REVISTA ESPACIOS

Have the European Funds been able to reduce the differences in the level of unemployment between the countries of the Euro area? A reflection on the past, present and future of European programs

¿Han sido capaces los Fondos europeos de disminuir las diferencias en el nivel de desempleo entre los países de la Zona Euro? Una reflexión sobre el pasado, presente y futuro de los Programas europeos

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Abstract
One of the fundamental objectives of the Maastricht Treaty is the sustainable development of the European Union (EU) countries. Since its entry into force, large investments have been approved to finance convergence programs.
The aim of this article is to determine if the investments made to date have managed to reduce the differences in unemployment rates among the EU countries. The Theil index has been calculated on the unemployment figures of the countries of the Eurozone during the period 2008-2019.
Key words: european funds, theil index, regional inequality, unemployment

Resumen
Uno de los objetivos fundamentales del Tratado de Maastricht es el desarrollo sostenible de los países de la Unión Europea (UE). Desde su entrada en vigor, se han aprobado importantes inversiones para financiar programas de convergencia.
El objetivo de este artículo es determinar si las inversiones realizadas han logrado reducir las diferencias en las tasas de desempleo. El índice de Theil se ha calculado sobre las cifras de desempleo de los países de la Eurozona durante el período 2008-2019.
Palabras clave: fondos europeos, índice de theil, desigualdad regional, desempleo

1. Introduction

The entry into force of the Maastricht Treaty (1992) caused a convergence of the economies of the euro zone countries in terms of inflation, public deficit or public debt. However, there has been no progress in the same direction on issues such as employment, economic growth or social progress. But actually since the economic crisis of 2008, they have increased.

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The existence of these territorial imbalances within the EU is a problem recognized by the community bodies and there have been several initiatives proposed that have set balanced and sustainable regional development as an objective within them.

Accordingly, the European Territorial Strategy (ETA) set as a fundamental objective the development of a sustainable balance through an effort of economic and social cohesion that allowed for the conservation of natural resources and cultural heritage, as well as an improvement of the competitiveness of companies. The 2007 Lisbon Treaty, in its second article, set as a fundamental objective of the EU the achievement of balanced economic growth that ensures full employment and social progress, by promoting policies of economic, social and territorial cohesion. More recently, the 2020 Strategy sets three priorities for the EU: smart growth based on the knowledge economy and innovation; sustainable growth by promoting an economy that uses natural resources efficiently, and inclusive growth that fosters a high level of employment that enables economic, social and territorial cohesion. This inclusive growth is based on increased investment in professional qualifications, the fight against poverty, the modernization of labor markets and the improvement of social protection that that allows for the "building of a cohesive society"

The idea behind this set of declarations and treaties is to ensure that European citizens are not discriminated against for residing in any of the EU regions (Camacho and Melikhova, 2010), by creating a balanced and polycentric territorial development model that avoids excessive concentration of wealth and population in certain European areas.

The EU has fundamentally addressed this problem through the approval of different structural funds aimed at promoting territorial cohesion programs. These funds try to compensate for the unequal endowment of internal resources, with investments from community bodies (Farinos, 1999) such as the European Regional Development Funds (ERDF), the Cohesion Fund (CF), the European Social Fund (ESF), and the European Maritime and Fisheries Fund (EMFF). However, despite the investments made, theoretical and empirical studies on the matter reveal the prevalence of territorial inequalities.

The main novelty of this work in relation to the existing literature refers to the choice of the variable analyzed to explain regional differences in the EU which is unemployment. To do this, the evolution of unemployment in the euro zone countries is analyzed during the period 2014 to 2019. The Theil index has been applied to determine if the investments made by European funds have managed to modify the relative position of their levels of unemployment in the different countries and regions.

The main objective of this research is to determine whether since 2014 the European Funds have reduced regional differences in unemployment between different EU countries.

The hypotheses raised and that have been verified are:
1. There are persistent differences over time in unemployment between the EU countries

2. There is no relationship between the number of unemployed and the distribution of European Funds among EU countries

3. The European Funds have not significantly reduced the different unemployment rates among EU countries

The structure of the article is as follows: firstly the European Structural and Cohesion Funds are analyzed. To contextualize this in the field of academic research, a review of the literature is carried out on the theoretical models that have tried to study this phenomenon.

In the second part, the evolution of regional disparities in employment is examined. For this, the distribution of total funds in relation to the number of unemployed will be analyzed. The period analyzed for this research work

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is those corresponding to the 2014-2019 period. To determine whether the funds are actually helping to reduce social differences between EU countries, a methodology has been used to determine equity within an economic system, which is the Theil Index. This coefficient has been applied for the period 2000-2019, on the number of unemployed in the countries that make up the Eurozone.

Next, the impact of the European Funds on reducing social inequalities is analyzed, and finally a section with conclusions and future lines of research is included.

2. Theoretical Models of Territorial Inequalities: Review of the Literature

The entry into force of the Maastrich Treaty (1992), and later the creation of a single common currency, has led to the opening of a process of convergence between countries of the eurozone on the basis of stable prices, public finances, monetary conditions and balance of payments. This process has led to an increase in the number of studies on the process of European economic and social convergence. However, despite the large investments made to reduce territorial inequalities in Europe, the theoretical and empirical studies carried out show their persistence over time.

From a theoretical perspective, these cannot be globally explained by a unified theory. Cuadrado Roura (1995), elaborates an exhaustive analysis of the main theories that during the last decades have tried to explain the imbalances in the EU, mainly highlighting the theory of the growth stages (Clark, 1940; Fisher, 1933), the theory of export bases (North, 1955; Pfous, 1960; Tiebout, 1962), the neoclassical model of regional growth (Borts and Stein, 1964), the cumulative model in interregional relations (Myrdal, 1959), the theory of growth poles (Perroux, 1955; Boudeville, 1966) or endogenous growth theories (Friedmann and Weaber, 1979; Störn, 1981; Vázquez, 1993). All of them incorporate the territorial dimension into the explanatory analysis, and have contributed to the elaboration of economic measures to reduce the differences between rich and poor regions, mainly through redistributive policies and the exploitation of growth potentialities.

From an empirical perspective we refered to the works of Magrini (1999), López-Bazo et al., (1999), López and Aranda (2000); Ezcurra et al., (2003), Rodríguez-Pose and Petrakos (2004), Head and Mayer (2006), Heidenreich and Wunder (2008) and Barrios and Strobl (2009).

