

ISSN: 1576-0162

DOI: <http://dx.doi.org/10.33776/rem.vi67.8097>

THE RESILIENT EMPLOYMENT OF COOPERATIVE SOCIETIES IN RELATION TO SDG-8

EL EMPLEO RESILIENTE DE LAS SOCIEDADES COOPERATIVAS EN RELACIÓN CON EL ODS-8

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Recibido: diciembre 2023; aceptado: abril 2024

ABSTRACT

Cooperative employment was resilient during the 2008 financial crisis at the global level and at the European level, based on this finding, it was necessary to know the cooperative employment during the COVID-19 health crisis. The interaction between employment and the economic cycle allows us to observe the most recent behavior of cooperatives in Spain and to discuss the achievement of SDG-8 decent work and economic growth. This analysis aimed to determine the employment-generating potential of Spanish cooperatives. An inductive methodology was used through automation in three analyses. The results found that decent and resilient cooperative employment is concentrated in four regions: Catalonia, Galicia, Extremadura, and Murcia. Over the period 2005-2020, the behavior of cooperative employment is different in a *financial crisis than in a health crisis*.

Keywords: Shift-share analysis, Economic Cycle, Cooperatives, Employment, Sustainable Development Goal.

RESUMEN

El empleo cooperativo fue resiliente durante la crisis financiera de 2008 a nivel global y a nivel europeo, a partir de este hallazgo, se hizo necesario conocer el empleo cooperativo durante la crisis sanitaria COVID-19. La interacción entre el empleo y el ciclo económico permite observar el comportamiento más reciente de las cooperativas en España y discutir la consecución del ODS-8 trabajo decente y crecimiento económico. El objetivo fue determinar el potencial de generación de empleo de las cooperativas españolas. Se utilizó una metodología inductiva mediante la automatización en tres análisis. Los resultados determinaron que el empleo cooperativo digno y resiliente se concentra en cuatro regiones: Cataluña, Galicia, Extremadura y Murcia. En el periodo (2005-2020), el comportamiento del empleo cooperativo es diferente en una crisis financiera que en una crisis sanitaria.

Palabras clave: Análisis Shift-share, Ciclo Económico, Cooperativas, Empleo, Objetivo de Desarrollo Sostenible.

JEL Classification/ Clasificación JEL: J54, P13, Q01, R10

1. INTRODUCTION

The literature on the SDGs is extensive, but the literature on SDG-related business challenges is not. It is just starting when it comes to Social Economy (SE) enterprises (Lafont-Torio, Saura, & Ribeiro-Soriano, 2023). There is some evidence on SDG (Sustainable Development Goals) measurement in social enterprises, e.g., Diaz-Sarachaga and Ariza-Montes (2022), and other evidence on sectoral performance, e.g., Lafont-Torio, Martín, Salinas, and Ribeiro (2024), and Mozas-Moral, Fernández-Uclés, Medina-Viruel, and Bernal-Jurado (2021) and Lafont-Torio, Martín, Salinas, and Ribeiro (2024). In particular, the evidence on the cooperative link with the influence of SDG-8 is recent, e.g., Bastida, Vaquero, Pinto, et al. (2022). Cooperatives belong to the SE, so one of their defining characteristics is their orientation to social goals, and these are closely aligned with the achievement of the SDGs. This is where it is important to detail the contribution of cooperatives to decent employment.

Cooperatives are a valuable source of information for business decision-making, since some demonstrations show that these societies reveal greater resilience than capitalist companies (García-Louzao, 2021). Additionally, they manifest a defensive character in a period of crisis, which also indicates that they are problem-solving societies without being profit maximizers (Barrios-González et al., 2023).

It should be noted that territories exert a greater influence on cooperatives than on other businesses. The initial situation of each region and the responsiveness of its cooperatives, with their characteristics, principles, and values, are not homogeneous among territories (Pérez & Valiente, 2020). The hardened business fabric becomes an opportunity to determine the resilience of employment in the face of variations in the economic cycle. On this basis, the aim is to determine whether cooperative employment is representative at the territorial level, what is the pattern of the regions, and to identify the influence of the economic cycle.

Studies on cooperative employment are scarce and, even less so, exist from a global and/or comparative perspective. There are no studies on cooperative employment and SDG-8 as protagonists. The main reason for this is the lack of formal records and homogeneity of public information. The OECD is now

working on '<Mapping social and solidarity ecosystems around the World>'. In the immediate future, this initiative may be a source of information for a comparative analysis of cooperative employment worldwide. However, it is important to conduct quantitative research to provide solid evidence and figures on cooperative employment and its behavior in different situations of the economic cycle (OECD, 2022; United Nations, 2019; CICOPA, 2017; ILO, 2009). Previous studies have shown that cooperatives are resilient entities capable of cushioning employment reduction during a financial crisis, such as the 2008 crisis. Therefore, it will be worthwhile to detect whether such resilience endures during and after the tragic recession caused by the 2020 health crisis (Costa, Delbono & Linguiti, 2022). To that end, this examination is conducted in Spain (Table 1).

The role of cooperatives in employment generation has been observed in some temporal studies, although with different methodological approaches, dissimilar time periods and units of analysis, which makes comparisons and even progress difficult. These studies pay attention to the behavior of employment formed by cooperatives in the face of changes in economic cycles or in the presence of a crisis or recession, which is when cooperative values are essential (Barrios-González, García-Pérez & Yanes-Estévez, 2023). During an economic crisis, Sala-Ríos et al. (2015) evidenced that Spanish cooperatives show signs of a lower loss of employment in relative terms. Canalda (2019) also recognizes the direct expert relationship between the SE and the promotion of stable employment in these societies. In them, regarding *resilient employment* during a crisis, *quality employment* and *inclusive employment*, it has been found, implicitly, that cooperatives exert a positive influence on employment (Guzmán, Santos & Barroso, 2020). This is a relationship that is the subject of current debate, here and now, what is not known is do cooperative societies have a countercyclical condition or a cyclical condition in Spain?

