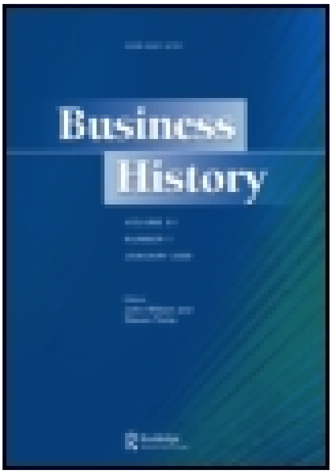

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# Co-operative wineries: Temporal solution or efficient firms? The Spanish case during late Francoism, 1970-1981

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# Co-operative wineries: Temporal solution or efficient firms? The Spanish case during late Francoism, 1970–1981

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Part of economic theory has regarded co-operative firms as useful tools for dealing with market failures during periods of economic contraction, but also as suffering severe efficiency problems during periods of growth. The main aim of this article is to test this hypothesis in the case of Spanish co-operative wineries during the years of late Francoism. In order to do this, the balance sheets of 75 co-operative firms from the 1970s have been subject to financial-ratio analyses. The main conclusion is that these firms were inefficient due to their excessive financial debt. The Spanish Francoist government promoted their creation and granted financial aid – for their value as social and economic control systems – framing them within a rigid corporate system typical of authoritarian states. This involved limited autonomy and conditions conducive to free-riding behaviour, which is at the core of their inefficient performance.

**Keywords:** co-operative wineries; financial ratio analysis; Spain; Francoism

## 1. Introduction

Economic theory of co-operatives often associates the creation of co-operative firms with critical economic conditions because, in this setting, they offer a better response to social needs and correct market failures.[1] At the same time, these firms are regarded as less efficient than capitalist firms. Therefore, they are only considered a good option in conditions of economic contraction.[2]

From a historical point of view, some sectors are exceptions to this hypothesis, such as the European dairy agribusiness (especially Denmark) or the banking sector, as shown in Guinnane's study on the German rural credit co-operatives (*Raiffeisen*). According to this author, these informal, microcredit institutions were more efficient than conventional banks in local markets crisscrossed by dense social networks (social capital).[3]

Danish co-operative dairies have been thoroughly studied especially by Henriksen et al.[4] They stand as an important case study due to the incidence of technological change (with the incorporation of cream separators); the high levels of human capital and social cohesion achieved; their specialisation in products that could be commercialised for national and international markets; and, their role as formal institutions. All of these factors suggest that co-operative dairies were more productive than capitalist dairies. Nevertheless, the spread of co-operatives was not successful in Ireland, according to O'Rourke, because of a lower social cohesion than in Denmark and the effects of social and political conflict.[5] Recent contributions (for example, Fernández) consider that

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co-operatives were successful when they were tried in exporter countries with a one-crop system and a high productivity.[6]

Another success story is Northern Italy. Menzani, Zamagni and Battilani have shown the importance of co-operative enterprise networks, such as the 'umbrella organisations', which exist in the region. The creation of these organisations made possible the achievement of 'critical mass' in the market, the implementation of economies of scales and the exploitation of common brands.[7] On the other hand, Galassi[8] largely blamed the failure of credit co-operatives in southern Italy on the lack of social capital. In the case of the European wine sector, Simpson[9] noted the importance of state financial support, the role of ideology, and the presence of capitalist wineries in his explanation of the development of French co-operative wineries.

Spanish co-operative wineries enjoyed ideal environmental conditions for growth during the second half of the twentieth century: a sharp drop in wine prices, which prompted many wine producers to join these associations; a state willing to promote their creation and expansion;[10] and a propitious market, as consumer taste at the time was well-adapted to their production. In this setting, co-operative firms offered a good solution for both producers and the state. The former obtained larger profits for their produce,[11] and the latter the opportunity to industrialise the sector and a higher degree of control over production and over the producers themselves, suiting the authoritarian political setting. However, these firms suffered from management, production, commercialisation and capitalisation problems.[12]

In any case, Spanish co-operative wineries were not inefficient for being co-operatives.[13] They were so because they operated within a corporate system governed by a dictatorial regime that did not appropriately manage the potential of these associations, which incorporated the vast majority of winegrowers and produced most the country's wine, and still do to this day. These co-operatives did not appear spontaneously, but were set up by the state and given a fixed structure based on a rigid legislation. They did not respond to rational efficiency criteria, lacking a defined ideological substratum and their own organisational drive. They were interclass bodies burdened by strong conflicts of interest and high agency costs.[14] The state created them, financed them and helped them to grow, while imposing a restrictive regulation which deprived them of autonomy.

The effects of this on performance were negative, causing free-riding behaviour among partners seeking their own individual, rather than the collective, benefit.[15] In addition, the state behind their creation did not direct them adequately when the need arose to restructure their production and to adapt to the changes undergone by the wine sector in the 1970s.[16] In other countries, such as Italy and France, this process was carried out with greater success because co-operatives were founded in the context of solid co-operative networks. These are often labelled under the term 'umbrella organisations'.[17] For many years, the Spanish context was favourable and the internal flaws did not carry enough weight to stop growth, but the moment conditions changed, the co-operatives suffered accordingly, and the consequences of this can still be appreciated today.

In order to test this hypothesis within the economic theory of co-operatives, this article analyses the financial performance of Spanish co-operative wineries in the final years of Francoism through the ratios extracted from the balance sheets of 75 co-operative-firms in the period 1970–1979. At the same time, the results are compared with general data on the performance of the food and drinks sectors as reflected in the *Central de Balances* (Balance Sheets Database, National Bank of Spain). The main target is to determine whether co-operative wineries were efficient firms during Francoism or merely an interim measure to face the crisis in the wine sector and a useful control tool for a dictatorial state.

The article is divided into six sections. After the introduction, in the second section, we establish the theoretical framework; in section 3 we describe the sources and methodology used; section 4 focuses on the importance of co-operatives in the Spanish wine sector; section 5 is the central analysis of this work, and it is divided into several subsections. The first of these subsections focuses on the balance-sheet structure and on the analysis of assets and liabilities; in the second we approach the issue of financial equilibrium; the third concentrates on liquidity in the short- and medium-term; the fourth focuses on indebtedness; finally, in section 5, profitability ratios are examined – a crucial aspect in analyses of performance and in comparisons between co-operatives and other types of firm. Finally, section 6 contains the general conclusions.



## 2. Theoretical framework: the economic theory of co-operatives

During the nineteenth and the first half of the twentieth centuries, co-operatives were often mentioned in treatises on economic and political theory. Classical economists such as Robert Owen and John Stuart Mill, as well as more recent authors such as Leon Walras and Alfred Marshall are among those who have been interested in this topic.[18] However, it was not until the second half of the twentieth century that a specific theoretical debate around the economics of co-operatives emerged. In 1958 Benjamin Ward published 'The Firm in Illyria: Market Syndicalism' in the *American Economic Review*,[19] where he undertook a neoclassical analysis focused on the distribution of profit among members of co-operatives. Ward regarded co-operatives as a less efficient option than the capitalist firm and as a response to contractive economic conditions. Lack of incentives for profit and for the maximisation of value make them a marginal option, only viable in very specific settings and for a limited time. From the point of view of this theoretical approach, the self-interested, or free-riding, behaviour of associates is one of the key factors in the less than efficient performance of these firms.

Ward's theoretical paradigm was further developed by other neoclassical authors,[20] but was also questioned by other currents such as game theory, neoinstitutionalism and instrumental economics. These approaches have introduced more flexible and precise tools into the analysis. They not only examine the behaviour of the individual, but also their relationship with the group. The theory of co-operative firms aims at a realistic study of the behaviour of agents involved in the co-operative enterprise. Additionally, the theory also analyses the changes undergone by these institutions over time. It responds to recent changes in economic theory, and to the new problems presented.

The main representative of this theoretical approach is Hansmann,[21] an author related to neoinstitutionalism and the theory of the modern firm. His main research focus falls upon property rights and the management of co-operative firms. From his perspective, co-operative firms are not merely a different way to organise production and are not necessarily less efficient than capitalist firms; in fact, before certain conditions of market failure they can be more efficient.[22] His main criticism of the co-operative system lingers on the greater complexity of its decision-making processes, which can be detrimental to overall efficiency.

Therefore, both theoretical angles agree on the key factor: the behaviour of partners as self-interested agents. This idea is in contradiction with the third theoretical current on co-operative economics, which also takes into consideration the social role of co-operatives. This theory rejects the premise that self-interested behaviour prevails. In co-operative firms, the distribution of value does not coincide with the most prevalent factor in the capitalist market: productivity. This current also considers other factors such as solidarity and reciprocity.[23] Co-operatives serve the community by offering goods and services. In addition, they are more efficient than capitalist firms in favouring the circulation of information and thus in reducing transaction costs.[24] The basis of this idea is the prevalence of non-egotistic behaviour among economic agents and the creation of social capital.

One recurrent theme in the economic theory of co-operatives is the financing difficulties faced by co-operatives. Some authors have stressed their limited capacity to attract investment and their problematic access to the capital markets.[25] This may have been a key factor in burdening their expansion before the competition of capitalist firms. Stress has also been laid upon their need to self-capitalise in order to reduce the cost and risks of external financing. This is particularly true with regard to agricultural co-operatives, due to the strongly seasonal nature of their activity.[26]

Most of the reasons given for this setting have revolved around the internal structure of co-operatives and, once more, on the behaviour of individual associates. Furubotn and Pejovich point out the problem posed by partners with limited time-horizons, since this kind of partner will try to maximise profits and will not voluntarily contribute with enough capital to guarantee the self-capitalisation of the society.[27] Kremer alludes to the partners' limited responsibility to explain their reluctance to assume risky undertakings.[28] Hansmann, on the other hand, blames this attitude on the fact that the co-operative is the main source of income for the associate, making them unwilling to assume risks.[29] All of these authors agree on the important role played by property rights in the solution to this problem, concluding that the correct structure of property rights will induce partners to assume more risks.