Magrini (1999) analyzed the evolution of per capita income at regional level in the EU for the period 1979-1990. To do this, it selected 122 urban areas, and concludes that there is a clear trend towards interregional divergence during the 1980s. Specifically, Düsseldorf, Hamburg, Stuttgart, Munich, Paris and Frankfurt show a higher growth trend than the rest from European regions.

López-Bazo et al., (1999) studied the regional dynamics of convergence in the EU based on the evolution of their respective GDP and GDP per capita. Their results show how the European convergence process fails to reduce regional inequalities. Among the main causes of this process, they identify, among others, disparities in business productivity, changes in the location of clusters, imbalances in their local labor markets or migratory movements from depressed areas to others with greater growth potential.

López and Aranda (2000) published an article on European convergence in GDP and income level. It concludes by stating that the disparities between regions of the EU are very large. The countries with less income need to growth faster than that the strongest countries, a situation that can be complicated as a result of globalization and the existence of a European context highly interconnected.

Ezcurra et al., (2003). They adopted a dynamic approach to analyze the unequal distribution of income between regions into EU regions. The results showed that mobility between regions has decreased, while inequality has remained constant during the period of time considered (1977 to 1996).

Rodriguez-Pose and Petrakos (2004) show how the European integration process brings the member states closer together in areas such as inflation, unemployment or economic cycles. However, they detect the existence of peripheral places that have a low capacity to compete in an increasingly globalized economy and which hinder the convergence processes launched by the EU.

Head and Mayer (2006) analyzed data from 13 industries and 57 European regions in the period 1985 to 2000 using a geographic economic model of spatial distribution of demand. The results show how the wage distribution and employment respond to differences in potential markets.

Heidenreich and Wunder (2008) analyzed the impact of the increase in regional differences within each country to explain the increase in disparities between countries in the EU, mainly through a comparison of the evolution of their GDP per capita. They identify as causal elements of interregional differences, both the existence of different regional labor markets, and the definition of different economic structures.

Barrios and Strobl (2009) also started from differences in GDP per capita to explain territorial inequalities. They considered that there is no reason to believe that the changes which have been taking place in recent decades will make it possible to reduce these differences.

As it can be seen, most of the research on regional differences fundamentally analyze macroeconomic variables related to GDP, GDP per capita, or income levels. However, studies on territorial dynamics and employment in the EU are more scarce, and it is the basis for the analysis of this research.

2.1. Territorial Inequalities in Eorope in the field of Employment

The average number of unemployed in the euro area during the period 2008 to 2019 was 15.7 million people. Table 1 shows the unemployed by country in a disaggregated manner. Germany, France, Italy and Spain have shown throughout the period, a number of unemployed above the average of the countries of the euro zone. Of these, Spain is the country with the most jobless people on average between 2008-2019. At the extreme end of the countries with the lowest number of unemployed are Malta and Luxembourg.

Table 1
Number of unemployed countries in the Eurozone
Period 2008-2019 (Unit: thousands)

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
GERMANY	3011	3105	2818	2403	2221	2178	2096	1912	1.774	1.621	1.468	1.374
AUSTRIA	172	223	202	193	211	231	245	255	270	248	220	205
BELGIUM	333	380	406	347	369	417	424	419	390	354	301	274
CYPRUS	15	22	26	34	52	69	70	60	54	47	37	32
SLOVAKIA	254	321	386	363	378	386	359	307	267	224	180	158
SLOVENIA	46	61	75	83	90	102	98	89	80	67	53	46
SPAIN	2603	4152	4639	5013	5814	6047	5610	4935	4.481	3.917	3.479	3.248
ESTONIA	39	93	114	86	68	58	50	41	47	40	38	31
FINLAND	174	216	223	209	209	218	234	253	237	234	202	184
FRANCE	2121	2625	2679	2666	2851	3015	3026	3059	2.968	2.786	2.682	2.506
GREECE	389	485	638	882	1200	1331	1275	1188	1.131	1.027	915	819
IRELAND	146	267	303	317	316	282	243	199	195	158	137	121
ITALY	1666	1903	2051	2071	2699	3060	3222	2992	3.012	2.907	2.755	2.582
LATVIA	89	194	206	166	155	120	107	99	95	85	73	61
LITHUANIA	88	211	271	228	197	172	158	132	116	103	90	92
LUXEMB.	10	12	11	11	13	15	16	18	17	16	17	17
MALT	10	12	12	12	12	12	11	10	10	9	9	9

NETHERLANDS	317	381	436	433	516	647	660	606	538	438	350	314
PORTUGAL	476	574	645	688	835	855	728	630	573	463	366	339
EURO ZONE	11957	15236	16139	16205	18203	19218	18631	17203	16.255	14.744	13.372	12.412

Source: own elaboration based on Eurostat data

This data also highlighted are the effects of the economic crisis on the increase in unemployment from 2008. In just one year (2008 to 2009), the number of unemployed went from 11,956,500 to 15,235,750 people, that is, an increase of 27%. As of 2014, the situation seems to be reversing, and a decrease in the number of people without work begins to occur. However, the situation of improvement in the labor market is far from being homogeneous among the different EU countries, depending on the exposure of their economies to fluctuations in financial markets and international trade (Serrano et. al., 2010), or to globalization processes in business organization and labor relations models (Paramio and Zofío, 2007). Tridico (2013) defends the existence or not of flexible national markets in the EU as a cause of this different behavior in terms of employment. To analyze the evolution by country, Table 2 has been constructed, which includes the different unemployment rates for the 2008-2019 period. The average for the period studied for the countries that share the same currency is 9.5%.