This diagnosis covers all of Spain's Autonomous Communities (regions) to show the employment-generating potential of these SE companies. The reference to the national and regional level is based on statistical data corresponding to the time interval 2005-2020 (Data by the Ministry of Labor and Social Economy). This study proves that cooperative and decent employment is resilient employment during a *financial crisis*, which shows that resilience is a core cooperative value. However, there is still room for improvement in cooperative values and employment, such as in their response to a *health crisis*. As for the trend of generating cooperative employment, all national regions, except Ceuta and Melilla, will generate more cooperative employment in the short term.

Finally, the present work represents an added value to previous works cited on the advantages of cooperative societies from the perspective of employment and territorial organization (Cancelo, Vázquez & Díaz-Vázquez,

1 Source: <https://www.oecd.org/cfe/leed/social-economy/oecd-global-action/country-fact-sheets.htm> (Date of Consultation 28/12/2023).

2022). The richness of this longitudinal analysis of cooperative employment helps to overcome the scarcity of this type of research, given the difficulty of access to information, since it includes an estimate of the future.

The article is structured in five sections. It begins with a review of the most recent research works on cooperative employment in Spain. Then, the methodology of the analysis is set out and the results reached are dealt with in the characterization of the observed variables of the economic cycle and its manifestation. These results allow presenting the main findings of the research and express certain implications and future lines of research.

2. LITERATURE REVIEW

The content of the article is based on two study topics: “cooperatives” and “employment”. The interest in the quantitative measurement of the role of the SE at the territorial level is reflected in more than a decade of national contributions (from Grávalos & Pomares, 2001 to Barrios-González et al., 2023) and international contributions (from the ILO, 2009 to the OECD, 2022). Most authors consider the relationship of cooperative employment with the economic cycle from the economy as a whole or regions (Canalda, 2019) to the productive structure (Sala-Ríos, 2023). Table 1 presents a synthesis of the references reviewed.

More references are found in explicit crisis periods than in longitudinal and/or comparative studies between the pre-crisis, crisis, and post-crisis periods. Nevertheless, empirical work in the last decade is scarce and, for this reason, it is necessary to advance in territorial knowledge about the SE from a socioeconomic perspective and labor impact. The literature points out that Spanish cooperative societies are popular models in times of economic and political crisis, and this indicates a certain countercyclical dynamic (Camps-Durban & Mauri-Ríos, 2022). In general, studies present evidence on the weight of SE employment in total employment, the degree of stability and wage evolution, focusing, in some cases, on cooperatives.

There is no homogeneous behavior of cooperative employment at the territorial level in Spain. Some regions, for example Andalusia, Navarre, and the Basque Country, have a better capacity to maintain and generate cooperative employment in a phase of financial crisis. During the financial crisis period (2008-2015), Spanish cooperatives destroyed fewer jobs than in comparison to the total number of enterprises. In a recession phase, cooperatives create a few new jobs in more regions compared to total enterprises (Pérez-Suárez and Sánchez-Torné, 2020). However, there is no evidence for the health crisis. There is some evidence on the types of employment relationships predominant in Spanish cooperatives, where it is seen how the employment relationship between the cooperative and the employee affects the bond between the two, and how, in turn, this bond can affect the resilience of the cooperative. Cooperative principles make Spanish cooperatives more resilient cooperatives (Rincon-Roldan & Lopez-Cabrales, 2021). Yet, an analysis of the direct impact,

in terms of economic activity and employment generated, is insufficient in a situation of structural crisis. Analyses clarify the *differential condition* of these societies since renewed time series can strengthen the empirical work of the last twenty years in Spain.

TABLE 1. LITERATURE REVIEW.

Author	Period	Main premises
International Labour Organization (ILO), 2009	2008	It explained the need to back the cooperative movement as an innovative solution to generate more employment during the global financial crisis of 2008.
Castro, Santero, Martínez and Guilló, 2013	2009	The Social Economy (SE) contributes directly to economic activity, employment and increased social cohesion in Spain.
Clemente-López et al., 2014	2005-2010	In times of crisis, cooperatives maintain employment along with increased business creation in Spain.
Cuadrado-Serrán and Ciruela-Lorenzo, 2014	2003-2012	Employment in the SE withstood the crisis (2008-2010), although not in the same way in the following years, as net job losses were recorded in Spain.
Román-Cervantes, 2014	1942-2002	Cooperatives grow in times of economic expansion (industrial cooperatives and worker cooperatives). However, during periods of low GDP growth, cooperatives are more dynamic. Cooperatives have an anti-cyclical profile in the economic reality in Spain.
Sala-Rios, Torres-Solé and Farré-Perdiguer, 2015	1995-2014	A certain countercyclical behavior of cooperative employment is recorded. Cooperatives are sensitive to the economic cycle and their employment diminishes resilience in Spain.
Blanco-Canto, 2017	2008-2016	Cooperatives have the capacity to create and maintain employment in times of economic recession, based on a peculiar business management and a high adaptability to local changes in Spain.
International Organization of Industrial and Service Cooperatives (CICOPA), 2017	2014	In particular, the resilience of cooperatives during the 2008-2011 financial crisis was shown in European territories, examples of which are: <i>Italian co-operatives</i> accounted for 11% of employment in 2008 (EURICSE, 2014). Between 2007 and 2011, employment in Italian cooperatives increased by 8% (CENSIS, 2012). Italian cooperatives have an anti-cyclical function (EURICSE, 2014); this is supported by their differentiated ownership structure. <i>French co-operatives</i> increased employment by 4% between 2012-2013 and 12.5% between 2009-2013. Sixty-eight percent of the workforce in the social and solidarity economy are women (Confederation General of Scop. and Scic., 2013).
Serrano, Crespo, Celma and Martínez, 2018	1970-2016	Some authors have pointed out a significant counter-cyclical character of cooperatives in relation to the evolution of the general economy in Spain. The existence of "a positive relationship between an economic crisis and the creation of cooperatives" is proven.
Canalda, 2019	2008-2018	There is "a positive relationship between an economic crisis and the creation of labor companies" in Spain. In crisis situations, labor companies demonstrate a greater capacity for survival than conventional companies thanks to the co-management of their members, the minimization or absence of profit motives and the prioritization of maintaining employment.

