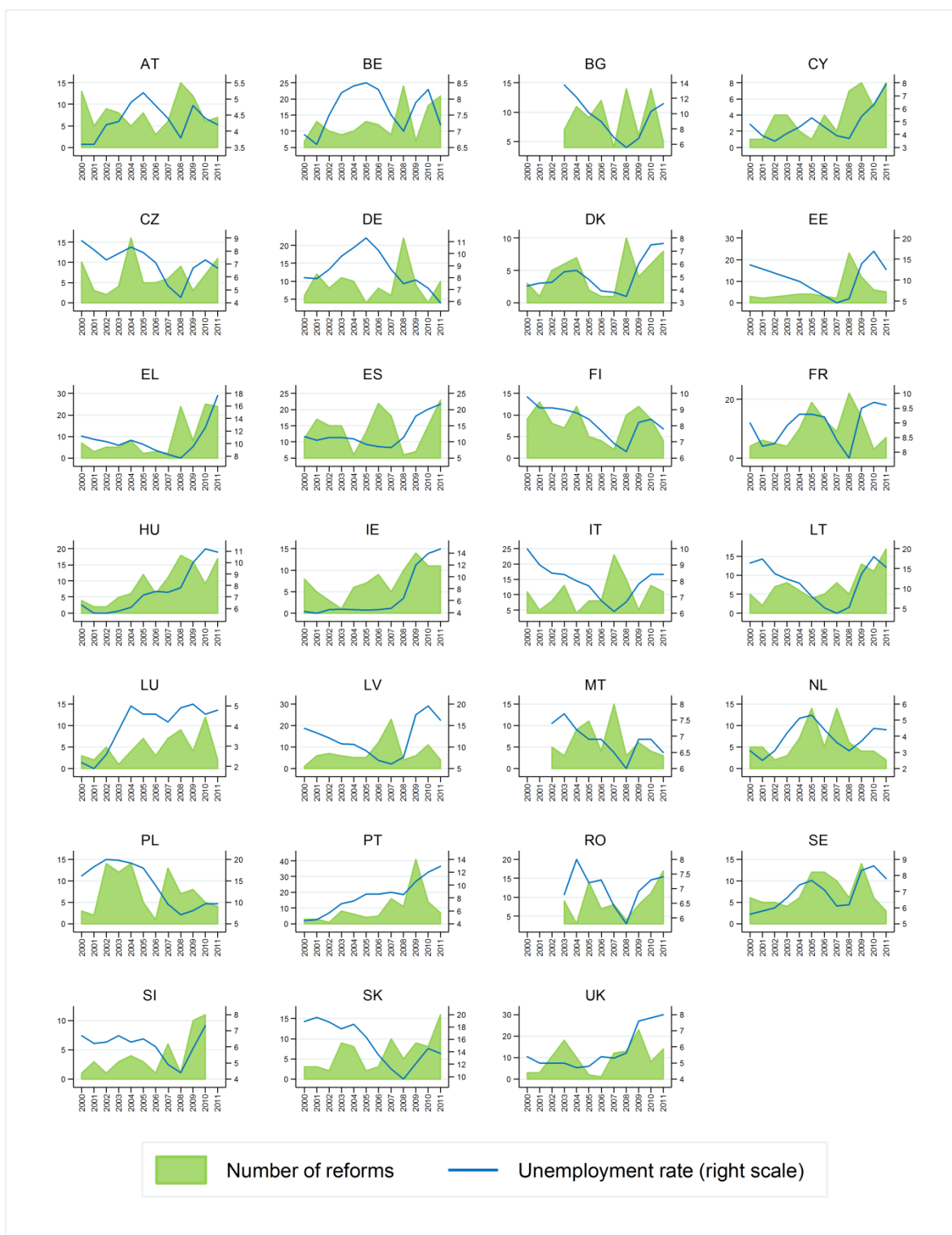
Source: DG ECFIN LABREF database.