Other authors mention additional factors, such as the partners' limited resources, making the assumption of risk difficult.[30] According to Jossa and Cuomo this problem can rarely be solved through recourse to external financing, which is difficult to access due to the lack of commitment of associates.[31] Bonin, on the other hand, suggests that the distribution of financial returns also disincentivises investment among partners.[32]

Following all of this, the economic theory on co-operatives has incorporated the role of the state as an important element in the analysis. Some authors have pointed out that co-operatives need decided state policies to hatch, what Vanek calls 'support structures'.[33] In this sense, Ben-Ner suggests that the low income of associates limits the debt threshold that co-operative can reach, making the financial support of the state an absolute necessity.[34]

In summary, the debate has oscillated between the optimistic view that sees co-operatives as a superior form of firm compared to the capitalist firm, because of their ability to find a sensible equilibrium between efficiency and equity, bringing democracy to modern economics and standing as the only viable alternative to the two predominant economic models (the free market and central planning) and the much less complacent currents which suggest that the model presents severe efficiency shortcomings and poor use of resources, and is only valid in times of crisis for the capitalist system.

## 3. Sources and methodology

This article analyses the financial performance of Spanish co-operative wineries in the final years of Francoism through the ratios extracted from the balance sheets of 75 co-operative-firms in the period 1970–1979. The ratios have been selected on the basis of their intrinsic interest and on the absence of calculation problems, due to the simplicity of the information contained in the documents under examination. This allows for a reliable diagnosis of the financial position of these firms and for the identification of their strengths and weaknesses during this period.

At the same time, the results are compared with general data on the performance of the food and drinks sectors as reflected in the *Central de Balances* (Balance Sheets Database, National Bank of Spain) for the year 1981.[35]

This article covers only late-Francoism (1970–1979), mainly because sources for earlier periods are less readily available. Although the balance sheets of hundreds of Spanish co-operative wineries are centralised in the National Administrative Archive, Madrid (AGA), only documents for the 1970s could be found. In spite of these chronological restrictions, we believe that our analysis effectively conveys the evolution of these institutions during the dictatorship years. The article analyses co-operative wineries as a symptom of 40 years of authoritarian rule, but the problems faced today by co-operative wineries, after nearly 40 years of democracy, are similar. We have chosen the 1970s because of our source limitations, but also because this was a key period in the adaptation of these wineries to new national and international wine market trends.

Moreover, the balance sheets of the 75 co-operative firms do not always cover the whole period under consideration. The years covered by the balance sheets of different co-operatives vary; while the majority of these balance sheets correspond to the late 1970s, some cases correspond to earlier in the decade. The *Central de Balances* (Balance Sheets Database, National Bank of Spain) was not set up until 1981. This source offers general data for the whole of the food and drink sector (which includes a vast number of companies). No specific information for co-operative wineries can be found here. We have chosen to use the data for 1981 because this year is closest to the time frame of our balance sheets (the late 1970s).

Our goal is to try to examine the position of co-operative wineries with regard to the food and drink sector in general in order to evaluate the performance of Spanish co-operative wineries. The limitations of the available sources have to be taken into account at all times.

## 4. Co-operatives and the Spanish wine sector

Historically, the Spanish wine sector has had dual business structures and is heavily atomised, since it is made up of small-sized winemakers, co-operatives and medium-sized enterprises. According to the *Catastro Vitícola y Vinícola* (cadastre of vineyards and wine production),[36] towards the end of the 1970s nearly 40,000 small winemakers controlled over 35% of total domestic production. The average capacity of these small wineries was 606 hectolitres per producer.[37] They were of special importance in regions such as Galicia and Extremadura. On the other hand, 493 companies made up almost 23% of Spanish wine production. These wineries had a higher average capacity, with more than 31,000 hectolitres. Andalucía (especially the area of the major sherry-exporting companies, in the province of Cádiz), the AOC Rioja, and the area of Penedès (Barcelona) were the regions where this kind of winery played a more prominent role (Table 1, Panel A).

In this context the Spanish co-operative wineries developed. The co-operative wineries originated in the late nineteenth century. During the first third of the twentieth century this movement spread, especially in the regions of Cataluña, Valencia and Navarra. In the 1930s there were a hundred such co-operatives.[38]

After the Spanish Civil War, the period 1950–1965 was very fruitful in terms of the creation of new co-operative wineries. In 1953, 286 existed, with an average production of 3 million hectolitres, i.e. 13.04% of the total Spanish wine production for that year.[39] In 1964,

Table 1. Analysis of the Spanish wineries at the end of the 1970s, by the main regions and total.

PANEL A. Capitalist wineries.

| | (1) | (2) | TC (1) | TC (2) | AC (1) | AC (2) | % Cap. (1) | % Cap. (2) |
|---|---|---|---|---|---|---|---|---|
| La Mancha | 4,893 | 75 | 10,696,929 | 1,612,589 | 2,186 | 21,501 | 45.80 | 6.90 |
| Valencia | 411 | 21 | 1,453,179 | 384,335 | 3,536 | 18,302 | 24.78 | 6.55 |
| Cataluña | 1,548 | 63 | 1,251,348 | 708,215 | 808 | 11,242 | 24.43 | 13.83 |
| Aragón | 456 | 18 | 792,541 | 258,623 | 1,738 | 14,368 | 26.49 | 8.64 |
| Andalucía | 612 | 140 | 1,519,831 | 7,361,854 | 2,483 | 52,585 | 14.23 | 68.94 |
| Castilla-L. | 850 | 37 | 1,056,759 | 735,985 | 1,243 | 19,891 | 29.12 | 20.28 |
| Navarra | 98 | 20 | 421,421 | 405,644 | 4,300 | 20,282 | 17.67 | 17.01 |
| Murcia | 239 | 11 | 829,338 | 630,666 | 3,470 | 57,333 | 30.32 | 23.06 |
| Rioja | 2,256 | 48 | 1,319,387 | 2,064,607 | 585 | 43,013 | 32.55 | 50.94 |
| Madrid | 172 | 0 | 633,000 | 0 | 3,680 | 0 | 55.39 | 0 |
| Extremad. | 765 | 14 | 2,167,608 | 615,609 | 2,833 | 43,972 | 68.74 | 19.52 |
| Galicia | 26,638 | 11 | 1,401,424 | 199,924 | 53 | 18,175 | 86.12 | 12.29 |
| País Vasco | 394 | 20 | 346,750 | 349,500 | 880 | 17,475 | 49.02 | 49.41 |
| Spain | 39,760 | 493 | 24,088,985 | 15,408,288 | 606 | 31,254 | 35.37 | 22.62 |

(1): small winemakers; (2): companies; TC: total capacity (in hectolitres); AC: average capacity (in hectolitres); % Cap.: percentage of the total productive capacity made by capitalist wineries.

PANEL B. Co-operative wineries.

| | Co-ops | Memb. | M/C | TC | AC | >50 Cap. | >50 Co-op | % Co-op |
|---|---|---|---|---|---|---|---|---|
| La Mancha | 224 | 67,532 | 301 | 11,045,686 | 49,311 | 3.43 | 23.69 | 47.29 |
| Valencia | 124 | 43,407 | 350 | 4,026,900 | 32,475 | 3.41 | 32.87 | 68.67 |
| Cataluña | 170 | 32,392 | 191 | 3,162,403 | 18,602 | 4.55 | 7.06 | 61.74 |
| Aragón | 62 | 22,632 | 365 | 1,940,590 | 31,300 | 2.19 | 35.71 | 64.86 |
| Andalucía | 56 | 14,745 | 263 | 1,796,757 | 32,085 | 52.12 | 4.49 | 16.83 |
| Castilla-L | 73 | 23,184 | 318 | 1,836,613 | 25,159 | 10.46 | 13.85 | 50.60 |
| Navarra | 68 | 14,085 | 207 | 1,557,912 | 22,910 | 5.36 | 13.41 | 65.32 |
| Murcia | 8 | 4,957 | 620 | 1,275,000 | 159,375 | 15.36 | 30.72 | 46.62 |
| Rioja | 21 | 7,242 | 345 | 668,983 | 31,856 | 41.52 | 0.00 | 16.51 |
| Madrid | 18 | 3,058 | 170 | 509,722 | 28,318 | 0 | 6.56 | 44.61 |
| Extremad. | 17 | 2,479 | 146 | 370,096 | 21,770 | 15.08 | 3.77 | 11.74 |
| Galicia | 5 | 2,862 | 572 | 258,730 | 5,175 | 5.17 | 10.59 | 1.59 |
| País Vasco | 8 | 789 | 99 | 111,540 | 1,394 | 31.81 | 0 | 1.58 |
| Spain | 855 | 239,889 | 281 | 28,615,932 | 33,469 | 15.06 | 16.84 | 42.01 |

Source: Instituto Nacional de Denominaciones de Origen, *Catastro Vitícola y Vinícola*; Circular informativa n° 7/80 de la Junta Nacional de Cooperativas Vitivinícolas (Unión Nacional de Cooperativas del Campo); Estadística sobre cosechas de la Junta Nacional de Cooperativas Vitivinícolas (Unión Nacional de Cooperativas del Campo). Archivo de la Cooperativa del Rosario. Own elaboration.

