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D1.4 Evaluation and benchmarking of the performance of selected co-operatives/POs as well as of the organizational/ managerial solutions they have adopted

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ACRONYMS

B2B Business to Business
B2C Business to Consumer
GA General Assembly
GI Geographical Indication
ICA International Cooperative Alliance
SK Social Capital
BOD Board of Directors
CEO Chief Executive Officer
IOF Investor Owned Firm
PO Producers Organization
SC Supply Chain
SME Small and Medium-sized Enterprise

ABSTRACT

In this part of the project we have distributed a survey to investigate agricultural cooperatives in five countries -- France, Greece, Italy, Spain and Turkey -- across three sectors, dairy, oil and wine. The purpose of the analysis was to study the different organizational and management practices implemented in the different cooperatives together with some of their performances. This part of the project involves thus a cross-country comparison of agricultural cooperatives. We consider the different 'dimensions' of a cooperative that we have measured with the survey -- the cooperative's business model, market orientation, procurement policies, governance and ownership solutions, relationship with members, and social capital -- and assign them a score based on a merit scale. The results show that French cooperatives appear more management-controlled, while Turkish ones seem more members-controlled. From our preliminary analysis performances appear related to market orientation and depend both on the country and the sectors in which cooperatives operate. Last, we document an apparent trade-off between cooperative 'professionalization' and the stock of social capital. Indeed, what appear as better managed firms seem to rely on a lower stock of social capital.

Benchmarking and evaluation of cooperatives performances and solutions

Contents

1 Introduction

In many countries, both developed and developing ones, many small farmers face various challenges in order to process and/or market their agricultural products. In effect, both processing and marketing of agricultural products may require significant investments, often being fixed in nature, and therefore not very profitable for small farms. In many instances, one possible solution is forming or joining a cooperative (or, more generally, a producer's organization) to collectively organize joint processing and marketing investments (see, e.g., Bouamra-Mechemache and Zago, 2015). However, in the economics literature, agricultural cooperatives have been considered as an inefficient form of organization, as we will see shortly. Can then cooperatives be an efficient organization to overcome the size limitations of smallholders? Can they succeed in modern food markets, characterized for instance by product differentiation and scope for quality investments (Mérel et al., 2009)? Can they be a useful tool to enable smallholders to get access to international and/or niche markets?

Historically many cooperatives were formed 'out-of-necessity', e.g., to gain bargaining power, to solve market failures, etc. in difficult times (many in the interwar period, few others decades earlier). Over time, the success of cooperative organizations (cooperatives) has been mixed. While their resilience in difficult times is reassuring (see, e.g., the last report on the UK at Cooperatives-UK, 2021), in other dimensions cooperatives are not doing so well. For instance, cooperatives in the wine sector are less internationalized and with a lower reputation for product quality than their private counterparts (see, e.g., Frick, 2004; Schamel, 2015; Veseth, 2022). Indeed, the 379 Italian wine cooperatives cover 58% of wine production but only 40% of value (turnover), implying that the unit value of the wine they produce is well below that of Investor Owned Firms (IOF). These lackluster performances are confirmed also by the fact that, for instance, Italian cooperatives cover only 52% of PDO but 65% of PGI production; moreover, their total wine exported is only a third of the total wine exported (Fiordelisi, 2022).

However, while the aggregate performance may appear below average, there are few instances in which cooperatives have shown great performances and success in terms of quality, export orientation, and economic satisfaction for members. In other words, while on the aggregate cooperatives may under-perform compared to IOF, there is sizable heterogeneity among cooperatives themselves and successful cases are well known (see, e.g., Russo, 2019, and Fiordelisi, 2022). In some cases, cooperatives seem to perform even better than IOF and reach extremely high levels of product quality (see, e.g., Mullen, 2022).

Furthermore, the comparative analysis of the performance of both types of organisations must be done taking into account the characteristics of the different types of organisations (Soboh et al., 2009; Martínez-López et al., 2023). Indeed, both organisations seek to maximise the profit of their owners, but while the returns to the owners of the IOFs are generally received through dividends, those of the owners of agricutural cooperatives are received (also) through a price premium paid for their raw materials. This means that the objective of the IOFs can be summarised as maximising the profit at the end of the period, whereas that of the cooperatives cannot.

So, does the cooperative ownership form have something that is inherently flawed? A brief literature review of cooperatives supposed 'inferiority' (in general and for quality in particular) reveals that, for instance, Cook (1995) identified five issues with cooperatives (see also Frick and Fanasch, 2018 for a detailed discussion of those for wine cooperatives): the common property or free riding problem, the horizon problem, the portfolio problem, the control problem, and the influence cost problem. More specifically on product quality, Pennerstorfer and Weiss (2013) show that (Austrian) cooperative members have incentives to overproduce and free ride on quality; López-Bayón et al. (2018) show that (Spanish) cooperatives are negatively correlated with the product quality compared to IOFs. Others argue that cooperatives are less competitive when marketing their products (Frick, 2004; Dilger, 2009; Schamel, 2015); or that they receive lower prices for their products and have a lower reputation than non-cooperatives (Dilger, 2009; Schaeufele et al.,

2016; Schamel, 2019). Moreover, it appears that German cooperatives do not get premiums for key quality categories and varieties (Schamel, 2015), but cooperatives in Northern Italy would perform better (Schamel, 2014).

Therefore, while some cooperatives can produce great products, e.g., wines, many do not, and there is the need for complementary institutional mechanisms to improve the performance of (cooperatives) as an indispensable organizational form (Frick and Fanasch, 2018). Starting from these aggregate performances and heterogeneity, in this study we investigate whether the cooperative form and its principles (beginning with the Rochdale's and up to ICA, 2018's principles) can still serve its purpose and create value for members. Value creation can probably be translated into efficiency in seizing market opportunities, likely one of the (if not the) most important chance for creating value for members given the evolution of food markets, and/or providing useful services at cost to members. Market opportunities, for instance, may be related to new markets (e.g., foreign markets), new distributions channels (e.g., e-commerce), new ways to improve value of the products (e.g., bottling vs bulk), etc. Services may include technical support, innovation diffusion, etc.

How can thus cooperatives create value for their members? Our interest is in investigating when and how well cooperatives can seize value creation opportunities for members, tackling the challenges that cooperatives usually face and individuating possible feasible solutions. To investigate these questions, we have designed a survey to collect information from a representative sample of cooperatives in the main Mediterranean food industries – wine, oil, dairy – in France (FR), Greece (GR), Italy (IT), Spain (ES), and Turkey (TR). With the survey we investigate the different business models they have adopted, together with governance and management practices.

The purpose of this report is to document the major results of our investigation. To do so, we explain the sampling design and survey administration. We then explain how we collect information about different dimensions of the cooperatives, e.g., governance, social capital, perceived performance, etc. We then show how we can measure these different dimensions and construct different scores to measure them. These scores in effect allow us to finally compare – that is benchmark – the cooperatives along different dimensions across countries and sectors. All of these measurement approaches enable us to better describe the agri-food cooperatives in different countries, compare across them, and highlight opportunities for possible improvement. In a subsequent research step, one could measure the financial performances of these cooperatives and investigate whether they are related to business models, governance and business practices.

We find that in effect cooperatives are heterogeneous in almost all dimensions we have considered. Overall, we find that agricultural cooperatives in France (especially) and Italy and Spain are mostly economic operations, while in Turkey (and to some extent in Greece) their social dimensions have a great role. We find heterogeneity both between and within countries, and across sectors as well. Moreover, the importance of the country or the sector in explaining differences across cooperatives depend on the dimension of the cooperatives that we consider. If we consider probably the most emblematic measure for performance, that is the payments the members receive for their raw commodities, we find that the different dimensions of the cooperatives that we measure do not have much explanatory power, while country and sector differences seem to matter more, probably because they reflect more the market conditions under which these organizations operate.

1.1 Methodology

We have developed a detailed survey including information on cooperative's structure, business model, payment system, social capital, ownership and governance model, and sustainability. The survey was answered by either the CEO or the Chair of the Board of Directors (or their delegates) contacted directly by each national team or by a market research firm chosen for the purpose. The target population are first-degree cooperatives that process raw commodities (grapes, milk, olives and seeds) and/or sell relative products as their main activity. Second-degree

(federated) cooperatives (i.e., cooperatives coordinating first-degree cooperatives) are excluded. The population list of observations was obtained from Orbis, a Bureau Van Dijk's platform with data on balance sheet and other useful financial information. [1]

1.2 The surveyed sample

The preliminary dataset comprises 466 observations with mostly valid data: 77 from France, 54 from Greece, 131 from Italy, 117 from Spain, and 87 from Turkey. In terms of sectors, there are 94 dairy cooperatives, 88 oil cooperatives, and 284 wine cooperatives (see the following Table for further details). Notice that in France we have investigated the wine (70 observations) and dairy (7 obs.) cooperatives. In Greece we covered all the sectors: dairy (7), oil (39), and wine (8) cooperatives. In Italy, only wine cooperatives (131). In Spain, both dairy (42) and wine (75) cooperatives. In Turkey, dairy (38) and oil (49) cooperatives. The maps in Appendix 1 show the distribution of the surveyed cooperatives across countries and sectors.

Table 1: Sample of surveyed cooperatives (by country & sector)

	France	Greece	Italy	Spain	Turkey	Total
Dairy	7	7	0	42	38	94
Oil	0	39	0	0	49	88
Wine	70	8	131	75	0	284
Total	77	54	131	117	87	466

Number of observations

2 The survey results

2.1 Structural characteristics

The first information we collected is about '**demographics**'. On average, the oldest cooperatives contacted are those in France (founded around 1946), while the youngest are in Turkey (founded in 1982). Greece has the second oldest ones on average (1954), then Italy (1959) and Spain (1968) (see Table 21 in Appendix 2). In terms of sectors, the oldest cooperatives are on average in the wine sector (around 1955), then in the oil (1961) and then in the dairy sector (around 1991) (see Table 22 in Appendix 2).[2]

In terms of size, we consider different measures. We have the number of **active members**, and on average there are about 450 members per cooperative on the overall sample, but with a great variability. Indeed, we go from about 206 members in Greece, to 329 in Italy, 412 in Spain, 641 in Turkey and 716 in France. In France and Turkey there is also the greater variability (standard deviation of around 2921 and 1051, respectively). Moreover, the biggest ones are in the oil sector (an average of 698 members), then in dairy (668) and the smaller ones in the wine sector (304 members). Most likely, the results in France are driven by their dairy cooperatives and in Turkey by the dairy and oil cooperatives.

The bigger size of French cooperatives is also matched by the bigger size of the **members' size** (hectares or herd). In effect, in France the average member size is around 93 (ha/herd), the

[1] In some cases, e.g., for Turkey and Spain, the sample of cooperatives was obtained from other sources as well.
[2] For clarity of exposition we report all the Tables with survey results in Appendix 2.

second biggest members are in Spain (59 ha/herd), in Greece (11 ha/herd), Turkey (10 ha/herd) and finally in Italy (less than 3 ha). Across sectors, bigger members' farm size is in dairy (95 herds), then wine (22 ha), and oil (down to 6 ha).

