

An evaluation of social management in Spanish credit unions during the banking crisis

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Key words

Credit unions, Social management, Efficiency, Two-stage double bootstrap DEA method, Spanish banking crisis.

Abstract

Credit unions are financial companies of the Social Economy. They have, therefore, a dual nature. On the one hand, they are financial entities alongside banks and savings banks. On the other, they are cooperatives, characterised by their social responsibility and commitment to the local development. Traditionally, due to this social activity, they have been considered less efficient than commercial banks. However, if they want to be competitive and guarantee survival and growth in the future, they must seek efficiency, especially in times of crisis. Despite this, there are very few studies on their level of efficiency and practically none for the period of crisis. In addition, almost all of them evaluate exclusively their management of the banking activity, without taking into account their social function. In this context, our work contributes by analysing the relative level of social efficiency in Spanish credit unions during the last economic crisis, as well as its main determinants. To do this, it applies both the DEA methodology and a truncated regression from a sample of 446 observations, related to the totality of active entities in Spain between 2008 and 2013. Our results suggest that Spanish credit unions managed their ethical and social behavior quite well during the crisis period as they achieved a good level of social efficiency, benefiting both to their members and local community. The findings also show that, in addition to a regional effect, the size, the capitalization rate and the number of branches of credit unions had a statistically significant positive impact on their social management, whereas the proportion of branches in urban areas had a negative impact. These results are useful for policy makers and managers of credit unions in order to direct future decision-making towards improving their economic and social impact.

1. Introduction

Credit unions are Social Economy enterprises that develop a relevant social function in the Spanish banking system, with a double mission (Server and Capó-Vicedo, 2011). These entities, in application of Law 13/1989 of 26 May on Credit Unions, are defined as “cooperative societies, which have their own legal status, and aim to meet the financial needs of their members and of third parties by performing the activities of credit entities”. These societies, therefore, have a dual nature: On the one hand, they are banking organisations that must get financial results to distribute among their cooperative members and, on the other hand, they are cooperatives that must obtain resources to develop their social work.

Over recent years, social enterprises have been attracting increasing interest among the academic community (Battilana et al., 2015; Ramus and Vaccaro, 2015). In particular, credit unions are becoming more and more popular in many developed countries – United States, Canada, Australia, Japan, France, Germany and Italy, among others –, although their importance is linked to the type of activity they develop, financing a large range of social enterprises (Glass et al., 2014), promoting financial inclusion of the territories where they are established and contributing to the development of the financial sector by meeting some needs that are not covered by other banking intermediaries and by increasing free competition within it (Kalmi, 2012).

However, given the social purpose that characterizes credit cooperatives, their efficiency in relation to commercial banks has been questioned (Ory and Lemzeri, 2012; Othman et al., 2014). However, given that they are also financial companies, being competitive and efficient are essential requirements, especially in times of crisis (Gutiérrez and Palomo, 2012; Wijesiri et al., 2015), such as those that occurred

between 2008 and 2013 in the Spanish banking scenario. And surprisingly, while the banks and saving banks faced a deep restructuring and recapitalization process, the credit unions have been able to stabilize their sales volumes and reduce their levels of bank default, remaining practically unaffected by recent crisis.

Nevertheless, have been practically no studies, either national or international, on their efficiency, and the existing studies only measure efficiency from the financial point of view, without considering their social aims. For these reasons, this study aims to meet the following objectives: to estimate relative levels of social efficiency in Spanish credit unions during the recent financial crisis (2008-2013) and to analyse the determinants of the social efficiency achieved by such entities in the study period.

To achieve these objectives, we used the two-stage double bootstrap Data Envelopment Analysis (DEA) methodology developed by Simar and Wilson (2007). In the first stage, the relative efficiency indices are calculated using the DEA-bootstrap approach, which allows them to be corrected using a homogeneous re-sampling process and, in the second, truncated bootstrap regression is applied, in which the corrected estimators of efficiency are regressed on a set of explanatory variables.