Author	Period	Main premises
Pérez and Valiente, 2019	2015	International studies have shown that the SE in general, and cooperatives in particular, are more resistant to job destruction during an economic recession. This indicates a countercyclical behavior in Spain.
United Nations (UN), 2019	2018	It highlights how cooperatives are resilient and viable businesses that can thrive in tough times as the 2008 financial crisis proved. This has allowed many families to have a decent job and maintain a decent standard of living. In 2019, it noted that cooperatives have a relevant role to play in reaching the Sustainable Development Goals (SDGs) (Editorial-Revista Idelcoop, 2019).
Pérez-Suárez and Sánchez-Torné, 2020	2005-2016	Cooperatives increased the number of employed people during the crisis period (2008-2015), and this shows a concrete capacity to generate employment. Andalusian cooperativism registers a Dynamic Effect on employment since cooperatives increase their jobs to a greater extent than the rest of the SE companies in Spain.
Sala-Ríos, Farré-Perdiguer and Torres-Solé, 2020	2003-2019	Cooperative employment shows a partial degree of resilience, but cooperative employment is not countercyclical in Spain.
Camps-Durban and Mauri-Ríos, 2022	2020-2021	In a phase of economic contraction, as a response to growing unemployment, the number of Spanish cooperatives and worker-owned companies increases at a higher rate than other types of companies in the country.
Cancelo, Vázquez and Díaz-Vázquez, 2022	2006-2020	The SE stabilizes according to the economic evolution of Spanish cooperatives and worker-owned companies. A countercyclical evolution of cooperative employment in the COVID-19 crisis is not observed, but cooperatives note a smaller drop in employment than in the rest of the business world (in the Spanish economy, employment decreased in all economic activities during the pandemic): cooperatives have generated some jobs, especially in health care and social services activities.
Costa, Delbono and Linguiti, 2022	2010-2019	Italian cooperatives promote regional prosperity more through the employment offered than through their lucrative added value. There is a positive relationship between the size of the Italian cooperative movement and the resilience of the regional economic system in the 2008 financial crisis. In fact, since both absorptive capacity (resilience) and resilience are two desirable characteristics of territorial systems, a large cooperative presence could provide a comparative advantage to promote prosperity and protect it during and/or after crisis.
European Parliament, 2022	2021	SE accounts for 6.3% of employment in the EU.
International Cooperative Alliance (ICA), 2022	2021	Since 2012, it prepares an annual report (World Cooperative Monitor) where a ranking of cooperatives is shown according to their turnover, the sector and the <i>jobs generated</i> . This report does not present data aggregated by country and this does not allow a specific analysis by territory, but it can be highlighted that the cooperatives that generate the highest volume of employment belong to France, Germany, and Japan. Within the European Union, cooperative employment is concentrated in France, Spain, and Italy.

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Author	Period	Main premises
Organization for Economic Cooperation and Development (OECD), 2022	2021	Similar patterns during crises in the SE are observed, in that, during crises, the position of the SE is strengthened in the political agenda, representative organizations and territorial legislative activity. The SE has demonstrated its own resilience in the face of economic crises. During the 2008 global financial crisis, SE organizations experienced fewer job losses than for-profit companies. During the COVID-19 pandemic, a low percentage of social enterprises were forced to close due to the economic consequences of the health crisis.
Sala-Ríos, 2022, 2023	2008-2020	Cooperative employment does not show a refuge effect or greater resilience in Spain. A high rate of cooperatives in the territory is positively related to their societal performance (regional specialization, and social or organizational synergies) in Spain.
Barrios-González, García-Pérez and Yanes-Estévez, 2023	1999-2019	There is a regional convergence of cooperative employment in the regions of Spain. The behavior of cooperative employment, among the different regions, is divergent. Spanish cooperative employment does not show a homogeneous behavior among the different regions, but rather identifies several clusters. Cooperatives can be a tool for stabilizing employment, especially in times of crisis.

Source: Own elaboration.

3. METHODOLOGY

The quantitative methodology begins with a study of the inter-annual and inter-period variation rate of the number of workers, and the use of shift-share analysis to determine the growth of employment in the cooperatives in relation to national results, as well as a comparison at the regional level between 2005-2020. For this purpose, the records of the number of workers were compiled for five periods (Table 2).

For the analysis, workers in registered cooperatives and workers in the total number of companies registered with the Social Security were selected. In addition, the evolution of the number of cooperatives was also analyzed. Their definition, unit of measurement and time are described in Table 2. The sources of the analysis come from the statistics prepared by the Ministry of Labor and Social Economy².

This temporal grouping starts from two premises: 1) in a Recession Period, job destruction tends to be lower in cooperatives than in the rest of the mercantile companies, and, therefore, evidences a “cushioning” behavior of these societies during a period of economic crisis (Perard, 2016). This trend differs at the territorial level, as employment generation reflects a regional and supra-territorial non-correlation. 2) In a *crisis period*, cooperatives increase the number of employed people. Like other authors, a comparison of cooperative societies with mercantile companies was addressed (Pérez & Valiente, 2019).

² Source: https://www.mites.gob.es/es/sec_trabajo/autonomos/economia-social/index.htm (Date of Consultation 01/11/2023).



TABLE 2. TECHNICAL DATA SHEET OF THE RESEARCH.

Variables	Period	Unit of measure
Workers in the registered cooperatives.	2005 - 2020	Number of working people (thousands).
Workers in the total number of registered companies.	2005 - 2020	Number of working people (thousands).
Registered cooperatives	2005 - 2020	Number of cooperatives.
Registered companies	2005 - 2020	Number of companies.
Number of working people (thousands).	Pre-crisis period (2005-2007)	Financial Crisis.
	Crisis Period (2008-2015)	
	Recovery Period (2016-2018)	
	COVID-19 Health Crisis (2019-2020).	Health Crisis.

Source: Own elaboration based on information from the Ministry of Labor and Social Economy.

Shift-share analysis decomposes the Total Effect of the growth in the number of jobs in cooperatives into three different effects (Table 3): national, dynamic, and competitive, and thus determines to which type of effect the variations in employment growth in Spanish cooperatives are due. This technique has been used in different fields, particularly within the area of regional studies and the labor market (Montaña, Márquez, Fernández-Núñez & Hewings, 2023; Blanco-Canto, 2017). The Shift-share analysis enables obtaining some conclusions about the changes which have taken place in regions (in our case these are regions), indicating if these derive from the general trend of the territory to which they belong (in our case this is Spain) or, on the contrary, a particular trend of the region occurs (Cieślak, Pawlewicz & Pawlewicz, 2019).

