

THE EFFICIENCY OF THE EUROPEAN SOCIAL FUND
AND FISCAL DECENTRALIZATION IN SPAIN.

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Proyecto: La Eficacia del Fondo Social Europeo y la Descentralización Fiscal en España

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Abstract: We estimate the impact of public expenditure on Active Labor Market Policies (ALMPs) and the European Social Fund (ESF) on the employment rate using panel data from 28 European countries (1985-2011) and an alternative sample of the 17 Spanish regions (1989-2010). The estimations take into account the endogeneity of explanatory variables, the dynamic behavior of their relationship and, for the set of regional data, the spatial dependence among regions. Results support the hypothesis that expenditure in ALMPs and ESF transfers are more beneficial for employment than aggregate public expenditure. In addition, countries with larger ESF transfers observe a larger efficiency of their ALMPs and employment tends to rise as Spanish regions gain fiscal autonomy.

The efficiency of the European Social Fund and Fiscal Decentralization in Spain.

1. Introduction

As the second decade of the twenty-first century started in the European Union, the problems in its labor market became apparent¹, with unemployment rate exceeding recently ten percent, far above other developed regions of the world. In addition it is also becoming evident that asymmetries in unemployment levels do not only persist, but become wider as the economic crisis hits the continent. These asymmetries appear mainly, but not only, across the different Member States. There is a gap of twenty percentage points between the two Member States with the larger and lower unemployment rates. But asymmetries arise also across other dimensions of the labor market, which provokes that, despite the fact that more than 26 million people are unemployed in the European Union, there are significant skill mismatches on Europe's labor market that make, paradoxically, that a large level of unfilled vacancies still persists.

Youth unemployment rate is more than twice as high as the adult one. The European Union seems determined to undertake policy actions in order to rectify this trend, and the 8 February 2013 European Council proposed to carry out the Youth Employment Initiative, that is intended to support

¹ Information and data mentioned in the Introduction have been extracted from Eurostat and European Commission (2013)

young unemployed citizens in regions with particularly high level of youth unemployment rate (above 25%). For this purpose, the European Council has allocated a budget of €6 billion for the period 2014-2020, half of which will be channelled through the European Social Fund.

At this stage, it is important to identify to which extent active labour market policies, in general, and the European Social Fund, in particular, have been determinant to set aside rigidities in the labor market in the past. The European Social Fund was established with the signature of the Treaty of Rome, and its importance as a fiscal and a policy tool has been increasing, in parallel to the other Structural Actions. The raising importance of the ESF and the active labour market policies that the ESF is intended to boost, make imperative the necessity of identifying under which conditions they are more effective, and to construct methods able to measure their impact on the labor market and other macroeconomic variables.

This paper aims to respond to that necessity. For this purpose, we construct and estimate an econometric model that evaluates whether the level of public expenditure on active labour market policies in Europe responds properly to the macroeconomic environment. In order to determine so, we estimate the impact of such public expenditure on the employment rate using panel data from the EU member states for the period 1985-2011. We try to identify also the importance of the European Social Fund by discriminating the data from countries highly subsidized by the ESF from those countries that perceive relatively less funds.

But the paper also intends to shed light in another unexplored issue. The level of vertical distribution of the public administration is extremely heterogeneous across the twenty-seven EU Member States. Fiscal policies are more decentralized in some countries, and we want to explore whether this situation affects the effectiveness of ALMP and, therefore, the impact of the ESF. For this purpose, we make use of Spanish regional data, as Spain has experience a process of fiscal decentralization during the last decades observing a significant transfer of fiscal competencies from the national to regional governments. This process has not affected all regions simultaneously nor in the same proportion, which converts this case in a particularly interesting natural experiment on the process of vertical transfer of fiscal power.

Using panel-data at the regional level (1989-2010) from the seventeen Spanish regions, we estimate the impact of several macroeconomic variables on the employment rate. Among the set of explanatory variables, we include an index the level of fiscal autonomy gained for each Spanish region, in order to estimate its importance as a determinant of employment. We also explore its iteration with other variables and the presence of spillover effects among regions.

The paper is organized as follows: Section 2 shows the main figures governing the evolution of the European Social Fund since its creation, from a fiscal perspective. It also includes a subsection illustrating its evolution in Spain from regional data; Section 3 describes challenges and results of previous studies using panel-data models to analyze the impact of ALMPs on unemployment which are considered relevant for the design of our model; Section 4 described the variables used and present the data; Section 5 explains the methodology applied and the results obtained; and Section 6 concludes.

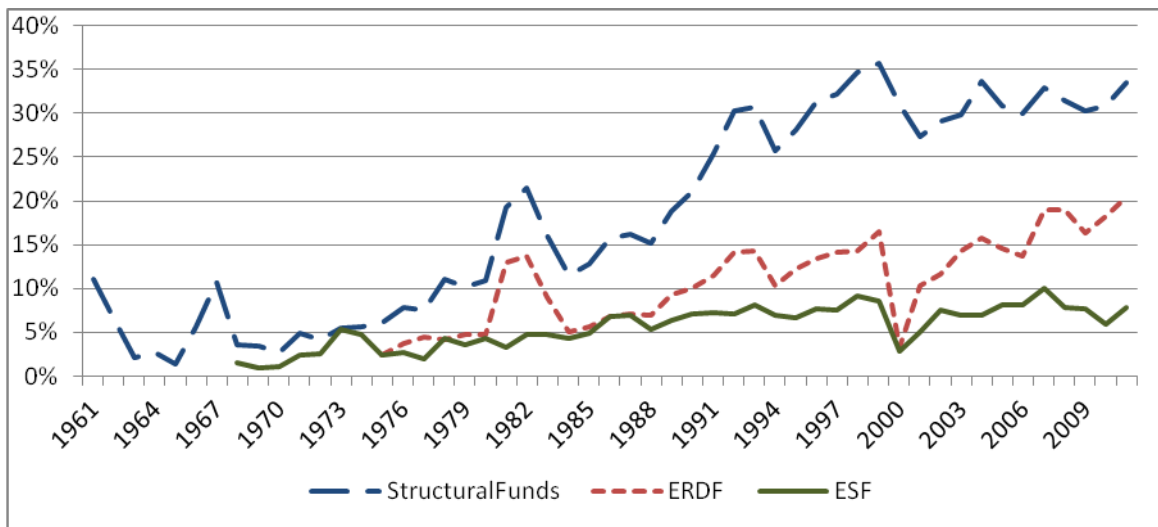
2. The European Social Fund as a fiscal tool

The European Social Fund (ESF) is the oldest of the Structural Funds and its creation was stated in the Treaty of Rome in 1957, with the original task of promoting within the Community employment facilities and the geographical and occupational mobility of workers. The ESF was founded upon the principles of its predecessor in the European Coal and Steel Community, the Fund for the Retraining and Resettlement of Workers. During its first two decades, due to the low levels of unemployment in the European Economic Community, the ESF was devoted to facilitate migration of workers and to retrain people who had suffered accidents at work². The importance of the European Social Fund on the European Communities budget was fairly minor during this period, representing around 1% of the total budget and less than 0.01% of GDP³.

² European Commission (2007)

³ The Structural Funds represented altogether around 5% of the total European Communities budget during the sixties (European Communities 2009), which in turn represented around 0.5% of the GDP of the 6 member states.

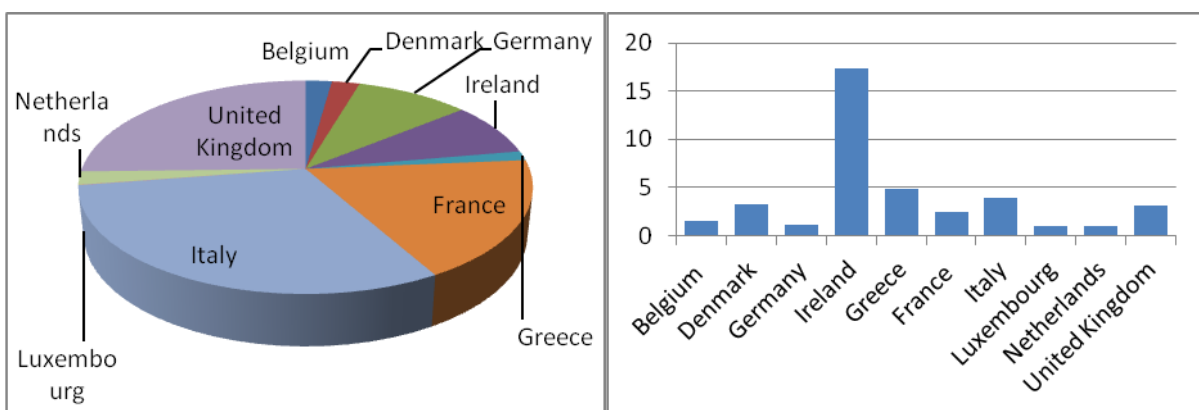
Figure [1]: The share of the Structural Funds in the European budget



source: EU budget financial report (several years)

The first reform of the ESF in 1971, increased notably the size of the Fund and intended to target the funding towards particular groups and categories of people. The Fund was therefore, oriented towards two types of intervention: regions with particular difficulties due to restructuring or industrial change caused by Community policies and less developed regions. In 1975 was created the European Regional Development Fund devoted to promote infrastructure in regions lagging behind. The ESF and ERDF were referred to as “Structural Funds”. Although the next reform was foreseen for the early eighties, the deterioration in the employment situation led to prior amendments of the rules governing the ESF in 1977 and 1978, giving increasing attention to less developed regions and including additional aid to some population groups in risk of exclusion from the labor market.

Figure [2]: The allocation of the ESF: 1974-1982. Distribution among Member States and average annual allocation per inhabitant (in per capita ECU)

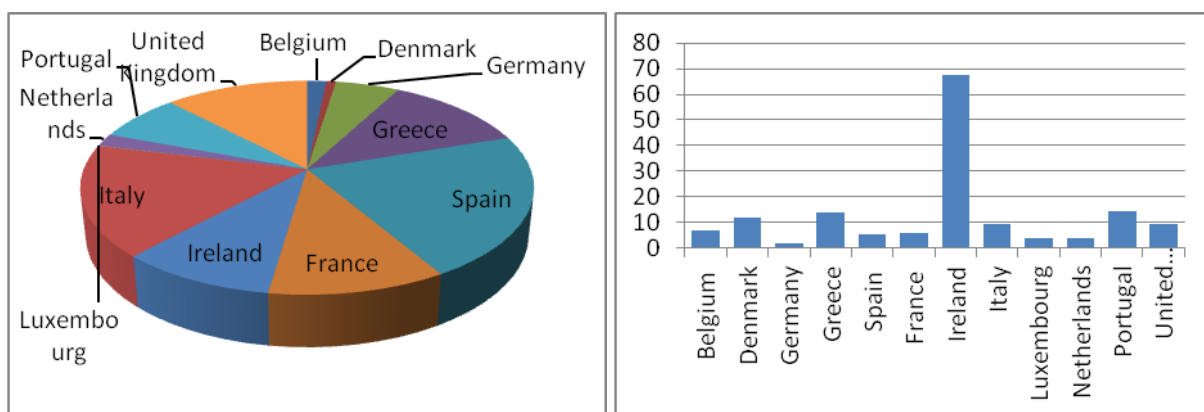


source: Commission of the European Communities (1983), Report and proposals on ways of increasing the effectiveness of

At the beginning, Member States implemented projects that were re-funded afterwards, but, as access to Fund started to cover wider policy areas, a system of prior approval was put in place. Still, until the 1988 reform, there was little supranational influence over the particular projects and implementation of the ESF and the other funds (Bache et al. 2011). Although in absolute terms Italy, the United Kingdom and France were the main beneficiaries of the allocation of the ESF during these years, the allocation of funds per inhabitant were clearly focused towards Ireland whose advantage over the other Member States was remarkable.

In the eighties, following the 1979 energy crisis, with unemployment arising as a severe problem –in particular youth unemployment- and some regions in the need of industrial or agricultural reconversion, the ESF was reformed in order to include workers from all areas of the economy. In the view of the economic disequilibria emerging from the accession of the three new Member States of the eighties, in 1983 it was decided that funding from the ESF should be focused on the assistance to poorer regions in order to reduce the imbalances within the European Union. (European Commission 1998; 2007)

Figure [3]: The allocation of the ESF: 1984-1987. Distribution among Member States and average annual allocation per inhabitant (in per capita ECU)

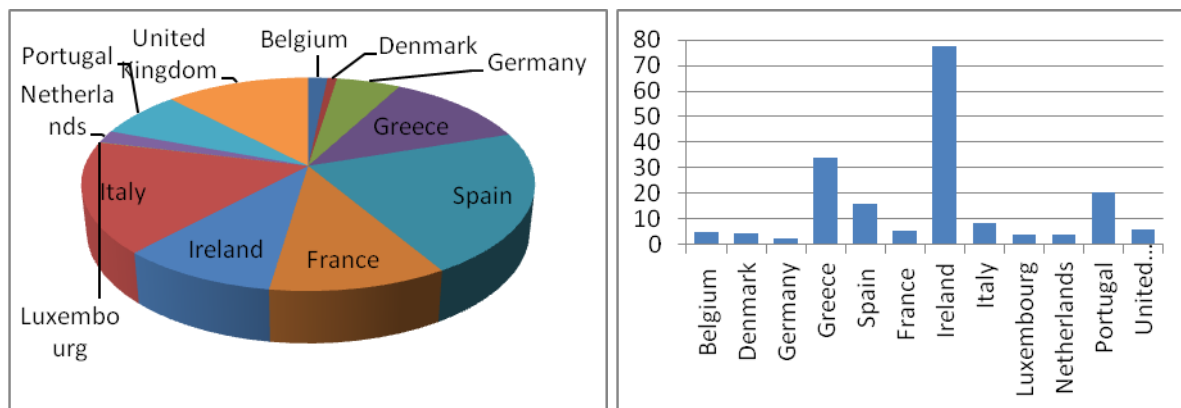


source: Commission of the European Communities (1989), Guide to the reform of the Community's structural Funds, OPOCE: Brussels ISBN: 92-826-0029-7 (Commitments)

The size of the Fund was consequently enlarged, as Portugal and Greece became quickly among the main recipient states, with Ireland still receiving an outstanding per capita contribution in comparison to the remaining Member States.