Table 2
Unemployment rate for Eurozone countries
Period 2008-2019

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
GERMANY	7,4	7,6	7	5,8	5,4	5,2	5	4,6	4,1	3,8	3,4	3,2
AUSTRIA	4,1	5,3	4,8	4,6	4,9	5,4	5,6	5,7	6	5,5	4,9	4,5
BELGIUM	7	7,9	8,3	7,2	7,6	8,4	8,5	8,5	7,8	7,1	6	5,4
CYPRUS	3,7	5,4	6,3	7,9	11,9	15,9	16,1	15,1	13	11,1	8,4	7,1
SLOVAKIA	9,6	12,1	14,5	13,7	14	14,2	13,2	11,5	9,7	8,1	6,5	5,8
SLOVENIA	4,4	5,9	7,3	8,2	8,9	10,1	9,7	9	8	6,6	5,1	4,5
SPAIN	11,3	17,9	19,9	21,4	24,8	26,1	24,5	22,1	19,6	17,2	15,3	14,1
ESTONIA	5,5	13,5	16,7	12,3	10	8,6	7,4	6,2	6,8	5,8	5,4	4,4
FINLAND	6,4	8,2	8,4	7,8	7,7	8,2	8,7	9,4	8,8	8,6	7,4	6,7
FRANCE	7,4	9,1	9,3	9,2	9,8	10,3	10,3	10,4	10	9,4	9	8,5
GREECE	7,8	9,6	12,7	17,9	24,5	27,5	26,5	24,9	23,6	21,5	19,3	17,3
IRELAND	6,4	12	13,9	14,7	14,7	13,1	11,3	9,4	8,4	6,7	5,8	5
ITALY	6,7	7,7	8,4	8,4	10,7	12,1	12,7	11,9	11,7	11,2	10,6	10
LATVIA	7,7	17,5	19,5	16,2	15	11,9	10,8	9,9	9,6	8,7	7,4	6,3
LITHUANIA	5,8	13,8	17,8	15,4	13,4	11,8	10,7	9,1	7,9	7,1	6,2	6,3
LUXEMBOURG	4,9	5,1	4,6	4,8	5,1	5,9	6	6,4	6,3	5,5	5,6	5,6
MALT	6	6,9	6,9	6,4	6,3	6,4	5,8	5,4	4,7	4	3,7	3,4
NETHERLANDS	3,7	4,4	5	5	5,8	7,3	7,4	6,9	6	4,9	3,8	3,4
PORTUGAL	8,8	10,7	12	12,9	15,8	16,4	14,1	12,6	11,2	9	7,1	6,5
EURO ZONE	6,6	9,5	10,7	10,5	11,4	11,8	11,3	10,5	9,6	8,5	7,4	6,7

Source: own elaboration based on Eurostat data

The countries with an unemployment rate above the average are Ireland, Cyprus, Italy, Lithuania, Slovakia, Latvia, Greece and Spain. In contrast, Austria and Germany have the lowest levels of unemployment. Spain and Greece are the two that bear the highest rates. In the Spanish case, one of the reasons for this situation is found in the marked sectoral component of construction, whose weight in the national economic structure, both in terms of production and employment, has been greater than the European average. A sector that, although during the period 2002 to 2007, made it possible to create an intense demand for labor but was then greatly affected by the economic crisis, and with an evident drag effect on other sectors (Mahía and Arce, 2010; Rocha and Aragon, 2012). Greece, in addition, must incorporate into the debate on its economic situation, its public debt crisis and

the deterioration of its international image (Ramos, 2015). The situation in Germany should be highlighted. As of 2009, there has been a change in the trend in the situation of its labor market, which goes from being a country that showed unemployment rates above the average of the euro zone to being in 2015 the country with the lowest rate in all the eurozone (3.2%).

These regional disparities in employment, and their implications on social issues, may be at the origin of the increase in movements against the EU that have been gathering strength since the beginning of the economic crisis (Serricchio, et. al. , 2013). For a context such as the current one, the efficient use of public employment programs should take on greater prominence as a mechanism to, in this way, increase the degree of economic and social cohesion and consequently reduce the influence of Eurosceptic groups.

2.2. European Funds

The European Structural and Investment Funds are classified into:

• European Regional Development Fund (ERDF) regulated by Regulation No 1301/2013

• European Social Fund (ESF) regulated by Regulation No 1304/2013

• Cohesion Fund (CF) regulated by Regulation 1300/2013

• European Agricultural Fund for Rural Development (EAFRD) by Regulation No 1305/2013

• European Maritime and Fisheries Fund (EMFF) by Regulation No 508/2014.

The purpose of all these funds is to invest in job creation and a sustainable and healthy European economy and environment (European Comission).

The ERDF Funds were created in 1975 with the aim of strengthening socio-economic cohesion within the European Union, correcting imbalances between its regions through active participation in development and territorial structural adjustment, with special dedication to those of an industrial nature that have entered into a decline phase. Special dedication should be paid to regions that suffer from serious and permanent natural or demographic handicaps. Specifically, those more northern territories, which have a low population density, as well as island, cross-border and mountain regions. Its distribution is carried out prioritizing projects framed in the achievement of a series of objectives, such as: those related to research, technological development and innovation, access to new information and communication technologies, improvement of the competitiveness of small and medium-sized enterprises; an the transition to low-carbon economies.

Figure 1
European Regional Development Fund priorities

Artº 3.1 (a) productive investment which contributes to creating and safeguarding sustainable jobs, through direct aid for investment in SMEs;
Artº 3.1 (b) productive investment, irrespective of the size of the enterprise concerned, which contributes to the investment priorities set out in points (1) and (4) of Article 5, and, where that investment involves cooperation between large enterprises and SMEs, in point (2) of Article 5;
Artº 3.1 (c) investment in infrastructure providing basic services to citizens in the areas of energy, environment, transport and ICT;
Artº 3.1 (d) investment in social, health, research, innovation, business and educational infrastructure;
Artº 3.1 (e) investment in the development of endogenous potential through fixed investment in equipment and small-scale infrastructure, including small-scale cultural and sustainable tourism infrastructure, services to enterprises, support to research and innovation bodies and investment in technology and applied research in enterprises; Productive investment which contributes to creating and safeguarding sustainable jobs, through direct aid for investment in SMEs.
Artº 3.1 (f) networking, cooperation and exchange of experience between competent regional, local, urban and other public authorities, economic and social partners and relevant bodies representing civil society, referred to in Article 5(1) of Regulation (EU) No 1303/2013, studies, preparatory actions and capacity-building.

Source. EU Regulation No. 1301/2013

Graphic 1 shows the distribution of ERDF funds by country. It shows how during the period studied, Portugal received 30% of them.