Finally, to complete this research, a projection for the next 4 years has been proposed. For this purpose, a *quadratic regression* has been used employing the R programming language: $y = ax^2 + bx + c$. Thus, an estimate of the trend in the volume of people employed in the cooperatives between 2020 and 2025 is presented.

TABLE 3. RESEARCH FORMULAS.

Type of Analysis	Formula	Definition
Year-on-year variation rate/ periods		Number of people working in year t.
		Number of employees in year t-1.
Shift-share	Total effect: =) + + .	Number of jobs in cooperatives in the regions in year t : Rate of change in the number of working people in cooperative regions between year t and t-1. : Growth rate of the number of workers in the total number of companies registered with the Social Security in Spain between year t and t-1. : growth rate of the number of workers in Spanish cooperatives between year t and t-1.
	National effect:	Determines what part of the variation is due to the state's own inertia. It shows the growth or reduction in the number of people working in cooperatives in the regions if their growth rate had been the national average.
	Competitive Effect:	Quantifies the influence that the specific behavior of cooperative workers in the regions has on the evolution of cooperatives workers in Spain.
	Dynamic Effect:	The part of the differential with respect to the national growth rate that is due to cooperatives workers at the Spanish level.
Quadratic regression		To propose an estimate for a series of years.

Source: Own elaboration.

4. RESULTS

4.1. EVOLUTION OF THE NUMBER OF WORKING PEOPLE IN COMPANIES AND IN REGISTERED COOPERATIVES

The progress of cooperative employment is shown in Table 5, where its trend in the five downturns of the most recent economic cycle is observed. Based on Table 5, the main assumptions are shown in Table 4.



TABLE 4. PREMISES OF COOPERATIVE EMPLOYMENT.

Period	Confirmations
Full period (2005 - 2020)	<p>A period shaken by financial crisis and a health crisis. It is marked by a reduction in employment caused by the COVID-19 health crisis, which gave way to an economic crisis resulting from commercial and social restrictions. This reduction was accompanied by a decrease in the number of total enterprises (-3.87%) and cooperatives (-28.18%).</p> <p>Increase in employment in total companies and reduction of employment in cooperatives: Andalusia, the Balearic Islands, Ceuta and Melilla, Extremadura, Galicia.</p> <p>Increase in employment in total companies and cooperatives: Community of Madrid, Murcia, Navarre, Basque Country. Only the latter two territories experienced an increase in the number of cooperatives (65.43% and 28.90% respectively).</p> <p>Reduction in employment in total companies and cooperatives: Aragón, Asturias, the Canary Islands, Cantabria, Castile and León, Castilla-La Mancha, Catalonia, Valencian Community, La Rioja.</p> <p>Reduction of employment in total companies and increase in cooperatives: no cases.</p>
Pre-financial crisis period (2005-2007)	<p>There was a general increase in employment and the number of total enterprises, although in ten regions there was a reduction in the number of people working in cooperatives. This trend was accompanied by an increase in the number of enterprises and a reduction in the volume of cooperatives (except for four zones: Castile and León: 0.72%, Castilla-La Mancha: 0.18%, Ceuta and Melilla: 3.15%, Basque Country: 0.65%).</p> <p>Increase in employment in total companies and reduction in employment in cooperatives: Andalusia, Aragón, Asturias, the Canary Islands, Castile and León, Ceuta and Melilla, Extremadura, Galicia, Murcia, La Rioja.</p> <p>Increase in employment in total companies and increase in employment in cooperatives: Cantabria, Castilla-La Mancha, Catalonia, Valencian Community, Navarre, the Balearic Islands, Community of Madrid, Basque Country.</p>
Financial Crisis Period (2008-2015)	<p>There was a generalized decrease in the number of companies and people working in the total number of companies, although this contrasts with four regions that increased the number of people registered as workers in cooperatives.</p> <p>Increase in employment in total companies and reduction of employment in cooperatives: Murcia.</p> <p>Increase in employment in total companies and cooperatives: Andalusia.</p> <p>Reduction in employment in total companies and cooperatives: Cantabria, Castilla-La Mancha, Catalonia, Community of Madrid, Extremadura, Galicia, Aragón, Asturias, the Balearic Islands, the Canary Islands, Castile and León, Community of Madrid, La Rioja.</p> <p>Decrease in employment in total companies and increase in cooperatives: Ceuta and Melilla, Navarre, Basque Country. Only in the latter two territories is there an increase in the number of cooperatives higher than the rate experienced by the total number of companies (Navarre: 12.02%, Basque Country: 20.18%).</p>
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Period	Confirmations
Financial Recovery Period (2016-2018)	<p>Overall, employment in all companies increased as did the number of companies, but in ten territories, cooperatives lost employment. In eight areas the increase in the number of cooperatives was higher than the change in the total number of enterprises (Aragón: 1,18%, Cantabria: 3,57%, Castilla-La Mancha: 4,10%, Murcia: 5,68%, Navarre: 22,87%, Basque Country: 2,71%).</p> <p>Increase in employment in total companies and reduction of employment in cooperatives: Cantabria, Castilla-La Mancha, Ceuta and Melilla, Valencian Community, La Rioja.</p> <p>Increase in employment in total companies and cooperatives: Andalusia, Aragón, the Balearic Islands, the Canary Islands, Community of Madrid, Extremadura, Galicia, Navarre, Asturias, Castile and León, Catalonia, Murcia, Basque Country.</p>
COVID-19 Health Crisis (2019-2020)	<p>There is a decrease in employment in all territories (accompanied by a reduction in the number of companies) except Murcia, on the other hand, there is an increase in the number of workers registered in cooperatives in three regions. But only Navarre showed a positive evolution in the number of cooperatives (1,42%).</p> <p>Increase in employment in total companies and reduction of employment in cooperatives: the Canary Islands.</p> <p>Increase in employment in total companies and cooperatives: Murcia.</p> <p>Reduction in employment in total companies and cooperatives: Catalonia, Galicia, Andalusia, Asturias, the Balearic Islands, Cantabria, Castilla-La Mancha, Ceuta and Melilla, Community of Madrid, Valencian Community, Navarre, Basque Country, La Rioja.</p> <p>Reduction of employment in total companies and increase in cooperatives: Aragón, Castile and León, Extremadura.</p>

Source: Own elaboration.