In terms of **sales turnover**, we get a similar picture. The biggest cooperatives are in France, with a size of about 200 million €, then much smaller cooperatives operate in Spain (about 21 million €), Italy (about 16 million €), and the smallest are in Turkey (3 million €) and in Greece (about 2 million €). Across sectors, we find that dairy operations are way bigger (196 million €) than wine (14 million €) and oil coperatives (3 million €).

In terms of **hectares** (for oil and wine) **or number of livestock** (dairy), the biggest cooperatives are in Spain (8602), then in France (4125), Turkey (2809), Italy (808) and Greece (645). Across sectors, again dairy is biggest (on average 11945 cows per cooperative), then oil (about 3100 hectares) and wine (1718 ha).[3]

As a last indicator of size, we use the **number of employees** working in the different cooperatives. According to our sample, the biggest cooperatives operate in France (almost 500 employees on average), then in Italy (about 28), Spain (about 18) and then both Greece and Turkey with about 10 employees each. Across sectors, again dairy cooperatives are the biggest ones (above 400 employees on average), followed by wine (almost 24) and oil (about 8 employees).

We also asked about how much value (**overall sum of payments**) is given to members for the raw commodity delivered to the cooperative. Per se, this amount has not much information value, but it is interesting to see it in relationship to turnover. The ratio of the value paid to members over turnover is about 74%. The highest is found in Greece (about 69%), then Spain (62%), France (60%), Italy (52%).[4]

To sum up, from our sample it emerges that in France cooperatives are on average older and economically bigger than in other EU countries, serving members with bigger farms as well. In Turkey, on average we find the youngest cooperatives, but they are not the smallest, at least in terms of membership and acreage or herd size. At first sight, cooperatives in France thus seem more economically oriented, both in terms of the members they serve and the greater economic values they generate (turnover and employed personnel). In Turkey, on the other hand, cooperatives are big but more in terms of membership than economic value, thus representing probably more 'social organizations' compared to France. Moreover, while Italy and Spain cooperatives seem more in line with the French ones, in Greece the cooperatives are more likely the Turkish ones.

2.2 Objectives and market orientation

The interviewed person at each cooperative was asked about the **objectives pursued** by their cooperative.[5] Overall, we find that *serving members* is more important (about 4.2) than *serving the cooperative* (about 1.5). The importance on serving members is particularly high for Italian (4.6) and Spanish (4.5) cooperatives, while the importance on serving the cooperative is higher in France (about 2.4; see Table 23).[6]

Across the different items, maximizing members' patronage refunds is the most important one, especially in Italy (about 2.6), with the lowest in France (about 1.86). On the cooperative service

[3]Due to space limitations we do not report the statistics for the (country × crop) combinations. They are available from the author upon request.

[4]We have some outliers in Turkey, and at the time this report was prepared data could not be confirmed.

[5]Across the different items, respondents could choose three assigning them a score between 1 (least important) to 3 (most important). Therefore, the higher the score the more important that element. In addition, after data collection we have computed an aggregate measure for objectives aligned with *serving the members* (only the first three to make it comparable in size with that) one for objectives aligned to *serving the cooperative*. Both can thus go from 0 to 9. Again, the higher the computed measure the more important that element is for the interviewed.

[6]Notice that the correlation between the overall importance for serving members and that for serving the cooperative is -0.7349 and is significant at the 1% level, therefore it has the expected sign. However, these measures are not correlated with any measure of size (results available from the author upon request).

side, we find that the most important is maximizing returns on cooperative's assets, especially in France (about 2.3). Across crops, notice that we find the above average values in the dairy sector for serving members (about 4.3) and serving the cooperative in the wine cooperatives (about 1.5) (see Table 24). This difference among sectors may probably be related to the wine (and partly the oil) cooperatives being possibly more focused on branded products, as we will see in the following.

Cooperatives were interviewed also about their business model and **market orientation** using different questions. First of all, the cooperatives that process the raw commodities on behalf of their members – for instance, that sell bottled wine from grapes, cheese from milk, bottled oil from olives (or sunflower seeds in case of Turkey)[7] – are about 50% (the rest simply process and/or commercialize in bulk), but going from about 25% in France to 87% in Greece (see Table 25), with the highest values in the dairy (about 79%) and lowest for wine (about 39%) (see Table 26).

The share of the PDO products is about one third, with highest values in Italy (about 57% of total turnover) and lowest in Greece (about 17%), with a prevalence in the wine sector (about 50%) and a limited incidence (around 9%) in the dairy and oil sectors (see Tables 25 and 26). In terms of branded products, Italy has the highest percentage (about 78%), with the lowest being France (lower than 3%). Spain is above average, with about 53%. [8] Across sectors, wine is way the sector with higher percentage (about 57%), with both oil and dairy sectors below 18%. In terms of expenditure on brand advertising, we find French cooperatives spending about 1.2% of turnover, followed by Italy and Spain at about 1%, and then Greece at about 0.7%.[9]

Another interesting information is that regarding the fact that a cooperative may accept to process/sell the **products of non-members**. On one hand, this choice could help cooperatives to reach bigger size and possibly scale economies, so it could have a good effect on bottom line. On the other hand, processing (too much of) the raw commodities of non-members may not be entirerly consistent with the cooperative's mission, which may become more similar to a commercial operation. In some countries, for instance in Italy, cooperatives benefit from a favourable tax treatment, which they can lose if they deal more with non-members than with members.[10] Along this dimension, overall almost two thirds of cooperatives accept raw commodities from non-members, but with some heterogeneity. Indeed, in Greece such fraction is around 21%, growing to 29% in France, to 63% in Italy, 70% in Spain, reaching 79% in Turkey. Across sectors, cooperatives that accept to process or sell the raw commodities of non-members go from 58% in dairy, about 62% in oil, to about 66% in the wine sector. The possibility to work with non-members may allow greater flexibility, but it may also be inconsistent with less 'traditional' cooperatives (in the sense of Bijman and Hanisch, 2012). Having cooperatives less involved with non-members may imply that in France cooperatives are less traditional and, as seen earlier, more business-oriented.

We asked also about the average **selling price of the processed product** – that is bottled wine, bottled oil, cheese – and their weight in relation to turnover, distinguishing in different price ranges (see Table 25). In order, in France the most important price ranges seem those between 5-8 € and 8-14 €. In Greece, the two most important are the range below 5€ (probably for wine) and the 8-14€ range (probably for olive oil). In Italy, the most important and in decreasing order are the prices below 5€, the range 5-8 €, and the 8-14€ range. For Spain the most important price range (almost half turnover) is the below 5€ range, while in Turkey the most important price ranges are the three top ones.[11] We constructed also a different measure of the price range,

[7] Out of 49 oil cooperatives sampled in Turkey, 34 process sunflower seeds and 15 olives.

[8] These results should be interpreted cautiously because the 'country effect' is affected by the sector of the cooperatives analysed in each, as we explain shortly.

[9] Notice that the data for France seems inconsistent. Indeed, while the share of branded product is the lowest, the expenditure on brand advertising is the highest. This apparent inconsistency may be related to the fact that none of the wine cooperatives answered the question on the share, but many indeed answered that on the expenditure.

[10] Indeed, according to article n. 2512 of the Italian civil code, agricultural cooperatives must show that they process more than 50% of commodities delivered by their members over the total commodities they process.

[11] These results seem strange, and we suspect that they may be related to possible difficulties in correctly using the exchange rate to convert the local currency.

an index which is a weighted average of the price range categories illustrated so far.[12] According to this index, French cooperatives sell in the highest price range (about 2.11), followed by Italy (about 1.7), Spain (1.3), Turkey (1.13) and Greece (0.72). This index is then higher for wine (1.7), oil (1.35) and dairy (0.8). It is relatively natural to relate these results – at least in the wine sector – to the average prices that French, Italian and Spanish wines fetch on average in international markets, with higher average values for France, then Italy and then Spain.[13]

We collected data also on **market destinations** and market channels used, based on turnover going to different outlets. The majority of cooperatives operate on local markets (about 51%), then on national markets (31%), and the rest either in EU markets (about 8%) or in other markets (about 3%). However there is quite a large heterogeneity across countries. Turkish cooperatives mostly sell in local markets (92%). Greece's cooperatives operate predominantly in local markets (60%), but they have also the greatest share of export (about 19%). French cooperatives are mostly nationally oriented, with also about 10% going abroad. Italy and Spain are relatively similar, with most of their sales going local (45-50%) or national (about 38%), and the rest (11-16%) going abroad. In terms of numbers of countries reached by exporting actitivies, the more spread are French (on average they export to 13 countries) and Italian (12) cooperatives (see Table 29). In terms of sectors, oil and dairy are the most locally sold products by their cooperatives, while wine cooperatives have a greater share in national markets (39%) and abroad (14%) (see Table 30).

Regarding the **market outlets** chosen by the sampled cooperatives, overall the most cited channel is the B2B-wholesale (about 32%), then selling to retailing chains (about 20%), direct sales (17%, which goes together with a high fraction of serving the local markest we have seen earlier) and Ho.Re.Ca. (Hotel-Restaurant-Café; about 14%). As seen for other measures, there is some variability across the cooperatives of different countries. Italian cooperatives seem quite big (about 20%) on Ho.Re.Ca., an outlet which is usally associated with good quality products (wines in case of Italy), and on retailing, even though on this latter the cooperatives of France (with about 42%) and Turkey (31%) have higher values. France has high values for B2B-wholesale (63%) and for selling to federated cooperatives (57%), much higher than the other countries.[14] Spanish cooperatives, similarly to Italian ones, sell quite extensively to Ho.Re.Ca. and retailing, but also to B2B-wholesale (35%) and direct sales (24%). For Greece the most important is B2B-wholesale (85%), while for Turkey it seems selling to retailing chains (31%).[15] Regarding online sales, theay are still a minor component (less than 2%), with values above average for France, Italy and Spain (see Table 27). Across sectors, wine cooperatives seem to use different outlets, such as B2B-wholesale (23%), direct sales (22%), Ho.Re.Ca. (20%) and retailing (18%). Dairy cooperatives sell mostly through B2B-wholesale (54%) and Retailing (45%), while oil is mostly B2B-wholesale (40%) (see Table 28).

To summarize, it appears that French cooperatives are bigger and operate on a larger scale, serving mostly national and (in some cases) foreign markets. They operate via B2B-wholesale, federated cooperatives and in retailing outlets. Greek and Spanish cooperatives operate for B2B-wholesale as well, while Italy more with Ho.Re.Ca., retailing and direct sales, where value creation and retention in the value chian is probably relatively more favorable for the cooperative.

[12] It is equal to a weighted average of the fraction of turnover obtained in different price ranges, assigning a higher weigth to the higher price range. In particular, we give a weight=1 to the below 5€ range, a weigth=2 to the price range 5-8€ and so on to give a weight=5 to the price range above 50€.

[13] While Italy contends the world leadership in terms of export volume, France is the frontrunner in export value: the average export price of French wine is around 8.0 €/l, 3.4 €/l for Italian wine and 1.36 €/l for Spanish wine (OIV, 2022).

[14] Notice that for the question in Table 29 the response rate for France has been quite low, so it is probably not a representative sample.

[15] In Turkey the fraction going to retailing is quite high (31%), but it could be in fact direct sales.