M/C: members per co-operative; TC: total capacity (in hectolitres); AC: average capacity (in hectolitres); >50 Cap.: percentage over total production of capitalists wineries with capacity more than 50,000 hectolitres; >50 Co-op: percentage over total production of co-operative wineries with capacity more than 50,000 hectolitres; % Co-op: percentage of the total productive capacity made by co-operatives.

600 such entities existed – controlling 40% of the Spanish wine production. New regions were incorporated into this process, especially Castilla-La Mancha, Aragón and Murcia.

The 855 co-operative wineries made up more than 40% of the total capacity of the Spanish wine industry at the end of the 1970s (Table 1, Panel B), and they controlled over 60% of the total production in 1980. Therefore, co-operativism is a key factor in understanding the evolution of the Spanish wine industry over the last few decades. Regarding size and structure, they are similar to capitalist companies, with an average production capacity of more than 33,000 hectolitres. Both kinds of companies were the main wineries in almost all the regions, and the largest. Major capitalist and co-operative wineries (with more than 50,000 hectolitres capacity) controlled 32% of the total domestic production, around the 15% everyone. Eighty per cent of sherry wine was monopolised by these big capitalist firms, and more than 40% in La Rioja. Big co-operatives, on the other hand, controlled 24% of the total production in Castilla-La Mancha, and more than 30% in Valencia, Aragón and Murcia (Table 1, Panel B). In the regions where capitalist firms predominated, the co-operative wineries became their suppliers of raw material (wine in bulk); meanwhile, they competed with one another for the rest of the country.[40]

In 2008 there were 625 co-operative wineries. They produced around 70% of Spanish wine and their membership included 80% of winegrowers of the country.[41] Today Spanish co-operativism has reached a level similar to that achieved in other European countries which have a longer tradition of wine-growing, such as France and Italy. Therefore, the development of the co-operative wineries greatly helped to increase production and the industrialisation of the Spanish wine sector, largely as a consequence of vertical integration.



## 5. Financial analysis of Spanish co-operative wineries

### *5.1. Balance-sheet structure*

This section will focus on the analysis of the balance-sheet structure. Figures 1 and 2 show that fixed assets were more significant in the asset structure of these wineries than the average shown by the wider food and drinks sectors. This reflects a higher investment effort in buildings, facilities and machinery.

The Francoist state granted the financial support necessary for the construction or the expansion of processing plants and for their subsequent modernisation. This was predominantly done through the concession of grants or soft loans.[42] In the 1940s, all co-operatives were incorporated into state structures, a situation that remained unchanged throughout the duration of the regime. The sharp drop in wine prices in the 1950s drove the state to promote the institution of co-operative wineries in order to create the means to control prices and production in a sector with a traditional trend towards overproduction.[43] This explains that fixed assets were more significant for these firms than in the food sector at large. Institutions such as the *Instituto Nacional de Colonización* (National Institute of Colonization), the *Servicio Nacional de Crédito Agrario* (National Service of Agrarian Credit), and the *Banco de Crédito Agrícola* (Bank of Agricultural Credit) granted these subsidies and soft loans: see Table 2 for a good example. We can see how in the period 1963–1966 the *Banco de Crédito Agrícola* (Bank of Agricultural Credit) gave approximately 50% of the total credits granted to agricultural co-operatives. Moreover, the Spanish Ministry of Agriculture also favoured the development of the co-operatives. That institution helped them to purchase agrarian machinery, inputs, and bought some of the wine produced during times when prices were low due to overproduction and market saturation. The financial dependence of the Spanish co-operative wineries was their rational response to the incentives provided by the aid granted by the state.

As a consequence, investment in current assets was less pronounced. Inventories also seem to have been significantly larger than with other Spanish firms, even considering the fact that firms in the food sector always tend to keep substantial stocks due to the seasonal nature of their activity.[44] Co-operative wineries had to process all the produce contributed by their partners, following productivist criteria and causing stocks to frequently last from one harvest to the next.[45]

The sizeable inventories permitted these firms to respond swiftly to large orders, which are not uncommon in the sector, but also generated high maintenance costs, burdening performance. The current analysis of co-operative wineries in the Spanish region of Castilla-La Mancha carried out by Díaz-Barceló and Alonso shows that the keeping of oversized inventories remains a significant problem today.[46] The co-operative wineries in the provinces of Alicante, La Rioja and Navarra present a similar problem.[47]

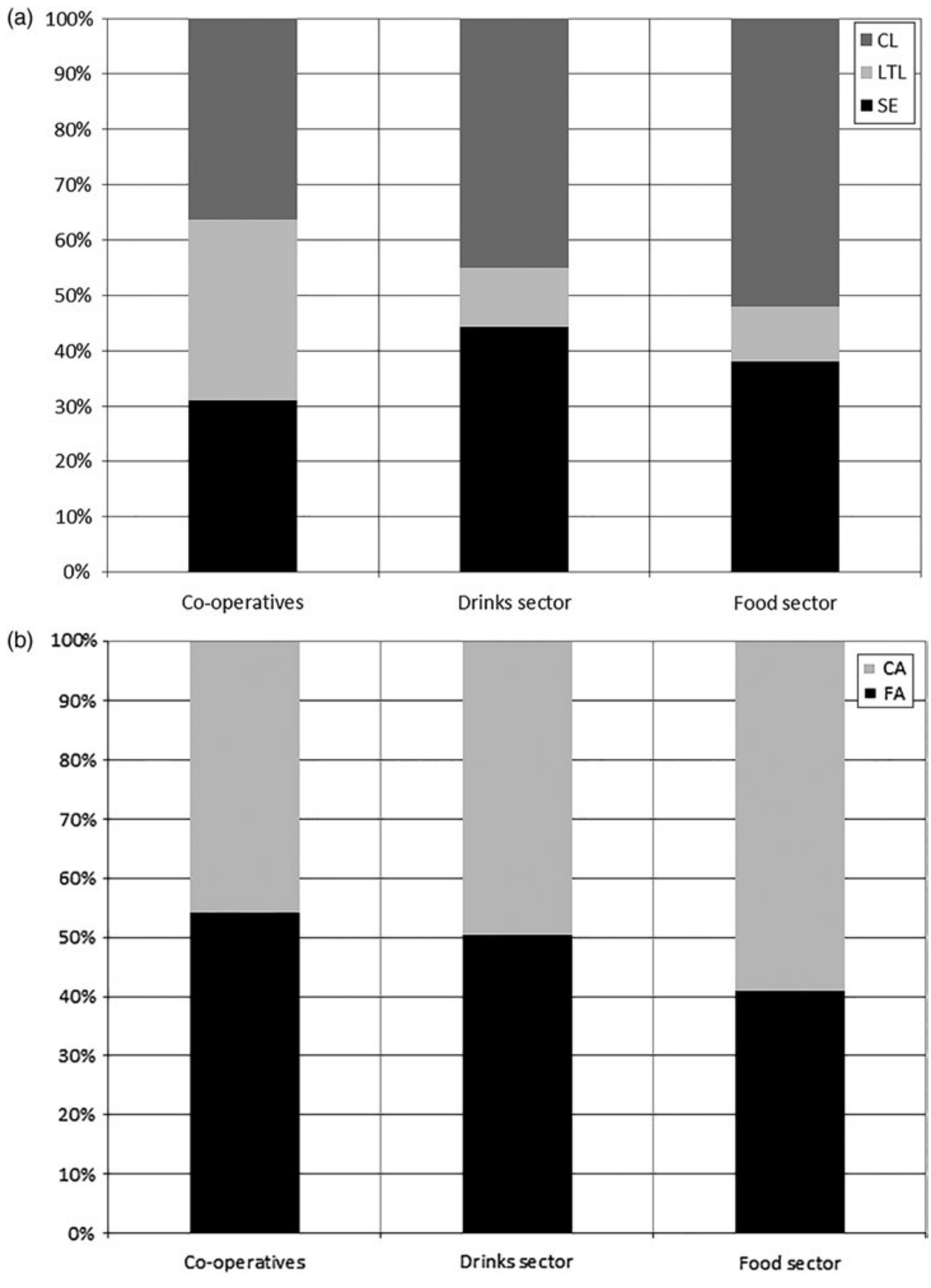


Figure 1. Balance-sheet structure in the Spanish co-operative wineries during the 1970s, compared with the Spanish food and drinks sectors (1981). (a) Assets* and (b) Equity and liability**. Source: AGA (14) 001.004, *Balances de cooperativas*; Banco de España, *Central de Balances*. Own elaboration.

*CA: current assets; FA: fixed assets; **CL: current liabilities; LTL: long-term liabilities; SE: shareholders' equity.