TABLE 5. INTERANNUAL VARIATION RATE OF THE NUMBER OF WORKERS IN THE TOTAL REGISTERED COMPANIES.

REGIONS	Variation (growth) rate of the number of people working in the Total Registered Companies						Variation (growth) rate of the number of people working in the Total Registered Cooperatives					
	2005-2020	2005 - 2007	2008 - 2015	2016 - 2018	2019-2020	2005-2020	2005 - 2007	2008 - 2015	2016 - 2018	2019-2020		
SPAIN	0.95%	7.38%	-11.00%	8.57%	-2.55%	-9.63%	1.21%	-6.45%	5.06%	-12.05%		
ANDALUSIA	12.20%	8.22%	0.11%	10.54%	-2.06%	-9.07%	-1.52%	6.73%	1.41%	-15.63%		
ARAGÓN	-2.04%	10.37%	-16.13%	8.54%	-3.07%	-12.78%	-1.72%	-19.30%	1.31%	8.64%		
ASTURIAS	-10.32%	8.41%	-19.10%	4.41%	-2.16%	-37.10%	-4.78%	-29.06%	7.32%	-6.85%		
BALEARIC ISLANDS	0.75%	8.04%	-11.12%	9.25%	-5.63%	-40.83%	11.31%	-46.61%	1.96%	-7.28%		
CANARY ISLANDS	-6.03%	4.90%	-9.24%	8.71%	-7.77%	-37.07%	-7.26%	-22.45%	0.73%	-8.66%		
CANTABRIA	-5.11%	9.75%	-16.65%	6.44%	-2.49%	-32.24%	3.12%	-16.65%	-9.82%	-5.64%		
CASTILE AND LEÓN	-5.38%	8.77%	-16.48%	6.09%	-1.93%	-23.73%	-0.10%	-25.27%	7.75%	5.31%		
CASTILLA-LA MANCHA	-4.24%	13.38%	-22.20%	10.05%	-0.45%	-17.93%	1.08%	-13.65%	-18.51%	-4.39%		
CATALONIA	-2.71%	5.37%	-12.72%	7.25%	-3.10%	-0.19%	2.09%	-4.65%	11.87%	-2.18%		
CEUTA AND MELILLA	2.60%	11.83%	-20.97%	9.93%	-0.62%	-27.01%	-3.55%	7.25%	-14.57%	-1.60%		
COMMUNITY OF MADRID	4.06%	7.14%	-10.31%	8.81%	-2.84%	2.18%	10.06%	-8.77%	5.31%	-14.24%		
VALENCIAN COMMUNITY	-1.47%	5.51%	-11.51%	10.25%	-1.38%	-26.70%	1.28%	-16.98%	-1.51%	-26.06%		
EXTREMADURA	-1.07%	11.51%	-16.02%	8.99%	-0.33%	-3.26%	-1.29%	-15.58%	3.68%	29.43%		
GALICIA	-3.88%	9.70%	-17.42%	7.12%	-2.45%	-3.86%	-1.96%	-5.19%	6.50%	-2.07%		
MURCIA	15.20%	7.99%	0.39%	8.97%	0.52%	2.98%	-0.50%	-2.23%	10.40%	1.01%		
NAVARRRE	5.88%	8.97%	-11.28%	8.74%	-1.34%	41.61%	7.15%	8.68%	6.47%	-12.72%		
BASQUE COUNTRY	-2.40%	6.12%	-12.76%	5.71%	-2.46%	16.27%	9.15%	6.64%	14.54%	-20.13%		
RIOJA (LA)	-0.35%	6.90%	-12.13%	7.21%	-1.49%	-63.93%	-16.44%	-30.75%	-1.46%	-7.17%		

Source: Ministry of Labor and Social Economy database (01/11/2023).

4.2. SHIFT-SHARE ANALYSIS

To clarify Section 4.1. and to understand the reason for the evolution of the number of people working in cooperatives registered with the Social Security, a Shift-share analysis is carried out to determine the effects caused by the variation in employment in cooperatives in Spain and its regions. According to the results of the Shift-share analysis, presented in Table 7 and 8, four trends can be observed (Table 6).

TABLE 6. PREMISES OF COOPERATIVE EMPLOYMENT.

Period	Confirmations
Full period (2005 - 2020)	There is a negative variation rate in fourteen of the seventeen regions of Spain. Moreover, those territories that exhibited a growth in employment in cooperatives also did so in the total number of companies.
	Increase in employment in total companies and reduction of employment in cooperatives: Andalusia, Extremadura, Galicia, the Balearic Islands, Ceuta, and Melilla. The first three areas show a positive National and Competitive Effect, but the Dynamic Effect is negative and higher than the other two, which implies that employment in cooperatives at the regional level is positive but not enough to counteract the national decreasing dynamics. The second group shows a weak cooperative sector with negative figures in the Competitive and Dynamic Effect.
	Increase in employment in the total number of enterprises and in the cooperatives motivated by the National and competitive effect: Community of Madrid, Murcia, Navarre, Basque Country. Thus, this increase was due both to the cooperatives' own national expansion and to the increase in cooperative hiring in these regions.
	Reduction of employment in total companies and cooperatives: Aragón, Asturias, the Canary Islands, Cantabria, Castile and León, Castilla-La Mancha, Catalonia, Valencian Community, La Rioja, show a weak cooperative sector with negative figures in the Competitive and Dynamic Effect, in addition to exceptionally low results in the National Effect.
Pre-financial crisis period (2005-2007)	The rate of change was positive for eight regions: Cantabria, Castilla-La Mancha, Catalonia, Valencian Community, Navarre, the Balearic Islands, Community of Madrid, Basque Country.
	Increase in employment in total companies and reduction of employment in cooperatives: Andalusia, Aragón, Asturias, the Canary Islands, Castile and León, Ceuta and Melilla, Extremadura, Galicia, Murcia, La Rioja. In this case the negative results are justified through competitive and dynamic effects, thus revealing the weakness of these cooperatives to increase their workforce.
	Increase in employment in total enterprises and increase in employment in cooperatives: Cantabria, Castilla-La Mancha, Catalonia, Valencian Community, Navarre, the Balearic Islands, Community of Madrid, Basque Country. All these regions, except Castilla-La Mancha, presented the same justification: National and positive competitive effect. Thus, the growth of contracts in cooperatives was due both to the national growth itself and to the increase in cooperative contracts in these regions. Castilla-La Mancha owes its entire increase to national inertia.
Financial Crisis Period (2008- 2015)	Four regions show an increase in employment in cooperatives: Andalusia, Ceuta and Melilla, Navarre, Basque Country.
	Increase in employment in the total number of companies and reduction of employment in cooperatives: Murcia and Navarre show positive figures in their Dynamic and Competitive Effect, which is evidence of the employment-generating potential of their cooperatives, but the National Effect is negative and higher.
	Increase in employment in total enterprises and cooperatives: Andalusia. This was due to the Dynamic and Competitive Effect, which highlights the strength of cooperatives in this territory to generate employment.
	Reduction of employment in total enterprises and in cooperatives: Cantabria, Castilla-La Mancha, Catalonia, Community of Madrid, Extremadura, Galicia, Aragón, Asturias, the Balearic Islands, the Canary Islands, Castile and León, La Rioja.
	Decrease in employment in total companies and increase in cooperatives for the same reasons as Andalusia: Ceuta and Melilla, Navarre, Basque Country.