The ESF was substantially reformed in 1988, together with the other Structural Funds, with the purpose of moving from individual projects to multiannual partnerships between the Member States and the Commission. This reform also included an increase on the financial weight of the ESF. The new approach was built on four basic principles: *Concentration*, which was applied in various ways, such as in determined regions or policy objectives; *partnership*, with national, regional or local authorities; *programming*, involving national and regional authorities together with the European Commission and setting the priorities and allocation for each period (5-7 years); and *additionality*, as the funds were not intended to replace but to increase national funds.

Figure [4]: The allocation of the ESF: Programming period 1989-1993. Distribution among Member States and average annual allocation per inhabitant (in per capita ECU)

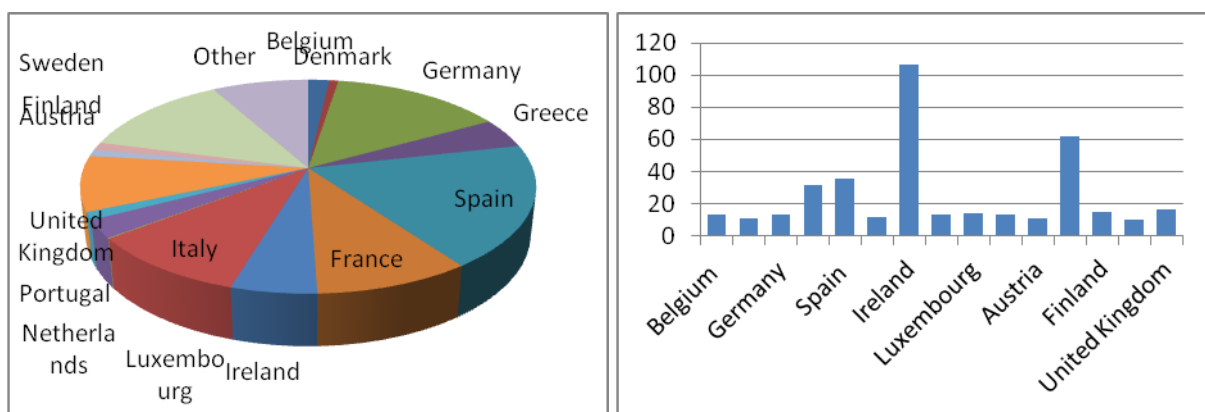


source: Commission of the European Communities (1990), Annual report on the implementation of the reform of the Structural Funds 1989, Brussels EC (COM(90) 516 final). (Initial allocation of funds)

In 1992 the single market had reached its completion and the way towards the single currency was clearer. Nevertheless, unemployment had resumed its upward trend after the some steady years in the late eighties. The review of the Structural Funds in 1993 was focused towards strengthening economic and social cohesion, and the budget for the Structural Funds was almost doubled for the period 1994-1999 in comparison to the period 1988-1993. The Cohesion Fund was introduced to help

poorer EU countries in developing infrastructures, while the Financial Instrument of Fisheries Guidance (FIFG) targeted restructuring in the fisheries sector. The European Agricultural Guidance and Guarantee Fund (EAGGF), in existence since 1962, invested in the development of the agricultural sector. The ESF was targeted to increasing competitiveness and preventing unemployment through education and training activities focused on workers with higher risk of exclusion, such as young job-seekers or long-term unemployed, within the framework of the Commission’s White paper on Growth, Competitiveness and Employment.

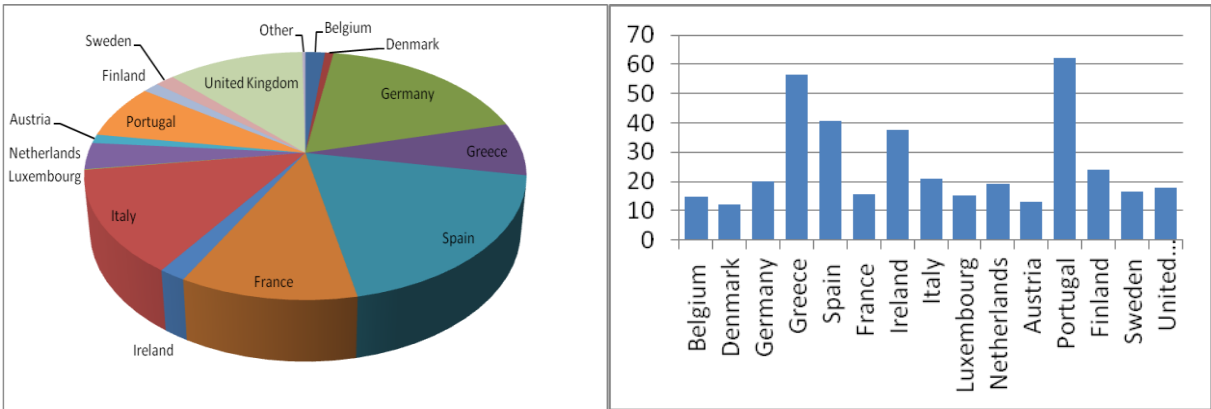
Figure [5]: The allocation of the ESF: Programming period 1994-1998. Distribution among Member States and average annual allocation per inhabitant (in per capita Euro)



source: European Commission (1999), The Structural Funds in 1998 Tenth annual report, OPOCE: Brussels COM(99) 467 final (Commitments)

The ESF was geared towards supporting the European Employment Strategy as a part of the Lisbon Strategy at the beginning of the twenty first century. The ESF would then target the four pillars of the European Employment Strategy: enhancing the skills and flexibility of the workforce; development of active labor market measures in order to prevent youth long-term unemployment; development of small and medium sized enterprises by enhancing entrepreneurship potential; and promote equal opportunity and prevent social exclusion within the labor market.

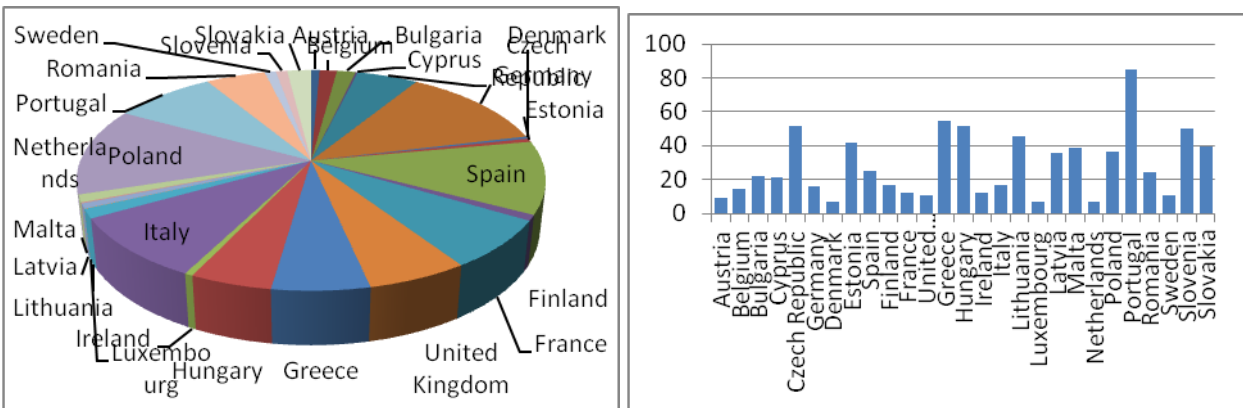
Figure [6]: The allocation of the ESF: Programming period 2000-2006. Distribution among Member States and average annual allocation per inhabitant (in per capita Euro)



source: Commission of the European Communities (2004), 15th Annual report on the implementation of the Structural Funds 2003, brussels COM(2004) 721 final (Initial allocations)

The programming period 2007-2013 includes substantial reorganization of the Cohesion Policy. The former EAGGF and FIFG, now replaced by the European Agricultural Fund for Rural Development (EAFRD) and the Financial Instruments for Fisheries Guidance (FIFG) respectively, are no longer involved in the cohesion policy, while the Cohesion Fund will participate in the Convergence objective instead of functioning independently as it did before. The rules have been simplified and the Funds are targeted specifically towards the promotion of competitiveness and employment creation. The link of the ESF with the European Employment Strategy is strengthened and the Fund priorities are centered in convergence and employment objectives (European Commission 2007b).

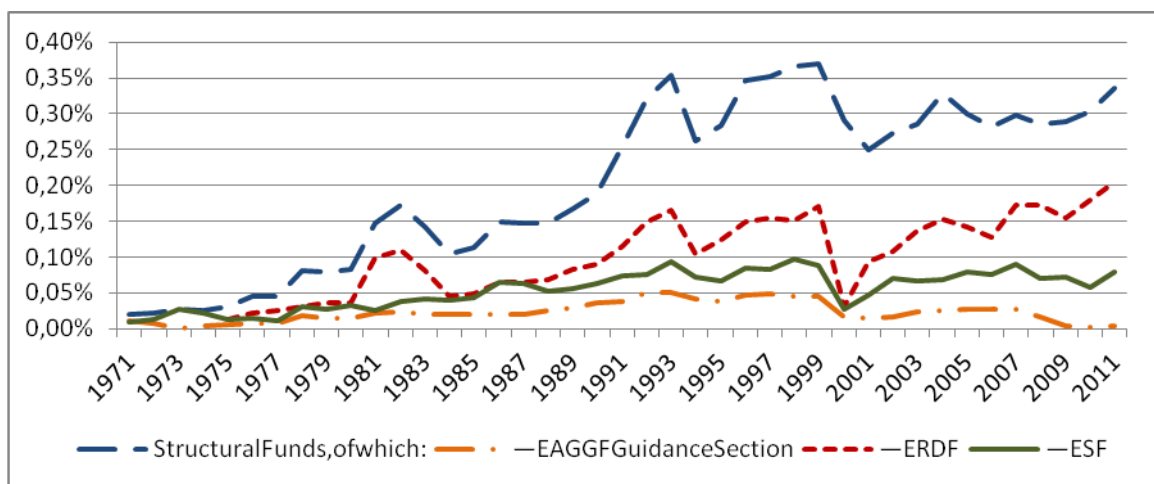
Figure [7]: The allocation of the ESF: Programming period 2007-2013. Distribution among Member States and average annual allocation per inhabitant (in per capita Euro)



source: ESF Database portal at <http://ec.europa.eu/esf/main.jsp?catId=440&langId=en#opt1> (ESF Initial financial allocations as at 31.12.2007)

In sum, the European Social Fund has increased notably its presence in the European economy, not only through its raising presence in the EU budget, as shown in Figure [1], but mostly as its importance on the total European economy has followed a slow but steady upward trend. The European Social Fund allocates today over 13 trillion Euro, representing on average around 0.07 % of the European economy.

Figure [8]: Evolution of the European Structural Funds (as a share of GDP in the European Communities/ European Union)



source: Self elaborated from data in: EU budget (several years) Financial Report, Eurostat and OECD

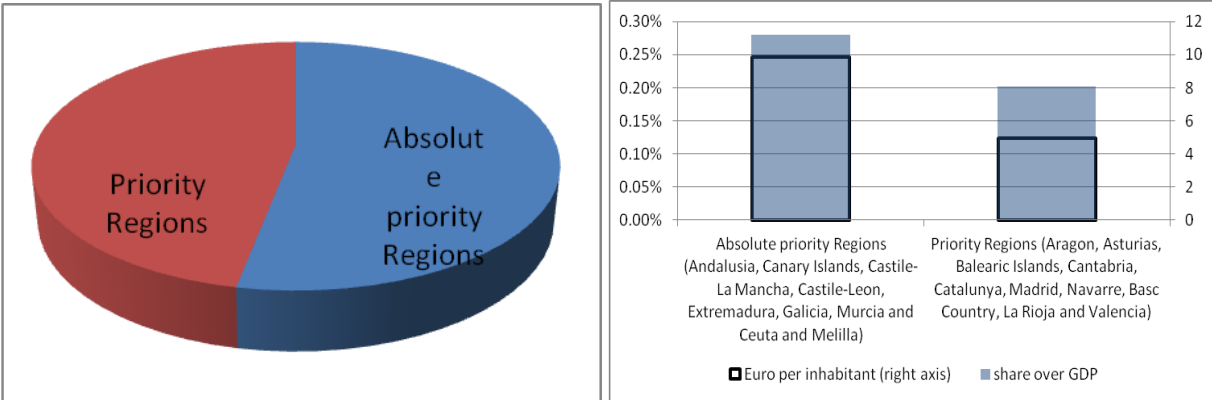
The chart above illustrates how this trend has been common to other Structural Actions, which in aggregate have raised to represent –inclusive of the Cohesion Fund- near half a percentage point over total GDP during the last two decades.