Graphic 1
Percentage distribution of investments financed
with ERDF funds. Period 2014-2019
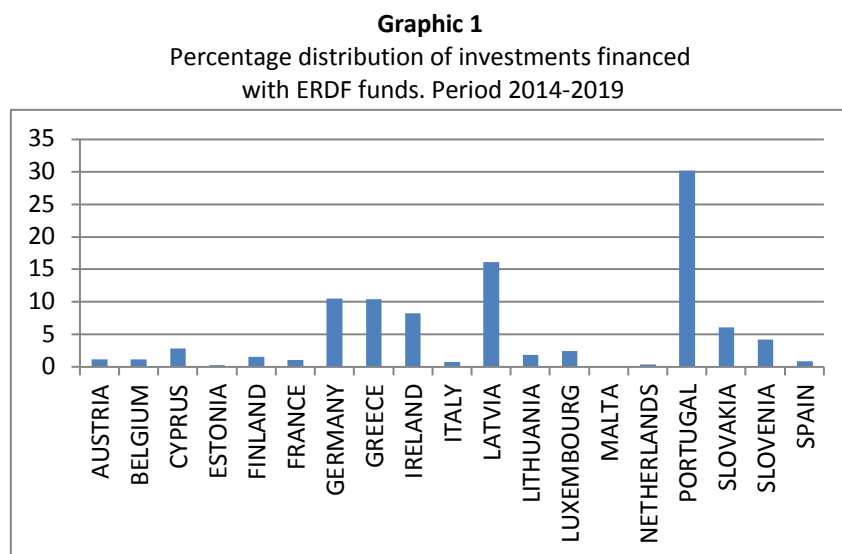
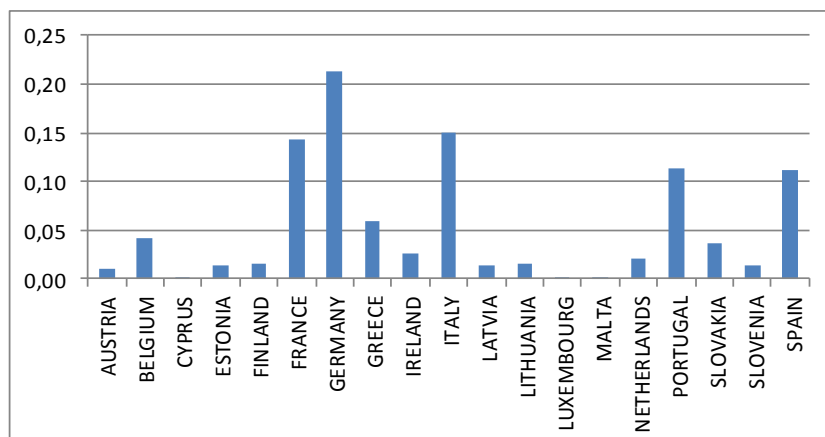Source: own elaboration based on data from the European Comission

The European Social Fund (ESF) is an important source of financing for Active Employment Policies (AEPs). The AEPs are programs designed to improve the employability of the unemployed, the promotion of entrepreneurship and the development of the social economy (Fina, 2001; Ruesga, 2002). Since its inception, the EU has been using AEPs as a tool to combat unemployment and reduce differences between countries. Thus, at the end of 1992, the Maastricht Treaty already recognized the structural nature of unemployment and defended the need to develop public actions aimed at reducing unemployment rates. Subsequently, the White Paper on growth, competitiveness and employment defined employment as a key element of social and economic integration in Europe. Article 127 of the Treaty on the European Union includes the need to contribute to job creation by promoting cooperation between the Member States. The Treaty of Amsterdam of 1997 changes the way of tackling the issue of unemployment, having a transnational dimension. Since then, several employment initiatives have been developed through the European Employment Strategy (1997), the 1998 Cardiff Council, the 1999 Cologne Council, the 2000 Lisbon Council or the June 2010 European Council. where the "Europe 2020 Strategy" is approved. The ESF works by co-financing employment programs at national, regional and local level that aim to improve employment levels, the quality of jobs and the possibilities of integration into the labor market in the Member States and their regions.

Graphic 2 shows the percentage distribution of investments made through ESF. Highlight how Germany receives 21% of the total, followed by Italy and France with 15%. During the period, Spain received 11%.

Cohesion Fund (CF) is a financial instrument through which projects related to the environment and trans-European networks are financed in the transport infrastructure sector.

Graphic 2
Percentage distribution of investments
financed with ESF. Period 2014-2019

Source: own elaboration based on data from the European Comission

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Figure 2
Cohesion Fund Investments priorities

Supporting the shift towards a low-carbon economy in all sectors by;	promoting the production and distribution of energy derived from renewable sources;
	promoting energy efficiency and renewable energy use in enterprises;
	supporting energy efficiency, smart energy management and renewable energy use in public infrastructure, including in public buildings, and in the housing sector;
	developing and implementing smart distribution systems that operate at low and medium voltage levels;
	promoting low-carbon strategies for all types of territories, in particular for urban areas, including the promotion of sustainable multimodal urban mobility and mitigation-relevant adaptation measures;
	promoting the use of high-efficiency co-generation of heat and power based on useful heat demand;
Promoting climate change adaptation, risk prevention and management by	supporting investment for adaptation to climate change, including ecosystem-based approaches;
	promoting investment to address specific risks, ensuring disaster resilience and developing disaster management systems
Preserving and protecting the environment and promoting resource efficiency by:	investing in the waste sector to meet the requirements of the Union's environmental acquis and to address needs, identified by the Member States, for investment that goes beyond those requirements;
	investing in the water sector to meet the requirements of the Union's environmental acquis and to address needs, identified by the Member States, for investment that goes beyond those requirements;
	protecting and restoring biodiversity and soil and promoting ecosystem services, including through Natura 2000, and green infrastructure;
	taking action to improve the urban environment, to revitalise cities, regenerate and decontaminate brownfield sites (including conversion areas), reduce air pollution and promote noise-reduction measures;
Promoting sustainable transport and removing bottlenecks in key network infrastructures by:	supporting a multimodal Single European Transport Area by investing in the TEN-T;
	developing and improving environmentally-friendly (including low-noise) and low-carbon transport systems, including inland waterways and maritime transport, ports, multimodal links and airport infrastructure, in order to promote sustainable regional and local mobility;
	developing and rehabilitating comprehensive, high quality and interoperable railway systems, and promoting noise-reduction measures;
Enhancing institutional capacity of public authorities and stakeholders and efficient public administration through actions to strengthen the institutional capacity and the efficiency of public administrations and public services related to the implementation of the Cohesion Fund.	

Source. EU Regulation No. 1300/2013

Graphic 3 shows the percentage distribution of investments made through FC. Due to the nature of the fund, not all countries have access to it. Specifically, Austria, Belgium, Finland, France, Germany, Ireland, Italy, Luxembourg, the Netherlands and Spain did not have access to them, unlike Slovakia, which received 24%.