... / ...



Financial Recovery Period (2016-2018)	Thirteen of the seventeen regions show growth in the number of cooperative hires.
	Increase in employment in total companies and reduction in employment in cooperatives: Cantabria, Castilla-La Mancha, Ceuta and Melilla, Valencian Community, La Rioja; all have competitive and dynamic effects, i.e., internal reasons for each region.
COVID-19 Health Crisis (2019-2020)	Increase in employment in total companies and cooperatives: 1) Competitive and dynamic effect, where Andalusia, Aragón, the Balearic Islands, the Canary Islands and Extremadura are located. 2) National and competitive effect, where Asturias, Castile and León, Catalonia, Community of Madrid, Galicia, Murcia, Navarre, and the Basque Country are located. Thus, the first group justifies its increase both by the rise in hiring in the cooperatives and by the competitiveness of the territory itself. The second group increased its figures because of national expansion in cooperative hiring and the employment-generating potential of this legal business form in the territories.
	Four regions show an increasing evolution in their employment rate in cooperatives. Moreover, the National Effect was negative for all territories, so the positive results are due to the strength of cooperatives.
	Increase in employment in the total number of companies and reduction of employment in the cooperatives: Although the Canary Islands show a positive Competitive Effect (strength in its cooperatives), the National and dynamic effect is negative and higher.
	Increase in employment in the total number of companies and in the cooperatives: Murcia owes its growth exclusively to the Competitive Effect.
	Reduction of employment in total companies and cooperatives: Andalusia, Community of Madrid, Valencian Community, Navarre, Basque Country, Asturias, the Balearic Islands, Cantabria, Castilla-La Mancha, Ceuta and Melilla, La Rioja, Catalonia, Galicia. The first five regions have a negative result in the three effects, while the rest present positive figures in the Competitive Effect.
	Reduction of employment in total companies and increase in cooperatives: Aragón, Castile and León, Extremadura, as well as Murcia, owe their growth exclusively to the Competitive Effect.

Source: Own elaboration.

TABLE 7. SHIFT-SHARE ANALYSIS OF THE NUMBER OF WORKERS IN COOPERATIVE SOCIETIES FOR THE PERIOD 2005-2020.

REGIONS	2005 - 2020			
	Total effect	National Effect	Competitive Effect	Dynamic Effect
ANDALUSIA	-4,481.25	467.75	277.52	-5,226.52
ARAGÓN	-724.83	53.68	-178.69	-599.82
ASTURIAS	-751.65	19.17	-556.61	-214.21
BALEARIC ISLANDS	-525.45	12.18	-401.55	-136.08
CANARY ISLANDS	-1,514.04	38.65	-1,120.87	-431.81
CANTABRIA	-258.86	7.60	-181.55	-84.90
CASTILE AND LEÓN	-1,764.87	70.37	-1,048.91	-786.33
CASTILLA-LA MANCHA	-1,615.14	85.24	-747.95	-952.43
CATALONIA	-55.90	284.35	2,836.99	-3,177.23
CEUTA AND MELILLA	-83.20	2.91	-53.55	-32.57
COMMUNITY OF MADRID	269.76	117.08	1,460.89	-1,308.22
VALENCIAN COMMUNITY	-8,913.77	315.95	-5,699.35	-3,530.38
EXTREMADURA	-206.05	59.72	401.51	-667.27
GALICIA	-263.42	64.55	393.33	-721.30
MURCIA	465.48	147.72	1,968.33	-1,650.58
NAVARRRE	2,349.31	53.43	2,892.85	-596.96
BASQUE COUNTRY	3,941.44	229.28	6,274.04	-2,561.88
RIOJA (LA)	-339.45	5.02	-288.33	-56.14

Source: Own elaboration based on Ministry of Labor and Social Economy Database (01/11/2023).

TABLE 8. SHIFT-SHARE ANALYSIS OF THE NUMBER OF WORKERS IN COOPERATIVE SOCIETIES BY PERIODS.