2.b The distribution of the European Social Fund in Spain, a regional perspective

Spain joins the European Communities in 1986, simultaneously to Portugal. In contrast to the ERDF, there was no “a priori” distribution of the ESF among Member States (apart from the fact that part of the budget was reserved for “absolute priority” territories, which included Greece, Portugal, Ireland, Northern Ireland, the French overseas territories, the Italian Mezzogiorno, and 7 Spanish Autonomous regions –Andalusia, Canary Islands, Castile and Leon, Castile La Mancha, Extremadura, Galicia and

Murcia) plus Ceuta and Melilla) in these years. In addition, the projects were submitted by the Member states and evaluated by the European Commission individually. Therefore, the final allocation of the ESF during these years is greatly a consequence of the absorptive capacity of the public administration. (Dominguez González 1989)

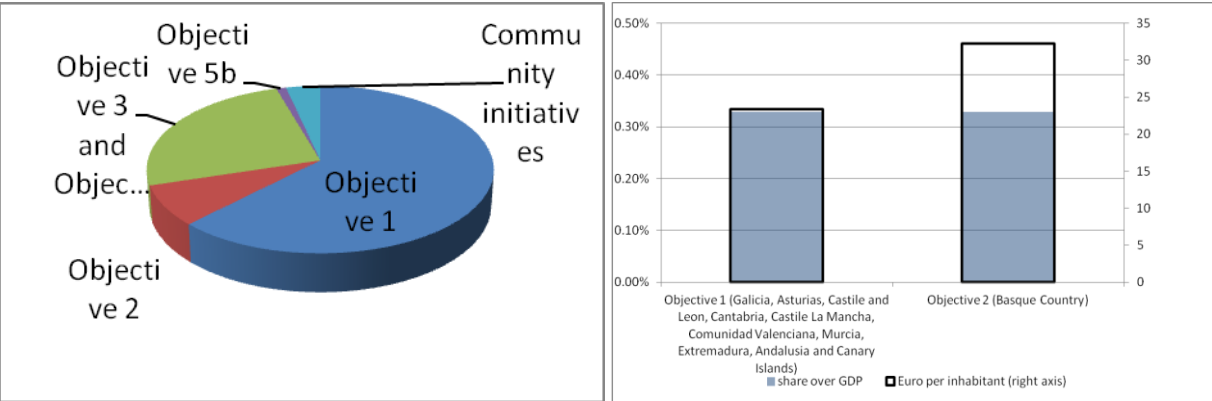
Figure [9]: Distribution of the European Structural Funds among Spanish regions. 1986-1988



Source: Dominguez Gonzalez (1989), "El fondo social europeo y España", Política Social y Comunitaria no. 4-5 and INE (Spanish National Statistical Office)

Seven over the seventeen Spanish regions were considered “absolute Priority” regions in 1986 in line with the regulations of the ESF. The ten remaining regions were considered “Priority” regions, which also entitled them to access the ESF funds due to high unemployment rates or economic restructuring.

Figure [10]: Distribution of the European Structural Funds among Spanish regions. Programming period 1989-1993

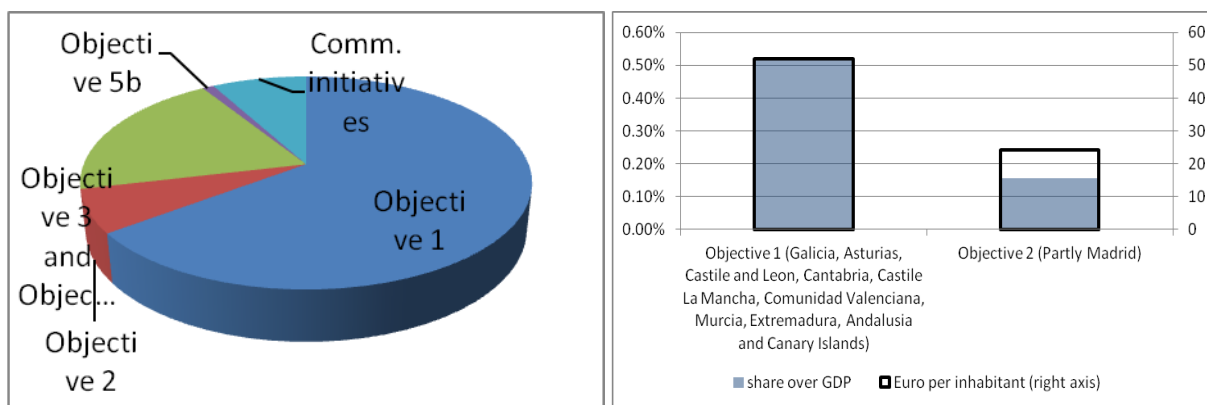


Source: 5th annual report on the implementation of the reform of the Structural Funds (1993) and INE

The programming period 1989-1993 included a new classification of the European territory according to the targeted objective of the Structural Funds, being the Objective 1 regions equivalent to the former AR regions representing less developed areas inside the community. The objective 2 regions were those suffering process of reconversion due to industrial decline. The objective 3 was to fight against long-term unemployment while the objective 4 was to promote the inclusion of young people in the labor market. Finally, objective 5 was targeted to the development of rural areas. The European Social Fund was the only one of the Structural Funds that would participate in the development of all five objectives.

The aid would no longer be distributed through individual applications, but the Member States will now propose multiannual plans to the European Commission which include the use of all Structural funds in their territory. Ten Spanish regions were considered objective 1 for this programming period, while one region was considered objective 2.

Figure [11]: Distribution of the European Structural Funds among Spanish regions. Programming period 1994-1999

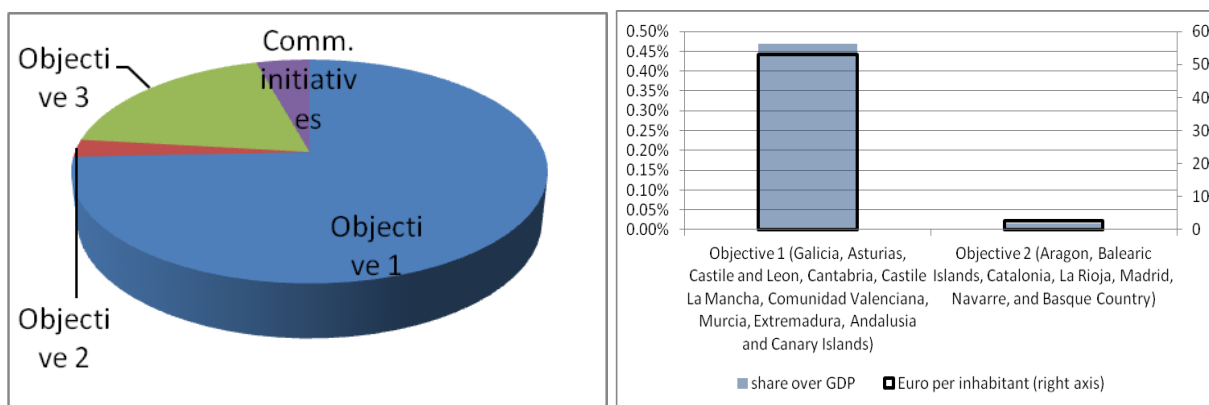


Source: European Communities (1998) and INE

The distribution of the ESF along Spanish regions during the next programming period (1994-1999) was fairly similar to the previous period. Again, the level of breakdown of the data collected for the share of the ESF allocated under objective 3 and 4, which represent a significant share of total fund, does not allow observing the territorial distribution across different regions.

For the period 2000-2006, the former objective 5b was now included in the objective 2 while former objective 3 and 4 were merged in the new objective 3. Otherwise, the budget, main objectives, co-financing rates and supervision remained almost unchanged. The focus of the ESF in Spanish objective 1 regions became more accented during these years.

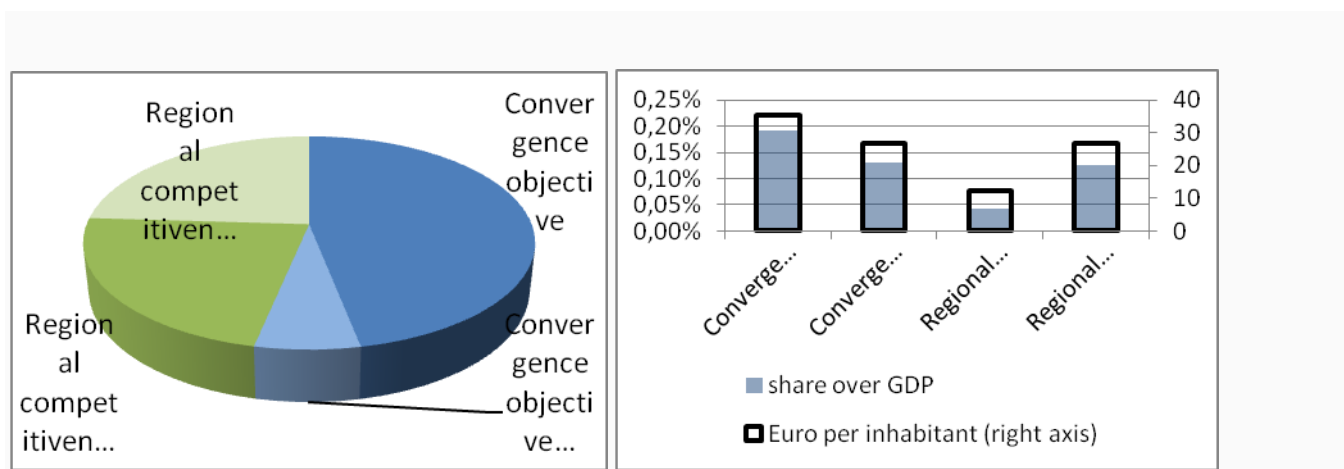
Figure [12]: Distribution of the European Structural Funds among Spanish regions. Programming period 2000-2006



Source: E Commission (2007c) and INE

The programme 2007-2013 redesigned the objectives again in order to adapt the Structural Actions to the incorporation of new member states to the EU. Spain has 4 convergence regions (Galicia, Extremadura, Castilla la Mancha and Andalusia, with a GDP per head of less than 75% of the EU-25 average) and two phasing-out regions, plus two autonomous cities (Asturias, Ceuta, Melilla and Murcia, with a GDP per head of more than 75% of the EU-25 average but of less than 75% of the EU-15 average). The remaining are the three phasing-in regions (Castilla and León, Valencia and the Canary Islands, with a GDP per head of less than 75% of the EU-15 average in the period 2000-2006 but more than 75% of the EU-15 average for the period 2007-2013) and the eight regional competitiveness and employment objective regions (Catalonia, Aragon, Madrid, la Rioja, Navarra, Basque Country, Cantabria and Balearic Islands, that have a GDP per head of more than 75% of the EU-25 average). More than half of the ESF was spent in Convergence objective regions during the period 2007-2010.

Figure [13]: Distribution of the European Structural Funds among Spanish regions. Programming period 2007-2013



Source: ANUARIO DE ESTADÍSTICAS DEL MINISTERIO DE TRABAJO E INMIGRACIÓN (several years), retrieved at <http://www.empleo.gob.es/es/estadisticas/contenidos/anuario.htm>

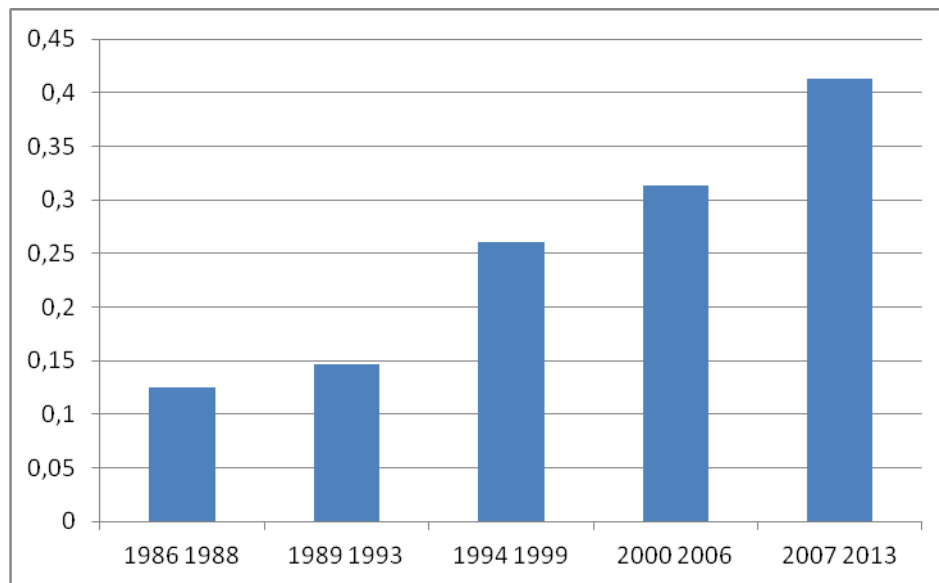
The data presented so far represent the geographical distribution of the ESF according to the different administrative status that Spanish regions have been assigned in the several programming periods for the distribution of the Structural Actions. Nevertheless, these data are territorialized irrespectively of the level of the public administration that undertake the project financed by the ESF.