Graph 10: Direction of reform by policy domain and country (average annual number of reforms over the 2000-2011 period)



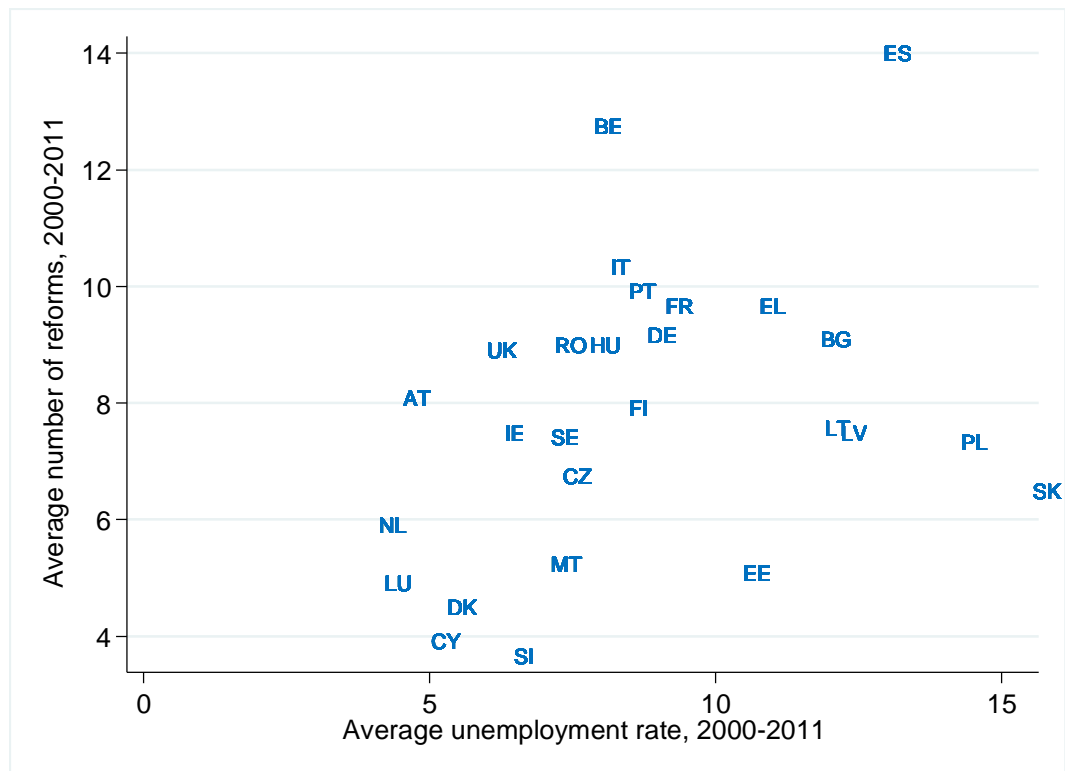
Source: DG ECFIN LABREF database.

Graph 11: Number of reforms and the unemployment rate



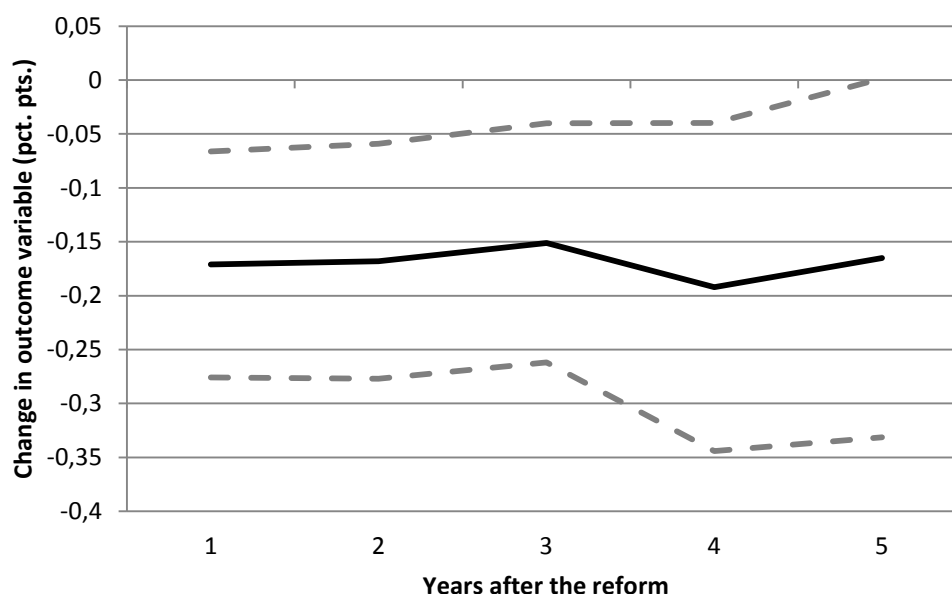
Source: DG ECFIN LABREF database, Eurostat