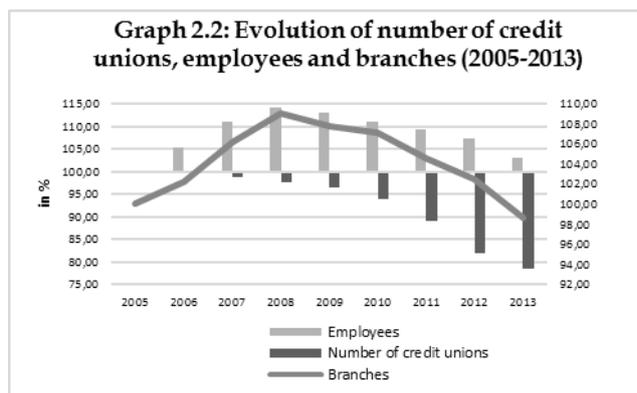
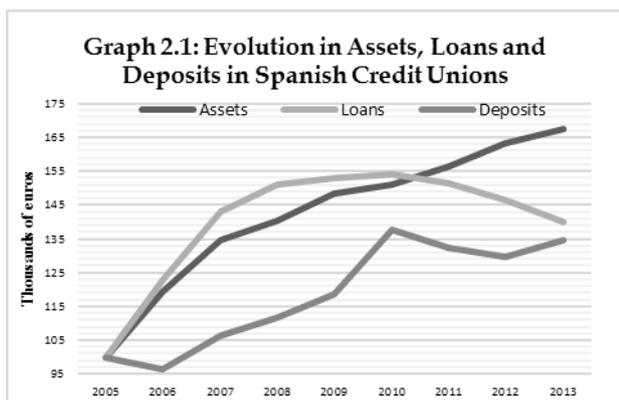
2. Credit unions during the Spanish banking crisis (2008-2013)

Banking sector is essential to determine the level of access to credit in financing productive activities for all economies. Credit unions take share of Spanish banking system, along with the private banks and saving banks, but there are characterised by a dual nature, being as they are financial enterprises in the Social Economy.

In Spain, until the financial crisis, there was no doubt about the solvency and the strength of all types of Spanish banking entities. But, since then, unlike most savings banks and some non-internationalized banks, that have been managed in such a way that their annual accounts have become very vulnerable, as there has been a significant reduction in their activity and ordinary margins, generating a deep process of financial consolidation, recapitalization and restructuring, which has required public support, both Community and national aid.

In the middle of this unbalanced Spanish banking scenario, the credit unions stands out, following an acquitted evolution (Fajardo and Soler, 2015), with bank margins that have shown a greater resilience, increases in their deposits and consolidation in assets (graph 2.1), which has enabled them to strengthen their solvency and increase market share.

However, these entities have carried out a voluntary concentration process, without needing financial public aid, through Institutional Protection Systems (SIPs), conventional mergers and splits and assignment of liabilities and assets (Fajardo and Soler, 2015). Consequently, as the graph 2.2 shows, the number of cooperatives dropped by 21,68% (from 83 to 65 entities) between 2005 and 2013, but without losing their identity. This led a slight decrease in number of employees and branches, taking place the main deterioration between 2011 and 2013, at the same time as the largest reduction in the number of cooperatives.



Source: Authors' own elaboration with data from the UNACC (2005,2008,2013), Asociación Española de Banca (2005, 2010, 2013), Boletín of Banco de España (2008) and Confederación Española de Cajas de Ahorros (2005, 2010, 2013). All data come from individual financial statements. 2005= base 100.

Note: Since 2010 include electronic banking and unclassified data on loans and deposits.

This good progress made by Spanish credit unions stems from certain factors that differentiate them from other financial entities. We find in its local and territorial nature a basic example that consolidates the social vocation that these entities have demonstrated during this challenging period. In addition, their retail and traditional business, limits its exposure to risk and leads to less dependence on financial markets, minimizing the use of complex financial engineering instruments (Gutierrez and Palomo, 2012; Fajardo and Soler, 2015). Furthermore, its democratic corporate governance promotes entrepreneurship and finances socially responsible investments (Castello and Trias, 2015). And finally, we want to emphasize, as indicated by the IMF (International Monetary Fund, 2010), which offer the better one and more reliable coverage to the more modest economies, at risk of financial inclusion.