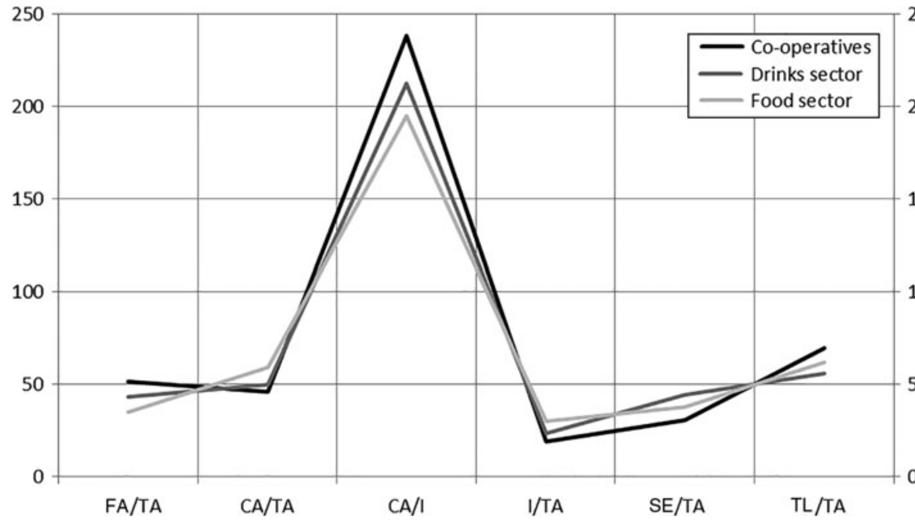


Figure 2. Balance-sheet structure ratios (assets* and equity-liability**) in the Spanish co-operative wineries during the 1970s, compared with the Spanish food and drinks sectors (1981). Source: AGA, (14) 001.004, *Balances de cooperativas*; Banco de España, *Central de Balances*. Own elaboration. *CA: current assets; I: inventories; FA: fixed assets; TA: total assets **SE: shareholders' equity; TL: total liabilities; TA: total assets

Table 2. Distribution of the loans granted by the *Banco de Crédito Agrícola* (Bank of Agricultural Credit), 1963–1966 (Pesetas).

| Concept or receiver | Amount (pts.) | % |
|---|---|---|
| **Machinery** | 1,000,000 | 2.66 |
| **Instituto Nacional de Colonización (INC)[1]** | 2,170,000 | 5.78 |
| **Servicio de Concentración Parcelaria[2]** | 300,000 | 0.80 |
| **Medium-term loans** | 3,681,000 | 9.81 |
| **Agricultural co-operatives** | 18,850,000 | 50.21 |
| **Investments** | 1,078,000 | 2.87 |
| **Slaughterhouses** | 1,000,000 | 2.66 |
| **Agricultural industries (capitalists)** | 1,400,000 | 3.73 |
| **short-term loans** | 626,000 | 1.67 |
| **Special loans** | 5,065,000 | 13.49 |
| **Priority sectors** | 332,000 | 0.88 |
| **Others** | 2,038,000 | 5.43 |
| **Total** | 37,540,000 | 100 |

Source: AGA, Ministerio de Agricultura, 61/13058. *Documentación del Banco de Crédito Agrícola*. Own elaboration.
1: National Institute of Colonization; 2: Land Concentration Service.

Concerning the structure of liabilities, the most relevant aspect is the strong dependence on external financing and the limited role of shareholders' equity in providing the means to undertake major investment operations and to respond to fixed costs and operating charges. Financial debt amounted to nearly 70% of total liabilities, in contrast with an average of 55.62% and 61.69% in the food and drinks sectors. To make matters worse, this occurred at a delicate juncture, when the state and the wineries were making strenuous efforts towards the replacement of obsolete technology in order to adapt to new market conditions, the crisis which was hitting the sector and the new technology available in the 1970s.[48]

These firms could only cover 30.60% of their investment with shareholders' equity, either in the form of fixed or of current assets, a low level with regard to the wider alimentary sector (Figure 1). This reinforces the idea of their recurrent financial problems. Their dependence on external funds in the long-term was therefore much higher than in the wider food and drinks sector. Apart from fixed assets, for which the shareholders' equity available was insufficient, a part of the current assets was also covered with long-term debt, increasing financial costs.

The asset structure was dominated by investment in plant and machinery (fixed assets), the current assets being mostly in the shape of inventories. This shows the difficulties faced at the commercialisation level. This investment had to be largely covered with debt, mostly long-term, generating higher financial costs; in short, a structure conducive to poor performance, as we shall see in more detail in the following sections.

### 5.2. *Financial equilibrium*

In theory, a firm achieves a situation of financial equilibrium when the fixed assets and part of the current assets can be covered with shareholders' equity and long-term

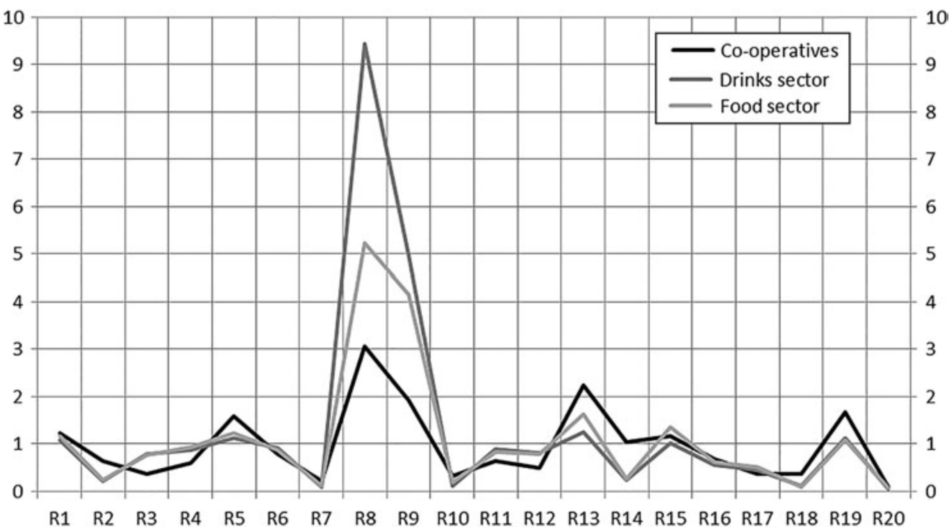


Figure 3. Financial equilibrium ratios* in the Spanish co-operative wineries during the 1970s, compared with the Spanish food and drinks sectors (1981). Source: AGA, (14) 001.004, *Balances de cooperativas*; Banco de España, *Central de Balances*. Own elaboration. *R1: shareholders' equity + long-term liabilities/non-current assets; R2: long-term liabilities/non-current assets; R3: fixed capital/non-current liabilities; R4: shareholders' equity/non-current liabilities; R5: shareholders' equity/fixed capital; R6: current liabilities/current assets; R7: current capital/current assets; R8: shareholders' equity/current capital; R9: inventories/current capital; R10: current capital/ shareholders' equity; R11: fixed capital/shareholders' equity; R12: shareholders' equity/ shareholders' equity + non-current liabilities; R13: total liabilities/shareholders' equity; R14: long-term liabilities/shareholders' equity; R15: current liabilities/shareholders' equity; R16: total liabilities/total equity and liabilities; R17: current liabilities/total equity and liabilities; R18: current liabilities/total equity and liabilities; R19: fixed assets/shareholders' equity; R20: working capital ratio (current assets - current liabilities)/total assets

liabilities.[49] The R1 in Figure 3, showing values over 1 indicates that, in principle, Spanish co-operative wineries were in a situation of financial equilibrium.

The problem arises when the percentage of shareholders' equity and long-term liabilities are analysed (through ratios R2, R3, R4 and R5). The high value of R2 and the low value of R3, when compared with other firms in the food and drinks sectors, reveals a strong dependence on long-term debt. The percentage of fixed assets covered by shareholders' equity was low, as shown by R4. A comparatively high R5 shows the high incidence of long-term liabilities.

A situation of financial equilibrium existed, but with a comparatively low participation of shareholders' equity and an excessive incidence of long-term liabilities. This generated higher financial costs, which could only have been accepted had they resulted in higher profitability which, as we shall see in the following section, was not the case. This high level of indebtedness was but a contingency expedient aimed at survival by patching up performance problems. Díaz-Barceló and Alonso point to similar problems in co-operatives currently in operation in La Mancha, where a comparatively high percentage of fixed assets are covered with debt.[50] As shown in Figure 3, this ratio (R19) reaches values as high as 168% in co-operative wineries, in contrast with an average of 113% and 108% in the wider food and drinks sectors respectively.

Ratio R6 measures the current asset structure of the firm by showing the proportion of current investment being met with current liabilities. A low score in this ratio once again shows a strong dependence on long-term loans. Similarly, ratios R7 and R8 indicate a comparatively high incidence of current assets on current liabilities and the low proportion of shareholders' equity in the current asset structure. This is complemented with a high working capital ratio (R20), which shows the high share of long-term liabilities in financing current assets.

In a firm with financial equilibrium, shareholders' equity must partially cover fixed and current assets.[51] Ratios R10 and R11 show whether this is the case and in what proportion. The scores stress what we already know. The percentage of shareholders' equity used to cover current assets is too high while its incidence on fixed assets is too low. In the long run, therefore, incurring long-term liabilities was made necessary by the limited impact of shareholders' equity (R12). This is also shown by ratios R13-14-15-16-17 and 18, measuring indebtedness, a matter which we shall explore in more detail below.

In summary, Spanish co-operative wineries enjoyed conditions of financial equilibrium. However, the limited shareholders' equity available and the need to recourse to long-term loans made them inefficient. This shows how important the financial support provided by the state must have been for the equilibrium of the balance sheet and for day to day performance. This support was given in the shape of short-term – with which to cover current assets – and long-term loans.[52] These firms survived thanks to state support.