Graph 12: Average number of reforms and the unemployment rate, 2000-2011



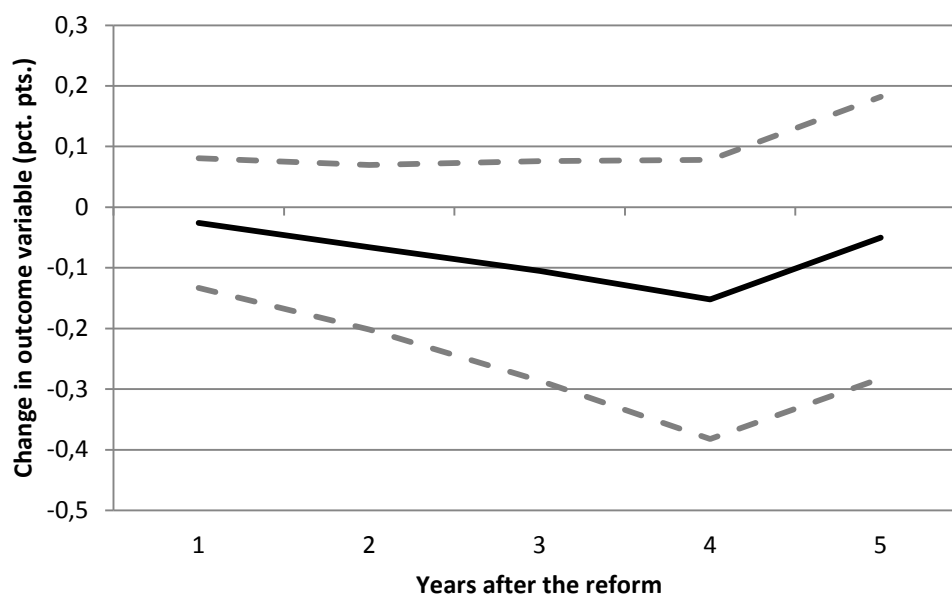
Source: DG ECFIN LABREF database, Eurostat

Graph 13: Cumulative change in the activity rate after a unit increase in the ‘Labour taxation’ reform stance: Estimated impulse-response function



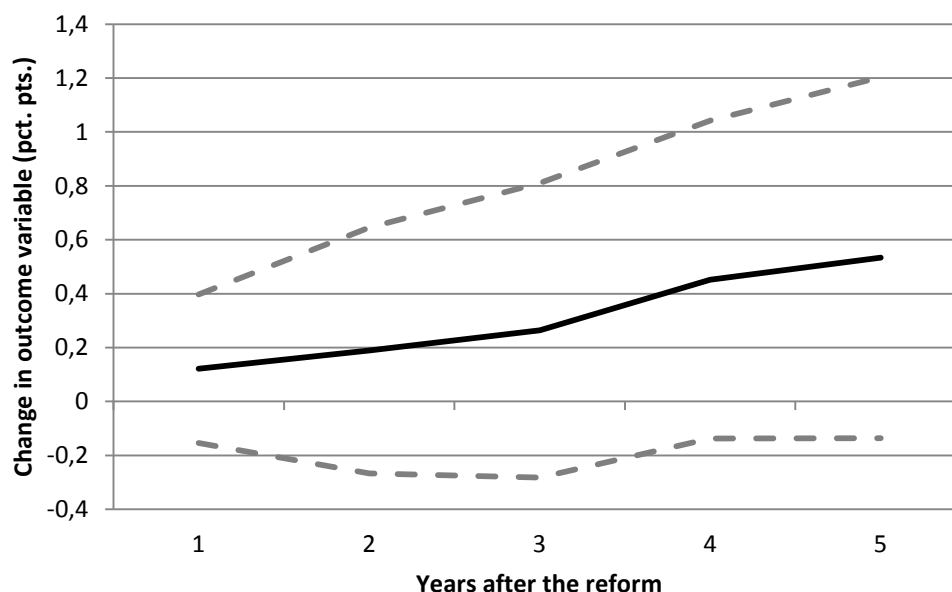
Note: The simulated dynamic effects are based on regressions in Table 6. Dashed lines mark the 95% confidence interval.