2.3 Ownership rights and value appropriation

Another section of the survey is about **ownership rights**. For most cooperatives, these rights are restricted to members (about 88% overall), even though this fraction is smaller in Turkey (63%) and Italy (84%) (see Table 31). According to the clasification proposed by Chaddad and Cook (2004), this is typical of 'traditional' cooperatives. Across crops, oil has also lower values (71% vs. an average of 88%), while wine and dairy are above 90% (see Table 32). Regarding the characteristics of these ownerships rights, notice that in most cases they are redeemable (72% of interviewed cooperatives) and transferable (the instances of not transferable rights are overall 14%). In most cases they are also non-appreciable (54%, reaching 91% for France). In most cases the rights are transferable to a family member (71%, with the minimum in France with 36%), or to another cooperative member (44%, with a maxiumum of 96% in France and minimum values in Turkey, 2%, and Greece, 10%). Overall, less than one third of cooperatives own shares of IOF, although this fraction goes to two thirds of sampled cooperatives in France. Across sectors there is some variability. In all sectors, rights are restricted to members, with a peak in dairy (96%). In oil cooperatives there are fewer instances of redeemable rights (40%), while they are appreciable (70%), and transferable to a family member (91%). In wine cooperatives, in many cases rights are redeemable (84%) and transferable to another member (62%) but also to non-members (14%); moreover, in almost one third of cases the cooperative owns shares of IOFs. In dairy, the instances in which the rights are restricted to members is the highest (96%), and so the situations in which the rights are not trasnferable (18%), and above average the ownership of IOF shares (29%) (see Table 32).

Regarding the **equity capital acquisition**, overall for two thirds of cases is from members, but this fraction gets higher in France (with 96%), while it is below average in Greece (49%) and Spain (56%) (see Table 33). Acquisition of equity capital from non-members is relatively small (2% overall), but higher in Greece (about 6%) and Spain (4%), while from direct investment is a bit higher, about 6% overall, with the highest value for Italian cooperatives (13%). Acquisition from other sources is another big source of equity capital, since it is chosen by almost 40% of cooperatives, especially in Turkey (almost 66%).[16] Looking at differences across sectors, acquisition from members is less important in dairy (about 38%), from direct investment is more important in wine cooperatives (8%), and from other sources is more important in oil cooperatives (54%) (see Table 34).

Regarding the question of whether members are expected to **invest in the cooperative** proportionally to patronage, overall it is not true (55%), especially in France (88%). If the answer is yes, it is more commonly done in terms of retained earnings from payments (around 23%), with a maximum in Turkey (47%) (see Table 35). Across crops, it is especially in wine cooperatives that members are not expected to invest proportionally to patronage (63%), while in oil cooperatives about 61% of cases use retained earnings (see Table 36). Notice that in most cases members do not receive interests from their investment (76% of cases), especially in Greece and Spain (about 87-90%), while these values are lower for France (53%). When they receive some interests, it is more often from their loan to the cooperative (10%), especially in Italy (24%). They seem to receive no interests especially in oil cooperatives (86%), while receiving them from their loan to the cooperatives is more common in the wine sector (14%) (see Table 36).

We also investigate how the **value created** in the cooperative is distributed. Overall, in most instances it is distributed back to members (73%), especially in Turkey (93%), while this value is lower in Greece (50%). About 35% of cooperatives also retain the value created for investment purposes in the cooperative itself with higher values in France (72%), Greece and Turkey (about 43% in each) (see Table 37). Across sectors, in dairy the value distributed back to members is lower (63%), while it is higher in oil cooperatives (78%). In wine cooperatives the value invested

[16] Notice that the choice of these different sources is uncorrelated with the cooperative size, either in terms of turnover or number of members.

back in the cooperative is below the overall average (about 31%) (see Table 38). When the value is distributed back to members, it is done mostly in proportion to patronage (about 71%), especially in France (99%). In Spain and Turkey, the value is distributed to members also in proportion to capital invested (9-14%), to a mix of patronage and capital (about 9%), and in proportion to other factors (11-14%). Comparing across sectors, we can see that the distribution proportional to patronage is particularly evident for the wine sector (86%), while in the oil cooperatives are above average the distributions proportional to the capital invested (11%) and to patronage and capital (9%). In the dairy, the distribution proportional to patronage is the lowest among the sectors (35%), while it is comparatively high that based on other factors (23%).

Another dimension we have intestigated is that regarding the **rights to vote** and their possible loss. In most instances, voting rights are assigned to ordinary members; indeed, only 13% of cooperatives have non-ordinary members with the right to vote. This fraction is higher (around 20%) for Italy and Spain (see Table 47). So it is members that mostly have the right to vote, and this right is practiced mostly (94% of cases) based on the one head-one vote. However, for about 16% of French cooperatives and 9% of Spanish ones, the members vote based on their patronage. It is also worth noticing that none of the sampled cooperatives have their members voting being proportional to investments or to a share/investment combination. Members can also lose their right to vote in a cooperative: sometimes (4% of instances) after one year of inactivity or after two years of inactivity (12%, which becomes 31% in Greece), or after their patronage has been redeemed (34% of cases, but reaching 95% in France); but in many cases (49% overall, but 87% in Turkey) for other reasons (Table 47).

2.4 Governance

In terms of governance choices, overall there is a **CEO** in about 56% of interviewed cooperatives (see Table 39), with values above average in France (69%) and below average in Greece (37%) and Italy (58%). Moreover, in the dairy cooperatives it is less common to find a CEO. [17] On the other hand, the situations in which the Chair of the Board of Directors (BoD) is also the CEO, i.e., where he/she manages the cooperative, are overall less frequent (31%), but with a large variability across countries: it is below 10% in France and Spain, around 44-46% in Italy and Turkey, and it reaches 56% in Greece, and more often in dairy (39%) (see Table 40).

Regarding the CEO, its average tenure is about 10 years overall, longer in Spanish cooperatives (about 14 years) and shorter in France (about 8 years). This data is confirmed also by the information on the numbers of CEOs that changed in the last 10 years, on average below 1% (0.87), going from 0.68 in Spain to 1.21 in Turkey. In about 7% of cooperatives the CEO is a woman – going from 1% in Turkey to 15% in Spain – and on average more in wine cooperatives (8%).

In a quarter of the sampled cooperatives, the CEO is also a member of the Cooperative, and this is particularly true in Italy (37%) and Turkey (42%). In about 27% of cooperatives, the CEO is a manager with previous experience in the sector in which the cooperative is operating, but this fraction goes from 2% in Turkey to 52% in France. Italian cooperatives benefit also in many instances (34%) from managers with sector-specific experience, while Greek ones benefit less (13%). Spain is on average. Across sectors, the wine cooperatives are the ones managed more (38%) by CEOs with previous sectoral experience, while the oil ones benefiting less (6%).

We investigated also regarding the CEOs' **remuneration packages**, in particular whether they are provided with a fixed salary scheme or with a (fully or partially) variable one, in which then part of their remueration is related to the performances obtained by the cooperative. About a quarter of the CEO have a variable remuneration scheme, but again with some heterogeneity

[17] The correlation of the presence of a CEO with the size of the cooeprative is positive (0.16) and significant (at the 1% significance level) when size is measured in terms of number of members but not when we consider turnover or acreage/herd size.

across countries and sectors. In France about half CEOs are remunerated with a variable salary, a quarter of them in Italy, about 16% in Spain, 11% in Greece, and 5% in Turkey. Slightly less than 30% of wine cooperatives have variable remuneration packages, 22% in the dairy sector, and less than 10% in the oil sector.

Over the sample, the cooperatives' **Board of Directors** have about 7 members, but going from 1 in Turkey, [18] to 5 in Greece, 8 in Spain and 10 in Italy (see Table 41). In about a fourth of cooperatives there is an internal executive committee, especially in French cooperatives (76%) and for the wine sector (31%), but less so in other countries, in particular in Turkey (4%), and in the oil sector (about 5%). Regarding age and tenure, in French cooperatives BoD components are younger (on average 46 years old) and have longer tenure (11 years), while they are around 52-53 years old in other countries and have lower tenure in Italy (4 years) and about 7-9 years in other countries. Moreover, they are older in the dairy cooperatives (54 years old vs. 51 in dairy and wine cooperatives), with longer tenure (11 years) in dairy, which is the double of the oil sector (see Table 42).

Notice that in most instances BoD components are members of the cooperative (in 88% of cases), with a lower fraction for Turkey (38%). In some cases (7%), they are employees (none in Greece though). Members with financial expertise are components of BoDs in about 7% of cooperatives, with a higher frequency in France (12%) and Greece (9%), and also in the oil and dairy sectors (about 9% in each). Much lower is the fraction of BoD components who are external professionals (less than 1%). In four countries, in all cooperatives the Chair of the BoD must be a member; only in Italy this is true only for three quarters of sampled cooperatives. Moreover, in about two thirds of cooperatives the Chair must also come from the cooperative main production area; and this is particularly important in France (80% of cooperatives) and Turkey (99% of cases). Last but not least, BoD components that are women are 9% overall, with some variability: about 12% in France and Spain, but 4% in Greece and 2% in Turkey. Women that chair the BoD are about 4% overall, going though from 7% in France to 1% in Turkey. Above average is also Spain (6%), and both the dairy and wine sectors (5%).

In our investigation we also explore two other features of the Board, that is its **attitude** and its strategic involvement. Overall the results regarding attitude are quite good: in a scale between 1 (not active/engaged etc.) to 6 (very active/engaged etc.), we have values almost equal to 5 in three dimensions. On the Board being active, higher scores are obtained in Turkey (5.2) and Greece (5), lower in France, Spain and Italy (4.5-4.8). This seems to be inversely related to having a professional management running the cooperative: on aggregate, in those countries with more CEOs and professional managers, the BoD is perceived as relatively less active and vice-versa. In other words, it seems that CEO and BoD activism are substitutes. This seems in part true also for engagement, at least when noticing the high values in Greece (5) and in Italy (4.9). Similar to activism is the investor mentality, again higher in Greece (4.5) and Turkey (4.3) but lower in Spain and Italy (both around 3.9). Less easy to relate to other features of the sampled cooperatives seem the fact that the BoD represents the entire cooperative, i.e., all members. This value is overall quite high (4.7), especially in Greece and Italy (above 5).

Regarding the **strategic involvement of the BoD**, the questions were asked differently, so that each interviewed could select one from six alternative options, implying increasing strategic involvement of the BoD. Overall, only in few cases the BoD is involved in developing strategy (about 4% of cases); however, this fraction reaches 11% in Turkey, but it is zero in Greece (see Table 45). Around 13% is the overall fraction of cooperatives where the BoD is seen as ratifying strategic proposals suggested by managers, but with 19% in Greece, 17% in Italy, and 14% Turkey. Situations in which the BoD components question the management's proposals to revise strategy is about 10%, but going from zero in Turkey to 16% in Italy and 13% in France. A BoD helping developing strategy in Board meetings is relatively more common (almost 17%), especially in

[18] Such low value for Turkey looks suspicious, given also that the average size of Turkish cooperatives in terms of members is quite high.