Generally, all levels of public administrations, local, regional and national, are involved in projects financed by the Structural Funds. But the Spanish economy has went through a fiscal decentralization process since its adhesion to the European Union which is not common to other EU Member States⁴, and which is mainly associated with a transfer of fiscal autonomy from the central to the regional government. Due to this decentralization process, Spanish regional governments have also gained additional control over the administration of the Structural Funds at the cost of a lower importance of the central government.

The following chart illustrates this phenomenon for the case of the ESF. Immediately after joining the European Union, Spanish regional governments controlled around 10% of the ESF transfers from the EU to Spain, while during the last programming period this share has climbed to over 40%.

⁴ See, for example, Molero (2002) and González-Alegre (2010)

Figure[14] : The European Social Fund in Spain: Evolution of the share of the ESF distributed to regional government to the total ESF allocated to Spain



Self-elaboration from data shown in previous figures and variable EFS

But this decentralization process has not been symmetric. As illustrated by González-Alegre (2010b), Spanish regional governments have not gained an homogeneous level of fiscal autonomy among them, and the process of transferring competencies from the central to regional governments have not been simultaneous either.

The Spanish Constitution discriminates between two types of regions: the so-called "historic nationalities" or regions with a high level of competencies, described in the article 143 of the Spanish Constitution⁵ and the ten remaining regions⁶ (and the two autonomous cities) that in principle assume a lower level of competencies, and are described in the article 151 of the Constitution. Each region has its own Statute of Autonomy that defines the activities in which the regional government is competent to legislate and govern. In practice, the regions with high levels of competencies experienced a higher level of decentralization in the beginning, but the differences have been reduced as long as the decentralization process has been taking place. The variety of fiscal competencies is also more heterogeneous among the group of "historic nationalities" (art. 143) than among the group of regions

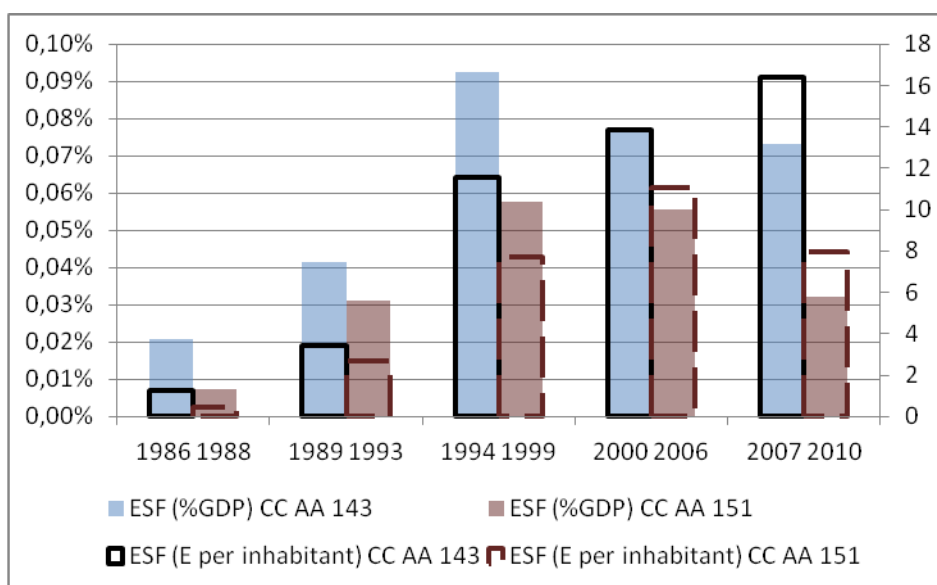
⁵ Andalusia, Basque Country, Canary Islands, Catalonia, Galicia, Navarre and Comunidad Valenciana.

⁶ Aragon, Asturias, Balearic Islands, Cantabria, Castile La-Mancha, Castile and Leon, Comunidad de Madrid, Extremadura, Murcia and La Rioja.

with low level of competencies.

The following chart illustrates the extent to which this situation affects also the administration of the ESF. As there are no significant differences in the level of per capita income among both groups of regions, or in other macroeconomic variables nor geographical concentration, the differences observed respond mostly to the level of fiscal autonomy of the regional governments. We can observe how “historic nationalities” have administrated a larger share of the ESF in their territories in comparison to the remaining regions, both as a share of GDP and in per capita terms.

Figure[15] : The European Social Fund in Spain: Evolution of the share of the ESF distributed to regional government to the total ESF allocated to Spain



Self-elaboration from data shown in previous figures and variable EFS

3. Modeling the impact of active labor market policies

Several panel data studies tried to identify the impact of active labor market policies on employment indicators during the nineties. Jackman et al. (1990), for example, find for a panel of 14 OECD economies during the period 1970-88 that active ALMP have a significant impact on unemployment (Other studies are Layard et al. 1991; Zetterberg 1995). OECD (1993) reveals that previous results are sensitive to the measure of ALMP, so that when this variable is expressed as a ratio over the number of unemployed, it could be highly correlated with the dependent variable (unemployment rate) leading to spurious correlation. Forslund and Krueger (1997) also made a critical revision of previous estimations in which they identified a source of simultaneity bias between unemployment and expenditure on ALMP and a possible change in the relationship between both variables during the nineties. Elmeskov et al. (1998) address the simultaneity bias by averaging their indicator of expenditure in ALMP over the whole period, while Nickell and Layard (1999) use one period lagged values of expenditure in ALMP. In both cases, the impact of ALMP in unemployment seems less relevant than in previous studies.

Blanchard and Wolfers (2000) interact labor market institutional variables with adverse shocks, in the form of time dummies for five-year averaged variables, to conclude that the heterogeneity observed in unemployment among OECD countries depends on the interaction of common shocks with idiosyncratic institutional variables (the interaction of institutional variables is widely analyzed in Basasini and Duval 2009), among which the size of ALMPs is included. The branch of the literature focusing its attention to the institutional determinants of unemployment has been quite prolific during the first decade of twenty first century (see, for example, Baccaro and Rei 2005; Nickel et al. 2005; Sachs 2012) and their results have motivated the inclusion of institutional variables among the set of controls in studies analyzing the impact of ALMP.

Other studies based in a matching-function approach (Hujer and Caliendo 2000; Hujer and Zeiss 2003) relate the number of hirings to the number of vacancies, unemployed and other control variables, among which ALMP are included. The use of an indicator of the outflows from unemployment to employment as the dependent variable has the advantage that this variable internalizes the displacement effects (crowding-out) of ALMP, that is, it accounts also for the substitution of workers

provoked by the policy.

Estevao (2007) estimates the determinants of employment rate in the private sector and includes expenditure in ALMP as a share of GDP, arguing that normalizing this variable by unemployment might bias the results because aggregate output shocks could affect both variables simultaneously provoking spurious correlation. He concludes, for a panel of 15 OECD countries (1985-2000) that ALMP were very effective in increasing business employment rates in the 1990s.

Boone and van Ours (2009) discriminate among several types of ALMP in a panel data of 20 OECD countries (1985-1999) and conclude that the impact on unemployment (and on the employment/population rate) varies significantly among categories of ALMP.

3.b Regional Studies and asymmetry of policies

The number of studies estimating the impact of ALMP in a single country using panel data models for regional and local level variables has been quite prolific in some particular countries motivated by the availability of data and the focus of public policies. (In general the existence of macroeconomic estimations is usually correlated with the presence of microeconomic level evaluations)

In the early nineties, Sweden implemented an aggressive program of ALMP to fight rising unemployment. This policy generated a considerable amount of research (which is summarized in Calmfors et al. 2002). Regarding macroeconomic studies for regional panel data models, Calmfors and Skedinger (1995) estimate the impact of job creation and training policies in Swedish regions controlling for simultaneity bias. Their results are more optimistic with respect to job creation policies than for training policies. They estimate a panel data model in which the dependent variable is the unemployment rate and the ALMP are expressed as a ratio of treated individual over the total amount of "treatable" (unemployed) population. The set of control also included time and regional dummies and the national unemployment rate.

Another country in which research on the implementation of ALMPs has been extremely prolific in the view of the extended availability of data is Germany, in particular in the view of the importance that these policies reached after the reunification. Hujer et al. (2002) and Hujer et al. (2004) regress the total rate of job seekers on a vector containing the measure for ALMP and other explanatory variables, using panel data from 175 German labour districts. They represent ALMP as the accommodation ratios of the programs, which are defined as the sum of programme participants relative to the stock of job seekers. They use OLS and System GMM. They find a negative impact of ALMP on the rate of the job seekers in the short run, while the long-run effects are less clear. Hagen (2003) estimates, in addition, the impact of ALMPs on the flow from unemployment to employment (i.e. the matching function approach) and the impact on regular employment from regional-level data. His results are not extremely optimistic and he is able to find a negative impact of public training measures in the matching efficiency (the matching function approach was previously used by Boeri and Burda (1996) for a panel of 76 Czech employment office districts and quarterly data).

There are very few studies relating the impact of ALMP to the level of fiscal decentralization. Lundin and Skedinger (2006) estimate, from microeconomic level data, the relationship between decentralization and effectiveness of ALMPs in Sweden. Using data from a governmental program in 1996, they conclude that decentralization stimulates the number of public initiatives, in particular those targeted to outsiders and relief works.

Altavilla and Caroleo (2006), estimates a dynamic panel data model and a panel VAR model using quarterly data from 20 Italian regions. Their results discover significant differences in the impact of ALMP between northern and southern regions, probably due to the differences in the economic structure of both groups of regions. The results in Altavilla and Caroleo (2011) reinforces their previous findings using factor-augmented vector autoregression techniques.

4 Data and Variables

4.1 Country-level data

We use country-level yearly data in order to estimate the impact of Active Labour Market Policies on the employment rate. For this purpose, we use data from an unbalanced panel of 28 European countries for the time period 1985-2012. Variable description and sources are described in tables [1] and [2]. The dependent variable is the employment rate in the population aged 16-64, and it has been retrieved from the EUROSTAT database, although some observations have been extracted from the “Population and Labor Force” dataset which is part of the “Annual Labor Force Statistics” (ALFS) compiled by the OECD (the compatibility between both sources has been examined on the basis of simultaneous observations).

The first decision to take when building a model that tries to estimate the impact of ALMP is the selection of the dependent variable to be included in the model. Originally, most studies⁷ used the unemployment rate. However, Scarpetta (1996) finds that ALMPs may increase the labor force participation rate, which suggests that the use a ratio of unemployed people over working age population⁸ would capture more accurately the desired effect (Nickell and Layard 1999). Hujer et al. (2004) use the rate of job seekers expressed as the ratio between unemployed plus participants in ALMP over the total labor force. Estevao (2007) use the share of working age population employed in the business sector (employment rate in the business sector). OECD (1993) use the employment rate. Altavilla and Caroleo (2006) use alternatively unemployment rate, employment rate and youth unemployment rate. Hujer and Zeiss 2003, instead, use the outflow from unemployment into regular employment relative to the labor force in order to internalize also displacement effects. Hagen (2003) uses the unemployment rate, the matching function approach as in Hujer and Zeiss (2003) and the ratio of regular employment to the labour force as three alternative dependent variables to be analyzed. Inspired by the analysis of this literature, we have included the employment rate over the total working age population as the dependent variable in our model.

⁷ See Chapple 1999 for a survey of pioneering studies.

⁸ Or, alternatively, its inverse, the employment rate.

The explanatory variables in which we focus our interest are “Active Labor Market Policies” and “Passive Labor Market policies”. Both variables are extracted as a public expenditure share over GDP and, similarly to the dependent variable, the main data source is Eurostat although some observations have been retrieved from the OECD (OECD Employment database).

The level of public expenditure in ALMP is usually included expressed as a share of GDP. Although alternative specifications have been considered, for example the inclusion of the variable in per capita terms over the total unemployed population or as a share of total Labor Market Policies expenditure, these specifications have been proved to be problematic due to their correlation with some explanatory variables (see Chapple 1999). Expenditure in Passive Labor Market Policies (PLMPs) is included as a control variable in most studies as PLMPs have been clearly identified as a strong (positive) determinant of unemployment.

Regarding the use of other control variables, the set of variables used in previous panel data studies has been extremely heterogeneous as a result of the different hypotheses taken into account. We include a set of macroeconomic indicators and a set of institutional indicators, inspired in the analysis of related literature and in preliminary estimations.

Our macroeconomic indicators used as explanatory variables are Total Factor Productivity, the Terms of Trade, per capita GDP (expressed in logs), Public expenditure (as a share of GDP), compensation of employees in the general government (as a share of GDP), and labor productivity. These have been retrieved from Eurostat and Ameco databases.

Estevao (2007), for example include, in addition to expenditure on Passive Labor Market Policies, the logarithm of per capita GDP in the business sector at constant prices, technological growth in the business sector, average gross replacement rate (benefits) during the first year of unemployment, share of public sector in total employment, economic openness, government current receipts as a share of GDP, in addition to institutional variables (union membership as % of employees, index of employment protection made by NN (Nickell and Nunziata 2001) from Blanchard and Wolfers 2000, tax wedge data including social security contributions and labour income taxes, bargaining coordination variable provided by NN and the index of unemployment benefits duration provided by NN). Other variables in OECD (1993) are coverage, union coordination, employer coordination, benefit

duration, replacement ratio and change in inflation.