Graphic 3
Percentage distribution of investments
financed with FC. Period 2014-2019
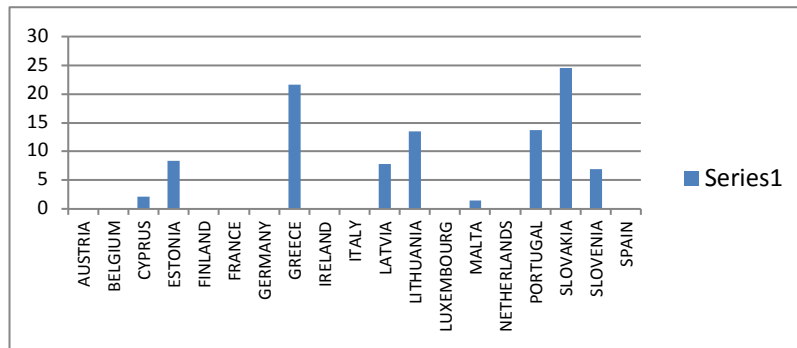
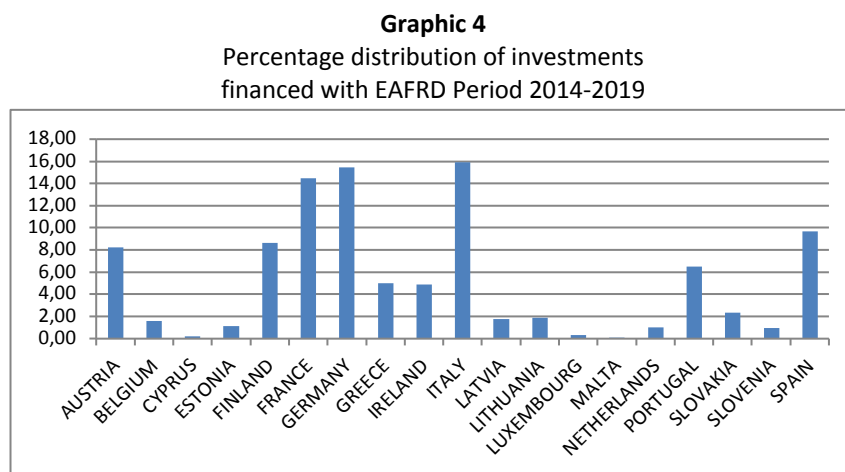Source: own elaboration based on data from the European Comission

The purpose of the European Agricultural Fund for Rural Development (EAFRD) is to finance projects that promote agricultural competitiveness, promote sustainable management of natural resources and climate action, as well as a balanced development of employment in rural communities.

Figure 3
Objectives of the European Agricultural
Fund for Rural Development

Promoting environmentally sustainable, resource–efficient, innovative, competitive and knowledge–based fisheries by pursuing the following specific objectives:	the reduction of the impact of fisheries on the marine environment, including the avoidance and reduction, as far as possible, of unwanted catches;
	the protection and restoration of aquatic biodiversity and ecosystems;
	the ensuring of a balance between fishing capacity and available fishing opportunities;
	the enhancement of the competitiveness and viability of fisheries enterprises, including of small–scale coastal fleet, and the improvement of safety and working conditions;
	the provision of support to strengthen technological development and innovation, including increasing energy efficiency, and knowledge transfer;
	the development of professional training, new professional skills and lifelong learning
Fostering environmentally sustainable, resource-efficient, innovative, competitive and knowledge-based aquaculture by pursuing the following specific objectives:	the provision of support to strengthen technological development, innovation and knowledge transfer;
	the enhancement of the competitiveness and viability of aquaculture enterprises, including the improvement of safety and working conditions, in particular of SMEs;
	the protection and restoration of aquatic biodiversity and the enhancement of ecosystems related to aquaculture and the promotion of resource-efficient aquaculture;
	the promotion of aquaculture having a high level of environmental protection, and the promotion of animal health and welfare and of public health and safety;
	the development of professional training, new professional skills and lifelong learning.
Fostering the implementation of the CFP by pursuing the following specific objectives;	the improvement and supply of scientific knowledge as well as the improvement of the collection and management of data;
	the provision of support to monitoring, control and enforcement, thereby enhancing institutional capacity and the efficiency of public administration, without increasing the administrative burden.
Increasing employment and territorial cohesion by pursuing the following specific objective: the promotion of economic growth, social inclusion and job creation, and providing support to employability and labour mobility in coastal and inland communities which depend on fishing and aquaculture, including the diversification of activities within fisheries and into other sectors of maritime economy	
Fostering marketing and processing by pursuing the following specific objectives:	the improvement of market organisation for fishery and aquaculture products;
	the encouragement of investment in the processing and marketing sectors.
Fostering the implementation of the IMP.	

Source. EU Regulation No. 1305/2013

In Graphic 4, Italy stands out as the maximum recipient during the analyzed period of this type of Funds, receiving 15.89%, followed by Germany (15.44%), France (14.48%) and Spain with 9.69 %.

Graphic 4
Percentage distribution of investments
financed with EAFRD Period 2014-2019

Source: own elaboration based on data from the European Comission

The EMFF raises as general objectives both the promotion of competitive, environmentally sustainable, economically viable and socially responsible fishing and aquaculture, as well as the balanced and inclusive territorial development of fishing and aquaculture areas.

Figure 4
Objetives of the European Maritime and Fisheries Fund

Promoting environmentally sustainable, resource–efficient, innovative, competitive and knowledge–based fisheries by pursuing the following specific objectives:	the reduction of the impact of fisheries on the marine environment, including the avoidance and reduction, as far as possible, of unwanted catches;
	the protection and restoration of aquatic biodiversity and ecosystems;
	the ensuring of a balance between fishing capacity and available fishing opportunities;
	the enhancement of the competitiveness and viability of fisheries enterprises, including of small–scale coastal fleet, and the improvement of safety and working conditions;
	the provision of support to strengthen technological development and innovation, including increasing energy efficiency, and knowledge transfer;
	the development of professional training, new professional skills and lifelong learning.
Fostering environmentally sustainable, resource-efficient, innovative, competitive and knowledge-based aquaculture by pursuing the following specific objectives:	the provision of support to strengthen technological development, innovation and knowledge transfer;
	the enhancement of the competitiveness and viability of aquaculture enterprises, including the improvement of safety and working conditions, in particular of SMEs;
	the protection and restoration of aquatic biodiversity and the enhancement of ecosystems related to aquaculture and the promotion of resource-efficient aquaculture;
	the promotion of aquaculture having a high level of environmental protection, and the promotion of animal health and welfare and of public health and safety;
	the development of professional training, new professional skills and lifelong learning
Increasing employment and territorial cohesion by pursuing the following specific objective: the promotion of economic growth, social inclusion and job creation, and providing support to employability and labour mobility in coastal and inland communities which depend on fishing and aquaculture, including the diversification of activities within fisheries and into other sectors of maritime economy.	