3. Efficiency in Credit unions: background and determinants

Efficiency in the financial sector can be defined as the degree of optimisation achieved in the use of physical, human and monetary resources for providing different financial services. In recent years, many studies have been carried out on the measurement of efficiency in this sector, both internationally (Casu and Girardone, 2010; Curi et al., 2012; Chortareas et al., 2013; Wanke and Barros, 2014; Moradi-Motlagh et al., 2015) and in Spain (Tortosa-Ausina et al., 2008; Escobar and Guzman, 2010; Torres et al., 2012). However, practically all of them have focused on financial entities that have a strictly commercial aim – banks and savings banks – and there is very little evidence on credit unions, in spite of their growing popularity.

Furthermore, the studies about credit unions are focused on the financial efficiency (Worthington, 1999; Fried et al., 1993, 1999; Ralston et al., 2001; Fortin and Leclerc, 2011; Glass et al., 2014), and there are not academic contributions from the social point of view. As far as we know, only Belmonte and Plaza (2008) and Belmonte (2012) have considered the global efficiency (financial and social) of Spanish credit unions. Following Fortin and Leclerc (2011), we have chosen certain explanatory factors of the efficiency/inefficiency of credit unions:

Wealth level in the place where credit unions operate: From a theoretical point of view, greater wealth in the location of the financial entities increases their efficiency in their different activities, because it allows them to improve the relation between the various services provided and the factors used to provide them (Curi et al., 2012). Some empirical studies confirm the existence of a positive, statistically significant relation between this variable and financial efficiency of credit unions (Fried et al., 1999; Fortin and Leclerc, 2011).

Urban concentration: According to the literature, as a banking entity increases its degree of urban concentration, the number of competitors will increase, enlarging its pressure to improve financial efficiency. Fortin and Leclerc (2011) demonstrated that the concentration of the services of credit unions in cities with greater population density has a statistically significant positive effect on their efficiency. But it can also be expected that a greater concentration of credit cooperatives in urban areas reduces their social efficiency, since this will go against their territorial nature, which is based on helping to achieve financial inclusion for the entire population.

Size: In theory, in principle, the largest financial institutions tend to be more efficient since they benefit from the returns to scale in their business. Consequently, they have more possibilities to minimize the use of inputs and / or maximize the supply of products, taking into account the optimum production frontier (Wanke and Barros, 2014). The existing empirical evidence corroborates that the size of savings and credit cooperatives has a positive and significant effect on their levels of financial efficiency, contributing to improve the management of these entities (Worthington, 1999; Fried et al., 1993; 1999; Fortin and Leclerc, 2011; Glass et al., 2014).

Capital adequacy: From a theoretical point of view, financial institutions that capitalize a greater amount of their profits are more efficient, especially during periods of economic and social recessions. According to empirical evidence, most studies show a positive and significant relationship between the

capitalization rate of credit cooperatives and their financial efficiency (Worthington, 1998b, Fried et al., 1999, Fortin and Leclerc, 2011).

Number of service points: In principle, it can be assumed that the number of branches has a negative effect on the ability of the central office to promote efficient behavior. But, from a social perspective, service points are another of the products offered by financial institutions, which results in a positive effect for their efficiency. The empirical literature shows a significant negative relationship between this variable and the financial efficiency of credit unions (Worthington, 1998b, Fortin and Leclerc, 2011).

4 Methodology, sample and variables

Methodology

A two-stage double bootstrap DEA approach, concretely, the Algorithm 2 developed by Simar and Wilson (2007), is the methodology which apply in this analysis:

In the first stage of the study, we use the DEA model, in combination with the homogeneous bootstrap procedure to obtain useful efficiency scores and confidence intervals. DEA is a non-parametric method that evaluates the relative efficiency of a set of similar DMUs. Basically, it identifies the DMUs that represent best practices by comparing each DMU with all possible linear combinations of other units. Furthermore, we apply the output-oriented DEA model under the variable returns to scale (VRS). Specifically, we use the following linear program:

$$\hat{\delta}_i = \max_{\delta, \lambda} \{ \delta > 0 \mid \delta y_i \leq \sum_{i=1}^n y_i \lambda; x_i \geq \sum_{i=1}^n x_i \lambda; \sum_{i=1}^n \lambda_i = 1; \lambda \geq 0 \}; i=1, \dots, n \text{ DMUs}$$

y_i is a vector of outputs;

x_i is a vector of inputs;

λ is an $n \times 1$ vector of constants which measures the weights used to compute the location of an inefficient DMU with the objective to become efficient;

$\hat{\delta}_i$ is the efficiency or inefficiency score for the i th DMU under the VRS assumption.