Greece and Italy (22-23% of their cooperatives). Overall, the most common situation seems to be when the BoD helps in and between Board meetings, particularly in Italy (39% of cooperatives) and Greece (26%). Last, the situations in which the Board develops strategy separately from management are relatively less frequent, that is in about 6% of cooperatives, although in the case of Greece and Turkey this fraction reaches about 11%. Across sectors, it seems that the BoD is more involved in strategic planning and the like in the oil sector (see Table 46).

We also asked about **decision-making**. For this purpose, we divide among decisions with different degrees of importance, i.e., from amending the by-laws 'down' to deciding on hiring staff or applying for public funds. Using the heat maps in Appendix 3, we can see that in EU countries – France, Greece, Italy and Spain – the General Assembly (GA) decides on the most important issues (from the top, down to judging/deciding on the work of the Board of Directors), while other decisions are in the hands of either the BoD or the CEO. In Turkey, on the other hand, there is a division of the sample into two different situations. Indeed, in many cooperatives all decisions are taken by the Assembly – probably not the most efficient decision-making process, but with high participation and likely high accountability – while in some others all decisions are taken by the BoD. In other words, in Turkey it appears that no decisions are taken by the CEO.[19]

In brief, if we had to put the CEO dimension of different countries on a spectrum, we would have France on one side, as many cooperatives are managed by a CEO, with relatively short tenure, most often not a member, but equipped with sectoral experience and remunerated with a salary that to some extent depend on the cooperative's results. In short, a quite professional management seems to be in charge in French cooperatives. At the other side of the spectrum, we should probably place Turkish cooperatives, which have quite some opposite characteristics. Similarly, if we look at the BoD, French cooperatives have younger components, with more financial competence, who are often members, and more frequently than in the other countries that are women (either as components or Chair of the Board). On the other hand, the BoD of French cooperatives is less active – probably because the progessional management is in charge – and this seems to suggest that CEO and BoD can be seen as substitutable.

Combining the 'spectra' of CEO and BoD together, it seems that there are probably three different situations. In France, there is clearly more CEO and less BoD involvement in the management and strategy setting of the sampled cooperatives. In Greece and Turkey, on the other hand, there are fewer instances of CEO and/or a more active BoD. In the middle we probably can place Italy and Spain, which cooperatives have the presence of quite many instances of CEO and a quite active BoD often engaged in strategic decisions as well.

2.5 Social Capital

One important aspect to consider in cooperatives is the social capital they can mobilize. According to some literature (see, e.g., Nilsson et al., 2012; Deng et al., 2021), the bigger a cooperative and the more it becomes controlled by professional management the more it risks losing members' loyalty and thus to some extent suffer social capital losses. To investigate about social capital, in our survey we asked different questions about it.

Social capital 1. Given that social capital may be related also to the services that the cooperative provides to its members, we investigate about the services offered. First, whether the cooperative offers **technical training to members**. This is true in 60% of cooperatives, especially in France (100%) and Greece (65%) but less in Turkey (38%) (see Table 51). On average, the cooperatives (that answered this question) spends less than 2% of their turnover on this activity, with lower amounts in France (lower than 1%) and higher in Greece (more than 2%). Relatively more common

[19]We also envisioned having two 'models of cooperatives': one, traditional, with the GA, the BoD and the CEO; and another one with the GA, plus a Board of Representatives and a management Board. This latter model appears much less common in our sample.

is that the cooperative provides **technical assistance to members**: about 86% of cooperative do it, but all the sampled cooperatives in France do it and about 4/5 of cooperatives in other countries do the same.[20] The technical assistance is mostly provided by the cooperative (60% of cases, but 92% in Turkey) – through its agronomist or veterinary – or by either private (23% of cases, but 64% in Greece) or public (14% of cases, reaching 33% in Greece) consultants.

Participation is another important dimension to consider; although not strictly a measure of social capital, it is correlated with it. Members' participation in the last BoD election has been around 57%, reaching 65% in Turkey and 62% in France, but only 48% in Spain. Participation in the last General Assembly was a bit lower (51%), with values above average for Turkey (63%) and Italy (55%). We also asked how aligned are the interests of the members of the cooperative, going from 1 (members with different interestes) to 4 (members with similar interests). Overall, interests seem quite aligned being above 3 out of 4: overall, we obtained 3.3, going from 3.04 (Greece) to 3.11 (Italy), 3.28 (Spain), 3.39 (France) and 3.61 (Turkey). Regarding sectors, the similarity is higher in dairy (3.51) compared to both wine and oil (3.23) (see Table 52), most likely because these latter are more differentiated products and so differences among producers can be higher.

Regarding the time spent on bulding and maintaining the relationships with members, overall the CEOs spend more time (4.5 out ot 6) than the Chair (4). Moreover, the **time spent by the CEO** is higher in Turkey (5), then Greece (4.6), and lower in France (4). Similarly, the **Chairman** spend more time in Turkey (5.2), then in Greece (4.9), and lower in France (3.1). It seems therefore that as cooperative 'professionalism' increases, e.g., as we go from Turkey to France., the time allocated to building and maintaining the relationships with the membership base tend to decrease. Regarding the sectors, the CEOs spend more time in the dairy cooperatives (5.31), as do the the Chairmen in the oil cooperatives (5.31 again).

Considering how the **members' complaints** are managed within the cooperatives, most of them are done internally (61%), but with a great variability: from 11% in France, 12% in Turkey, 56% in Spain, 87% in Greece, to 93% in Italy. They are managed with an amicable settlement in a third of cases, although reaching the 86% in Turkey. Arbitration is rarely used (1.5% of cases), with the exception of France (18%). Last, litigation is overall low (3%), but in some of the French cooperatives most of the cases (58%) are managed with it.

Social capital 2. We also measure how the interviewed persons at the cooperative perceive the relationship between the cooperative and the members using two sets of questions (García-Villaverde et al., 2021). All questions are on a Likert scale 1 to 7, where 1 is for disagrememnt with the suggested claim, and 7 with full agreement, i.e., the higher the value the more the claim is true for the interviewees. Overall, the **management shares** the goals and objectives with members (about 6 out of 7), especially in Turkey (6.4), and well as it understands the members' strategy and needs (5.93 out of 7), with Turkey reaching 6.3 (see Table 53). Overall, the cooperative and the members agree on the idea of making the relatiosnship working (5.8), again with the peak in Turkey (6.2). A slightly lower agreement is with the statement that management share the same ambition and vision with members (5.7 overall), especially in Greece (5.3), with higher values again in Turkey (6.4). Across sectors, the values are higher for oil cooperatives (being mainly located in Turkey), then dairy and wine (see Table 54).

Social capital 3. Regarding more specifically the **relationships**, it is mostly agreed that management relate with members (6.1 out of 7), especially in Greece (6.5), Turkey (6.4) and Spain (6.3). Similarly, there is agreement on the idea that the relationships are characterized by mutual respect between the parties (6.1), especially in Turkey (6.4), Spain and Italy (both 6.2). In most cases the management also knows the members on a personal level (6.1), here with low levels in France (4.5) and higher in Greece (6.7), Spain (6.5) and Italy (6.4). There is also quite

[20] Notice that Spanish cooperatives were nost asked this question.

high agreement (6 out of 7) on the fact that relationships are based on mutual trust, especially in Turkey (6.2) and Spain (6.1).

To summarize, it appears that social capital is lower in France along different dimensions, while it is higher in Turkey. At this stage it is not clear whether this is due to the different size of the cooperatives involved or because they are controlled to different extents by 'professional' managers. This aspect deserves further investigation,and a first answer is provided in the next chapter.

2.6 Entry, exit and perceived performance

We also investigate the **entry** and exit policies pursued in different cooperatives. Only about 40% of cooperatives adopt an open door policy, that is accept all entry applications (see Table 49). This fraction is much lower in France (5%), in Italy (33%), and in the wine sector (29%) (see Table 50), while it is quite high in Greece (54%) and widespread in Turkey (72% of cooperatives interwiewed) and in the oil sector (70%). There are on average 14 new entry applications per year, which represent about 6% of membership size, even though it goes from 3% in French cooperatives to 3.8% in Greece, 5.6% in Italy, 6.3% in Spain, and 7.3% in Turkey. This percentage is also higher in dairy (6.6%). In most cases (about 70%), the cooperative requires some **entry capital investment** before entering: all the sampled cooperatives do so in France and Greece, 82% in Spain, 55% in Italy, and only 28% in Turkey.

Exit implies a payment to the cooperative for 23% of the sampled cooperatives, but in 51% of French cooperatives, 22% of Italian cooperatives, 13% of Greek cooperatives and none of the Spanish ones. Many cooperatives (38%) foresee an **equity redemption plan**, especially in France (92%), but not much so in Greece (16%) and Italy (15%). Regarding the members that left the cooperative, interwiees were asked to choose a range between less that 1% and more than 15%.[21] Overall, we find a value of about 2.4 (which corresponds to less than 3%), but again with some variability across countries, going from 1.8 in France to 2.6 in Spain and for the oil sector (2.9). Among the reasons for the exit, most exits are due to the members' retirement or farm sale (59% of cases overall), especially in France (74%) and Turkey (75%). Other reasons include joining another cooperative (7% of cases, but higher for France and Italy) and starting or participating into another firm (7% overall, but higher in France and Italy again). Last, the leaving members are about small-average size (1.91 in a scale 1–small to 4–big), and relatively smaller in Spain (1.57) and bigger in Turkey (3.11). It seems therefore that Spanish cooperatives lose small (and possibly inefficient) farms' members, which may due to their being unable to catch-up with their cooperative requirements, while in Turkey it might be due to bigger firms possibly finding better market alternatives outside of their cooperative.

In terms of **perceived perfomances**, we asked different questions (and asked to respond on a scale from 1 = poor to 5 = excellent). Overall, the best perceived cooperative performance is the competitive position in the industry (3.8 out of 5), especially in France (4.1) but not so in Spain (3.6) (see Table 55). Slightly lower is the perfomance in terms of members' satisfaction, and for this the highest values are in Greece (4.1), with lower values in Spain (3.6). Relatively good are also performances in terms of pursuing objectives (especially for France, with 3.95) and in terms of overall performances (especially Greece, with 3.96), with the lower values being perceived in Spain (around 3.4-3.5). Among these measures, the worst (3.5) is the perception of the price for raw commodities paid by the cooperative compared to the market price, with the best values being perceived in Greek cooperatives and the worst in Spain (3.43). Across sectors, the highest performances are perceived in the oil cooperatives (above 4 in all of the measures; see Table 56).

Another set of questions concern the cooperative **orientation**. The most agreed upon dimension is that the cooperative believes in technological innovation (3.6 overall), especially in Turkey (3.8)

[21] 1: less than 1%; 2: 1-3%; 3: 3.1-6%; 4: 6.1-10%; 5: 10.1-15%; 6: 15.1% or more.

and Italy (3.7), with lower values in France (3.2). [22] Many agree that their cooperative has an 'I do better than my competitors' approach (3.5), with higher values in Turkey (3.7) and Italy (3.60) but lower in Greece (2.9). Good agreement emerges regarding the fact that the cooperative innovates, either in general (3.6, higher in Turkey) or in terms of introducing new product lines (3.3, higher in Italy and Turkey) or changing existing ones (3.2, higher in Turkey and Italy). In terms of risky attitude, the values are lower than 3 for all the measures used: about the cooperative undertaking risky but profitable projects (respondents agree only with 2.3 out of 4, and lower especially in France); that the cooperative is audacious (2.7, with the lower values in Italy); and that cooperative is audacious in uncertain times (overall 2.6, but only 2.1 in Greece). In these three measures, the wine sector has the lowest values.