Graph 14: Cumulative change in the activity rate after a unit increase in the ‘Other social benefits’ reform stance: Estimated impulse-response function

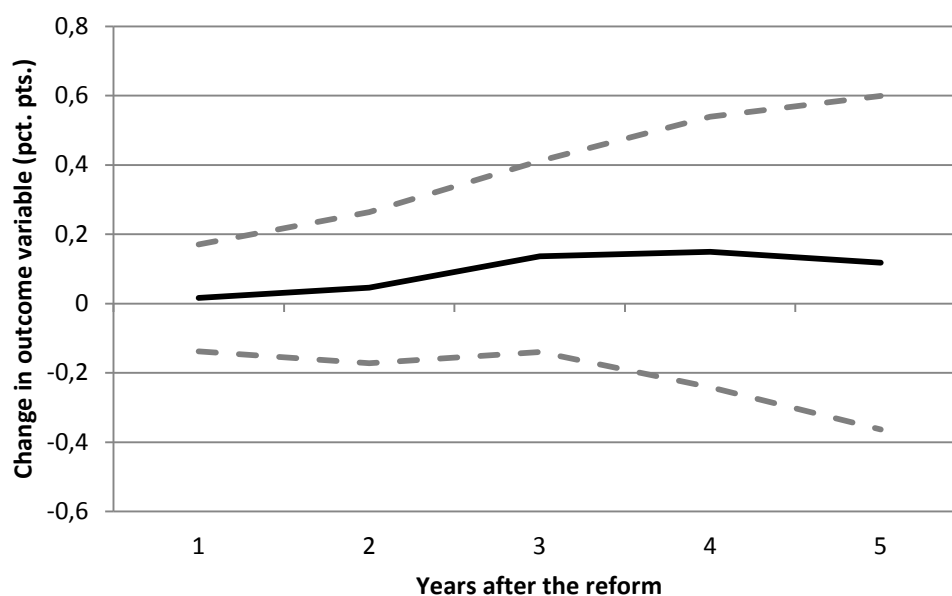


Note: The simulated dynamic effects are based on regressions in Table 6. Dashed lines mark the 95% confidence interval.

Graph 15: Cumulative change in the unemployment rate after a unit increase in the ‘Unemployment benefit’ reform stance: Estimated impulse-response function



Graph 16: Cumulative change in the unemployment rate after a unit increase in the ‘Labour taxation’ reform stance: Estimated impulse-response function



Note: The simulated dynamic effects are based on regressions in Table 5. Dashed lines mark the 95% confidence interval.

Table 1: Correlation between reform numbers in LABREF and FRDB-IZA databases (14 EU countries, 2000-2007)

	ALMP	EPL	Early withdrawal	UB	Welfare benefits	Overall (1)
AT	0.844	0.861	0.889	0.726	0.258	0.731
BE	0.241	0.701	-0.204	1.000	0.845	0.744
DE	-0.299	0.958	0.788	0.400	-0.730	0.457
DK	0.703	..	0.174	0.905	-0.143	0.519
EL	0.500	-0.083	..	0.822	0.726	0.448
ES	0.097	0.784	0.596	0.680	0.556	0.491
FI	0.921	0.655	0.000	0.962	0.487	0.582
FR	0.823	0.433	0.293	0.197	0.641	0.603
IE	0.746	0.593	0.417	0.655	0.881	0.645
IT	0.278	0.149	..	0.527	..	0.379
NL	0.128	-0.204	0.040	0.165	-0.267	0.169
PT	-0.195	0.726	0.354	0.957	0.635	0.707
SE	0.659	0.284	0.447	0.383	0.749	0.479
UK	0.322	-0.314	-0.249	..	0.567	0.218
Overall (1)	0.522	0.390	0.365	0.637	0.313	0.503

(1) Overall correlations are between the number of reforms 'stacked' in a single vector, and differ from the averages of correlations by domain.