### 5.3. Liquidity

The Spanish co-operative wineries under analysis did not present excessive short-term liquidity problems. The data show that their liquidity was acceptable, and that they had sufficient financial and technical resources to operate without interruption. In the short-term, cash ratio presented a value of 0.78 (Figure 4), higher than average in the food and drinks sectors and very close to the interval recommended in the specialised bibliography (0.8–1).[53] This reveals the absence of major problems with liquidating payments in the short-term. This was made possible by the short-term loans granted by the state. As shown

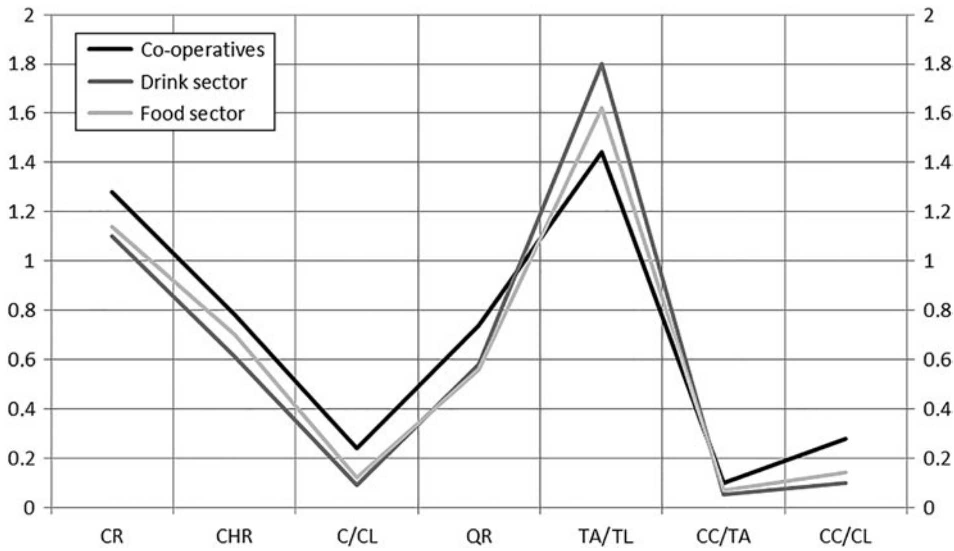


Figure 4. Liquidity ratios* in the Spanish co-operative wineries during the 1970s, compared with the Spanish food and drinks sectors (1981). Source: AGA, (14) 001.004, *Balances de cooperativas*; Banco de España, *Central de Balances*. Own elaboration. *current ratio (CR): current assets/current liabilities; cash ratio (CHR): (cash + cash equivalents + marketable securities)/current liabilities; C/CL: cash/current liabilities; acid-test (quick) ratio (QR): (cash + cash equivalents + marketable securities + accounts receivable)/current liabilities; TA/TL: total assets/total liabilities; CC/TA: current capital/total assets; CC/CL: current capital/current liabilities

in the appropriate section, these wineries faced problems in meeting short-term payments autonomously. The state stepped in to rescue them on numerous occasions.[54]

The C/CL ratio shows a similar trend, with a value above average with regard to the food sector and also above the minimum recommended value (0.10).[55] This also applies to the mid-term, since current ratio and acid test ratio are above the average in the food sector and approach the ideal values of 2 and 0.8 respectively.[56]

Conditions for the long-term were very different. These firms were capable of meeting their short-term commitments, but their long-term dependence on external funding pushed the TA/TL ratio[57] below the average in the food sector. This reflects a limited ability to respond to all debt, because of the strong dependence on external funding sources in the long run and the high risk of bankruptcy.[58] This is shown in Figure 4.

In conclusion, Spanish co-operative wineries faced problems with meeting payments due to their severe dependence on external capital. Their solvency was propped up by state grants, at least in the short and in the mid-terms, but their ability to meet their commitments in the long-term remained problematic.

### *5.4. Debt*

This section analyses the financial debts faced by the wineries under analysis in the short and in the long-term, along with the main features and quality of said debts. The total debt to equity ratio (R1) was 2.24, against 1.62 in the food sector and 1.25 in the drinks processing sector (Figure 5). This value is well above the theoretical maximum, which is around 1.[59] A higher value indicates an excess of debt, the loss of financial autonomy before third parties, and a high level of financial risk.[60]

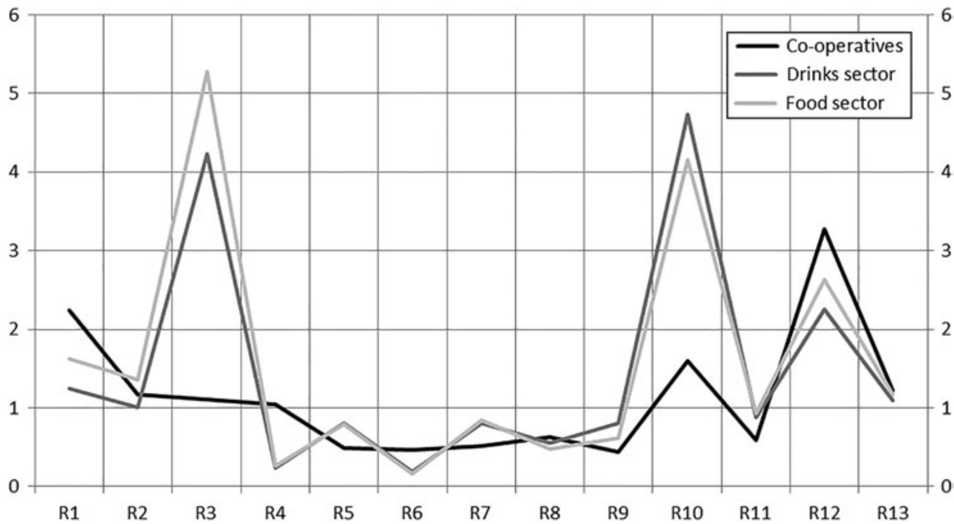


Figure 5. Debt ratios* in the Spanish co-operative wineries during the 1970s, compared with the Spanish food and drinks sectors (1981). Source: AGA, (14) 001.004, *Balances de cooperativas*; Banco de España, *Central de Balances*. Own elaboration. *R1: total debt to equity ratio (TDER): total liabilities/shareholders' equity; R2: current liabilities/shareholders' equity; R3: current liabilities/long-term liabilities; R4: long-term debt to equity (LTDE): long-term liabilities/ shareholders' equity; R5: shareholders' equity/(shareholders' equity + long-term liabilities); R6: long-term liabilities/total liabilities; R7: current liabilities/total liabilities; R8: (shareholders' equity + long-term liabilities)/total equity and liabilities; R9: shareholder's equity/total liabilities; R10: non-current assets/long-term liabilities; R11: shareholders' equity/non-current assets; R12: financial leverage ratio (FLR): total assets/shareholder's equity; R13: (shareholders' equity + long-term liabilities)/non-current assets.

As mentioned above, the most important reason for this was long-term debt. This is shown by ratio R4 – significantly above the average in the food and drinks sectors – which shows that payment of long-term commitments was much more reliant on long-term liabilities than on the shareholders' equity. To a similar effect, the values reflecting the proportion of shareholder's equity in the structure of the firms' liabilities was below the average in the sector (R5). These values are on average below 0.5, showing that these firms were near saturation point concerning debt capacity.[61] Conversely, ratios R2 and R3 show that short-term debt ratios were similar, if not lower, than in the sector at large.

All of this confirms that the debt was mostly realised in the form of long-term loans, with a strong dependence on public and private financial institutions. The quality of the debt, however, was higher than the average in the food processing sector. In these co-operatives, short-term commitments amounted to a smaller proportion of total liabilities than in the wider sector, and long-term debt covered a larger proportion of total liabilities. Public financial help contributed to turn short-term liabilities into long-term debt. This allowed for a correct performance despite a strong dependence on external capital. All this is shown in Figure 5.

Studies referring to more recent scenarios, also suggest an excessive dependence on long-term loans in co-operative wineries in the regions of Castilla-León, Valencia or Navarra.[62]

This idea is further confirmed by the analysis of the degree of financial autonomy. Figure 5 shows that these firms had less autonomy (R9), consistency (R10) and soundness (R11) but higher financial leverage ratio (R12) and stability (R13) than average. The R9 ratio is inversely proportional to the total debt to equity ratio, showing the limited autonomy of wineries in selecting their sources of capital. This implied high risk, high financial costs and problems with finding new external sources of capital, due to the lack of trust that their situation generated. Their value, 0.44, was far from the ideal interval (0.7–1.5) and from the average in the food and drinks sector.[63]

The R10 ratio shows that these firms offered their long-term creditors little guarantee for repayment, and also reflects what proportion of the fixed assets were substantiated by long-term debt. This indicates that occasional episodes of general instability ensued. The ideal value is 2, and while co-operative wineries remained below this, the average of the sector was significantly above. This is connected with the low R11 and with the high level of financial leverage ratio (R12); that is, the fact that only a small proportion of fixed assets was backed with shareholders' equity, a situation which offers creditors little guarantee. The R13 was the only positive variable, showing a higher quality long-term debt.

In conclusion, these variables show an excessive, but also stable and good-quality debt, achieved thanks to state support. This debt should not have necessarily been a major problem if the related investment had resulted in high returns. In the following paragraphs we shall see that this was not the case, putting many of these wineries on the verge of financial bankruptcy because of the burden of long-term commitments.

### *5.5. Profitability*

Some profitability ratios, such as total asset turnover or fixed asset turnover, show that the investment did not result in proportional returns, as could have been expected (Figure 6). This is particularly true regarding fixed assets, for which ratios show lower values than in the food and drinks sectors at large. This is despite the considerable investment efforts made by these firms and the state in fixed assets (buildings, plants and machinery); as previously pointed out, in fact, fixed assets in these firms amounted to a larger proportion of total assets than in the wider agri-food sector.