In brief, it seems that entering and exiting French cooperatives is more difficult and costly than elsewhere. In Turkey, on the other hand, we find cooperatives that seem more like an open door organization that accepts quite easily new members. Moreover, in Spain the leaving members are smaller, so the remaining ones are presumably more 'professional' and likely more committed ones. The opposite seems to happen in Turkey, where those leaving the cooperatives are bigger than average, showing again that Turkish cooperatives seem more a social organization and less a commercial or industrial one.

2.7 Procurement

One important dimension – in some cases probably the most important – of the economic relationship between members and agricultural cooperatives is the procurement, that is how the cooperative collects, monitors, and pays members' raw commodities. First of all, **mandatory delivery** for the whole or good part of the member's raw commodity production is enforced in about two thirds of all sampled cooperatives (see Table 57). The only exception is Turkey, for which this is true only in 1% of cooperatives, while in other countries around 90% of cooperatives enforce such a policy.

It is worth noticing that having a strict commitment to deliver to the cooperative has different implications. First, it reduces the likelihood of members' opportunistic behavior, such as delivering to the cooperative in bad years and selling to the market in good years (see, e.g., Holland and King, 2004; Hernández-Espallardo et al., 2022; Sánchez-Navarro et al., 2024). Second, it enables the cooperative to plan its processing/selling activities knowing beforehand what is the expected production to process or sell on behalf of their members. Third, with mandatory delivery the cooperative can count on a rather stable production, enabling itself to commit on the quantity it can provide its clients with, thus mitigating the quantity uncertainty for them.[23]

An important dimension in the procurement of cooperatives is the management of the quality of the raw commodities. In the following, we consider the grapes payment system as a reference, since it is a widely recognized indicator in the wine cooperatives literature (see, e.g., Aiassa et al., 2018; Hanf and Schweickert, 2014; Fares and Orozco, 2014). Which quality characteristics are considered is covered in the next section, but here we report the results on the question of whether the cooperative evaluate the individual member's quality in relation to the average of the cooperative., that is whether they use a **relative performance evaluation scheme**. Comparing to the average quality delivered to the cooperative is interesting because it 'cleans' out the common risk that all members face, for instance the bad weather in a particular year, leaving the members to face only their individual risk (see, e.g., Tsoulouhas and Vukina, 2001; Dubois and Vukina, 2009). This is the case for three out of four cooperatives in the whole sample, but it is only partially true (18%) in Greece (see Table 57). As it is often the case, to give the right incentives –

[22] This may be due to the fact that members' average farm size is bigger in France. Bigger farms may afford more investments in technology at the farm level, and thus members in France may be more 'technologically advanced' than elsewhere and likely perceive lower differences with their cooperative.

[23] I am grateful to E. Raynaud for pointing this last implication out.

in this case, for quality provision in the raw comodities – one could use the stick, the carrot, or both. Overall, we find that about half of the respondents (47%) use a bonus if the individual member performance is above the average, a quarter use penalties for below-average performances, and about a third use both bonuses and penalties.

Across countries the situation is quite various: French cooperatives apply to a great extend both bonuses and penalties; in Greece, the sample is split between the cooperatives paying the bonuses if above-average results and those applying both bonuses and penalties; half of Italian cooperatives apply both penalties and bonuse and about 40% give bonuses; in Spain, the sample is about split into paying either bonuses or penalties; in Turkey, almost two thirds of cooperatives pay bonuses, and 21% impose penalties. Notice that in terms of incentive effects, imposing penalties is more effective than paying bonuses (see, e.g., Hossain and List, 2012). Across sectors, comparison to the mean quality is more used in dairy cooperatives (90%) (see Table 58). Oil cooperatives for the most part use bonuses, while wine ones use the the stick and carrot in different combinations. In the dairy cooperatives, there are few instances of bonuses, some (about one fifth) of penalties and many (35%) both bonuses and penalties.

In some cases, e.g., in wine production, producing high yields may lead to lower quality (see, e.g., Zago, 2009). For this reason, in some cases an indirect way to improve quality of the raw commodity is by **reducing the yields** in the field or in the stable. We then asked cooperatives if they enforced reduced yields compared to external rules (such as GIs' rules in the EU). Just above 30% of cooperatives do that, and more so in Spain (41%) and Italy (34%); more in the wine cooperatives (35%) and less in dairy (19%).

An alternative (or a complement) to provide monetary incentives to obtain quality production is to **monitor** the member's work in the field (or stable). This is actually done in 73% of sampled cooperatives, and as usual with some heterogeneity as we go from 41% in Greece to 80% in Italian cooperatives. Most of the times it is the cooperative's agronomist[24] that do monitor the member's work (about 58% of instances), then the food-maker, e.g., the wine or cheese-maker, in about 35% of cases; an external consultant in other instances, while rarely others are delegated to do it.

As it is well known, cooperatives receive the raw commodities and then process and/or sell them on behalf of their members. The revenues from the sales of the processed product may however materialize some times after the cooperative receive the raw commodities, and much later than the time at which the members did face the cost of producing the commodity. This may then create possible tensions between the financial needs of the members and those of the cooperative. How the cooperative tackle this possible tension is then interesting, and for this purpose we did ask two specific questions. The first is on **how many instalments** members are payed back from the cooperative: overall, they receive about 5 instalments, but more than 10 in France and around one in Turkey.[25]

Another interesting piece of information is that regarding whether the **last payment** is done before the following harvest. This is true for about 38% of the respondents (about 58% of the whole sample), with lower values in France (21%, in the wine sector), Italy (19%, again in the wine sector) and higher in Turkey (97%, in the oil sector). When looking across sectors, it is worth noticing that wine-making is more complex and capital intensive than oil-making – which, in the case of extra virgin olive oil, for instance, is mostly about pressing the olives – and therefore the likelihood of having possible delays in payments is higher. Indeed, the cooperative paying before the following harvest time are lower in the wine sector (about 23%), much higher in the oil sector (83%).

A common tenet in the literature of quality and cooperatives is that quality is difficult to

[24]Monitoring the work in the field or in the stable can be also part of the technical assitance provision. Later we see whether the results of the monitoring is used in the payment of the raw commodity.

[25]Notice however that the response rate overall for this question and in particular for Turkey was rather low. In dairy, in particular, the question is odd, since the tensione between between delivery and payment is much smaller given that milk delivery is all over the year, while in the other sectors they are at harvest, i.e., once a year.

measure. For instance, "...decentralised decision-making within a cooperative may also lead to quality coordination problems. Quality coordination problems could be even more detrimental to the prosperity of cooperatives, in particular in situations where the quality delivered by individual members is difficult to verify and is non-contractible between independent actors" (Pennerstorfer and Weiss, 2013: 144). In effect, in some instances some quality aspects are difficult to measure, for example whether some grapes have the potential to give wines with long longevity. However, in many other cases the characteristics of the raw commodities (in our case milk, grapes, olives or sunflower seeds) can be measured quite well and therefore their composition be considered in the payment system. To investigate this matter, we asked cooperatives whether they consider the following different characteristics in the payment of the delivered raw commodity. In two thirds of cases, the payments depend on the variety or breed, especially in France (83%) and Italy (85%) but less so in Greece (38%) and Spain (49%) (see Table 59). This is particularly true for wine (83% of cases) and oil (72%) cooperatives, less so for dairy ones (12%).[26]

In many food industries, it is well known what are the main **characteristics** that can give valuable processed products. In grapes, sugar is need to have alcohol in wines; in olives, oil content is important to obain high quantity of oil; in milk, fat content is useful for butter and cheese and proteins for cheese production. In effect, 78% of sampled cooperatives consider the main ingredient, e.g., sugar, protein, fat, etc., in the payment of raw commodities. This value is higher in Spain (85%), Italy (88%) and Turkey (95%), and in the dairy sector. About half sampled cooperatives consider also a second ingredient, e.g., proteins after fat in case of milk, acidity after sugar in case of grapes, etc., with higher values in Spain (56%), Greece (65%), and Turkey (95%). Sanitary conditions are taken into account in two thirds of cases, but slightly more in Spain (73%) and Italy (71%), and in dairy (72%). Noticeable the low values for these characteristics in French cooperatives.[27]

The presence of extraneous material, e.g., leaves, stones, etc., is considered in a quarter of cases, but slightly more in Greece and Spain (both 33%) and especially in dairy (60%). The consideration of the production area from which the raw commodity is coming is taken into account into payments in 28% of cooperatives, and more in France (48%) and dairy (50%). The outcome of the monitoring activities undertaken by the cooperatives in the field/stable of the members is considered in about 28% of sampled cooperatives, with higher fractions in Turkey (53%) and France (32%), and in the oil cooperatives as well (39%).

Another set of characteristics has to do with **sustainability**. About 22% of sampled cooperatives take into account environmental sustainable *practices*, and this value is higher in France (42%) and Greece (33%), with above average values also for oil and dairy (both at around 25%). Moreover, members participating in environmental sustainable *certifications* have it in the payment they receive from the cooperative in 36% of cases, with French cooperatives reaching 77% and Turkish cooperatives the 46%; across sectors, the dairy cooperatives seem the most involved ones (47%).

We also asked about the **average payment per hectare** (or head in case of dairy) the members receive. This is computed as the ratio between the total values distributed to members (which we described in the Table 21 in Appendix 2) and the total size of the cooperatives measured in hectares (or number of head, in dairy).

In dairy, high values are obtained in France (about 3,800 € per cow; notice however that we have data only from one cooperative), then Spain (about 1,700 €/head), Greece (910 €/head) and Turkey (320€/head). In the oil sector, in Greece cooperatives pay about 2,200 € per hectare, while in Turkey they pay 1,150 € (notice that in Turkey there are olive and sunflower oil cooperatives).

[26] In the dairy sector in the last decades the main breed is the black-and-white Holstein cow. Such a predominance of a breed (variety) is not found neither in the wine nor in the oil sector.

[27] However, we need to remember the high level of training to members provided by French cooperatives. Indeed, one can provide monetary incentives to obtain a raw commodity with certain characteristics, and/or explain and teach how to obtain it.

Finally, in the wine sector we find the highest values of the different sectors: in France the sampled cooperatives pay about 15,000€/ha to members, about 11,500€/ha in Italy, 4,200 €/ha in Spain and 2,590 €/ha in Greece. As a first approximation, these values seem to be in line with the prices that wines from these different countries can obtain in international markets (OIV, 2022).