REGIONS	2005 - 2007					2008 - 2015					2016 - 2018					2019-2020				
	National Effect	Total effect	Dynamic Effect	Competitive Effect	National Effect	Total effect	Dynamic Effect	Competitive Effect	National Effect	Total effect	Dynamic Effect	Competitive Effect	National Effect	Total effect	Dynamic Effect	Competitive Effect	National Effect	Total effect	Dynamic Effect	Competitive Effect
ANDALUSIA	-815.4	3,948.6	-1,465.6	-3,298.4	3,800.6	829.40	2,571.9	7,443.9	-6,215.2	4,991.60	829.40	4,991.60	-1,258.51	-7,726.54	-2,043.57	-2,127.84	-1,258.51	-7,726.54	-2,043.57	-2,127.84
ARAGÓN	-110.1	471.5	-187.7	-395.8	-959.3	66.86	221.5	-625.5	-555.4	437.43	66.86	437.43	-191.50	489.95	-179.07	-191.50	-144.43	489.95	-179.07	-191.50
ASTURIAS	-1466	226.2	-185.9	-189.0	-599.5	160.98	93.9	-465.4	-227.0	188.55	160.98	188.55	49.61	-138.79	-77.18	49.61	-51.58	-138.79	-77.18	49.61
BALEARIC ISLANDS	272.8	178.6	244.4	-148.2	-572.9	56.0	56.0	-493.6	-135.2	111.50	56.0	111.50	-40.37	-95.65	-45.64	-40.37	-32.77	-95.65	-45.64	-40.37
CANARY ISLANDS	-4368	444.0	-509.9	-370.9	-952.3	195.1	195.1	-678.7	-466.7	379.41	195.1	379.41	-191.86	-355.50	-155.32	-191.86	-105.98	-355.50	-155.32	-191.86
CANTABRIA	382	90.1	25.3	-75.3	-162.5	44.4	44.4	-99.6	-107.4	75.96	44.4	75.96	-128.45	-45.29	-30.28	-128.45	-20.44	-45.29	-30.28	-128.45
CASTILE AND LEÓN	-10.0	718.5	-128.3	-600.2	-1,697.1	575.38	305.7	-1,264.0	-738.8	636.35	575.38	636.35	199.53	394.91	-260.50	199.53	-189.34	394.91	-260.50	199.53
CASTILLA-LA MANCHA	120.3	818.4	-14.5	-685.6	-1,200.3	400.4	400.4	-633.1	-967.6	656.35	400.4	656.35	-1,750.52	-395.81	-260.50	-1,750.52	-229.34	-395.81	-260.50	-1,750.52
CATALONIA	641.1	2,267.0	267.8	1,893.7	1,202.4	1,178.3	466.8	466.8	2,847.5	3,598.97	1,178.3	2,597.75	2,065.64	-656.34	1,063.42	2,065.64	-765.06	-656.34	1,063.42	2,065.64
CEUTA AND MELILLA	-14.5	30.0	-19.4	-25.1	25.7	16.2	48.6	-39.1	-39.1	26.14	16.2	26.14	-59.86	-4.92	-10.70	-59.86	-7.84	-4.92	-10.70	-59.86
COMMUNITY OF MADRID	1,340.5	983.0	1,178.6	-821.1	-1,095.6	568.5	290.3	-2,900.3	-1,373.9	720.33	568.5	1,162.22	33.88	-1,761.57	-475.77	33.88	-315.01	-1,761.57	-475.77	33.88
VALENCIAN COMMUNITY	589.4	3,402.8	29.1	-2,842.4	-6,877.9	1,843.8	4,266.0	-4,455.7	-4,455.7	3,806.50	1,843.8	3,806.50	-2,918.98	-8,702.94	-1,558.24	-2,918.98	-850.09	-8,702.94	-1,558.24	-2,918.98
EXTREMADURA	-82.9	475.0	-161.1	-396.8	-737.0	215.3	432.0	-432.0	-520.3	180.41	215.3	419.69	-67.47	1,857.32	-171.80	-67.47	-160.67	1,857.32	-171.80	-67.47
GALICIA	-136.3	513.2	-220.8	-428.7	-354.7	293.8	81.4	-709.9	-709.9	590.07	293.8	590.07	98.77	-141.02	-241.55	98.77	-173.68	-141.02	-241.55	98.77
MURCIA	-75.6	1,112.6	-258.8	-929.3	-308.0	627.3	580.7	-1,516.0	-1,516.0	1,368.34	627.3	1,368.34	852.22	157.57	-560.14	852.22	-397.45	157.57	-560.14	852.22
NAVARRRE	305.4	315.1	253.5	-263.2	459.7	241.1	801.3	-582.7	-582.7	386.50	241.1	511.73	84.25	-718.30	-209.48	84.25	-143.74	-718.30	-209.48	84.25
BASQUE COUNTRY	2,080.3	1,677.8	1,804.0	-1,401.5	1,649.7	1,131.3	3,252.4	-2,734.0	-2,734.0	4,361.74	1,131.3	2,570.66	2,843.41	-4,876.99	-1,052.33	2,843.41	-616.88	-4,876.99	-1,052.33	2,843.41
RIOJA (LA)	-202.2	90.7	-217.2	-75.8	-202.9	30.0	-160.4	-75.6	-75.6	51.94	30.0	51.94	-39.54	-38.06	-21.26	-39.54	-13.52	-38.06	-21.26	-39.54

Source: Own elaboration based on Ministry of Labor and Social Economy Database (01/11/2023).



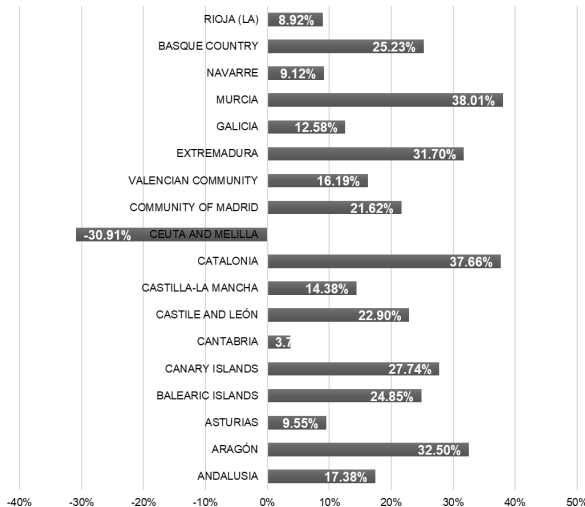
If we link the main findings of the analysis of variation rates and Shift-Share, we identify those territories whose cooperatives are more resilient and have greater potential to generate employment under different circumstances, such as an economic crisis, the recovery phase, and a health crisis. The classification shown assigns the word “cooperatives” to those areas that show a positive variation rate and/or a positive Competitive Effect.

The generation of cooperative, decent, and resilient employment is concentrated in four regions: Catalonia, Galicia, Extremadura, and Murcia. This is not the case in traditional Andalusian or Valencian cooperativism. Thus, regions with an important cooperative culture such as the Valencian Community or Andalusia do not have a greater development of cooperative employment in adverse situations and in comparison, with regions with less cooperative culture, such as the Community of Madrid (Barrios-González et al., 2023). These results are complemented by the upward trend in the number of cooperatives in Navarre and the Basque Country, which resulted in an increase in employment during the period of crisis and recovery but not in the years of the health crisis.