Regarding estimations which make use of regional-level data, Hujer et al.(2004) include national unemployment, national vacancy rate, seasonal dummies (quarterly data). For the estimation in which the dependent variable is employment, Hagen (2003) includes in addition, population density and variables representing the sectorial distribution of the labor force. Altavilla and Caroleo (2006) include school attendance rate, Gross Fixed investment, GDP per capita and productivity for a panel of 20 Italian regions.

Inspired by the importance that some studies put in variables capturing institutional settings of the labor market, we have also considered some institutional variables taken from the OECD Employment database, the employment protection index, the trade union density variable and the average tax wedge.

4.2 Regional data

The role of the ESF in the Spanish regional public administrations is analyzed by constructing a database of panel data from the 17 Spanish regions for the time period 1989 2010. The dependent variable is, again, the employment rate computed as the ratio of employed persons over the total working age population. Table [9] describes the variables, its unit of measure and the sources of data, while table [10] includes the summary statistics.

Among the set of explanatory variables, there are two variables in which we will focus our attention. Firstly, we introduce a measure of fiscal autonomy of the Spanish regional governments captured by the variable DEC. This variable is constructed as the ratio of per capita regional to total public expenditure⁹, and represents the degree of fiscal autonomy of each regional government. The source of variability in this ratio comes from the fact that Spanish regions have not reached and homogeneous level of fiscal autonomy simultaneously, as some of them have gained advanced competencies obtained through bilateral bargaining with the central government due to their privileged status in the Spanish Constitution. Secondly, the variable ESF represents the current transfers from the European

⁹ This indicator has been widely used in the literature to capture fiscal decentralization. See, for example, Martinez-Vazquez and McNab (2006)

Union to the Spanish regional government under the European Social Fund. This variable is expressed as a share over regional GDP.

The variable ESF is included together with another variable capturing total public expenditure by the regional government, expressed as a share of GDP. This variable will capture to which extent enlarging the regional budget could have an impact on the employment rate of a region. As all fiscal variables, the interpretation of the coefficient attached must take into account the impact of the omitted fiscal variables on the dependent variable. Alternatively, we consider also another model in which the fiscal variable is regional public expenditure on social promotion, that captures public expenditure on active labor market policies¹⁰, among other issues.

Finally, we use also the log of income per capita, to capture the relative wealth of each region, real production growth, in order to capture the business cycle fluctuations and population, expressed in miles people, that controls for the effect of the relative size of each region.

5. Estimations and results

5.1 Econometric modeling

We estimate the impact of active labor market policies public expenditure on the employment level in a set of European countries. For this purpose, we build and estimate a panel data model in which the employment rate is the dependent variable and the level of public expenditure on active labor market policies is among the set of explanatories:

$$\text{Employment}_{it} = \rho \text{Employment}_{it-1} + \beta_1 \text{ALMP}_{it} + \beta_2 \text{PLMP}_{it} + \gamma m_{it} + \sigma n_{it} + \mu_i + \lambda_t + \varepsilon_{it} \quad (1)$$

Where Employment_{it} is the unemployment rate in country “i” at time “t”, ALMP and PLMP are the level of public expenditure as a share of GDP in active and passive labor market policies respectively. m_{it} is a

¹⁰ Unfortunately, the level of breakdown available does not allow isolating ALMP from other policy areas. Nevertheless, the examination of recent databases on public regional budget with better detailed accounting reveals that policies related to the labor market represent the majority of this type of expenditure.

vector of macroeconomic variables affecting the level of unemployment. It includes total factor productivity terms of trade, the level of per capita production (in logarithmic form) and, in an extended version of the model, also the level of public expenditure as a share of GDP, labor productivity and the level of public compensation of employees.

For the estimation of the model with Spanish regional-level data, we use a fiscal variable capturing either the EU transfers to regional government under the ESF program or the level of public expenditure in social policies, which includes –but not only– the ALMPs undertaken by the regional government. The vector m_{it} includes the share over GDP of public expenditure at the regional level, economic growth, the level of per capita income, total population and a measure of fiscal decentralization (defined as the ratio of regional to total public expenditure in per capita terms).

n_{it} is a vector of institutional variables, only included in the model with country-level data as for the Spanish regions institutional settings are common to all units; μ_i is the country specific term and λ_t are the country dummies. A specification of the model substitutes the country dummies for a unit specific linear time-trend.

We have estimated the coefficients using the one-step version of the Arellano and Bond (1991) GMM estimator instead of the two-step procedure, based on the findings in Judson and Owen (1996) applied to the length of the cross-section and time dimensions of our dataset. We also discard the use of the system GMM estimator (Arellano and Bover, 1995; and Blundell and Bond, 1998) as it improves the efficiency of the "difference GMM" estimator by introducing additional assumptions of no correlation between the fixed-effects and the first differences of the instrumenting variables which we are not totally comfortable with. They also develop a one step robust procedure for the cases in which heteroskedasticity exists. There is no need to use the robust estimator in this study due to the characteristics of the data (furthermore, the gains in precision of the two steps procedure are more relevant also in the presence of heteroskedasticity). The Sargan test of over identifying restrictions over-rejects in the presence of heteroskedasticity with the one step procedure, which will not be a drawback in our case since our data are not suspected of heteroskedasticity and in any case the Sargan test cannot reject the null hypothesis that the over-identifying restrictions are valid.

The use of this estimator will capture, in addition, two important features related to the variables used in this estimation: firstly, it is able to capture the dynamic behaviour of the variables, as our dependent

variable seems to be strongly time-persistent; and, secondly, the GMM estimate also controls for endogeneity of the control by using the lagged values of the levels of the endogenous and the predetermined variables as instruments. Some of our control variables and, in particular, the variable in which we will focus our attention (ALMP) could be endogenous, as the levels of employment could drive the share of the public budget devoted to active labor market policies. Ignoring this reverse causality issue might lead to overestimation of the casual relationship in the other direction. It is necessary to test for the validity of the instruments as well as the presence of serial correlation in the residuals once the equation has been estimated.

The model has been estimated introducing the variables in first differences, with the exception of the institutional variables. This is motivated by the suspicion that the dependent variable could be non-stationary, as revealed by preliminary estimations of the equation in levels and examination of their residuals.

Alternatively, we might think that the omission of relevant dynamics in the model is the source of the complications observed in the estimation in levels. It seems reasonable to assume that employment in a given period may be correlated with past trends in other macroeconomic variables. Parameter estimates based on a static estimator are biased and inconsistent if the true model is not static. For that reason we propose a panel data model that includes unobserved country specific effects and allow for the existence of lagged values of the explanatory variables, in addition to lagged values of the dependent variable. We want to allow for the possibility that the variations of past control variables may still affect current variations in employment. The specification of this equation to be estimated from panel data can be expressed as an ARDL (autoregressive distributed lag) model:

$$\text{Employment}_{it} = \sum_r \rho_r \text{Employment}_{it-r} + \beta^1 \text{CONTROL}_{it} + \beta^2 \text{CONTROL}_{it-1} + \sigma n_{it} + \mu_i + \lambda_t + \varepsilon_{it} \quad (2)$$

Where CONTROL is a vector of variables including ALMP, PLMP and the variables included in “m”. Long-term relationships between the variables may be easily derived from the estimation of this equation. Equation (2) is, again, estimated using the one-step Arellano and Bond (1991) GMM estimator, and in the presence of a common time trend or unit specific time trends as alternatives to the time dummies λ_t .

An economy on its steady state is assumed to show a constant employment rate, and therefore identical values for the variables over time. Imposing this condition we can work out long-term coefficients:

$$\beta^{\text{longterm}} = (\beta^1 + \beta^2) / (1 - \sum \rho_r \text{Employment}_{it-r}) \quad (3)$$

Standard errors for coefficients obtained with this procedure may be easily computed using Stata. They are computed applying a delta method. A general discussion of this method can be found in Wooldridge (2002)

As a robustness check for the regional data, we consider also an alternative model that allows for the presence of spatial dependence, as we may suspect that there is some degree of contagion among regions with respect to the relationship of employment with fiscal policy. Spatial spillover effects have been considered in previous studies analyzing the effect of EU Structural Funds, and its omission could lead to biased estimates¹¹.

Firstly, we assume the presence of spatial lagged dependence (i.e. we will include a spatially weighted dependent variable), that in our model will imply that employment in region “i” may be influenced also by employment in the remaining regions, weighted by the distance of these to region “i”. For this sake, we will specify a weighting matrix W that includes information about the distance between regions. This matrix will be constructed from the great circle distance between the capital cities of every region¹².

We modify our original model (1) in order to include the spatial lag component:

$$\text{Employment}_{it} = \delta W \text{Employment}_{jt} + \beta \text{CONTROL}_{it} + \mu_i + \lambda_t + \varepsilon_{it} \quad (4)$$

Where the coefficient δ represents the indirect effect that changes in the explanatory variables of a unit causes in the dependent variable of the other units, in addition to the direct effect caused in its

¹¹ see, for example, Mohl and Hagen 2010

¹² as in Dall Erba and Le Gallo (2008). The use of physical distance, instead of infrastructure-based measures, ensures the exogeneity of the criteria. Each element (w_{ij}) of this matrix, whose diagonal consists of zeros, represents the inverse of the distance between two regions (“i” and “j”), normalized so that every row add to one (that is, $w_{ij} = [1/d_{ij}] / \sum_j [1/d_{ij}]$)

own unit. These are called global indirect effects, as they are propagated to all units even in the case when w_{ij} is equal to zero (see Elhorst 2012).

Secondly, we also report the estimates of the Spatial Durbin model, which also allows for the presence of spatial dependence in some or all explanatory variables capturing indirect spillover effects:

$$\text{Employment}_{it} = \delta W \text{Employment}_{jt} + \beta_1 \text{CONTROL}_{it} + \beta_2 W \text{CONTROL}_{jt} + \mu_i + \lambda_t + \varepsilon_{it} \quad (5)$$

The coefficient β_2 introduces the so-called local indirect effect. This implies that changes in the control variables in the neighboring regions may affect a region's employment rate. In contrast to the global effect, the local effect is only propagated to a unit's neighborhood set according to the weights included in the matrix W . Equation (5) can be rewritten in order to report one indirect effect associated to each control variable:

$$\text{Employment}_{it} = (I - \delta W)^{-1} (\beta_1 \text{CONTROL}_{it} + \beta_2 W \text{CONTROL}_{jt}) + \mu_i + \lambda_t + (I - \delta W)^{-1} \varepsilon_{it} \quad (6)$$

5.2 Results

Table [3] show the result of estimating equation (1) using the Arellano and Bond (1991) GMM estimator. The model has been estimated in first differences, with the exception of the institutional variables that are highly time-persistent and are expressed in levels.

The estimates assume three alternative models, with respect to the control variables included. Firstly, we introduce only the variables that are common to most literature examined; secondly, we consider also other macroeconomic variables that could drive employment rates, such as public expenditure, compensation of employees or labor productivity; and finally, we introduce also institutional variables governing the labor market, such as the employment protection index, trade union density and the tax wedge. Columns [5] and [6] assume, in addition, the presence of time dummies, while columns [7] and [8] introduce, instead, country-specific linear time trend.

As we can see from table [3], the increase in the unemployment rate is still strongly time persistent, as it seems to be driven by its own value in the previous period with a coefficient around 0.3. As for the variables in which we focus our interest, active and passive labor market policies (expressed in first-differences over their share on GDP value) while the impact of passive labor market policies seems to be extremely influential on the final employment rate, the role of the active labor market policy is not statistically significant. The coefficient estimated suggests that a one percent increase (over GDP) of public expenditure in passive labor market policies could induce a 2 percentage point decrease in the employment rate.

At this stage, it is important to mention two important points in order to interpret fiscal variables. The first point refers to the findings of several studies on the growth effect of fiscal variables¹³ that showed that the interpretation of the coefficients associated to fiscal variables must take into account the implicit budgetary assumptions. The government budget constraint implies that the estimated coefficient of each fiscal element within a regression will depend on how it is financed. The omission of elements of the budget of the government introduces implicit assumptions about the financing of the variables included. In our estimation, for example, the coefficient associated to the variable public expenditure estimates the impact on employment of an increase in public expenditure financed by the omitted fiscal variables (tax revenues or budgetary deficit). Therefore, the final effect on employment depends of both, on the isolated impact of the included variable –Public Expenditure-, and on the impact of the omitted variables (public revenues and budgetary deficit).

The second point, and also in line with the growth literature¹⁴, refers to the fact that the final impact of an increase of a fiscal variable depends of its current level. Increasing a type of public expenditure may have a positive impact on economic growth or employment up to a certain level, at which probably additional increases seem to have an insignificant impact. If the level of public expenditure in that category increased far above this threshold, its relationship with employment and growth might become negative. Therefore, when we estimate an insignificant coefficient associated to a fiscal variable this could reflect the fact that the level of this variable is currently near its optimum.

While total factor productivity improvements seem to foster the employment rate, labor productivity

¹³ See Kneller et al. (1999)

¹⁴ See Afonso and González-Alegre (2011)

growth lowers employment rate. Both results, although contradictory, are also intuitive¹⁵. Larger multifactor productivity foment more activity and, therefore, demands further labor supply while, simultaneously, higher labor productivity diminishes the amount of labor necessary to sustain the level of production. The contribution of the other control variables is more controversial, as the level of significance of the coefficients estimated are quite poor. Regarding the institutional variables, although many other studies have underlined their contribution to the level of equilibrium employment¹⁶ in the labor market, in this estimation their impact may be partially absorbed by the unit-specific term as they are highly time persistent (at least according to the time frequency considered in this paper).