Table 2: Payments (in 000€) per hectare/head (by country)

	France	Greece	Italy	Spain	Turkey	Total
Dairy	3.79	0.91	.	1.69	0.30	1.37
	(.)	(0.93)	(.)	(2.11)	(0.25)	(1.89)
	(1)	(2)	(0)	(28)	(10)	(41)
Oil	.	2.21	.	.	1.15	1.50
	(.)	(2.31)	(.)	(.)	(2.13)	(2.23)
	(0)	(17)	(0)	(0)	(35)	(52)
Wine	15.01	2.59	11.51	4.22	.	9.71
	(23.30)	(2.77)	(12.22)	(7.10)	(.)	(14.29)
	(46)	(8)	(119)	(73)	(0)	(246)

Mean (St. dev.) (Number of observations)

2.8 Sustainability

Sustainability is a paramount topic for researchers and sector stakeholders fueled by undeniable global concerns on sustainable development issues, as witnessed by the United Nation's Agenda 2030. Social sustainability is gaining increasing importance next to the widely acknowledged and explored environmental sustainability dimension. A growing number of studies (Hutchins and Sutherland 2008; Govindan, Shaw, and Majumdar 2021; Badri Ahmadi, Kusi-Sarpong, and Rezaei 2017) and businesses are indeed focusing on this often neglected pillar, and new sustainability certification schemes like Equalitas (https://www.equalitas.it/) are being implemented accounting for all sustainability dimensions. As highlighted by Govindan et al. (2021), social sustainability often overlaps with corporate social responsibility (CSR) and generally deals with ethical practices and respect of social norms (e.g., occupational health and safety; influence local communities, etc.), and it is of vital importance for supply chains. For this reason, we can draw from the most relevant extant literature to extract the key dimensions of social sustainability next to environmental and governance sustainability to be included in the survey. Potential approaches can be found in Hutchins & Sutherland (2008), discussing an adaptation of environmental lifecycle assessment (LCA) for social sustainability assessment, or in Eizenberg and Jabareen (2017), offering a 4-dimensional framework including safety, urban forms, equity(justice) and eco-prosumption. Indicators identification would rely on a combination of a rigorous preliminary review of the literature (see for example, Ahmadi et al.'s (2017) study) and co-creation with cooperatives representative.

Among the **internal drivers** for sustainability adoption, we find that on average the most cited reason is 'to increase product quality' (4.09 out of 5), especially for Greece (4.38) and Italy and Turkey (both with 4.12; see Table 61). [28] Then we have 'to reduce pollution' (3.94), in particular in France and Greece (both with 4 out of 5). Then with the same average score, an

[28]Notice that for each question respondents could respond choosing from 1 (not at all relevant) to 5 (extremely relevant).

average of 3.88, we see 'to obtain product differentiaiton and increase competitivenes' (especially in Italy, with 4.03), together with 'obtaining higher market prices' (higher in Turkey and Greece, with 4.18 and 4.12 respectively). The last internal drivers are then 'to protect biodiversity' with an average score of ,3.85, but higher in Greece (4.25) and Turkey (4.07); then 'techical support to farmers', with an average score of 3.71 but again higher values in Greece (4.12) and in Turkey (3.98); and 'to protect the landscape', with an average score of 3.61, and higher values in Turkey (4.07).

Regarding the **external drivers**, in top position we find 'to comply with the regulations', with an average score of 4.14, but with higher values in France (4.27) and Greece (4.25). Then, in decreasing order, we find also other two reasons at an average score of 4.11, that is 'to safeguard the health of local communities' (much higher in Greece, with 4.62) and 'to provide safer products to consumers', with higher values again in Greece (4.75). Then we find 'to improve work safety', with an average score of 3.91, but higher values in Turkey (4.13); 'to respond to cunsumers' demand', with a mean of 3.90 and higher scores in France (4.10); 'to gain access to specific markets', obtains an average score of 3.73, with higher values in Turkey (4.05); 'to obtain targeted public subsidies' gets an average score equal to 3.54, with higher values in Greece (4.00) and Turkey (3.83); and last, we find also 'pressure from local community', with an average score of 3.00, and higher values in Turkey (3.71) and France (3.21).

As a way to aggregate across these drivers, and using the terminology of the SWOT analysis, we sum up the scores on (market) opportunities (denoted by 'o') and on threaths ('t'). [29] As we can see, the aggregate score about opportuntiies is slightly higher (3.85) than that of threaths (3.76). Moreover, while France and Greece have similar aggregate scores, in Turkey (in part) and especially Italy there are differences among the two, so that Italian cooperatives seem to be responding more to opportunities (3.86) than to threaths (3.68).

We also asked about the **hindering factors** for sustainability actions (see Table 63). In top poisition we find 'extreme weather events', with an average score equal to 3.77 (again on a Likert scale of 5), with greater values in Greece (4.00) and Turkey (4.19). Then we find the 'lack of market price premium', with an average score of 3.72, but higher values in Greece (4.29) and Turkey (3.99). Then, with e hsame average score of 3.56, we find three different other reasons: 'greater workload' (with higher values in Turkey, 3.89, and Greece, 3.83); the 'extra investment needed', with higher values in Greece (4.4) and Turkey (3.83); and 'additional time costs', with Greece (4.33) and Turkey (3.83) going above average.

Then in descending order we find 'bureaucracy burden for certification schemes' (average 3.53, but 4.67 in Greece); 'ill designed public funding (score of 3.38, with 3.86 in Turkey); 'lack of alternatives to chemicals' (average 3.33, but 4.17 in Turkey); 'insufficienct price premium to cover extra costs' with an average score of 3.26 (4.33 in Greece); 'insufficienct public funding' has a socre of 3.19 (4.29 in Greece); 'not requested by consumers' with as core of 3.15 (3.94 in Turkey); 'sustainability not important for members' got only 3.11 (3.87 in Turkey); 'lack of skilled labor' had an average score of 3.05 (4.17 in Turkey); and finally 'sustainability not important for management', with a score of only 2.81, even though reaching 3.83 in Turkey. Overall, there seem to be both lack of better opportunities or different constraints hindering the sustainability adoption, and it is reassusing that the lack of sensibility of either members or management are in the bottom positions. Therefore, the interviewed cooperatives are conscious of the sustainability challenges, but some still lack the means to implement them.

Regarding the assessment of the sustainability actions (see Table 65), in particular the **social sustainability**, most cooperatives use 'self-assessment with voluntary standards' (44%), especially in Italy (53%) and Spain (57%); more than a quarter do nothing (40% in Spain, 43% in Turkey); only 15% are certified by a third party (but about 26% of them both in France and Italy); only 2% (4% in France) use 'self-assessment with systemized protocols'. For **enironmental**

[29] For comparability purposes, we sum six for each category (opportunities and threaths) and we divide by 6, to have the aggregate score on the same 1-5 scale.

sustainability, we get comparable figures: 'self-assessment with voluntary standards' is used by 42% of cooperatives (59% in Spain), followed by none (24%, reaching 41% in Turkey), then third-party certification (21%, but 33% in Italy and 29% in France), and last the 'self-assessment with systemized protocols', followed by 3% of cooperatives. To sum up, French and Itaklian cooperatives seem to be taking more structured sustainability actions, while Spanish ones rely more on voluntary standards, and many of Turkish cooperatives follow none of either self-assessment or external certification.

Regarding the **hectares certified,** we find relatively low numbers. Overall, on average we find about 10 ha certified organic (13 in Italy and 12 in Greece) and about 19 to other schemes (35 ha in Italy on average). The **% of energy from alternaitve sources** is about 16% (26% in Italy). On average, about 20% of cooperatives produce a sustainability report (but almost 30% in Italy) and have either an enviromental technician or department (49% in France however).

We also asked about the **sustainability orientation of the cooperative's management**. Using a Likert scale of 5 points, we got quite high average scores, 4.01 out of 4, for it being 'committed to enviromental and social protection' (with higher scores in Italy, 4.31, and Greece, 4.20); higher (4.12) for 'fully supporting environmental and social programs', with again higher values in Italy (4.34) and Greece (4.2); and 3.95 for the management being 'involved in formulating environmental and social strategies', with higher values in Italy (4.21). All in all, it appears that ther eis more commitment about sustainability in Italian cooperatives, with their manageemnt being more involved as well. Looking across sectors (see Table 66), the wine sector seems the more committed along most of the different indicators we have used.

We have information regarding the **social sustainability practices** implmented in the last five years (see Table 67), in decreasing order we find the sponsorship of events (31% of cases, with 53% in Italy); the training of staff beyond law requirements (28%, with 44% in Italy); the monioring of occupational injuries (28%, with 44% in Italy); the monitoring of the business cliamte (27%, with 45% in Italy); the monitoring of risks for the community (25%, with 36% for Turkish cooperatives); the adoption of gender equality measures (18%, with 26% in France); the monitoring of problems with local communities (17%, but 21% in Italy); and last the distribution of financial resources to local communities (9%).

Regarding the **enviromental sustainability practices**, we find the production of energy from alternative sources (41%, with 56% in Italy); the support of sustainaible agronomic practices with members (35%, 66% in Italy); the support to members for sustainaility (24%, with 40% in Italy); the collaboration with research centers (23%, with 41% in Italy); the reduction in water use (23%, with 34% in Italy); the plan to reduce waste (18%, 26% in Italy) and GHC (18%, 30% in Italy); the use of precision agriculture (16%, 23% in Italy); the calculation of water (14%, 27% for Italy) and carbon footprint (15%, 20% in Italy). All in all, Italian cooperatives seem those that have been implementing more frequently most of the social and environmental practices in the last five years. Across sectors (see Table 68), we find wine and oil as the most engaged in sustainability practices.

3 Comparing across cooperatives

This part of the project involves a cross-country comparison of agricultural cooperatives. The overall idea is to consider the different 'dimensions' of a cooperative that we have measured with the survey and which we have described in the previous section – for instance its business model and market orientation, its procurement policies, its governance and ownership solutions, its relationship with members, its social capital, etc. – and assign them a score based on a merit scale. In other words, it is based on theory, i.e., it should not be a data-driven approach, so that we should assign a higher score to a firm that 'performs' better on that dimension (see, e.g., Bloom & Van Reenen, 2007).

Once we have different dimensions and each cooperative is assigned a score on each dimension, we can investigate what is the relationship between the performances of cooperatives and their different measured dimensions (business models, procurement policies, etc.). For instance, what is the most profitable business model for the cooperatives? Is it better to produce high-quality products, e.g., wines, oils, etc., or would it be more profitable for members to produce efficiently at low cost? Moreover, we can compare, i.e., benchmark, the different cooperatives along different dimensions to different possible comparison groups. For instance, we could compare the business model of cooperatives in different countries or compare across cooperatives dealing with different crops. Or the different organizational structures of different business models. Or a single cooperative to a group of other cooperatives, e.g., in the same region or sector.

3.1 The construction of the scores

The idea is to collect the information about each cooperative, 'measure', i.e., assign a score to, its different dimensions in order to identify organizational areas prone to possible improvements, and provide interested cooperatives and/or their associations with policy advice and suggestions. Notice that benchmarking implies that, whatever the dimensions one decides to use, on each dimension a merit scale should be developed, that is, one should 'evaluate' a particular firm giving a score which is higher for those firms that 'score better' along that dimension. To inform the ("scientific") construction of the survey, that is what 'score better' means, at least two approaches are available.