If $\hat{\delta}_i = 1$, the i th DMU is fully efficient

If $\hat{\delta}_i < 1$, the i th DMU is relatively inefficient.

In the second stage of this work, we use a truncated regression model to examine the determinants of social efficiency:

$$\tilde{\delta}_i = \alpha + \beta_1 WEA_{i,t} + \beta_2 URB_{i,t} + \beta_3 \ln(SIZ)_{i,t} + \beta_4 CAP_{i,t} + \beta_5 \ln(SER)_{i,t} + \varepsilon_i$$

$\tilde{\delta}_i$ the dependent variable, refers to the efficiency score from the first stage of the i th DMU;

α is a constant term;

$\beta_1, \beta_2, \dots, \beta_5$ are the parameters to be estimated;

$WEA_{i,t}$ is the wealth level in the environment of the i th DMU in period t ;

$URB_{i,t}$ is the urban concentration of the i th DMU in period t ;

$SIZ_{i,t}$ is the size of the i th DMU in period t ;

$CAP_{i,t}$ is the capital adequacy of the i th DMU in period t ;

$SER_{i,t}$ is the number of service points of the i th DMU in period t ;

and ε_i is an error term.

Sample

Our population consists of all credit unions linked to UNACC between 2008 and 2013, the period in which the last Spanish crisis occurred. However, due to the process of voluntary concentration and restructuration between Spanish credit cooperatives during this period, an unbalanced data panel is used in the analysis, which comprise a total of 446 DMUs or observations (81 in 2008, 80 in 2009, 78 in 2010, 74 in 2011, 68 in 2012 and 65 in 2013).

Input and output variables

Our specification of the input and output variables takes as its point of reference the designation used by Belmonte (2012) and Glass et al. (2014), including social outputs in the model. Specifically, the inputs chosen are amortisation expenses, personnel expenses, and interest expenses; and social outputs

are the degree of customer socialisation and the financial inclusion. We explain below how these variables are measured based on prior research. The source of information for building them are the Statistical Yearbooks of Credit Unions published by UNACC (www.unacc.com). Data given in monetary units are deflated – at constant prices for 2008 – using the GDP deflator, in order to avoid inflation-related distortion of the results.

Input variables: In general, there are three sources of inputs involved in social activity of credit unions: physical, human, and financial resources.

Amortisation Expenses (AMOR): This variable refers to the annual cost of fixed-capital consumption related the activity carried out by credit unions (in thousands of euros). It is a relevant input for their business, which is based on a direct distribution model through many branches. Thus, they are a disadvantage compared to commercial banks, which are able to use new distribution channels more, with lower amortisation costs.

Personnel Expenses (PERS): This is an indicator of the annual cost of the human resources used by credit unions in order to perform their activity (in thousands of euros). Workers are the main input in any banking activity, which essentially sells a service. Human resources therefore have a key role to play in customers' final decisions. So, even though banking sales channels have expanded to include electronic and telephone banking, the traditional channel is still the main one used by credit unions. It is labour-intensive, is based in branches and involves direct relations between employees and customers.

Interest Expenses (INTE): This covers the cost of the financial resources captured at retail level (the annual cost of deposits, measured in thousands of euros). The basic activity of any financial entity, including credit unions, is to collect deposits to product loans.

Social output variables: The measurement of social efficiency in credit unions requires defining two outputs:

Customer Socialization (CSOC): This variable represents the relative importance of loan investment activity over the social mass of credit unions. It is defined as the ratio between loans to customers and the total number of members (in thousands of euros per member). Since credit unions are distinguished from other financial institutions by the weight of member customers over total customers, this output reflects the orientation of their asset operations towards the social mass.