Source. EU Regulation No 508/2014

Graphic 5 shows the percentage distribution of EMFF funds. On this occasion, Spain has received 17.54% of the funds.

Graphic 5
Percentage distribution of investments
financed with EMFF. Period 2014-2019
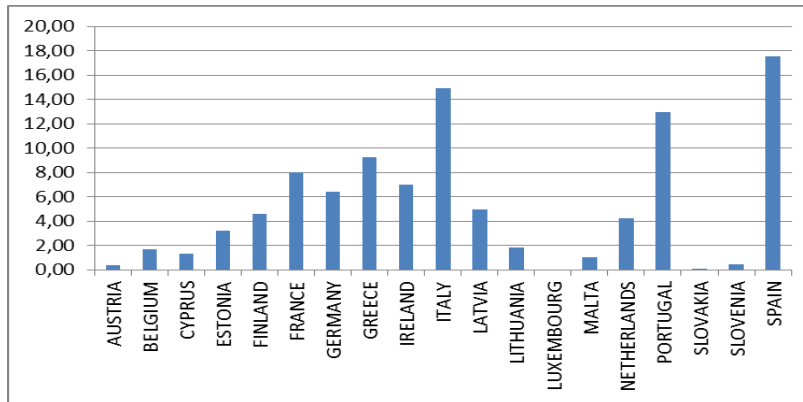
Source: own elaboration based on data from the European Comission

3. Methodology

The Theil index is a measure generally used to measure the degree of entropy of an economic system. In this research, it has been used to determine the greater or lesser equity in the distribution of the number of unemployed among the countries of the eurozone, and in this way, to be able to conclude if public investments destined to finance employment programs have managed to reduce the differences among the unemployment rates of the eurozone countries. The choice of the countries of the euro zone is justified by being constituted by a territorial group that has a high degree of economic integration measured against its diversity and then compared to other countries (Bekaert, et. Al., 2013). For its calculation, the relative proportion of unemployed among the countries of the euro zone was first determined, based on the information provided by Eurostat.

In a second analysis, the countries of the Euro Zone have been divided into four groups, taking into account the degree of internal uniformity in terms of an economic characteristic such as the number of unemployed in absolute terms. The reason for defining the four groups is the significant population and unemployment differences between the countries analyzed. In a second analysis, the countries of the Euro Zone have been divided into four groups, taking into account the degree of internal uniformity in terms of an economic characteristic such as the number of unemployed in absolute terms (Table 3). The reason for defining the four groups is the significant population and unemployment differences between the countries analyzed.

Table 3
Distribution of countries in the Eurozone

Group 1	Cyprus, Slovenia, Estonia, Ireland, Latvia, Lithuania, Luxembourg and Malta.	Up to 200,000 unemployed
Group 2	Austria, Belgium, Slovakia and Finland.	From 200,001 unemployed to 400,000 unemployed
Group 3	Netherlands, Portugal and Greece.	From 400,001 unemployed to 800,000 unemployed
Group 4	Germany, Spain, France and Italy.	More than 800,000 unemployed

Source: own elaboration based on Eurostat data

This will allow us to calculate the evolution of the differences between countries in the euro zone, the evolution of the differences between the defined groups (intergroups), and the evolution of the differences between countries that are part of each group (intragroup).

3. Results

This section has been broken down into three subsections. The first of these analyzes the percentage distribution of the total funds received by the euro zone countries. Next, the totals are related to the variable: number of unemployed. Finally, the so-called Theil index has been calculated for the period 2000 to 2019.

3.1. Percentage distribution of European Funds

To analyze this distribution, the amounts received by each of the eurozone countries have been added to the figures which had previously been analyzed in section 2.2. The results are shown in Graphic 6. The countries that have received funds above the average of the eurozone are Portugal, Germany, Latvia. Grace, Italy, France, Ireland, Spain and Slovakia. On the contrary, the countries that have received European investments below the average have been Finland, Austria, Slovenia, Lithuania, Belgium, Cyprus, Luxembourg, Estonia, the Netherlands and Malta. It should also be noted that during this period Portugal received 19% of the investments.

3.2. Relationship between European Funds and unemployment

In this subsection, the total amount of the investments obtained in the previous section has been related to the number of unemployed in the euro zone. The results are shown in Table 4.

Table 4
Ratio of European Funds by number of unemployed

	2015	2016	2017	2018	2019	AVERAGE
AUSTRIA	6.591	12.241	21.620	32.778	38.189	22.284
BELGIUM	3.695	5.418	9.051	14.324	17.847	10.067
CYPRUS	1.977	15.515	64.267	114.856	160.440	71.411
ESTONIA	24.917	36.785	42.887	72.185	96.820	54.719
FINLAND	8.754	18.475	26.815	39.639	45.642	27.865
FRANCE	1.076	2.659	4.866	7.139	8.272	4.802
GERMANY	4.347	9.000	15.257	22.275	26.567	15.489
GREECE	1.969	8.190	14.499	24.150	31.287	16.019
IRELAND	11.186	34.073	65.774	105.895	133.653	70.116
ITALY	1.071	2.417	4.373	7.999	9.160	5.004
LATVIA	6.968	62.786	102.627	411.058	498.102	216.308
LITHUANIA	3.007	22.946	43.823	67.995	76.547	42.864
LUXEMBOURG	28.298	71.134	127.677	188.576	228.493	128.835
MALTA	491	11.965	25.024	58.270	63.028	31.756
NETHERLANDS	212	1.621	4.235	6.728	7.957	4.151
PORTUGAL	5.135	30.340	81.562	140.633	165.320	84.598
SLOVAKIA	2.171	15.085	28.665	88.632	129.607	52.832
SLOVENIA	7.171	23.597	77.362	156.033	197.505	92.333
SPAIN	222	1.053	2.423	4.591	5.151	2.688
EUROPEAN UNION EURO ZONE	1.937	6.045	11.671	20.258	24.061	12.794

Source. Own elaboration based on data from the European Commission and Eurostat

Graphic 7 shows the average distribution of European Funds per unemployed person during the reference period. In this case, it is necessary to highlight the existing regional disparities. It is also necessary to highlight focus on, point out the scant relationship between investment and unemployment in Spain.