The first is the *economic approach*, in which data collection, measurement and score assignment are based on relevant (economic and/or organizational) theory. For instance, in our setting if quality in procurement from members is deemed important (this may be so if a cooperative pursues a quality-driven business model) and to the extent that remunerating quality commodities (e.g., grapes, milk, etc.) is considered efficient and effective, a cooperative using quality-based remuneration schemes for members should obtain an higher score than a cooperative not using them. Or a cooperative that has a business model which is based more on PDO wines, sold in bottle, with its own brand, to the Ho.Re.Ca. (Hotel-Restaurant-Cafè) sector should probably get a higher score than one selling bulk wine to other business operators. On the sustainability side, on the other hand, a firm that implements a certification scheme which is quite strict and recognized in more foreign markets should get a higher score than a firm using a rather mild or laxed certification scheme promoted by the regional or national government without foreign recognition. A good example of such an economic approach in designing a survey and relative quantitative analysis (i.e., scoring and benchmarking, that is comparison across firms and correlation with economic performances such as productivity) is the World Management Practices Survey (Bloom and Reenen, 2010).[30]

An alternative, more 'ideological' approach, would have some ideal model in mind and assign scores to a particular firm compared to the ideal model. In our setting, one could design an ideal scale based on what a 'good' cooperative should look like, for instance in terms of being consistent with ICA principles or using good ESG practices, defining the ideal model together with cooperative representatives and stakeholders. An example of this approach is the *B Corp* certification assigned by B-Lab[31] to certify sustainable firms, in which to get the B Corp certification a firm needs to obtain at least 80 points in a scale of 200 when measuring different dimensions, such as sustainability, social impact, etc.[32]

[30]The whole project can be found here. Please notice the survey structure, but also the most significant papers published for this project, now almost 20 years old. In Table 1 of the cited paper, for instance, one can find the 18 dimensions on which firms are measured across different sectors and different countries. This approach, which considers only a limited set of areas, i.e., the managerial practices, in our project is extended to other areas as well and adapted to our population of cooperatives.

[31]For more informaiton see here

[32]See for instance the first report about B Corp firms in Italy, here.

Notice that these two approaches need not necessarily be alternative but could be complements. In other words, a suitable approach may entail a convex combination of dimensions measured using an economic efficiency approach together with others that use an ideal approach. For instance, a recent field report documents the governance and management practices adopted by six successful wine cooperativeeratives in Austria, Italy, and Germany (Aiassa et al., 2018). The article reports about governance solutions, payment for grapes, market orientation, support to members, etc. plus some of the challenges that the interviewed cooperative managers described as relevant. Taking stock from that and few other studies (see, e.g., Sexton and Iskow, 1988; Frick, 2017; Frick and Fanasch, 2018) we have come up with a set of dimensions which we will explain in more details in the next sections.

Notice that it may be natural to think (but probably also a question to investigate empirically) that these two approaches, the economic or the ideological one, or any combination between them, are differently related to standard economic and financial performances. Indeed, one may expect that better scoring firms according to the first approach may also show better economic and/or financial performances, while firms that score better according to an ideal model may perform less economically or financially. However, the decision on how to assign a score to each firm – whether based on economic theory or on a more 'ideal' basis – should be taken together and consistently with the decision on how to measure the firm performances.

The purpose of this section is to describe the scoring system we have prepared for measuring cooperatives along different dimensions and anticipate some preliminary results. This scoring system will then be used to identify and assess the strengths and weaknesses of cooperatives, and to provide them with feedback and recommendations for improvement. The scoring system is based on the different dimensions investigated with the survey, dimensions that are considered important for the success of a cooperative. The scores are constructed, whenever possible, so that a higher score should be associated with more efficient or better performing practices.

3.1.1 Market orientation

The logic of the score construction for the market orientation is the following. The basic assumption is that a more market-oriented cooperative may better serve its members. We thus posit that the higher the selling price of the processed product, e.g., wine, that is sold by the cooperative, the better the returns to members of the cooperative.[33] Therefore all possible investments that enable cooperatives to obtain higher prices should be scored highly, that is selling processed, e.g., bottled, instead of bulk; selling (also) abroad compared to selling only in the domestic market; selling to the HoReCa[34] channel compared to wholesale or to the retailing sector, etc.

We thus assign the following scores. The score **processed** is assigned a value from 1 to 5 according to the percentage of sold product that is bottled by the cooperative. A value of 1 is assigned if the share of turnover generated by bottled products is up to 20%. A value of 2 is assigned if the share is between 21 and 40%, 3 between 41 and 60%, 4 between 61 and 80%, and 5 if the share is greater than 80%.

The scores **PDO** and **PGI** are calculated in a similar way. We assign a value from 1 to 5 according to the share of turnover that is generated by protected designation of origin (PDO) and half scores (0.5–2.5; see Table 8) in case of protected geographical indication (PGI) products. We assign a score of 1 if the share is greater than 1 and less than 20%, 2 if it falls between 21 and 40%, and so on. We also derive a score "pdo-pgi" assembling both variables and rescaling the score to a maximum value of 5 (i.e., dividing the assembled score by 7.5 and, then, multiplying by 5).

[33]This may be an oversimplification, since higher returns may in effect imply also higher production costs, both at the farm and cooperative level. Therefore higher returns (payments or revenues) from the cooperative do not necessarily imply higher profits for farmers-members, if costs are much higher (for example to deliver raw commodities, e.g., grapes, of higher quality).

[34]We are aware that the HoReCa may be a suitable channel more often for the wine sector, still it may be a possibility in some cases for cheese and Extra Virgin Olive oil as well.

The scores **branded** and **private label** are computed by assigning a value from 1 to 5 and from 0.5 to 2.5 according to the share of turnover that is generated by branded product from the cooperative or a private label.[35] The score **advertisement** is related to the expenditure – if any – on the advertising of the cooperative own brand. We assign a value from 0.5 to 2.5 according to what percentage of turnover is spent on the cooperative brand advertisement. We assign a score equal to 0.5 if this share is less than 2% of turnover; 1 if between 2 and 4%; 1.5 if between 4-6%; 2 if between 6 and 8%; 2.5 if greater than 8%.

The score **raw commodity only from members** is related to whether the Cooperative process the raw commodities from non-members. The score is equal to 1, therefore, if they process also raw commodities from non-members. Processing raw commodities from non-members may mean that the cooperative is trying to better manage its processing and marketing facilities, i.e., to obtain economies of scale, get a better assortment of raw commodities, etc. which we associate with higher market-orientation.[36]

The score **price range processed** is related to the price range of the cooperative's sales (applicable only to bottled/processed products) of the cooperative's sales. We assign a value of 1 if the highest share is < 5€/bottle or kilogram; 2 if between 5€ – 7.99€/bottle or kilo; 3 if between 8€ – 13.99€/bottle or kilo; 4 if between 14€ – 49€/bottle or kilo; 5 if above 50€/bottle or kilo (in the next Table we summarize the score assignment for the market orientation).

We also derive a second score for "weighted price range processed" by multiplying the values of the shares of the different ranges (below €5/bottle, €5 and €7.99/bottle, €8 and €13.99/bottle, €14 and €49.99/bottle, €50 and above) by their respective range (1-5). For example, if prices' shares are 20%, 30%, 25%, 15%, and 10% respectively, the score would be (20*1)+(30*2)+(25*3)+(15*4)+(10*5) = 265/100.

We also consider the **market destination** of the cooperative products – local 1, national 2, EU markets 3, and extra-EU markets 4 points – and we compute a weighted average where the weight is the percentage of turnover sold in the respective market. We also include one additional point for cooperatives exporting to more than 5 foreign countries.

Regarding **market channels**, we consider that more 'demanding' channels may require bigger investments but may ensure better returns. We assign 1 point for sales to federated cooperatives; 2 points for direct sales; 3 for B2B-wholesale; 4 points for retailing and online sales; and 5 points for Ho.Re.Ca. and specialized shops.

[35] Private labels may represent a good market opportunity and an important strategic tool enabling cooperatives to work with the retailing sector. Moreover, they may enable to increase production and reach better economies of scale, thus reducing production costs. Even when margins are low or non-existent on the private label line, by reducing production costs they may help improve the margins on the cooperative branded products. However, they could also represent a 'dangerous' detour for cooperatives from developing into their own branded products.

[36] We are aware that is some countries dealing with non-members commodities may be restricted. Moreover, someone could argue that this dimension is (also) related to ownership considerations. Indeed, as in the case of private labels, some choices may have positive consequences on the production side, e.g., reduction of costs because of better scale economies, but could also have other implications.

Table 3: Score definition for market orientation

↓ Dimension	Score →	(+1)	(+2)	(+3)	(+4)	(+5)
Market orientation						
Processed	Turnover (%)	<= 20	21-40	41-60	61-80	> 80
PDO	Turnover (%)	<= 20	21-40	41-60	61-80	> 80
Branded	Turnover (%)	<= 20	21-40	41-60	61-80	> 80
Non-members (raw commodity)	Yes(No)	1(0)	–	–	–	–
Price range processed	Highest share	< 5 €	5 – 8 €	8-14 €	14-50 €	> 50 €
Alternative processed price	Weighted avg.	< 5 €	5 – 8 €	8-14 €	14-50 €	> 50 €
Market channels	Weighted avg.	Federated	Direct	B2B + Wholesale	Retailing + Online	Ho.Re.Ca. + Specialized sh.
Market destinations	Weighted avg.	Local	National	EU	Extra-EU+UK	–
Export coverage		if> 5 countries				
		(+0.5)	(+1)	(+1.5)	(+2)	(+2.5)
Advertisement	Turnover (%)	< 2	2-4	4-6	6-8	> 8
PGI	Turnover (%)	< 20	20-40	40-60	60-80	> 80
Private Label	Turnover (%)	< 20	20-40	40-60	60-80	> 80

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3.1.2 Governance

In this section we try to distinguish the cooperatives which are managed by professional managers, e.g., a **CEO**, from those which are run, directly or indirectly, by members or their representatives, e.g., the Chairman of the Board of Directors (BoD). The idea is that a cooperative with a professional management which has the right incentives should lead to more efficient choices for the cooperative.

We thus assign a score "CEO" equal to 1 if the cooperative has a CEO; and a score equal to 1 when the cooperative has a group of professional managers, neither members nor patrons, and when there is a (group of) professional manager(s), hired and controlled by the Board of Directors (BoD), who operationally manages the cooperative. The alternative is the situation in which the Chairman of the BoD acts also as CEO (0 point).

Moreover, we give a score – "variable salary" – of 1 if the CEO is remunerated using a *variable* salary The idea is that for the optimal provision of incentives with a risk-averse agent it is efficient to adopt a contract which offers incentives to the agent, in this case the CEO, by relating his/her salary to the results obtained by the cooperative.

We add an additional score equal to 2 when the variable part in the manager's salary depends on members' patronage refunds and 1 if it depends on the cooperative's turnover or on other cooperatives performance measures. We also consider how the value created in the cooperative is allocated between members and the cooperative for investment purposes. In this latter case, we give 0.2 points if the value is distributed up to 20% for investments in the cooperative; 0.4 for up to 40%; 0.6 points for up to 60%; 0.8 points for investments up to 80% and 1 point if investments are more than 80%.