Nor was the value presented by the working capital turnover positive, while the TA/S ratio shows that sales were not achieving their full potential, and the proportion of total assets in relation to sales was much higher than in the wider sector. This reveals an overinvestment in fixed assets with no positive effect on the commercialisation problems. This is the typical scenario of large production structures with problems adapting to new market trends.

Another piece of information pointing in the same direction is the ratio between fixed assets and the quantity of grapes brought in by the partners. This ratio indicates whether plant and machinery were being used adequately or whether they were over equipped with regard to the quantity of grapes that needed processing, generating high amortisation costs.[64] In the sample, calculations result in an investment of 13.86 pesetas per kilo of grape, a very high value, showing a severe imbalance in this chapter.

The profit margin shown by sales also indicates less efficient practices than in the wider food and drinks sectors (Figure 6). This is essentially because wine co-operatives sold most of their production in bulk, a product with less added value than bottled wine. Spanish co-operative wineries, therefore, embraced a productivist approach, following an extensive model, selling in bulk and obtaining smaller profit margins. Díaz-Barceló and

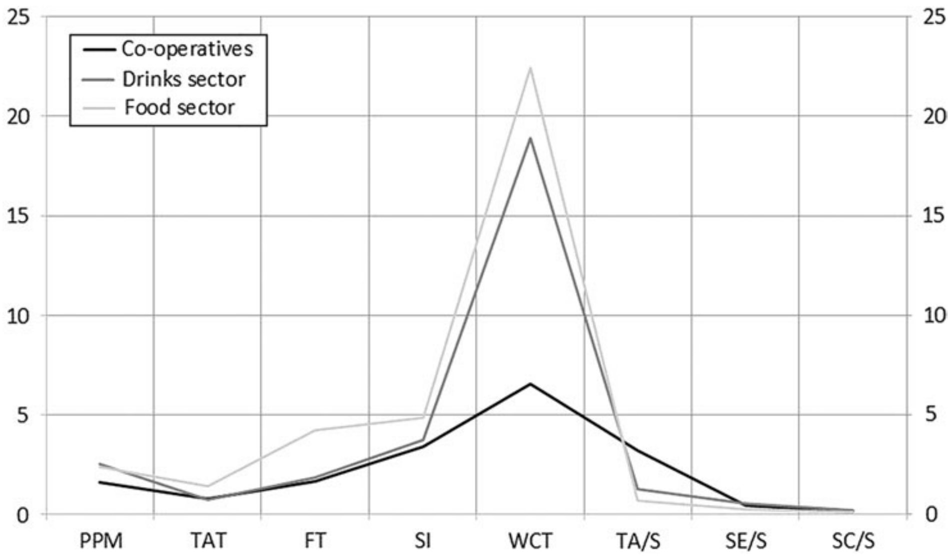


Figure 6. Asset utilization and efficiency ratios* in the Spanish co-operative wineries during the 1970s, compared with the Spanish food and drinks sectors (seasons 1981–82, 1982–83, 1983–84, on average). Source: AGA, (14) 001.004, *Balances de cooperativas*; Banco de España, *Central de Balances*. Own elaboration. *Pretax profit margin (PPM): income before income tax/sales; total asset turnover (TAT): sales/average total assets; fixed asset turnover (FT): sales/averaged fixed assets; sales to inventory (SI): sales/average inventory; working capital turnover (WCT): sales/average working capital (current assets – current liabilities); TA/S: total assets/sales; SE/S: shareholders' equity/sales; SC/S: staff costs/sales.

Alonso show that in 2008 wine co-operatives in the Spanish region of Castilla-La Mancha were still not adapted to market conditions, and profit margins were similar to those in the 1970s.[65] Most of their sales are still in bulk. Other authors suggest a similar scenario for co-operative wineries in several Spanish regions: Castilla y León, Valencia, and Navarra.[66]

The sales to inventory ratio also indicates the keeping of oversized stocks in relation to total assets. This, once again, reveals commercialisation problems. This circumstance is also related to the need to reserve part of the production for ageing and bottling. Co-operatives in Castilla-La Mancha in 2008 presented a similar scenario, if anything, more acutely.[67]

However, the ratio between staff costs and sales shows that personnel-related expenses were in balance with those paid in the rest of the sector. The number of employees and the salaries paid were kept at moderate levels. For decades, management positions were filled by the associates themselves, with no extra remuneration. Most of the remaining personnel were relatives of associates and were paid lower wages.[68] This remains a competitive advantage of co-operative wineries in Castilla-La Mancha, as shown by the low value of cost-per-employee ratio and by the high sales-per-employee ratio.[69]

With regard to returns, Figure 7 shows much lower ROA, ROE and ROCE values than the average in the food and drinks sectors. This suggests a poor performance due to excessive debt.

The return on assets ratio (ROA) establishes the relationship between the productivity of assets and returns. The average for the sample is 0.61, against 1.96 in the drinks sector and 3.94 in the wider food sector. This low profitability was caused by overinvestment and

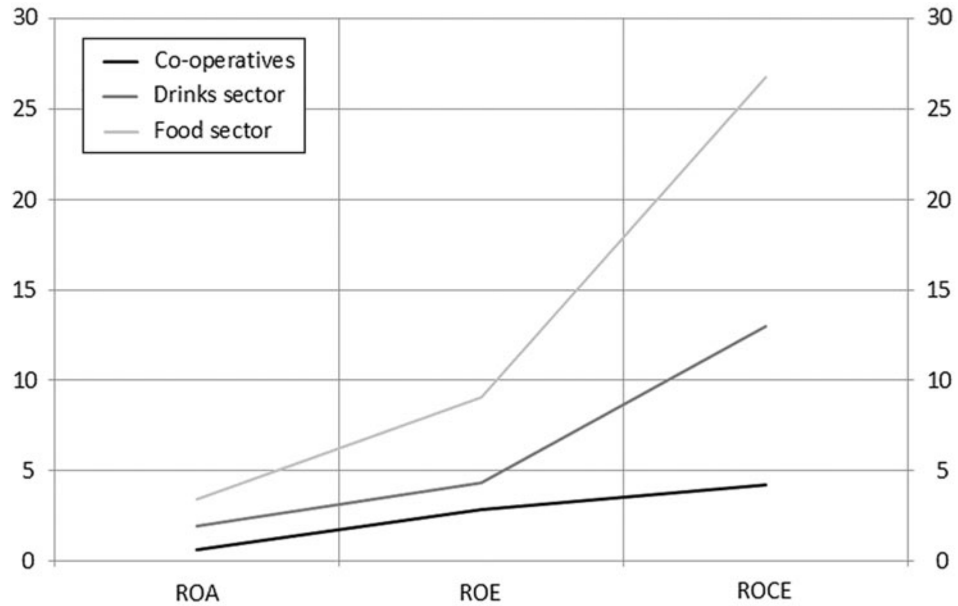


Figure 7. Profitability ratios* in the Spanish co-operative wineries during the 1970s, compared with the Spanish food and drinks sectors (seasons 1981–82, 1982–83, 1983–84, on average). Source: AGA, (14) 001.004, *Balances de cooperativas*; Banco de España, *Central de Balances*. Own elaboration. *return on assets (ROA): net income/average total assets; return on equity (ROE): net income/average shareholder's equity; return on capital employed (ROCE): net income/(shareholders' equity + long-term liabilities)



by the sale of a product with little added value and immersed in a decreasing trend due to market changes. Return on equity (ROE) shows the efficiency of shareholders' equity, which was also low due to its small overall significance and the excess of debt. In this regard, co-operative wineries presented a value of 2.86 against 4.43 and 10.37 in the drinks and food sectors respectively. Return on capital employed (ROCE) offers similar conclusions.

Legally, these were considered non-profit oriented firms,[70] which also had an effect on the low returns. Once production costs were covered, profits were distributed among associates under the appearance of payment for the grapes brought in – sharp overpricing is the norm. The remnants left in the firm and accounted for as profit were therefore very small, also a way to 'hide' profits and pay less taxes. In addition, legal provisions commanded this remnant to be deposited with social and reserve funds,[71] further encouraging these practices. Several authors suggest that, in these firms, profits were of but a residual character:[72] '[ . . . ] a policy of profit distribution hidden under the cover of payment for the raw materials contributed by the associates'.[73]

A lot of authors point out similar facts in the co-operative wineries today in regions such as Castilla La-Mancha; Valencia; La Rioja; Navarra; or Castilla y León.[74] Gómez-Limón, Casquet and Atance have tried to correct the limited reliability of profitability ratios by creating a specific formula for agricultural co-operatives in the Spanish region of Castilla y León, factoring in the difference between the prices paid to associates and market prices in order to reveal these hidden profits.[75] In our case this formula has not been applied due to the scarcity of data available. At any rate, the authors warn that, even if the application of the formula suggests better profitability levels, the values are still below those corresponding to private wineries in the same region.

Other authors have used total asset turnover to indicate the degree of efficiency of agrarian co-operatives. Their conclusions reinforce the ideas presented in this article. Figure 6 shows that total asset turnover and fixed asset turnover ratios were significantly lower than in the wider food processing sector. This stresses the idea of the low profitability of investment.[76]

In summary, limited profitability values indicate that these firms did not make an efficient use of their investments and of their financial resources. As we saw above, a high debt scenario, as long as it results in high returns, is not in itself critical, but this was not the case. Favourable conditions in the 1950s and the 1960s drove the sector to a considerable process of expansion; decreasing prices and public policies towards the creation of co-operative wineries are key factors in understanding this phenomenon. The context, however, changed significantly in the 1970s, and co-operative wineries were forced to undergo a process of adaptation. State policies did not help, and efficiency problems became more acute, ultimately sinking the sector into a deep crisis and imposing the need for a profound process of restructuring which is still ongoing.