The contribution of the time dummies or the country specific time trends to improve the estimation seems marginal according to the estimates shown in this table.

Tables [4] and [5] show the results obtained while running identical estimations, but after splitting the sample in two subsamples of similar size according to the level of ESF transfers obtained by every country. Table [4] presents results for the 18 countries that receive larger transfers from the ESF in per capita terms¹⁷, while table [5] presents similar results¹⁷ for the 10 remaining countries of our dataset¹⁸. The comparison of both tables yield an interesting result: while public expenditure on ALMP seems to be a significant determinant of Employment level in highly ESF subsidized countries, its significance gets poorer for the set of countries whose level of per capita transfers are lower. That might reflect the fact that ESF is precisely focused on these countries in which the level of public expenditure on ALMPs is beyond its optimal level.

Tables [6] to [8], show the long term coefficients estimated through equation (3), from the coefficients obtained in the estimation of equation (2) using the same GMM Arellano and Bond (1991) estimator and including the variables in levels. The absolute values of the coefficients, therefore, are not comparable to with those on tables [3] to [5], which are obtained with variables in first-differences. However, regarding the sign and significance levels of the estimated coefficients, results are not contradictory with those obtained from equation (1). In fact, the distance between the coefficients

¹⁵ And in line with the literature, see Basanini (2008).

¹⁶ See, for example, Nunziata (2002)

¹⁷ These are Bulgaria, Cyprus, Czech Republic, Estonia, Finland, Greece, Hungary, Italy, Ireland, Latvia, Lithuania, Malta, Poland, Portugal, Romania, Spain, Slovenia and Slovakia, although some units are dropped for estimating longer versions of the model due to poor data availability.

¹⁸ Austria, Belgium, Denmark, France, Germany, Luxembourg, Netherlands, Norway, Sweden and United Kingdom.

associate to ALMPs and other fiscal variables becomes more evident. The coefficient associated to the variable ALMP is positively significant only for those countries perceiving higher relative transfers through the ESF. As for the other control variables, we observe stronger levels of significance in the coefficients associated to the income per capita variable and no other remarkable differences.

Regional data

Table [11] display the results of estimating equation (1) using our panel of Spanish regional data. We contemplate two alternative sets of fiscal variables, either EU current transfers to Spanish regional governments through the ESF and the level of total regional public expenditure or the level of regional public expenditure in social policies, which includes expenditure in ALMPs. The selection of the two alternatives is mainly motivated that public expenditure in social policies is highly correlated with the other two fiscal variables by definition. Variables are expressed in first differences. The results shown in this table suggest that increasing public expenditure might have a negative impact on employment. This may reflect the fact that additional expenditure could lower the propensity of the working age population to search and find a job, but it also internalizes the indirect effect that the increase of public revenues –necessary to finance the raise in expenditure- may also have on the employment rate.

However, when we point to social expenditure or, more precisely, to expenditure on ESF financed projects, the negative coefficient disappears. This means that public expenditure in ALMP at the regional level is more beneficial –or less harmful- to the employment rate than the public expenditure considered as a whole.

We also introduce a variable capturing the level of fiscal autonomy of each region (DEC). The coefficients associated to that variable are always positive and, very often, highly statistically significant. This reinforces the hypothesis that regions with larger levels of fiscal autonomy are more capable to embark in policies that fit better the idiosyncratic characteristics of the regional labor market, fostering employment levels. When we interact this variable with the ESF transfers, the estimated coefficients are, however, statistically insignificant.

The sign associated to other control variables, maybe with the exception of population, seem fairly

reasonable. The expansionary phase of the cycle and larger per capita income are associated with higher employment. The relationship with population is not counterintuitive but is in line with the fact that immigration flows may foster dynamics beneficial for the labor market.

Table [12] show the long term coefficients obtained from the estimation of equation (2), including the variable in levels. Basically, all results are robust to this change of specification and the significance levels are stronger in comparison to the previous table.

The fixed-effect estimates of the coefficients in the spatial lag model described by equation (4) are included in table [13]. In this model, the level of employment in a region affects employment in other regions, and the importance of this relationship is assumed to depend on the physical distance between them.

According to the results described in the table, spatial dependence could play an important role. Nevertheless, the main results observed in previous estimations remain stable, although there are some variations in the significance level of some coefficients. Differences are not dramatic, except for the coefficient accompanying the growth variable which could be largely correlated with the spatial lagged variable. Regarding the variable that captures the level of fiscal autonomy, the presence of time trends fades away its significance level, although in the absence of a trend, even including time dummies, it is still a strong determinant of the employment level.

Table [14] shows the results assuming spatial dependence in the explanatory variables. The reported LM test for the presence of spatial autocorrelation in the error term, rejects the null hypothesis of no autocorrelation in all cases, as expected from the transformation from equation (5) to (6). Irrespectively of all the assumptions implicit in this formulation of the model, the results in which we focus our interest remain relatively stable. The impact of fiscal decentralization on employment and the relative force of the regional fiscal variables considered, ESF transfers, total expenditure and social expenditure, persist solid to the presence of spillover effects. The levels of significance of these spillover effects, in addition, seem to reveal that these should not be ignored when using regional-level data in this framework.

6. Conclusions

In an environment of a rising unemployment rate emerging as a consequence and probably also as a determinant of a difficult economic conjuncture, the European Union is searching for economic recipes that accelerate the exit of the crisis minimizing the short-term impact on unemployment, which is already far above the socially acceptable level. One of the strategies recently decided in the European Council, has been the provision of an additional fiscal stimulus to Active Labour Market Policies (ALMP) in order to tackle the high level of youth unemployment. At this point, Economics must be able to assess the impact that the several fiscal policies had on unemployment in the past, in order to provide the policy maker with useful information in order to design the necessary reforms.

This paper, tries to assess to which extent ALMPs were successful in the past at raising the employment rate in 28 European countries. With that purpose, we build and estimate a panel data model that captures the impact of public expenditure on ALMPs, apart from other fiscal and macroeconomic variables, in the employment rate measured as the share of employed working aged population. The model is estimated by GMM, assuming the possible presence of endogeneity of the explanatory variables and non-stationary behaviour of the variables. The sample has been split in order to estimate separately the coefficients in those countries in which the relative level of the European Social Fund (ESF) subsidy to ALMP is larger. Finally, an alternative model assumes stationarity of the variables but a highly dynamic -autoregressive distributed lag- model.

Two main results are obtained: firstly, the impact of increasing ALMPs public expenditure on employment –inclusive of the indirect effect through the necessary increase in public revenues to finance the higher expenditure- may be larger than the impact of public expenditure as a whole, although the current level of ALMP seem to be near its optimum threshold; and secondly, public expenditure in ALMPs seems to be significantly more beneficial in those countries in which the ESF is largely present.

In addition, this paper wants also to explore to which extent the impact of the ALMPs and the ESF could be conditioned by the –heterogeneous- levels of fiscal decentralization observed present among European countries. Spain has experienced a process of fiscal decentralization in the recent years and, simultaneously, has been recipient of an important share of the Structural Actions. Due to the heterogeneous level of economic development and also to the diverse political status of Spanish regions, both policies have affected them in an asymmetric way. These conditions make Spanish

regions the perfect benchmark in order to analyze the role of fiscal decentralization on the mechanisms driving the Structural Actions.

Using panel data from the seventeen Spanish regions for the period 1989-2010, we estimate the impact of the ESF and related fiscal variables on its employment rate. We include among the explanatory variables, an indicator of the level of fiscal autonomy gained by each region at every time. The results previously described about the impact of ALMPs on employment are confirmed with our estimation from regional data. In addition, higher level of fiscal autonomy at the regional level seem to be correlated with larger rates of employment, which could reinforce the traditional hypothesis of fiscal federalism about the larger utility of public expenditure as the level of the administration gets closer to the citizen. We also explore the robustness of these results to the presence of spatial effects among regions by estimating an equivalent spatial lag model.

Probably, stronger robustness checks must be done in order to confirm these results. The use of alternative models, with larger variety of control variables and alternative estimation methodologies could shed some more light on this issue. If these conclusions are confirmed by subsequent research, other institutional features of economies, such as their level of fiscal decentralization or the presence of intergovernmental grants, should be taken into account in addition to the labour market variables that are driving recent research developments in this field.

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Table [1]: Country-level data. Variable definition and sources

Label	Variable	Definition	Units	Source
emprate	Employment rate	Ratio of the employed over working age population	Percentage over aged 16-64 population	Eurostat / OECD (Annual Labor Force Statistics)
ALMP	Active labour market policies	Public expenditure in active labor measures excluding "Labor market services" (categories 2-7)	share of GDP	Eurostat / OECD (Employment database)
PLMP	Passive labour market policies	Public expenditure in passive labor measures: out of work income maintenance and support and early retirement (categories 8-9)	share of GDP	Eurostat / OECD (Employment database)
tfp	Total Factor Productivity	The changes in output per unit of combined inputs for the total economy	index (2005=100)	AMECO
tot	Terms of Trade	The ratio of the change of export prices of goods and services to the change of import prices of goods and services	index (2005=100)	AMECO
lodgdppc	Logarithm of per capita GDP	Natural logarithm of gross domestic product at market prices divided by the average number of inhabitants for one year	logarithm of GDPpc expressed in Euro	EUROSTAT
pexp	Public Expenditure (general government)	Total expenditure of the general government (ESA 1995)	share of GDP	AMECO
compempl	Compensation of employees public expenditure	Compensation of employees of the general government (ESA 1995)	share of GDP	AMECO
labprod	Labor productivity	Real labour productivity per person employed	index (2005=100)	EUROSTA
emprotectio n	Employment protection index	Strictness of employment protection legislation: overall (Version 1 of the overall indicator is the unweighted average of sub-indicators for regular employment and temporary employment.	index	OECD (Employment database)
tradeundens	Trade union density	The ratio of wage and salary earners that are trade union members, divided by the total number of wage and salary earners (OECD <i>Labour Force Statistics</i>). Density is calculated using survey data, wherever possible, and administrative data adjusted for non-active and self-employed members otherwise.	percentage over total number of workers	OECD (Employment database)
taxwedge	tax wedge	Average tax wedge, Single person at 100% of average earnings, no child	percentage over personal income	OECD (Employment database)

Table [2]: Country-level data. Summary Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
emprate	646	63.94	7.47	45.37	81.53
ALMP	546	0.564	0.445	0.021	2.525
PLMP	553	1.269	0.994	0.080	5.446
tfp	661	92.35	9.72	57.18	115.88
tot	694	98.35	8.23	60.06	128.49
lodgdppc	684	9.49	0.93	5.99	11.33
pexp	636	46.10	7.15	24.33	78.09
compempl	655	11.40	2.55	2.86	19.35
labprod	658	89.69	15.44	42.20	132.20
emprotection	570	2.34	0.84	0.60	4.19
tradeundens	577	37.91	20.11	7.05	83.89
taxwedge	552	42.32	7.00	22.23	56.89

Table [3]: Country-Level data. Determinants of unemployment rate. First differences.

	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
emprate								
emprate _{t-1}	0.3922*** 0.034	0.3599*** 0.036	0.3515*** 0.037	0.3061*** 0.038	0.3187*** 0.042	0.2717*** 0.043	0.2874*** 0.041	0.2203*** 0.042
ALMP	0.4730 0.430	0.5606 0.449	0.4175 0.423	0.6419 0.441	0.2790 0.427	0.4225 0.462	0.3357 0.429	0.5626 0.445
PLMP	-2.3255*** 0.199	-2.0681*** 0.213	-2.3725*** 0.202	-2.1083*** 0.212	-2.1652*** 0.219	-1.9432*** 0.225	-2.4505*** 0.212	-2.1171*** 0.219
tfp	0.1577*** 0.023	0.4030*** 0.046	0.1273*** 0.027	0.3589*** 0.049	0.1125*** 0.034	0.3397*** 0.051	0.1149*** 0.028	0.3363*** 0.050
tot	0.0041 0.018	0.006313 0.018	0.0036 0.018	-0.0057919 0.019	0.0023791 0.017	-0.0073242 0.018	-0.007024 0.019	-0.0231818 0.019
lodgppc	0.1278 0.145	0.1995388 0.150	-0.0557 0.243	-0.0578 0.271	0.0766342 0.398	0.2551985 0.413	0.6924023 0.676	1.9676*** 0.698
pexp		0.0057582 0.026		-0.0124 0.026		-0.0038698 0.026		-0.0046065 0.027
compempl		-0.0264145 0.123		-0.0664 0.135		-0.0206113 0.133		-0.1657695 0.143
labprod		-0.2483*** 0.037		-0.2660*** 0.038		-0.2602*** 0.039		-0.2724*** 0.038
emprotection		-1.78704	0.0874 0.152	0.1830 0.161	0.1681147 0.171	0.1215115 0.177	-0.1095752 0.271	-0.0468167 0.292
tradeundens			-0.0245 0.017	-0.0232 0.018	-0.0156227 0.016	-0.0213882 0.018	-0.0556** 0.027	-0.0318178 0.028
taxwedge			0.0081 0.018	-0.0054 0.018	0.0030639 0.016	-0.0056669 0.017	0.0254757 0.033	0.0125423 0.034
Sargan test ^[1]	444.01 (.55)	417.8 (.54)	397.5 (.62)	369.9 (.70)	395.5 (.29)	355.7 (.46)	375.6 (.62)	340.5 (.73)
Autocorr. Test ^[2]	-4.05 (.00) -0.98 (.32)	-4.12 (.00) 0.06 (.94)	-3.79 (.00) -1.23 (.21)	-3.84 (.00) 0.49 (.62)	-4.09 (.00) -0.73 (.46)	-3.86 (.00) 1.58 (.11)	-3.79 (.00) -1.47 (.14)	-3.84 (.00) 0.22 (.82)
time dummies	no	no	no	no	yes	yes	no	no
country-specific time trend	no	no	no	no	no	no	yes	yes
Obs (groups)	455 (28)	431 (28)	415 (21)	391 (21)	415 (21)	391 (21)	415 (21)	391 (21)

*, **, *** denote significance levels at the 10%, 5% and 1% respectively

^[1] Sargan test of overidentifying restrictions

^[2] Arellano and Bond (1991) test for autocorrelation in the error term

Table [4]: Country-Level data. Determinants of unemployment rate in countries with large ESF subsidies. First differences.