4.3. EMPLOYMENT PROJECTION 2021-2025

Employment growth is positive except for Ceuta and Melilla (Figure 1). The increase in hiring will be particularly notable in Aragón, Extremadura, the Balearic Islands, the Canary Islands, Castile and León, Catalonia, Murcia, and the Basque Country.

FIGURE 1. ESTIMATED RATE OF CHANGE OF EMPLOYMENT IN COOPERATIVE ENTERPRISES BETWEEN THE YEARS 2021 AND 2025.



Source: Own elaboration based on Ministry of Labor and Social Economy Database (01/11/2023).

5. CONCLUSIONS

The answer to the initial question, “Do cooperative societies have a countercyclical or a cyclical condition in Spain?”, is that Spanish cooperatives have a cyclical condition in the face of economic cycles, but they have a differential condition determined by employment, according to the type of crisis and/or the phase of an economic crisis and according to the characteristics of each territory.

The general trend in financial and health crisis situations (economic crises) is the reduction of cooperative employment. However, the results show that the destruction of employment tends to be lower in cooperatives than in the rest of the commercial enterprises. This would be a “cushioning” behavior (Perard, 2016) in the face of scenarios of declining domestic demand.

The first conclusion is that there is a significant weight of cooperative employment in the future of some regions such as Catalonia, Murcia, and Extremadura. Between 2019-2020, cooperative employment becomes of great relevance for Aragón, Asturias, the Balearic Islands, the Canary Islands, Cantabria, Castile and León, Castilla-La Mancha, La Rioja, Ceuta, and Melilla. These territories saw their employment increase, or its fall attenuated thanks to the Competitive Effect; they show their resilience and adaptation to unpredictable situations.

Employment generation is different at the territorial level, i.e., the regional and supraterritorial correlation is not directly proportional. This is proven between 2005 and 2020, since there is no homogeneous behavior between the different regions of Spain. The type of activity conducted by Spanish cooperatives is a key element in determining the differential condition of the results. This is a future line of research.

The recent economic crisis is linked to several reasons, both the financial crisis (2008-2015) and the health crisis (2019-2020) where the economy experienced a reduction in consumption. Looking at the effects of employment behavior in the regions, some similar and differential patterns are observed. The National Effect is negative for all regions in both periods, while the Dynamic Effect was positive during the financial crisis, and it was negative in the health crisis. The health crisis affected the whole economy, and the future of consumption patterns became uncertain, therefore, the generation of employment or the moderation of the loss is justified by the Competitive Effect, i.e., by the potential of the cooperatives in each territory.

The regions of Catalonia, Extremadura, Galicia, and Murcia show a homogeneous behavior in a situation of financial crisis, recovery, and health crisis, where the rate of change in the volume of jobs or the Competitive Effect was positive. These results suggest that the strategic management to face threats using their strengths and opportunities was more successful; they knew how to take advantage of the situation at that time and managed to increase their hiring.

Traditionally, Andalusia, Navarre and the Basque Country have shown great strength in their cooperatives in the face of a period of economic recession, but the same response to the COVID-19 health crisis was not observed. Thus, as soon as the INE (National Statistics Institute) and the Ministry of Labor and Social Economy update the data and extend the timeline to 2023, this scene deserves a deeper analysis, an improved longitudinal analysis (Bretos, Errasti & Marcuello-Servós, 2023), and one linked to other legal forms of Social Economy, such as Labor Societies. With the caution due to the tentativeness of the still existing data, Juliá, Bernal and Carrasco (2022) are contested since the Spanish productive fabric generates more employment or destroys less employment than cooperatives during the COVID-19 health crisis.

All these findings confirm what has already been observed in other specific studies such as the resilience of jobs in cooperatives (Barrios-González et al., 2023; Sala-Ríos, 2023; Cancelo et al., 2022; Sala-Ríos et al., 2020). These results ratify the heterogeneity of economic behavior among Spanish regions and coincide with previous studies on the territorial impact of self-employment in the Social Economy in Spain (Canalda, 2019). They too point out a claim, for example, the significant employment generation of Andalusia. Andalusia reduces cooperative employment during the health crisis, influencing its immediate capacity to generate employment. This seems to indicate that the cooperative response in terms of employment will be different according to the type of financial and/or health crisis. Nevertheless, the latest crisis reinforces cooperative employment as a resilient employment with positive predictions in all regions, except for Ceuta and Melilla. Cooperatives in Spain practice the Sustainable Development Goal 8 (SDG-8).

The results found in Spain on the resilience of cooperative employment are like previous findings at the international and European level, such as those in France and Italy. This work coincides with the institutional confirmations (European Parliament, ICA, ILO, CICOPA, United Nations-SDG) in making visible the behavior of cooperative employment and the need to compare cooperative employment in Spain with other European scenarios, such as Italy and/or France, and non-European scenarios such as the United Kingdom and/or South Korea.

An added value lies in the lines of work opened by these results. In the first place, the future development of this work should be aimed at extending the methodology (cluster analysis), completing the time series analyzed and observing the future behavior of cooperatives and worker-owned companies, and their convergence in the regions. Especially, the interest lies in extending the years related to the COVID-19 pandemic, 2020 and 2021, as well as subsequent years (Barrios-González et al., 2023). It is believed that both the contribution of the Social Economy (cooperatives and worker-owned companies) to regional development and the exceptional nature of the current situation suggest that the competent bodies make the effort to continue the publication of the time series on cooperatives that was interrupted in 2020. The National Statistical Plan 2021-2024 contemplates the updating of the

Statistics on Cooperative Societies and Labor Societies registered with the Social Security. Employment could also be studied in greater depth considering the type of cooperative, for example, the employment of worker or agricultural cooperatives could be studied because they contribute to national cooperative employment. It would be interesting to determine the impact of the PERTE ESyEC on the cooperative business fabric and on the resilience of cooperative employment. This would facilitate both the creation of new cooperatives in emerging sectors and the development of those that are already working on expansion, diversification, and expansion into new markets. The development of the business fabric would have an impact on generating more resilient employment, and this would have a positive social impact.

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