3.3. Coefficient of Theil

The Theil index and the relative redundancy for the period 2000-2019 have been calculated on the unemployment figures provided by Eurostat for each country in the euro zone. The results obtained are presented in Graphic 8.

During the analyzed period, the Theil index offers a mean value of 0.3608. The maximum value reached is 0.38, while the minimum value is 0.3439. The mean value of relative redundancy is 0.2822. The maximum and minimum value are 0.2972 and 0.2689 respectively.

During the period 2000 to 2006, both absolute and relative redundancy increased, showing an increase in regional disparities. During the following subperiod, 2006 to 2010, both indicators fell, softening the differences between countries in the euro zone. Finally, in the last subperiod that coincides with the economic crisis, the differences in the euro area remain constant. This situation shows how, in stages of economic expansion, interregional differences grew as a consequence of their different capacities to take advantage of favorable situations. Despite the employment programs approved by the European authorities, in recent years there has been a tendency to concentrate the creation of jobs in certain countries and, in this way, to deepen the differences between their labor markets. For the next period, the Theil index shows a decrease in the degree of entropy. These years coincide with the beginning of the crisis, and with it a significant increase in unemployment rates in all the countries of the euro zone. Finally, the graph shows how as the regions are emerging from the crisis, this situation is not uniform. As shown above, some countries such as Germany experienced a very significant reduction in unemployment in their economy, even with values lower than the growth stage preceding the 2008 crisis.

Dividing the nineteen eurozone countries into the four groups indicated in the methodological section, the entropy within the different groups (intragroup) has been calculated, as well as that which occurs between one group and another (intergroup). Their evolution is presented in Graphic 9. They show how there is a certain degree of homogeneity throughout the period within the different groups. Groups 1 to 3 present values close to 0.05; therefore, the entropy is small. A different situation can be seen in Group 4, which is made up of Germany, Spain, France and Italy. In this group, the entropy is high.

In Graphic 10 three periods are distinguished. The one before the crisis, during the hardest years of it, and the one corresponding to the start of the exit. As previously mentioned, the years of economic growth accentuate the differences between countries.

4. Conclusiones

The main objective set out in this article has been to determine whether since 2014, the European Funds have reduced regional differences in unemployment between different EU countries. The results obtained indicate that, during the period analyzed, the differences between countries have remained. Therefore, the first and third hypotheses raised have been reaffirmed. Changes in economic activity in the period studied have barely influenced regional cohesion in terms of employment. If one takes into account that the period includes a stage of economic growth and another phase of crisis, it is significant to see how the differences between countries have increased in the stage in which the economies of the euro zone were growing (2005-2007). On the contrary, since the beginning of the crisis (2008-2012), inequalities between regions have been decreasing. In the most recent years (as of 2013), the differences in employment levels have been increasing. This trend towards divergence shows that the capacity to create employment of the countries that share the single currency is very different, despite being committed to maintaining levels of macro aggregates, around defined values. This situation may lead to the perpetuation of a territorial model of polarized growth in two territorial units that feeds

itself by the ability to attract companies and workers to regions with low unemployment rates to the detriment of those that cannot maintain levels of employment. growth around the European average; a dual territorial model contrary to the inspiring principles that allowed the creation of the single European space, and that may delegitimize the role of European funds as instruments of territorial cohesion policy in social matters.

In this context, the social implications that arise from the different levels of regional employment and that can serve as arguments for anti-European sectors to deepen the crisis of community identity that has gained strength since the beginning of the economic crisis, should not be underestimated. And this despite the large investments in projects financed by the EU through the Funds.

As for the second hypothesis, it has also been confirmed. There is no relationship between the number of unemployed and the distribution of European Funds among EU countries. This is produced by the very dynamics of distribution of funds. Although the system used has allowed the distribution of funds among countries to be uneven by giving a special role to the most disadvantaged regions, it has not managed to reduce disparities. This situation is probably influenced by the economic polarization factors associated with certain territories. But this growth dynamic may have also been a factor that prevented issues directly connected to unemployment to be considered among the criteria used to allocated such resources. Thus, in the distribution system it may be paradoxical that countries such as Germany, Austria, Belgium, Luxembourg or the Netherlands with unemployment rates below the average of the Euro zone dedicated more money per unemployed person than countries such as Spain or Greece that, in 2015 had unemployment rates of 24.9 and 22.1 respectively. The most extreme case would be Germany, which allocated 27% of total investments to ECPs and 8% for the unemployed, and which in turn in 2015 had the lowest unemployment rate in the entire euro area (4.6%). These social disparities within the eurozone pose a challenge that requires the adoption of decisions by the Community authorities to improve the degree of cohesion in terms of employment.

Without renouncing the positive effects that these programs have been having on the economic development of the countries, it might be necessary to rethink the strategy of social convergence, especially in a situation where during stages of economic growth the differences in employment increase instead of decreasing. This situation raises the possibility of expanding this research in future studies through two lines of work. On the one hand, to analyze the possible effects of a change in the criteria followed for the distribution of funds destined to finance community programs, including a weighting element related to quantitative and qualitative aspects of the unemployed, such as the number of unemployed in each region, the average time it takes to find a job, average age or training, among others. On the other, include another criterion in the allocation of resources related to the degree of fulfillment of objectives reached by the European programs.

References

Barrios, S. and Strobl, E. (2009). The dynamics of regional inequalities. Regional Science and Urban Economics, 39(5), 575-591.

Bekaert, G., Harvey, C. R., Lundblad, C. T., and Siegel, S. (2013). The European Union, the Euro, and equity market integration. Journal of Financial Economics, 109(3), 583-603.

Bonoli, G. (2010). The political economy of active labor-market policy. Politics & Society, 38(4), 435-457.

Caliendo, M., and Kopeinig, S. (2008). Some practical guidance for the implementation of propensity score matching. Journal of economic surveys, 22(1), 31-72.

Camacho, J. and Melikhova, Y. (2010). Perspectiva territorial de la Unión Europea: El largo camino hacia la cohesión territorial. Cuadernos Geográficos, 47, 169-188

Card, D., Kluve, J., and Weber, A. (2010). Active labour market policy evaluations: A meta-analysis. The Economic Journal, 120(548), 452-477.

Crescenzi, R. and Rodríguez-Pose, A. (2012). Infrastructure and regional growth in the European Union. Papers in Regional Science, 91(3), 487-513.