	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
emprateFD								
emprate _{t-1}	0.4457*** 0.043	0.4307*** 0.043	0.3971*** 0.050	0.3765*** 0.049	0.3998*** 0.063	0.3930*** 0.060	0.3641*** 0.058	0.3138*** 0.054
ALMP	1.8871** 0.749	1.6542** 0.706	1.9872** 0.770	1.8968*** 0.717	1.7753** 0.791	1.055506 0.773	1.9241** 0.806	1.8806** 0.744
PLMP	-2.4981*** 0.263	-2.0125*** 0.276	-2.5596*** 0.276	-2.0297*** 0.281	-2.3050*** 0.315	-1.7397*** 0.319	-2.5990*** 0.294	-2.0618*** 0.297
tfp	0.1943*** 0.028	0.5544*** 0.061	0.1741*** 0.037	0.5317*** 0.068	0.1251*** 0.042	0.4992*** 0.075	0.1642*** 0.039	0.5217*** 0.070
tot	-0.0094784 0.032	0.0157556 0.030	-0.0139281 0.037	-0.0018746 0.033	0.0388564 0.042	0.0326631 0.040	-0.0287 0.039	-0.0268848 0.035
lodgppc	0.280781 0.197	0.5316*** 0.196	-0.1143752 0.384	-0.052415 0.452	0.145806 0.672	0.209969 0.693	0.573136 1.043	2.0107** 1.005
pexp		-0.0010274 0.031		-0.0138486 0.032		0.0023083 0.032		0.0025584 0.034
compempl		-0.0517737 0.143		-0.1397042 0.163		-0.0769805 0.170		-0.2307115 0.178
labprod		-0.358231 0.052		-0.3932*** 0.054		-0.4022*** 0.063		-0.4023*** 0.056
emprotection			-0.1382265 0.236	0.0402784 0.218	0.0853494 0.256	0.0300336 0.245	-0.1364801 0.444	-0.0883354 0.454
tradeundens			-0.0234632 0.027	-0.0314611 0.030	0.0078047 0.029	-0.0118426 0.032	-0.0204332 0.038	-0.0172985 0.038
taxwedge			-0.0276604 0.027	-0.0288301 0.026	-0.0173494 0.026	-0.0238255 0.026	0.0028631 0.058	0.0209398 0.052
Sargan test ^[1]	224.5 (.64)	215.4 (.55)	174.5 (.78)	153.8 (.88)	158.6 (.62)	135.6 (.81)	161.2 (.82)	139.1 (.92)
Autocorr. Test ^[2]	-3.00 (.00)	-2.98 (.00)	-2.67 (.00)	-2.69 (.00)	-2.96 (.00)	-2.57 (.01)	-2.66 (.00)	-2.71 (.00)
	-0.72 (.47)	0.52 (.60)	-1.01 (.30)	1.20 (.22)	-0.26 (.79)	1.63 (.10)	-1.08 (.27)	1.15 (.24)
time dummies	no	no	no	no	yes	yes	no	no
country-specific time trend	no	no	no	no	no	no	yes	yes
Obs (groups)	239 (18)	228 (18)	199 (11)	188 (11)	199 (11)	188 (11)	199 (11)	188 (11)

* **, *** denote significance levels at the 10%, 5% and 1% respectively

^[1] Sargan test of overidentifying restrictions

^[2] Arellano and Bond (1991) test for autocorrelation in the error term

Table [5]: Country-Level data. Determinants of unemployment rate in countries with low ESF subsidies. First differences.

	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
emprate								
emprate _{t-1}	0.2319*** 0.057	0.1249** 0.059	0.2060*** 0.057	0.1051* 0.060	0.1530** 0.064	0.0482703 0.066	0.1238** 0.061	0.0121304 0.063
ALMP	-0.4712 0.484	-0.3327 0.519	-0.6361 0.485	-0.4965 0.523	-0.8466 0.530	-0.6336 0.589	-0.7171 0.482	-0.4586 0.513
PLMP	-2.5130*** 0.325	-2.4347*** 0.349	-2.4990*** 0.329	-2.4308*** 0.350	-2.1381*** 0.410	-2.0048*** 0.427	-2.5178*** 0.332	-2.4261*** 0.351
tfp	0.0137148 0.043	0.0990166 0.070	0.0112449 0.043	0.0996134 0.071	0.058114 0.064	0.1421* 0.081	0.0124627 0.044	0.0737191 0.071
tot	0.0002499 0.020	-0.0199206 0.024	0.0020403 0.020	-0.014746 0.025	0.00058 0.020	-0.0060628 0.025	-0.0071127 0.020	-0.0274125 0.025
lodgppc	-0.1969246 0.216	-0.3619173 0.223	-0.0413022 0.324	-0.2673033 0.331	0.3082247 0.794	-0.2646921 0.814	1.426378 1.015	2.4363** 1.069
pexp		-0.0564503 0.046		-0.0497077 0.046		-0.0315383 0.049		-0.0558091 0.045
compempl		0.0473638 0.251		0.0828205 0.251		0.2362908 0.258		0.0813374 0.250
labprod		-0.1523*** 0.049		-0.1482*** 0.049		-0.1326*** 0.051		-0.1514*** 0.049
emprotection			0.1353407 0.219	-0.0035756 0.248	0.2141394 0.252	0.101064 0.269	-0.005023 0.344	-0.2232259 0.365
tradeundens			-0.0130817 0.022	-0.0058664 0.022	-0.0150217 0.025	-0.0054453 0.025	-0.0932** 0.042	-0.05467 0.048
taxwedge			0.0570** 0.024	0.0508** 0.025	0.0432* 0.024	0.0421* 0.025	0.0495169 0.041	0.0228998 0.045
Sargan test ^[1]	212.9 (.43)	199.4 (.37)	209.6 (.43)	197.3 (.36)	198.3 (.19)	184.0 (.16)	204 (.34)	191.0 (.28)
Autocorr. Test ^[2]	-2.82 (.00)	-2.81 (.00)	-2.04 (.00)	-2.81 (.00)	-2.79 (.00)	-2.83 (.00)	-2.78 (.00)	-2.62 (.00)
	-0.55 (.58)	-0.20 (.84)	-0.53 (.59)	-0.26 (.79)	-0.30 (.76)	-0.02 (.98)	-0.75 (.45)	-0.45 (.65)
time dummies	no	no	no	no	yes	yes	no	no
country-specific time trend	no	no	no	no	no	no	yes	yes
Obs (groups)	216 (10)	203 (10)	216 (10)	203 (10)	216 (10)	203 (10)	216 (10)	203 (10)

* **, *** denote significance levels at the 10%, 5% and 1% respectively

^[1] Sargan test of overidentifying restrictions

^[2] Arellano and Bond (1991) test for autocorrelation in the error term

Table [6]: Country-Level data. Determinants of unemployment rate. Long-term coefficients

	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
ALMP	359.0299 226.472	274.2623* 162.256	232.9882 201.293	315.6508* 165.349	277.1125 178.877	373.6782** 172.643	104.0434 109.289	120.3647 112.843
PLMP	-426.6813*** 99.130	-115.871 73.575	-419.822*** 98.176	-71.5115 78.765	-297.9516*** 85.103	-88.9202 77.290	-386.7922*** 56.992	-220.3541*** 58.209
tfp	0.098635 0.138	0.069555 0.116	-0.12958 0.127	-0.22102 0.145	-0.2089* 0.116	-0.2604* 0.144	0.2360** 0.097	0.2679** 0.129
tot	-0.02262 0.080	-0.07605 0.056	-0.1276* 0.077	-0.16454*** 0.057	-0.1329** 0.066	-0.16675*** 0.056	0.025485 0.060	-0.00000174 0.062
lodgppc	2.528855 3.167	6.81402** 3.127	7.9901** 3.236	8.94615*** 3.321	9.6639*** 3.625	8.2647** 3.934	-3.31856 3.552	4.395391 3.357
pexp		-0.4327*** 0.150		-0.62104*** 0.160		-0.5292*** 0.170		-0.2097** 0.097
compempl		-0.29139 0.476		-0.28886 0.498		-0.3351817 0.522		-0.1287263 0.334
labprod		-0.11006 0.111		-0.01832 0.125		-0.0178859 0.123		-0.24113** 0.095
emprotection			1.382357 1.241	1.482674 0.990	2.2841* 1.268	1.9198* 1.105	2.3762*** 0.863	1.241012 0.869
tradeundens			-0.03923 0.149	-0.01792 0.113	0.059564 0.133	0.0079275 0.112	-0.1433* 0.087	-0.0521647 0.084
taxwedge			0.110841 0.170	-0.14808 0.131	-0.06999 0.148	-0.2246* 0.130	-0.114 0.104	-0.1347469 0.100
Sargan test ^[1]	443.2 (.34)	436.8 (.13)	410.2 (.25)	368.1 (.41)	390.5 (.21)	345.5 (.39)	403.2 (.12)	358.0 (.26)
Autocorr. Test ^[2]	-4.00 (.00)	-4.12 (.00)	-3.68 (.00)	-3.86 (.00)	-3.92 (.00)	-3.82 (.00)	-3.65 (.00)	-3.62 (.00)
	-1.10 (.26)	-0.35 (.72)	-1.19 (.23)	1.16 (.86)	-0.95 (.34)	1.00 (.31)	-1.21 (.22)	0.58 (.55)
time dummies	no	no	no	no	yes	yes	no	no
country-specific time trend	no	no	no	no	no	no	yes	yes
Obs (groups)	447 (28)	423 (28)	408 (21)	384 (21)	408 (21)	384 (21)	408 (21)	384 (21)

* **, *** denote significance levels at the 10%, 5% and 1% respectively

^[1] Sargan test of overidentifying restrictions

^[2] Arellano and Bond (1991) test for autocorrelation in the error term

Table [7]: Country-Level data. Determinants of unemployment rate in countries with large ESF subsidies. Long-term coefficients

	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
ALMP	1292.092** 513.603	748.342* 393.364	832.67** 416.796	552.3928 383.476	769.98** 328.579	699.61** 315.743	514.399* 279.616	437.555* 256.112
PLMP	-771.83*** 156.762	-431.2381*** 139.963	-583.321*** 142.450	-182.255 152.798	-442.64*** 114.470	-265.567* 126.157	-472.098*** 121.570	-262.61** 117.499
tfp	0.280414 0.175	0.45385** 0.181	-0.14759 0.148	0.183997 0.212	-0.19476 0.130	0.25014 0.188	0.3064* 0.182	0.7330*** 0.275
tot	0.245007* 0.143	0.35130** 0.141	-0.05911 0.133	0.079962 0.134	0.012762 0.138	0.187134 0.147	-0.05315 0.149	0.045912 0.134
lodgppc	-1.13833 3.712	9.0262** 4.226	8.5001** 3.659	16.2665*** 4.458	10.607** 4.733	11.438** 5.627	-9.17578 7.252	2.810274 6.150
pexp		-0.11075 0.203		-0.29986 0.209		-0.33908* 0.204		-0.12608 0.173
compempl		-0.91259 0.689		-0.33759 0.679		0.446278 0.630		0.017166 0.511
labprod		-0.34909*** 0.160		-0.41736** 0.178		-0.42435*** 0.153		-0.6371*** 0.207
emprotection			-0.7133 1.329	1.38575 1.307	0.592321 1.213	1.988771 1.251	3.5610** 1.639	2.7712** 1.591
tradeundens			0.191571 0.148	0.140245 0.178	0.42519*** 0.140	0.2857* 0.153	-0.0226 0.140	0.042593 0.132
taxwedge			-0.23245 0.198	-0.3589* 0.192	-0.40748*** 0.159	-0.3881** 0.155	-0.34656 0.225	-0.20992 0.194
<i>Sargan test</i> ^[1]	246.0 (.11)	225.3 (.14)	184.0 (.38)	152.8 (.68)	153.0 (.53)	130.2 (.66)	173.5 (.36)	147.7 (.55)
<i>Autocorr. Test</i> ^[2]	-2.97 (.00)	-2.80 (.00)	-2.59 (.00)	-2.69 (.00)	-3.02 (.00)	-2.69 (.00)	-2.56 (.01)	-2.69 (.00)
	-1.32 (.18)	-0.43 (.66)	-1.36 (.17)	0.83 (.40)	-1.08 (.27)	1.13 (.16)	-1.33 (.18)	1.24 (.21)
<i>time dummies</i>	no	no	no	no	yes	yes	no	no
<i>country-specific time trend</i>	no	no	no	no	no	no	yes	yes
<i>Obs (groups)</i>	216 (10)	222 (18)	194 (11)	183 (11)	194 (11)	183 (11)	194 (11)	183 (11)