Financial Inclusion (FINC): This is an indicator of the presence of credit unions in districts with low population. It is measured by the ratio between the number of branches in municipalities having less than 25,000 inhabitants and total branches (in %).

Social efficiency determinants

Finally, to establish the determinants of efficiency/inefficiency in Spanish credit unions, we have use five explanatory variables following Fortin and Leclerc (2011). They are elaborated taking into account the statistical yearbooks of the credit cooperatives, which are available on the UNACC website (www.unacc.com):

Wealth Level in the Place where credit unions operate (WEA): This variable is quantified by the ratio between total deposits and the number of members of credit unions (in thousands euros per member), assuming that the higher the relation, the greater the volume of savings of customers and, therefore, the level of wealth in the district of the entity (Fried et al., 1999; Fortin and Leclerc, 2011).

Urban Concentration (URB): This is measured by a dummy that takes the value of 1 when the proportion of branches in municipalities, with more than 25,000 inhabitants, over the total is greater than the annual average for all the credit unions analysed, and 0 otherwise.

Size (SIZ): This is made operational by total assets of credit unions (in thousands of euros, with logarithmic transformation for the statistical analysis) (Worthington, 1999, 2010; Fried et al., 1993; 1999; Ralston et al., 2001; Fortin and Leclerc, 2011; Glass et al., 2014).

Capital Adequacy (CAP): This is measured by the proportion of equity to total assets (in %), so that, the higher the ratio, the lower the financial leverage and therefore the lower the financial risk of credit unions (Worthington, 1999; Fried et al., 1993; 1999; Fortin and Leclerc, 2011; Glass et al., 2014).

Number of Branches (BRA): This variable captures the total number of branches that credit unions have, with logarithmic transformation for the statistical analysis (Worthington, 1999; Fried et al., 1999; Ralston et al., 2001; Fortin and Leclerc, 2011).

Finally, although all Spanish credit unions belong to the same financial sub-sector and operate in the same country, the heterogeneity existing between the different regions, especially in terms of regulations and macroeconomic conditions, might also help explain the differences in their efficiency. Several studies have shown that there is a “*Regional Effect*”, which suggests that the efficiency of these entities varies depending on their geographical location within a specific country (Worthington, 1998b, 1999; Fried et al., 1993; Glass et al., 2014). Since the credit unions analysed here are located in 15 of the Spanish regions (Andalusia, Aragon, Asturias, Castile-La Mancha, Castile and Leon, Catalonia, Valencian Community, Extremadura, Galicia, Balearic Islands, Canary Islands, Madrid, Murcia, Navarre and Basque Country), this study also takes into account their location (REG) by including 14 regional dummy variables (taking the Valencian Community as the reference category as it is the region with the largest number of such entities).

5. Empirical results

The main descriptive statistics for the input and output variables considered in the study and for the variables used to measure the determinants of efficiency are summarised in the Table 1. It also gives the Pearson correlation coefficients between the latter when measured using a continuous variable. It shows that there is a high positive and statistically significant correlation between size (SIZ) and the number of branches (BRA). To avoid problems of multicollinearity, in the second stage truncated regression analyses, these two variables are introduced in separate regressions, together with the other explanatory factors.

Table 1: Descriptive statistics and correlations

n=446 DMUs	Mean	Std.Dev.	Minimum	Maximum		
Efficiency determinants						
WEA	341.28	1,816.63	1	WEA	341.28	1,816.63
URB	0.61	0.49	WEA	SIZE	CAP	SER
SIZ	1,676,243.11	4,612,834.16	0.134	1		
CAP	9.40	4.27	-0.141	-0.166	1	
BRA	66.83	147.43	0.054	0.934***	-0.193	1
n=446 DMUs	Mean	Std.Dev.	Minimum	Maximum		
Input variables						
PERS	12,586.01	31,131.46	139	295,192		
AMOR	1,901.75	6,040.97	3	75,772		
INTE	30,237.74	86,234.80	108	864,536		
Output variables						
CSOC	280.15	1,616.67	4.66	18,352.35		
FINC	64.65	37.28	0	100		