(2) The correlation is missing if at least one of the datasets records zero reforms over the whole period.

Table 2: Correspondence between LABREF reform direction scores and change in quantitative policy indicators

	(1)	(2)	(3)	(4)
Dependent variable: change in quantitative indicator	EPL	UB	TAX	ALMP
Explanatory variables: LABREF direction score				
Regression coefficient	0.0367** [2.332]	0.415* [1.914]	0.158** [2.093]	0.150** [2.238]
Constant	-0.0198*** [-11.37]	-0.405*** [-501.7]	-0.137* [-1.834]	-0.664*** [-4.040]
Observations	163	269	193	264
R-squared	0.115	0.014	0.020	0.008
Number of countries	18	27	20	27

(1) Dependent variable: change in quantitative indicator of policy domain x . Explanatory variables: LABREF direction score in policy domain x . All equations include country fixed effects. Standard errors are robust with respect to heteroskedasticity and dependence within clusters.

(2) Asterisks indicate estimated coefficients that are statistically significant at the 1% (***), 5% (**), or 10% (*) level.

(3) Policy indicators: *EPL*: overall indicator by OECD; *UB*: expenditure on passive labour market policies per unemployed, divided by GDP per capita; *Labour taxation*: tax wedge of individual earning the average wage, married, two children. *ALMP*: expenditure on active labour policies per unemployed, divided by GDP per capita.

Table 3: Reform intensity and country characteristics: cross-country correlations

	Corr. with no. of reforms	P-value of test of no corr.
Labour market outcomes		
Unemployment rate	0.36	0.07
Employment rate	-0.25	0.20
Share of temporary employment (% of total)	0.18	0.36
Share of long-term unemployment (% of total)	0.25	0.20
Other macro-fiscal variables		
Real GDP per capita, euro	-0.07	0.72
Real GDP growth	-0.40	0.04
Government debt / GDP	0.54	0.00
Government net lending	-0.19	0.33
Change in cyclically adjusted net lending	-0.04	0.85

(1) Spearman rank correlations of averages over the period 2000-2011.

(2) Number of observations: 27, except for the EPL indicator, for which it is 21.

Source: Tax wedge: European Commission-OECD Tax and Benefit Project; Unemployment benefit spending: Eurostat; EPL:OECD; Collective bargaining coverage: ICTWSS database; Labour market outcomes: Eurostat; Other macro-fiscal variables: ECFIN AMECO database.

Table 4. Determinants of labour market reforms, evidence from pooled regressions

Dependent variable:	(1)	(2)	(3)	(4)
	Total number of reforms	Reform stance in the 'Labour taxation' domain	Reform stance in the 'Unempl. benefit' domain	Reform stance in the 'EPL' domain
Unemployment rate (lag)	0.301*** (0.091)	-0.035 (0.024)	0.021 (0.017)	-0.014 (0.035)
Potential growth (lag)	-0.470** (0.189)	-0.062 (0.059)	-0.001 (0.060)	0.114 (0.069)
Government net lending (lag)	-0.041 (0.091)	-0.112*** (0.035)	0.038* (0.019)	-0.034 (0.027)
Spread of 10-yr gov bonds (lag)	-0.445* (0.238)	0.140 (0.110)	-0.104 (0.065)	-0.080 (0.118)
Dummy (year>2007)	2.896*** (0.751)	-0.260 (0.236)	0.139 (0.202)	-0.240 (0.162)
Tax wedge (lag)		-0.027** (0.010)		
Passive LMP spending over GDP (lag)			-0.192 (0.132)	
EPL overall indicator (lag)				-0.288** (0.124)
Constant	6.413*** (0.871)	0.104 (0.363)	0.146 (0.313)	0.530 (0.335)
Observations	278	275	221	165
R-squared	0.139	0.131	0.041	0.092

(1) OLS regressions, pooled cross section and time series data..

(2) Robust standard errors in parentheses

(3) Asterisks indicate estimated coefficients that are statistically significant at the 1% (***), 5% (**), or 10% (*) level.