### *5.6. Investments*

As already mentioned, Spanish co-operative wineries had a low profit margin, and shareholder's equity in the structure of the firms' liabilities was also low. Therefore these firms were hardly able to self-finance their investments, for example the construction of the plants or technological renovation. They were important to compete in the markets and to offer a higher price for the grapes, what supposed the maintenance of attractive conditions for the members.

These entities financed their investments through debt or by retaining a portion of the payments to the members for their grapes, although this latter method generated many problems. The creation of co-operatives resulted in the industrialisation and modernisation of the wine sector in the majority of the Spanish vineyards, where a weak capitalist sector was not able to undertake these processes. The co-operative wineries meant that a lot of wine growers could access modern technologies for the production process, thus reaching economies of scale. The first large investment, during the 1940s, 1950s and 1960s, consisted of the construction of the plant and the purchase of machinery resulting in the production of wine via an industrial process.

In the next decades the Spanish co-operatives wineries adapted to the new market trends by expanding the plants, installing the first machines for bottling (using cold processing technology), stainless steel tanks and renewing ageing warehouses. Moreover, these firms started to use brands, advertising and marketing strategies. From the 1980s to the present day, the Spanish co-operative wineries, like the whole wine sector, have carried out a process of definitive modernisation in order to compete in the national and international markets. This was a massive restructuring process that took great effort and was the cause of heavy debts, as analysed in this article.[77]

## 6. Conclusion

The main aim of this article is to determine whether Spanish co-operative wineries were efficient firms and up to what point they were created as a contingency measure to confront a critical economic period within a dictatorial political setting. The results of this analysis will ratify or falsify the theoretical trend according to which co-operative firms are a useful tool for overcoming conditions of temporary market failure, but also a form of firm with intrinsic efficiency problems.

The first conclusion that we may obtain from the analysis is that Spanish co-operative wineries were not efficient from a financial perspective. These firms suffered from several shortcomings which gravely affected performance, despite which they underwent a significant process of expansion thanks to favourable environmental conditions and extensive state support.

Ratio analysis shows their high degree of financial dependence due to their significant long-term debt; shareholders' equity played a minor role in their financial structure, forcing them to constantly resort to external, public or private, financing in order to acquire the levels of liquidity and solvency required to meet payments; the refinancing of long-term debt always remained problematic. They could be said to be in a state of financial saturation.

Technically, they were in a position of financial equilibrium, because they covered fixed assets and part of current assets with shareholders' equity and long-term debt. Regarding this, state support was essential, by offering subventions and soft loans to keep co-operatives afloat. Following this, debt levels became excessive, especially because they did not result in increased returns.

This debt was not used for efficient investment. Current assets were financed to a significant degree with long-term loans, resulting in good liquidity and solvency indicators. In addition, the state offered important support in the acquisition of fixed assets (buildings, plant and machinery). Profitability indicators show, however, that investment was not being carried out efficiently and resources were not being optimised. The turnover was below potential and the plants were over equipped; also, commercialisation was problematic, especially in a contractive environment.

They were not efficient because their financial dependence was the rational response to the incentives provided by the subsidies and soft loans granted by the state. These co-operatives did not appear spontaneously, but were set up by the state and given a fixed structure based on a rigid legislation. They did not respond to rational efficiency criteria, and they lacked a defined ideological substratum and their own organisational drive.

## Acknowledgements

This work was supported by the Spanish Ministry of Economy and Competitiveness [under grant HAR2013-47182-C02-01] and Séneca Foundation (Region of Murcia, Spain) [under grant 11992/PHCS/09]. I would like to acknowledge the suggestions of Josep Pujol, José Miguel Martínez-Carrión, Salvador Calatayud and Vicente Pinilla. This article has also benefited from the comments of the journal's referees. Obviously, all errors remain my own.

## Notes

1. Hansmann, *The Ownership of Enterprise*.
2. Ward, "The Firm in Illyria."
3. Guinnane, "Cooperatives as Information Machines."
4. Henriksen, "Avoiding Lock-in"; Henriksen, Hviid, and Sharp, "Law and Peace"; Henriksen, Lampe and Sharp, "The Role of Technology"; Henriksen and O'Rourke, "Incentives, Technology."
5. O'Rourke, 'Property Rights"; O'Rourke, "Culture, Conflict and Cooperation."
6. Fernández, "Selling Agricultural Products."

7. Menzani and Zamagni, "Cooperative Networks"; Battilani and Zamagni, "The Managerial Transformation."
8. Galassi, "Measuring Social Capital."
9. Simpson, "Cooperation Cooperatives."
10. Some authors consider the State is the key factor to explain the development of co-operatives from a theoretical approach. The State helps to solve problems as capitalisation. Vanek, *The General Theory of Labour* and *The Economics of Workers*; Ben-Ner, "Life Cycle Worker-owned Firms." Several researchers point out the important role of the State in the development of European co-operative wineries (Chevet, "Cooperative Cellars," 261–262; Chiffoleau, Dreyfus, Ewert, and Touzard, "Wine Cooperatives Face Demand Quality," 383–384; Fernández, "Productores, comerciantes y el estado," 157; Loubère, *The Wine Revolution*, 140; Simpson, "Cooperation and Cooperatives," 115). Other sectors are highlighted in the articles of Henriksen, "Avoiding Lock-in"; Henriksen et al., "Law and Peace"; Henriksen et al., "The Roles of Technology" in the Danish co-operative dairies case; Guinnane and Martínez-Rodríguez, "Cooperatives Before Cooperative Law" in the general Spanish case.
11. Several theoretical and empirical studies about the Spanish agrarian co-operatives ratified this idea. Caballer, "En torno al comportamiento empresario," " El comportamiento empresarial," *Gestión y contabilidad*, "El asociacionismo." This researcher considers these societies help to improve the farmer's incomes. In fact, that is the main target of farmers when they are co-operative members.
12. Medina-Albaladejo, "Cooperativismo y sector vitivinícola."
13. Toms reaches the same conclusion in his study about British textile co-operatives at the end of the nineteenth century. He considers that the failure of these entities was not in their democratic organisation. On the contrary, this fact supposed a better financial performance and a greater participation of the members in management. According to this author, the main reason of this failure was the growth of the ownership size in these co-operatives. That supposed more members demanding greater dividends; a restriction of shareholders' equity; and very similar financial problems to those explained in this work for Spanish co-operative wineries. Toms, "Producer Co-operatives," 875.
14. Medina-Albaladejo, "Cooperativismo y sector vitivinícola."
15. The concept of 'free-riding behaviour' is applied to employees who reduce their individual effort, thus hampering the efficiency of team work and business performance. Capitalist firms try to solve this problem through the application of diverse control mechanisms (Alchian and Demsetz, "Information Costs"). According to Ward ("The Firm in Illyria"), 'free-riding' was an intrinsic problem for co-operative firms. Members tend to behave opportunistically in order to maximise their individual profit maximisation, instead of working for the general good of the company. This problem is a very serious one in co-operatives where little common ideological commitment exists. It is common in regions where low social capital conditions prevail, and where the creation of these firms was not spontaneous, but was essentially promoted by the State, for example, Spanish co-operative wineries in the second half of the 20th century. The Francoist regime encouraged the creation of these firms, which grew rapidly in a period in which grapes were bought at a high price regardless of quality. When the environmental conditions changed, many members withdrew their participation and opportunistic behaviour soared. Often, members only aimed to maximise their individual profit, without taking into consideration the firms' investment needs. They therefore demanded that their grapes were bought at a high price as well as a larger share in the firms' profits. This is the reason behind the fact that many of these firms had to resort to external funding sources, instead of using the shareholders' equity, in order to make short-term payments and receive investment. Moreover, after a good harvest, some of the co-operative members sold their best produce in the open market, where they could obtain better prices, even if this was not permitted by the rules of membership. At the same time, they still sold their low-quality produce to the co-operative, at overpriced rates, taking advantage of the lack of efficient quality control mechanisms. These were common problems among Spanish co-operative wineries, which had detrimental effects on their performance and efficiency. Medina-Albaladejo, "Cooperativismo y sector vitivinícola."
16. Kramper considers the main causes of the co-operative firm's failure to be the changing economic conditions and a highly competitive environment. These factors cause insolvency and the loss of social character. He reached this conclusion through a study of three empirical

cases: the German consumer co-operatives, the Japanese credit co-operatives, and the agricultural co-operatives in the United States. Kramper. "Why Cooperatives Fail."