*, **, *** denote significance levels at the 10%, 5% and 1% respectively

^[1] Sargan test of overidentifying restrictions

^[2] Arellano and Bond (1991) test for autocorrelation in the error term

Table [8]: Country-Level data. Determinants of unemployment rate in countries with low ESF subsidies. Long-term coefficients

	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
ALMP	-73.47021 228.768	117.0672 122.909	-49.81319 218.121	117.0866 143.521	41.54324 201.341	115.8094 142.584	-93.64506 83.944	-11.19823 75.170
PLMP	-137.2884 126.570	27.89422 72.467	-293.0561** 129.802	23.11082 88.613	-130.5297 118.952	61.44377 86.941	-255.840*** 50.338	-151.8046*** 44.152
tfp	-0.1408655 0.200	-0.30904** 0.147	-0.012595 0.201	-0.31603* 0.165	-0.0924542 0.199	-0.3361** 0.158	0.1716* 0.091	0.0455514 0.100
tot	-0.1446917 0.093	-0.2432*** 0.051	-0.1389512 0.093	-0.2444*** 0.053	-0.18510** 0.091	-0.2139*** 0.051	-0.0332846 0.050	-0.12648*** 0.048
lodgdppc	7.27625 5.028	9.4438*** 3.243	6.64881 4.923	9.3732** 3.652	15.2518* 8.358	4.155822 5.037	5.5038* 3.241	6.3165** 2.962
pexp		-0.6572*** 0.158		-0.65303*** 0.183		-0.5581*** 0.187		-0.33379*** 0.082
compempl		-0.1607724 0.547		-0.2249483 0.686		-0.5414497 0.664		0.0710489 0.366
labprod		0.0260017 0.116		0.0372911 0.148		-0.0211006 0.137		-0.1218* 0.070
emprotection			3.495648 2.133	0.1565795 1.465	3.2397* 1.965	0.1341908 1.403	1.3422* 0.769	0.5974475 0.678
tradeundens			-0.0350994 0.218	0.0180615 0.136	-0.0785538 0.204	0.1419507 0.136	-0.2605*** 0.100	-0.1323688 0.087
taxwedge			0.5282** 0.259	-0.0088802 0.145	0.2055315 0.212	-0.1045205 0.140	-0.073741 0.091	-0.0959822 0.078
<i>Sargan test</i> ^[1]	209.8 (.33)	201.1 (.17)	211.4 (.25)	197.6 (.17)	193.9 (.15)	171.3 (.18)	217.2 (.07)	198.4 (.06)
<i>Autocorr. Test</i> ^[2]	-2.70 (.00)	-2.36 (.01)	-2.66 (.00)	-2.36 (.01)	-2.54 (.01)	-2.36 (.01)	-2.62 (.00)	-2.26 (.02)
	-0.11 (.90)	-0.17 (.85)	-0.14 (.88)	-0.16 (.87)	-0.13 (.88)	-0.12 (.90)	-0.02 (.97)	-0.19 (.84)
<i>time dummies</i>	no	no	no	no	yes	yes	no	no
<i>country-specific time trend</i>	no	no	no	no	no	no	yes	yes
<i>Obs (groups)</i>	214 (10)	201 (10)	214 (10)	201 (10)	214 (10)	201 (10)	214 (10)	201 (10)

*, **, *** denote significance levels at the 10%, 5% and 1% respectively

^[1] Sargan test of overidentifying restrictions

^[2] Arellano and Bond (1991) test for autocorrelation in the error term

Table [9]: Regional-level data. Variable definition and sources

Label	Variable	Definition	Units	Source
emprate	Employment rate	Ratio of the employed over working age population	Ratio	INE
ESF	EU transfers from the European Social Fund	Current transfers from the EU to the regional government under the ESF programme (commitments)	Share of GDP	1995 2001 BADESPE; 2002 2010 Liquidacion presupuestos CCAA (database); 1987 1994 Informe sobre la financiación de las CCAA (yearbook)
DEC	Decentralization ratio	Ratio of per capita public expenditure run by the regional government over per capital public expenditure run by the central government	ratio	INE (population), sources of variable regionalexp, BADESPE and IGAE (databases)
socialexp	Social expenditure by the public regional administration	Expenditure on social promotion: current transfers, unemployment protection, active labor market policies and housing subsidies	Share of GDP	2002/2010 Liquidación de presupuestos de las CC AA; 2000/2001 BADESPE; 1989/1999 Anuario liquidación presupuestos de las CC AA (yearbook)
regionalexp	Total expenditure by the public regional administration	Total final public expenditure at the regional level	Share of GDP	1984 2003 BADESPE; 2004-2010 Liquidación de los presupuestos de las CC AA
lodgdppc	Log of GDP per capita	GDP per inhabitant in logarithmic form	Log of data expressed in miles Euro	INE
growth	Real economic growth	Real GDP growth rate at constant prices	Growth rate	INE
pop	Population	Population at 1 st of January	Miles people	INE

Table [10]: Regional-level data. Summary statistics.

Variable	Obs	Mean	Std. Dev.	Min	Max
employrate	374	45.56	6.17	32.10	59.97
ESF	374	0.0007	0.0008	0.0000	0.0064
socialexp	374	0.012	0.007	0.001	0.043
regionalexp	374	0.13	0.06	0.02	0.31
growth	374	0.07	0.04	-0.06	0.21
log_pcincome	374	9.77	0.46	8.68	0.56
Pop	374	2413.43	2108.82	261.10	8206.06
DEC	374	0.56	0.30	0.10	1.61

Table [11]: Regional-Level data. Determinants of unemployment rate. First differences.

	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]
emprateFD (t-1)	0.29669***	0.2582***	0.2954***	-0.02133	-0.05978	0.2888***	-0.02317	0.24939***	0.2874***
	0.048	0.05	0.049	0.052	0.054	0.05	0.052	0.051	0.05
ESF	-42.81929		-60.43463	0.30949***		-41.92369	-26.793		-61.5065
	79.62		95.14	57.48		81.54	68.652		97.58
regionalexp	-18.31914**		-18.1685***	1.32009		-17.6380***	1.62919		-17.4718***
	6.049		6.069	6.128		6.27	6.147		6.29
socialexpFD		-10.67274			4.990548			-9.30725	
		26.716			19.349			27.695	
growth	20.00109***	23.86864***	20.02923***	4.63420**	6.3332***	20.34163***	4.65453**	24.0308***	20.37563***
	2.017	1.961	2.02	2.335	2.35541	2.086	2.337	2.041	2.09
logGDPpc	0.64269*	0.5513248	0.6426*	0.9768***	0.8926***	0.5426574	0.9768***	0.695698	0.541079
	0.358	0.369	0.359	0.256	0.25082	0.515	0.256	0.566	0.516
pop	0.00311***	0.003078***	0.00311***	0.0026***	0.0028***	0.0032***	0.0026***	0.0031***	0.00322***
	0.001	0.001	0.001	0.001	0.00081	0.001	0.001	0.001	0.001
DEC	2.8878***	0.7893697	2.91037***	-1.52743	1.46633*	2.80804***	1.5183	0.800659	2.83317***
	0.943	0.767	0.946	1.439	0.8768	0.966	1.44	0.79	0.969
DEC*ESF			302.0347			451.5822			334.301
			891.54			624.442			913.546
<i>Sargan test</i> ^[1]	376.3 (.32)	355.7 (.17)	375.7 (.32)	352.9 (.37)	327.5 (.28)	351.9 (.37)	358.2 (.35)	336.9 (.20)	357.6 (.34)
<i>Autocorr. Test</i> ^[2]	-3.60 (.00)	-3.71 (.00)	-3.60 (.00)	-3.46 (.00)	-3.59 (.00)	-3.45 (.00)	-3.60 (.00)	-3.71 (.00)	-3.59 (.00)
	0.47 (.63)	0.014 (.98)	0.48 (.62)	-1.04 (.29)	-1.59 (.11)	-1.06 (.28)	0.49 (.61)	-0.02 (.98)	0.51 (.60)
<i>time dummies</i>	no	no	no	yes	yes	yes	no	no	no
<i>time trend</i>	common	common	common	no	no	no	unit specific	unit specific	unit specific
<i>Obs (groups)</i>	374 (17)	340 (17)	374 (17)	374 (17)	340 (17)	374 (17)	374 (17)	340 (17)	374 (17)

*, **, *** denote significance levels at the 10%, 5% and 1% respectively

^[1] Sargan test of overidentifying restrictions

^[2] Arellano and Bond (1991) test for autocorrelation in the error term

Table [12]: Regional-Level data. Determinants of unemployment rate. Long-term coefficients

	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
ESF	2141.246***		1522.248***		-52.98759		1371.349**	
	659.948		577.817		661.519		585.210	
regionalexp	-46.4156***		-40.1278***		-22.66425		-69.4816***	
	12.770		11.493		19.148		22.482	
socialexp		-148.1698		-189.0279		-17.23847		-74.199
		109.939		97.3720*		119.511		128.691
growth	50.6254***	66.8034***	70.74835***	87.7738***			60.6050***	79.5136***
	15.317	16.160	15.979	16.14735			15.789	16.157
loggdppc	5.61426***	7.20931***	1.868255	1.825594	4.8967***	5.32197***	2.735105	3.98802**
	1.235	1.353	1.314	1.368	1.810	1.832	1.887	1.953
pop	0.00311**	0.004093***	0.0010185	.0010413	0.0003124	-.0009538	-0.00649*	-.008508**
	0.001	0.001	0.001	0.0013693	0.002	0.002	0.004	0.004
DEC	16.8580***	9.81957***	11.2758***	4.79002**	11.5807*	3.528685	14.5228***	5.9996***
	2.558	2.005	2.693	2.075	6.692	3.819	3.069	2.120
<i>Sargan test</i> ^[1]	286 (.74)	294.9 (.52)	285.2 (.76)	291.9 (.57)	311.5 (.17)	303.2 (.12)	259.0 (.93)	266.8 (.83)
<i>Autocorr. Test</i> ^[2]	-3.88 (.00)	-3.79 (.00)	-3.84 (.00)	-3.82 (.00)	-3.36 (.00)	-3.34 (.00)	-3.81 (.00)	-3.79 (.00)
	0.030 (.76)	0.27 (.78)	-0.01(.98)	-0.20 (.83)	-1.14 (.13)	-1.57 (.11)	-0.09 (.92)	-0.38 (.69)
<i>time dummies</i>	no	no	no	no	yes	yes	no	no
<i>time trend</i>	no	no	common	common	no	no	unit specific	unit specific
<i>Obs (groups)</i>	323 (17)	323 (17)	323 (17)	323 (17)	340 (17)	323 (17)	323 (17)	323 (17)

*, **, *** denote significance levels at the 10%, 5% and 1% respectively

^[1] Sargan test of overidentifying restrictions

^[2] Arellano and Bond (1991) test for autocorrelation in the error term

Table [13]: Regional-Level data. Determinants of unemployment rate. Models with spatial autocorrelation: spatial lag model

	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
$\delta^*emprate_j$	0.9011***	0.92781***	0.91320***	0.9367***	-0.28635	-0.19174	0.9728***	0.98504***
	0.041	0.038	0.043	0.040	0.361	0.367	0.036	0.033
ESF	118.9499		140.452		-13.6046		62.89597	
	125.172		127.285		142.136		105.144	
regionalexp	-8.7247**		-8.34265**		-21.5808***		-7.24755	
	4.180		4.201		5.597		5.401	
socialexp		-32.9307		-30.9189		-49.6579*		11.55977
		24.253		24.375		28.852		25.385
growth	3.375258	4.0927*	2.324373	3.185321	2.059334	2.565759	0.323256	1.556021
	2.221	2.200	2.489	2.440	4.234	4.308	2.058	1.994
logGDPpc	0.042175	0.062212	0.319364	0.320879	0.226355	0.294867	2.3874***	2.5194***
	0.326	0.323	0.440	0.441	0.445	0.451	0.513	0.516
pop	0.00136***	0.00144***	0.00149***	0.00156***	0.00202***	0.00174***	-0.00072	-0.00088
	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.001
DEC	2.7162**	1.3404*	2.819437	1.4879*	7.9131***	2.2857**	0.965141	-0.11773
	1.104	0.741	1.110	0.761	1.894	1.063	1.029	0.688
<i>F test group</i>	664.9 (.00)	771.1 (.00)	581.7 (.00)	660.5 (.00)	169.9 (.00)	170.0 (.00)	328.3 (.00)	341.7 (.00)
<i>R2(adjusted)</i>	0.446	0.421	0.421	0.400	0.297	0.302	0.480	0.506
<i>LM test spatial error autocor.</i>	1.327 (.24)	2.055 (.15)	1.291 (.25)	2.029 (.15)	0.302 (.58)	0.792 (.37)	0.901 (.34)	1.402 (.23)
<i>time dummies</i>	no	no	no	no	yes	yes	no	no
<i>time trend</i>	no	no	common	common	no	no	unit specific	unit specific
<i>Obs (groups)</i>	374 (17)	374 (17)	374 (17)	374 (17)	374 (17)	374 (17)	374 (17)	374 (17)

*, **, *** denote significance levels at the 10%, 5% and 1% respectively