Sources: Reform count, stance: LABREF; Labour market, fiscal and macroeconomic variables: AMECO. Tax wedge (single earner at average wage), EPL index, Passive labour market policy (unemployment benefit) expenditure over GDP: OECD.

Table 5. Effects of reforms on the activity rate

	(1) Cumul. change in activity rate after 1 year	(2) Cumul. change in activity rate after 2 years	(3) Cumul. change in activity rate after 3 years	(4) Cumul. change in activity rate after 4 years	(5) Cumul. change in activity rate after 5 years
Change in the activity rate	-0.144 (0.096)	-0.184* (0.098)	-0.322* (0.168)	-0.353* (0.193)	-0.430** (0.177)
Output gap	0.036 (0.027)	0.110*** (0.030)	0.142*** (0.037)	0.245*** (0.087)	0.323** (0.119)
Reform stance in the 'Labour taxation' domain	-0.171*** (0.051)	-0.168*** (0.053)	-0.151** (0.054)	-0.192** (0.074)	-0.165* (0.081)
Reform stance in the 'Other welfare-related benefits' domain	-0.026 (0.052)	-0.066 (0.066)	-0.105 (0.088)	-0.152 (0.112)	-0.050 (0.113)
Country effects	yes	yes	yes	yes	yes
Year effects	yes	yes	yes	yes	yes
Observations	231	231	231	231	231
R-squared	0.126	0.147	0.166	0.200	0.226
Number of countries	27	27	27	27	27

Notes: see notes to Table 5.

Table 6. Effects of reforms on the unemployment rate

	(1) Cumul. change in unempl. rate after 1 year	(2) Cumul. change in unempl. rate after 2 years	(3) Cumul. change in unempl. rate after 3 years	(4) Cumul. change in unempl. rate after 4 years	(5) Cumul. change in unempl. rate after 5 years
Change in the unemployment rate	0.744*** (0.108)	1.105*** (0.164)	1.035*** (0.163)	0.751*** (0.188)	0.357 (0.241)
Output gap	0.174*** (0.056)	0.579*** (0.133)	0.841*** (0.196)	0.926*** (0.232)	0.935*** (0.246)
Reform stance in the 'Labour taxation' domain	0.016 (0.075)	0.046 (0.106)	0.136 (0.134)	0.149 (0.190)	0.118 (0.234)
Reform stance in the 'Unemployment benefits' domain	0.122 (0.134)	0.189 (0.222)	0.264 (0.266)	0.452 (0.287)	0.534 (0.326)
Country effects	yes	yes	yes	yes	yes
Year effects	yes	yes	yes	yes	yes
Observations	231	231	231	231	231
R-squared	0.607	0.613	0.588	0.539	0.511
Number of countries	27	27	27	27	27

Notes: see notes to Table 5.

Appendix A: Classification of policies in the LABREF database

The database covers 52 labour market and welfare policy fields, which are grouped in 9 broad policy domains as follows:

1. Labour taxation

1. Employers' social security contributions
2. Employees' social security contributions
3. Social security contributions of the self-employed
4. Income tax
5. Labour taxation - Other

2. Unemployment benefits

6. Net replacement rate
7. Duration of unemployment benefits
8. Coverage and eligibility
9. Search and job availability requirements
10. Unemployment benefits - Other

3. Other welfare-related benefits

11. Short-time working schemes
12. In-work benefits (employment conditional benefit or tax credit)
13. Social assistance (housing, means-tested benefits)
14. Sickness schemes
15. Family-related benefits

4. Active labour market programmes

16. Public Employment Services (job assistance, job-counselling etc.)
17. Training
18. Direct job creation and employment subsidies
19. Employment subsidies
20. Special schemes for the disabled
21. Special schemes for youth
22. Active labour market policies - Other

5. Job protection

a) Permanent contracts

23. Procedural requirements
24. Notice and severance payments
25. Definition of fair dismissal
26. Permanent contracts - Other

b) Temporary contracts

27. Maximum number of renewals of fixed-term contracts
28. Maximum duration of fixed-term contracts
29. Temporary agency work
30. Definition of valid reasons for fixed-term contracts
31. Temporary contracts - Other

c) Collective dismissals

32. Collective dismissals

6. Early Withdrawal

- 33. Early retirement
- 34. Disability schemes

7. Wage Setting

- 35. Statutory minima
- 36. Social pacts, bipartite or tripartite framework agreements on wage setting
- 37. Regulation by the Government of the wage bargaining framework (e.g. extension of collective agreements, representativeness of social partners, etc.)
- 38. Public wages
- 39. Wage setting - Other