Cuadrado, J. R. (1995). Planteamientos y teorías dominantes sobre el crecimiento regional en Europa en las cuatro últimas décadas. EURE. Revista Latinoamericana de Estudios Urbano Regionales, 21(63), 5-32.

De Nanclares, J.M. and Corres, M.U. (2008). Tratado de Lisboa. La salida a la crisis constitucional. Madrid: IUSTEL.

Duro, J.A. (2004). La descomposición de la desigualdad en rentas per cápita por factores multiplicativos a través del índice de Theil: una revisión metodológica e ilustración para las provincias españolas. Revista de Estudios Regionales, 70, 63-84.

Ezcurra, R., Pascual, P. and Rapún, M. (2003). Movilidad y desigualdad regional en la Unión Europea. Investigaciones Regionales, 2, 5-30.

Faludi, A. (2005). La política de cohesión territorial de la Unión Europea. Boletín de la Asociación de Geógrafos Españoles, 39, 11-30.

Farinos, J. (1999). La política correctora de desequilibrios regioanles en España: Efectos de la integración comunitaria. Cuadernos de geografía, 65, 193-211.

Fina, L. (2001). El reto del empleo. McGraw-Hill, Madrid.

Fingleton, B., Garretsen, H. y Martin, R. (2015). Shocking aspects of monetary union: the vulnerability of regions in Euroland. Journal of Economic Geography, 15(5), 907-934.

Förster, M., Jesuit, D. and Smeeding, T. (2005). Regional poverty and income inequality in Central and Eastern Europe: evidence from the Luxembourg income study. Spatial Inequality and Development, 311-347.

Head, K., and Mayer, T. (2006). Regional wage and employment responses to market potential in the EU. Regional Science and Urban Economics, 36(5), 573-594.

Heidenreich, M. and Wunder, C. (2008). Patterns of regional inequality in the enlarged Europe. European Sociological Review, 24(1), 19-36.

Krugman, P. Obstfeld, M. and Melitz, J. (2012). Economía international: Teoría y política. Pearson.

López, D. y Aranda, M.J. (2000). Los desequilibrios regionales en la unión europea. Baetica, Estudios de Arte, Geografía e Historia, 22, 59-71.

López-Bazo, E., Vayá, E., Mora, A. J. and Suriñach, J. (1999). Regional economic dynamics and convergence in the European Union. The Annals of Regional Science, 33(3), 343-370.

Magrini, S. (1999). The evolution of income disparities among the regions of the European Union. Regional Science and Urban Economics, 29(2), 257-281.

Mahía, R. and Del Arce, R. (2010). Impacto de la crisis laboral sobre la población inmigrante. Análisis del Real Instituto Elcano (ARI), 21, 1-11.

McCann, P. and Ortega-Argilés, R. (2015). Smart specialization, regional growth and applications to European Union cohesion policy. Regional Studies, 49(8), 1291-1302.

Mulas-Granados, C., and Fernández, R. (2011). El empleo en España frente al reto de la Estrategia 2020. Cuadernos de Mercado de Trabajo, 6, 7-15.

Orayen, R. E., Arzoz, P. P. and Gárate, M. R. (2003). Movilidad y desigualdad regional en la Unión Europea. Investigaciones Regionales, 2, 5-30.

Paramio, J.L. and Zofío, J. (2007). Calidad de vida frente a nivel de vida: la evolución del mercado laboral y de las industrias del ocio en España. RES. Revista Española de Sociología, 8, 85-114.

Pérez, M.C. and Blanco, M. (2016). Evaluación de los programas de intermediación al empleo desarrollados en la Comunidad Autónoma de Andalucía durante el período 2005-2011. Una propuesta metodológica de análisis de eficiencia y productividad ligado al territorio. Revista de Estudios Regionales, 106, 105-132.

Pérez, M.C., Blanco, M. and Maza, F. (2016). Eficiencia y productividad de las políticas activas de empleo en la Eurozona. Revista de Ciencias Sociales, XXII (1), 11-25.

Pérez, M.C., Llorens, A. S., and Blanco, M. (2015). Un análisis regional de las políticas activas de empleo en los distintos países de la zona euro. Su evolución ante la crisis económica. Revista de Economía Mundial, (40).

Ramos, P. H. (2015). La representación de los países del sur de Europa en el diario Bild durante los años centrales de la crisis económica, 2008--2012. Revista internacional de Historia de la Comunicación, 5, 89-103.

Rocha, F. and Aragon, J. (2012). La crisis económica y sus efectos sobre el empleo en España. Gaceta Sindical, 19, 67-90.

Rodríguez-Pose, A. and Petrakos, G. (2004). Integración económica y desequilibrios territoriales en la Unión Europea. EURE. Revista Latinoamericana de Estudios Urbano Regionales, 30(89), 63-80.

Rodríguez-Pose, A. (2013). Do institutions matter for regional development? Regional Studies, 47(7), 1034-1047.

Rosholm, M., and Svarer, M. (2008). The threat effect of active labour market programmes. The Scandinavian Journal of Economics, 110(2), 385-401.

Ruesga B. and Santos M. (2002). Economía del trabajo y política laboral. Pirámide, Madrid.

Serrano, C. (2007). Las políticas del mercado de trabajo: desempleo y activación laboral. Política y Sociedad, 44(2), 135-151.

Serrano, C., Montoro, B. and Mulas, M. (2010). La respuesta de la Unión Europea ante la crisis económica: el plan europeo de recuperación económica. Boletín Económico de ICE, Información Comercial Española, 2988, 15-32.

Serricchio, F., Tsakatika, M., and Quaglia, L. (2013). Euroscepticism and the global financial crisis. JCMS: Journal of Common Market Studies, 51(1), 51-64.

Shankar, R. and Shah, A. (2003). Bridging the economic divide within countries: A scorecard on the performance of regional policies in reducing regional income disparities. World development, 31(8), 1421-1441.

Streeck, W. and Elsässer, L. (2016). Monetary disunion: the domestic politics of euroland. Journal of European Public Policy, 23(1), 1-24.

Tridico, P. (2013). The impact of the economic crisis on EU labour markets: A comparative perspective. International Labour Review, 152(2), 175-190.

Tvrdon, M. (2012). Cohesion policy, convergence and regional disparities: The case of the European Union. WSEAS transactions on business and economics, 9(2), 89-99.

Villaverde J. (1996). Desigualdades provinciales en España, 1955-1991. Revista de Estudios Regionales, 45, 89-110.