PERS: Personnel Expenses (in thousands euros); AMOR: Amortisation Expenses (in thousands euros); INTE: Interest Expenses (in thousands euros); LOAN: Total Loans (in thousands euros); SECU: Security Investments (in thousands euros); CSOC: Customer Socialization (in thousands euros / member); FINC: Financial Inclusion (in %); URB: Urban Concentration (dummy: 1/0); WEA: Wealth Level in the Place (in thousands euros / member); SIZ: Size (in thousands euros); CAP: Capital Adequacy (in %); BRA: Number of Branches (in units). *** Significant at the 1% level (2-tailed).

First Stage: Social efficiency measures

The *first stage* results reveal social efficiency measures throughout the period 2008-2013 and are summarised on the Table 2. It shows the percentage of fully efficient DMUs, the mean and standard deviation of the original, corrected, and useful efficiency estimates in the total period and in each of the years considered. The mean scores of corrected efficiency ($\hat{\delta}$) are always lower than those of original efficiency ($\hat{\delta}$), with the useful efficiency values lying in an intermediate position ($\hat{\delta}$). As these last scores are the closest to real efficiency, they are the ones that are considered for interpreting the results.

The mean score for the social efficiency of Spanish credit unions, over the total period analysed, reaches an acceptable value of 65.78% (50% is the minimum acceptable value for estimates of technical efficiency). Thus, in order to be fully efficient ($\hat{\delta} = 1$), these entities should have increased their social outputs by 34.22% given the resources at their disposal.

If the analysis is performed by year, the social efficiency, although it reaches significantly higher average annual values, is relatively stable during the six-year period studied and even shows a slight drop of 1.61 percentage points – about -2.5% – from 65.89% in 2008 to 64.28% in 2013. Therefore, although Spanish credit unions carry out the social function better than the banking activity with the same inputs, their social efficiency remains practically constant.

Table 2: DEA social efficiency estimates

	Original $\hat{\delta}$	Corrected $\hat{\delta}^*$	Useful $\hat{\delta}^u$
Period 2008-2013 (n=446 DMUs)			
Mean	0.6580	0.6490	0.6578
Std.Dev.	0.3677	0.3618	0.3676
Fully efficient DMUs (%)	36.77%	0.00%	36.55%
Year 2008 (n=81 DMUs)			
Mean	0.6590	0.6512	0.6589
Std.Dev.	0.3672	0.3624	0.3673
Fully efficient DMUs (%)	24.69%	0.00%	35.80%
Year 2009 (n=80 DMUs)			
Mean	0.6686	0.6627	0.6686
Std.Dev.	0.3602	0.3567	0.3602
Fully efficient DMUs (%)	36.25%	0.00%	36.25%
Year 2010 (n=78 DMUs)			
Mean	0.6709	0.6592	0.6697
Std.Dev.	0.3618	0.3545	0.3609
Fully efficient DMUs (%)	37.18%	0.00%	35.90%
Year 2011 (n=74 DMUs)			
Mean	0.6493	0.6410	0.6492
Std.Dev.	0.3746	0.3685	0.3747
Fully efficient DMUs (%)	36.49%	0.00%	36.49%
Year 2012 (n=68 DMUs)			
Mean	0.6539	0.6440	0.6538
Std.Dev.	0.3780	0.3711	0.3780
Fully efficient DMUs (%)	38.24%	0.00%	38.24%
Year 2013 (n=65 DMUs)			
Mean	0.6428	0.6318	0.6428
Std.Dev.	0.3792	0.3714	0.3792
Fully efficient DMUs (%)	36.92%	0.00%	36.92%

$\hat{\delta}$: Original efficiency estimates; $\hat{\delta}^*$: Bias-corrected efficiency estimates; $\hat{\delta}^u$: Useful efficiency estimates.

Second Stage: Determinants of Social efficiency

Regarding *the second stage*, the results from the bootstrap truncated regression to establish the determinants of social efficiency in the period 2008-2013 are regressed on the six explanatory variables. They are shown on the Table 3.