8. Working time

- 40. Working hours management
- 41. Part-time work
- 42. Family-related working-time organisation
- 43. Sabbatical and other special leave schemes
- 44. Working time - Other

9. Immigration and mobility

- a) Immigration
 - 45. Immigration control
 - 46. Selective Immigration policies
 - 47. Measure to facilitate labour market integration of immigrants
- b) Mobility
 - 48. Internal mobility
 - 49. Mobility – Other

Appendix B: Definition of reform direction

Reforms with an increasing direction are defined as follows (a symmetric definition applies to “decreasing” reforms):

- Labour taxation: measures increasing the tax burden on labour.
- Unemployment benefits: measures increasing the generosity of unemployment benefits (replacement rates, duration, coverage) or easing entitlement conditions.
- Other welfare-related benefits: measures increasing the generosity of benefits or easing entitlement conditions.
- Active labour market programmes: measures aiming at increasing the availability, generosity, or effectiveness of ALMPs.
- Job protection (EPL): measures increasing protection against job dismissals: strengthening procedural requirements, increasing notice and severance payments, strengthening the definition of fair dismissal, or restricting the conditions for the use of temporary contracts and temporary agency work. But also, measures increasing rights and working conditions of workers.
- Early withdrawal schemes: measures increasing the generosity of early withdrawal schemes (early retirement or disability benefits) or easing eligibility conditions.
- Wage setting: legislation or agreements tightening framework conditions for wage setting on the part of employers.
- Working time regulation: measures tightening regulatory requirements on working time, increasing rights and conditions of part-time workers, tightening availability of or access to childcare, increasing generosity or duration of parental/paternity/maternity leaves, or increasing access to sabbatical or educational leaves.
- Immigration and mobility: measures tightening regulatory restrictions on migration or reducing support to mobility.

Appendix C: Table C.1. Definition of comparable policy subdomains for the LABREF and FRDB-IZA databases

Comparable subdomains	LABREF fields	FRDB-IZA fields
EPL	Procedural requirements	New types of contract
	Notice and severance payments	Duty to inform
	Definition of fair dismissal	Employment rights
	Permanent contracts - Other	Individual dismissals – Compensation
	Maximum number of renewals of fixed-term contracts	Individual dismissals - Procedural obligations
	Maximum duration of fixed-term contracts	Individual dismissals – Reasons
	Temporary agency work	Individual dismissals – Reinstatement
	Definition of valid reason for fixed-term contracts	Individual dismissals – Taxes
	Temporary contracts - Other	Notice period
	Collective dismissals	Severance payments
		Trial period
		Restrictions to employment
		Fixed-term contracts
		Temporary work
		Collective dismissals
Unemployment benefits	Net replacement rate	Unemployment benefits – Benefits
	Duration of UB	Unemployment benefits – Indexation
	Coverage and eligibility	Unemployment benefits - Reference earnings
	Search and job availability requirements	Unemployment benefits - Replacement rate
		Unemployment benefits - Duration
		Unemployment benefits - Eligibility
		Unemployment benefits - For specific categories
		Unemployment benefits - Procedural obligations
		Unemployment benefits - Sanctions
		ALMP - Duty to seek for a job

[Table C.1 continued]

ALMP	Public Employment Services	ALMP - For specific categories
	Training	ALMP - For unemployed
	Direct job creation schemes	Private placement services
	Employment subsidies	Public employment services
	Special schemes for youth	Unemployment benefits - Single instalment
	ALMP - Other	Apprenticeship
Welfare benefits	Short-time working schemes	Earnings disregard
	In-work benefits	In-work benefits
	Social assistance	Social assistance
	Sickness schemes	Sickness benefit
	Family-related benefits	
Early withdrawal	Early retirement	Early retirement
	Disability schemes	Disability benefits
	Special schemes for the disabled	