17. In the Italian case the national co-operative associations are very important (Legacoop and Confcooperative). They helped to the co-operative wineries to restructure, modernise their management and adapt to the new market trends. Italy became a successful case. It shows that co-operatives not only are a useful tool in crisis situations, but in periods of economic growth co-operatives can be efficient and compete with capitalist business. All this took place through mergers and vertical or horizontal integrations at regional or national level throughout the second half of the twentieth century. The *Consorzi* were created (second degree co-operatives), reaching the optimal size to obtain competitive advantages in the national and international wine markets. Today the co-operative wineries dominate the top of the ranking of Italian wine companies by turnover and exports. Menzani and Zamagni, "Cooperative Networks," 121–122; Battilani and Zamagni, "The Managerial Transformation," 980–981; Cogeca, *Agricultural Cooperatives*.
18. Borgaza and Tortia, "Dalla cooperazione," 226–230; Monzón, "El cooperativismo," 13–22.
19. Ward, "The Firm in Illyria."
20. Alchian and Demsetz, "Informations Costs"; Domar, "The Soviet Collective"; Furubotn and Pejovich, "Property Rights"; Meade, "The Theory of Labour-managed Firms"; Meade, "Labour-managed Firms"; Meade, "The Adjustment Processes"; Vanek, *The General Theory Labour* and *The Economics of Workers*; Jensen and Menckling, "Theory of the Firm" and "Rights and Production", among others.
21. Hansmann, "The Role of Nonprofit Enterprise," "Ownership of the Firm," and *The Ownership of Enterprise*.
22. Some empirical studies helped this approach. For instance, Reiner and Wolpert ("The Non-profit Sector") tried to show that when the Philadelphia area (United States) was declining, an important non-profit sector was developed. This fact is due to the capital invested in that sector was derived from a decadent capitalist industry.
23. Axelrod, *The Evolution of Cooperation*; Boswell, *Community and the Economy*; Birchall; *The International Co-operative*; Fehr and Fishbacher, "Why Social Preferences Matter"; Svendsen and Svendsen, *The Creation and Destruction*; Zamagni, *Non profit*; Sacconi, *The Efficiency of the Nonprofit*.
24. Borgaza and Depedri, "Interpersonal Relations"; Casson and Della Giusta, "Co-operatives as Entrepreneurial"; Evers and Laville, *The Third Sector*; Milgrom and Roberts, "An Economic Approach."
25. Hansmann, "The Role of Nonprofit Enterprise," "Ownership of the Firm," and *The Ownership of Enterprise*.
26. Gui, "Limit to External Financing."
27. Furubotn and Pejovich, "Property Rights."
28. Kremer, "Why are Worker Cooperatives."
29. Hansmann, "The Role of Nonprofit Enterprise," "Ownership of the Firm," and *The Ownership of Enterprise*.
30. Ben-Ner, "The Life Cycle of Worker-owned Firms."
31. Jossa and Cuomo, *The Economic Theory*.
32. Bonin, "Innovation in a Labor-managed Firm," and "Labor Management."
33. Vanek, *The General Theory Labour*, and *The Economics of Workers*.
34. Ben-Ner, "The Life Cycle of Worker-owned Firms."
35. 1981 is the first year available in this statistical source.
36. According to another source, *Encuesta Industrial* (industrial survey), in 1978 there was a total of 5,625 wine-producing establishments registered in Spain, of which 5,570 employed fewer than 50 workers. Put in other terms, 99.02% was made up of small wineries or family businesses while 55 businesses employed over 50 workers, of which 26 employed more than 100, although none employed over 500. Instituto Nacional de Estadística, *Encuesta Industrial*.
37. Instituto Nacional de Denominaciones de Origen, *Catastro Vitícola y Vinícola*.
38. Piqueras, *De las plagas americanas*, 175.
39. Piqueras, *De las plagas americanas*, 175; Ministerio de Agricultura, *Anuario de Estadística Agraria*.
40. Medina-Albaladejo, "Cooperativismo y sector vitivinícola."

41. Cogeca, *Agricultural cooperatives*.
42. The average interest rate applied to agricultural co-operatives was between 3.66% and 3.75%, much lower than the rate of interest applied to particular farmers, agrarian firms or food industries (4.66%, 4.5% and 6.9% respectively). AGA, Ministerio de Agricultura, 61/13058. *Documentación del Banco de Crédito Agrícola*. These rates of interest were quite low in comparison to the rates applied in the rest of Europe for agrarian loans. Medina-Albaladejo, "Cooperativismo y sector vitivinícola," 188.
43. Fernández, "Productores, comerciantes y el estado," 157; Medina-Albaladejo, "Cooperativismo y sector vitivinícola," 184.
44. González, *Análisis de la empresa*; Simón and Alonso, 'Caracterización económico-financiera cooperativas agrarias', 414.
45. Medina-Albaladejo, 'Cooperativismo sector vitivinícola España'.
46. Díaz-Barceló and Alonso, *asociacionismo agrario Castilla-La Mancha*, 95.
47. López, Vidal and Del Campo, *Análisis económico cooperativas vitivinícolas*, 86; Salvador et al., *Orígenes situación económico-social cooperativas*, 100; Simón and Alonso, "Caracterización económico-financiera," 413.
48. The Spanish wine sector experienced a deep transformation in those years. This supposed that wineries started an important restructuring process. The competence grew in the international markets by the overproduction and the changes in the consumption trends. In the last years consumers have preferred quality, bottled and more diversified wines. In that context the co-operative wineries started to have commercialisation problems because their product was not adapted to the new demand trends. Martínez-Carrión and Medina-Albaladejo, "Change and Development" and "La competitividad internacional"; Fernández, "Especialización en baja"; Medina-Albaladejo, "Cooperativismo y sector vitivinícola."
49. González, *Análisis de la empresa*; Juliá and Server, *Dirección contable*.
50. Díaz-Barceló and Alonso, *El asociacionismo*, 93.
51. González, *Análisis de la empresa*.
52. Medina-Albaladejo, "Cooperativismo y sector vitivinícola," 184.
53. Alarcón and Solueta, *Las cooperativas*, 199; González, *Análisis de la empresa*.
54. Medina-Albaladejo, "Cooperativismo y sector vitivinícola," 279–280.
55. González, *Análisis de la empresa*.
56. Banegas, Sánchez-Mayoral, and Peña, *Análisis por ratios*, 191.
57. This ratio shows the capacity of firm to face the payment of long-term commitments.
58. Banegas et al., *Análisis por ratios*, 214.
59. Ibid., 210.
60. Caballer points out some features of what a co-operative business should not be, especially the excessive debt and the limited involvement of the partners in this aspect. This provokes a low level of shareholders' equity to cover the investments (Caballer, *Gestión y contabilidad*, 37). Several studies about other agrarian co-operatives, such as fruits, olive oil or cereals show similar problems. Sabaté, " La estructura financiera"; Montegut, Sabaté, and Clop, 'Análisis económico-financiero"; Simón and Alonso, "Caracterización económico-financiera."
61. Banegas et al., *Análisis por ratios*, 203.
62. Gómez-Limón, Casquet and Atance, "Análisis económico-financiero," 170; Martín and Vidal, *Análisis comparativo*, 159; Simón and Alonso, "Caracterización económico-financiera," 413, 417.
63. Banegas et al., *Análisis por ratios*, 210.
64. Caballer, *Gestión y contabilidad*, 224.
65. Díaz-Barceló and Alonso, *El asociacionismo*, 102.
66. Gómez-Limón et al., "Análisis económico-financiero," 172; López, Vidal and Del Campo, *Análisis económico*, 93); Simón and Alonso, "Caracterización económico-financiera," 420.
67. Díaz-Barceló and Alonso, *El asociacionismo*, 96.
68. Medina-Albaladejo, "Cooperativismo y sector vitivinícola."
69. Díaz-Barceló and Alonso, *El asociacionismo*, 110–113; Martín and Vidal, *Análisis comparative*, 160.
70. *Ley de Cooperación* (Co-operation act, 1942), article 1°, p. 15.
71. *Reglamento de Cooperación* (Co-operation regulation, 1971), article 20.
72. Caballer, *Gestión y contabilidad*, 224; Caballer, Juliá, and Segura, *Los cooperativas*; Oltra, "Caracterización empresarial"; Segura and Oltra, "Eficiencia en la gestión"; Vidal, "Eficiencia económica."

73. Gómez-Limón et al., "Análisis económico-financiero," 172.
74. Díaz-Barceló and Alonso, *El asociacionismo*, 103–105; Oltra, *Caracterización empresarial*; Segura and Oltra, "Eficiencia en la gestión," 229; Martín and Vidal, *Análisis comparativo*, 163; López et al., *Análisis económico*, 81; Salvador, Salvador, Blasco, Marcos, and Pérez, *Orígenes y situación*, 100; Simón and Alonso, "Caracterización económico-financiera," 416; Gómez-Limón et al., "Análisis económico-financiero," 171. The same happens in other sectors and regions, such as horticulture in Valencia, olive oil in Lérida and agricultural co-operatives from Navarra. Vidal, Del Campo and Segura, "Caracterización empresarial"; Pozuelo, Carmona and Martínez, "Las sociedades cooperativas"; Montegut et al. "Análisis económico-financiero"; Simón and Alonso, "Caracterización económico-financiera." From a historical point of view, Toms considers it was the main reason of the failure of British textile co-operatives at the end of the nineteenth century, and not their organisational inefficiency. Toms, "Producer Co-operatives," 859.
75. Co-operative profitability: (income before income tax + price differences x purchases made to members)/total assets. Gómez-Limón, Casquet and Atance, 'Análisis económico-financiero cooperativas agrarias', 161.
76. In their analysis of co-operative wineries in the region of Valencia, other authors have also used this ratio, with similar results. Martín and Vidal, "Análisis comparative," 163; López et al., "Análisis económico," 84.
77. A good example of all this is the list of all the technological investments carried out by three Spanish co-operative wineries from their creation to the 2000s, which is included in the doctoral thesis of F. J. Medina-Albaladejo, as well as the funding formula to carry them out. Medina-Albaladejo, "Cooperativismo y sector vitivinícola," 272, 279–280.

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