The findings show a statistically significant negative impact of the urban concentration of credit unions (**URB**), indicating that those entities with a greater proportion of branches in urban areas are less socially efficient. Their size (**SIZ**) also has a statistically relevant impact so that, the larger the credit union is, the greater its capacity for achieving its social purpose with the available resources. Similarly, the capitalisation rate (**CAP**) shows positive and significant coefficients, suggesting that entities with higher capitalisation achieve a better social performance. The number of branches (**BRA**) also has a positive and significant impact, so that credit unions with a larger number of branches seem to manage their social activity better, obtaining a higher level of social outputs from the resources at their disposal. Finally, the results obtained also suggest the importance of the “regional effect” (**REG**) for the social efficiency of credit unions.

Table 3: Bootstrap truncated regression

Variable	β (Bootstr. Stand. Error)	
Constant (α)	-1.1601 (0.1389)	-0.1644*** (0.0462)
URB	-0.5243*** (0.0390)	-0.4534*** (0.0360)
WEA	0.0000 (0.0000)	0.0000 (0.0000)
CAP	0.0083* (0.0049)	0.0095** (0.0045)
SIZ	0.0981*** (0.0101)	
BRA		0.1025*** (0.0071)
REG (Regional dummies)	Yes***	Yes***
Sigma	0.1511*** (0.0061)	0.1357*** (0.0061)
Log likelihood	168.9484	191.7133
Wald $\chi^2(18)$	4894.51***	11349.97***

URB: Urban Concentration (dummy: 1/0); WEA: Wealth Level in the Place (in thousands euros /member); SIZ: Size (in thousands euros); CAP: Capital Adequacy (in %); BRA: Number of Branches (in units); REG: 14 regional dummies to control for the regional location within Spain.

Total number of repetitions = 2000.

*** Significant at the 1% level; ** Significant at the 5% level; * Significant at the 10% level.

6. Conclusions

Despite credit unions are financial institutions that meet a relevant social function in the Spanish banking system, there are very few studies about their social efficiency and practically none during the Spanish banking crisis. Therefore, our study aims two objectives. On the one hand, to estimate the relative levels of social efficiency of Spanish credit unions between 2008 and 2013, and in the other, to establish their main determinants.

Regarding the *first objective*, the relative level of social efficiency in Spanish credit unions has reached a score of 66% during the period 2008-2013 so, to be fully efficient, such entities should have increased their social outputs from available resources by 34%. Consequently, during the last economic and financial crisis, Spanish credit unions have managed appropriately their social function. The crisis situation does not have affected the social outputs of Spanish credit unions, possibly because their main mission is not to maximise profits, as in commercial banks, but to achieve a social purpose, primarily that of meeting the financial needs of their members and of those geographical areas in which other financial entities do not provide services because of the sparse population.

About the *second objective*, our results show that a greater proportion of branches of credit unions in urban areas make them less efficient at the social level. That is, when Spanish credit unions concentrate their branches in urban areas, their social efficiency is reduced, contributing to generating greater financial exclusion in areas of low population density. These results confirm the specialisation in their home territory, close to their customers, which differentiates it from the rest of the financial entities, and which is contributing to reduce the risk of small municipalities being excluded from financial activity.

In addition, social efficiency varies significantly depending on the regional location of credit unions in Spain. The regulatory and institutional framework of Castile and León, the Canary Islands and Madrid might enable their credit unions to be more efficient socially. However, in Catalonia has a lower level of social efficiency.

Finally, there are three internal characteristics of Spanish credit unions – size, capital adequacy and number of branches – that benefit its members and the other territorial agents in the territory in which it operates, by reaching higher levels of social efficiency. Therefore, to the extent that entities reach a larger size, there will be more possibilities for them to benefit from increasing returns to scale, which is why their capacity to optimize social outcomes. Also, the credit unions that capitalise a larger amount of profit will be more socially efficient because a greater availability of funds will lead to lower financial risk and,

consequently, will facilitate their social function. Finally, the social efficiency of the credit unions will be greater as they have a greater number of branches, since their service network will be greater, serving a greater number of social services, families and companies in the small cities where they tend to establish.

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