For the role and involvement of the **Board of Directors**, we consider whether there are components of the BoD with *financial expertise* (2 point) or as *external professional* (2 point). Then we consider the following, assigning up to 2 points (we give 0.33 points for each of the 1-6 Likert scale evaluation obtained): whether the BoD is *active*, *engaged*, with an *investor mentality*, and if it is *strategically involved*.

3.1.3 Ownership rights

We consider and assign scores based also on whether a cooperative is relatively 'less-traditional' (in the sense of Chaddad and Cook, 2004 and Bijman and Hanisch, 2012) in terms of **ownership rights**. In this regard, we assign a score of 2 points whenever a cooperative ownership rights are *restriced to members*, when they are *redeemable*, *appreciable*, and *not trasnferable*.

Moreover, we assign additional 2 points when *benefits are distributted among members in proportion to patronage*; when there is *proportional investments*; when a cooperative *owns shares of an IOF*; when it does *not have an open door policy*, i.e., it does not accept all applicants as new members; when an applicant has to *pay to become a member*; when a member has to *pay to exit the cooperative*; and when the cooperative has an *equity redemption plan*.

3.1.4 Social Capital

We consider three sets of variables for social capital. For **social capital I**, we consider "training", which is constructed assigning a single point (1 point) if the cooperative provides technical training to members (in class or online). The score "technical assistance" provides a unitary point if cooperative members receive technical assistance. We assign also up to 3 points based on how much time the CEO or the Chairman of the BoD dedicate to members. We also consider the participation rate at the last General Assembly and at the election for the renewal of the Board of Directors. Then, we consider how similar are the members' interests, and how complaints are

Table 4: Score definition for governance

↓ Dimension — Score →	(0)	(+1)	(+2)
CEO			
CEO	Chairman of BoD	There is a CEO	–
Managers in BoD	No	Yes	–
Managers run cooperative	No	Yes	–
CEO has sector experience	No	Yes	–
CEO is remunerated with salary:	Fixed	Variable	–
Variable salary dependes on	–	Turnover	Patronage
Value to investments in cooperative	–	See note*	–
Board of Directors			
BoD comp. w/ financial exp.	–	–	Yes
BoD comp. as external prof.	–	–	Yes
The BoD is active	–	–	See note**
The BoD is engaged	–	–	See note**
The BoD has an investor mentality	–	–	See note**
The BoD is strategically involved	–	–	See note**

* 0.2 if ($0 <$ value $\leq 20\%$); 0.4 if ($20\% <$ value $\leq 40\%$); 0.6 if ($40\% <$ value $\leq 60\%$); 0.8 if ($60\% <$ value $\leq 80\%$); and 1 if (value $> 80\%$).

**We assign 0.33 points for each of the 1-6 Likert scale evaluation obtained)

Table 5: Score definition for ownership rights

↓ Dimension — Score →	(0)	(+2)
Own. rights are restricted to members	No	Yes
Own. rights are redeemable	No	Yes
Own. rights are appreciable	No	Yes
Own. rights not transferable	No	Yes
Benefits distributed to members in prop. to patronage	No	Yes
Investment proportional	No	Yes
Cooperative owns shares of IOF	No	Yes
Cooperative does not accept all	No	Yes
Cooperative asks to pay to become member	No	Yes
Cooperative asks to pay to exit	No	Yes
Cooperative has an equity redemption plan	No	Yes

managed in the cooperative, whether internally (4 points) or via litigation (1 point) (see the following Table **??** for further details).

For **social capital II**, we consider – and we assign up to 3 points, as detailed in the following Table – each of the criteria below, depending on whether the cooperative management (in the view of the interviewed person at the cooperative):[37]

- shares the same ambition and vision as the members;
- shares the goals and objectives with members;
- understands members' strategy and needs; moreover,
- if the cooperative and its members tend to agree on how to make the relationship work; and
- the members have positive attitudes toward a cooperative relationship.

In a similar fashion, we construct the score for **social capital III**, with up to 3 points assigned to each of the following, regarding whether management:

- maintains close social relationships with members;
- relates with members;
- knows members on a personal level;
- members from which the Cooperative Management receives advice, information, or whatever element for making important decisions know each other, i.e., they maintain relationships among them;
- there are personal relationships with members;
- the relationships are characterized by mutual respect between the parties;
- the relationships are characterized by mutual trust between the parties;
- the relationships are characterized by high reciprocity between the parties;
- the relationships are characterized by personal friendship between the parties.

[37] In all instances related to the cooperative management, we had a Likert scale from 1 (strongly disagree) to 7 (strongly agree).

Table 6: Score definition for social capital

↓ Dimension	Score →	(0)	(+1)	(+2)	(+3)	(+4)	(+5)
Social capital I							
Training		No	Yes	–	–	–	–
Techical assistance		No	Yes	–	–	–	
CEO's time for members	(%)	–	$1-10$	11-20	> 20	–	–
Chairman's time for members	(%)	–	$1-10$	11-20	> 20	–	–
Members voting for BoD	(%)	–	≤ 20	21-40	41-60	61-80	> 80
Members attending general assembly	(%)	–	≤ 20	21-40	41-60	61-80	> 80
Similar interest		–	Somewhat similar	Very similar	–	–	
Complaints' management			Litigation	Arbitration	Amicable s.	Internally	–
Social capital II							
Man. shares ambition		$1-2$	$3-4$	5-6	7	–	–
Man. shares goals		$1-2$	$3-4$	5-6	7	–	–
Man. understands members' strategy		$1-2$	$3-4$	5-6	7	–	–
Agrees in making relationship work		$1-2$	$3-4$	5-6	7	–	–
Memb. positive attitude		$1-2$	$3-4$	5-6	7	–	–
Social capital III							
Man. relates w/ members		$1-2$	$3-4$	5-6	7	–	–
Man. knows members		$1-2$	$3-4$	5-6	7	–	–
Man. closes relations		$1-2$	$3-4$	5-6	7	–	–
Man. gets advice		$1-2$	$3-4$	5-6	7	–	–
Man. has personal relations		$1-2$	$3-4$	5-6	7	–	–
Relat. w/ mutual respect		$1-2$	$3-4$	5-6	7	–	–
Relat. w/ mutual trust		$1-2$	$3-4$	5-6	7	–	–
Relat. w/ reciprocity		$1-2$	$3-4$	5-6	7	–	–
Relat. w/ personal friendship		$1-2$	$3-4$	5-6	7	–	–

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3.1.5 Procurement and payments

We also consider the incentives for the procurement of the raw commodities from the members. Notice that we assign higher scores as the quality dimension goes from uni-dimensional, e.g., sugar, to multi-dimensional, e.g., acidity, pH, certified, etc. , following the logic of the multi-task model; as the scheme includes some monitoring and/or subjective evaluation; and as the payment policy includes promotion mechanisms.[38]

As we have shown in the previous section, most (but not all) of the contacted cooperatives consider at least one element, e.g., sugar, or fat, or proteins, etc. in their payment of members' raw commodities. Some of them consider a fixed 'target', while others compare the main characteristic content obtained by the individual member to the average obtained by the cooperative, thus obtaining the shifting of common risk. Relative performance schemes are usually considered an efficient form of contract to the extent that they filter out common risk.[39]. In other words, they are equivalent to providing insurance against the common risk to members. Notice that many of the cooperatives we surveyed so far use some forms of relative performance.

In some cases cooperatives give a bonus for organic or sustainable raw commodities. Some cooperatives also enforce yield restrictions which reduce the admissable production below what is established by external, e.g., GI, rules. Given the trade-off between quantity and quality (see, e.g., Zago, 2009 for the case of grapes), this represents another instrument to obtain higher quality grapes, i.e., multi-tasks and multi-instruments. We also find that many cooperatives send their agronomist/veterinary to visit (monitoring) the members' field or stable during the year. Some use also the results of those technical visits in the payment for raw commodities, i.e., monitoring plus monetary incentives. Last, we also consider the cases in which cooperatives select the best plots/stables and/or members for specific high quality productions, usually more remunerative for the cooperatives and for the members (incentives by promotion).[40]

More in detail, the logic of these choices is the following (see also the following Table):

- mandatory delivery, if the cooperative adopts such a policy;
- a payment that considers the quality of the raw commodity delivered is more efficient;
- the same if it considers different dimensions of quality/characteristics;
- it is more efficient a payment that considers the sanitary state of the raw commodity;
- the same if it takes into account heterogeneity, e.g., production from different areas;
- using a relative performance is an efficient way to filter out common risk;
- sustainable practices if they adopt environmentally sustainable practices (e.g., reduced use of herbicides and pesticides);
- sustainable certification if the member follows environmentally sustainable certifications (e.g., SQNPI, organic);
- monitoring can be an alternative or complementary mechanism to improve performance;
- selection of best members/plots/members can be another efficient mechanism.

[38]For an introduction to the theory of contracts, from formal to informal ones and their application in firms, refer for instance to Gibbons (2005)). Goodhue et al. (2003) provide a good description of the contracts used in the grapes industry in California. Fares and Orozco (2014) explains a quite complext contract used in a wine cooperative in Southern France, where besides monitoring and the like they have relative performances as well. Jano and Hueth (2022) document the use of promotion mechanisms to provide incentives in the Chilean grapes industry.

[39]See, for instance, the work of Vukina and coauthors on the US brolier industry; e.g., Tsoulouhas and Vukina, 2001

[40]For an introduction to the literature on incentives by promotion see, e.g., Prendergast (2015).

Table 7: Score definition for procurement and payments

↓ Dimension — Score →	(0)	(+1)
Procurement		
Mandatory delivery	No	Yes
Main element, e.g., fat content	No	Yes
Other element(s), e.g., protein content	No	Yes
Sanitary state	No	Yes
Production area	No	Yes
Monitoring	No	Yes
Monitoring results	No	Yes
Relative performance	No	Yes
Sustainable practices	No	Yes
Sustainability certification	No	Yes
Relative performance	No	Yes
Reduced yields	No	Yes
High quality lines	No	Yes

3.1.6 Entrepreneurship and Performance

On this dimension, we compute three sets of scores. The first two are about perceived entrepreneurship orientation and perceived performance. Indeed, we assign a higher score to the cooperatives which interviewed person – most of the time the Chairman of the BoD, and sometimes the CEO – perceive that the cooperative is performing well.[41] We start with the **perceived entrepreneurship orientation**, where we assign up to two points based on whether the cooperative, on a scale from 1 to 5 (strongly disagree–strongly agree), registers 4 or 5 on these entries:

- The cooperative strongly emphasizes technological leadership and innovation.
- The cooperative has implemented several new product lines in the last five years.
- The cooperative has implemented important shifts in product lines in the last five years.
- The cooperative is generally the first to begin actions that the competitors follow.
- The cooperative is very often the first to implement new products, new technologies, new production methods, etc.
- The cooperative generally has a very competitive and "beat-the-competitors" attitude, rather than a "live-and-let-live" attitude.
- The cooperative is oriented to high-risk projects with the potential for very high profit.
- Taking into account the operating environment, the cooperative accomplishes its purposes through audacious acts and not minimum tactical modifications.

[41] We are aware that in many cases this may correspond to asking to the interviewee to judge herself, but still this is a useful exercise since we will later investigate whether these responses are in effect related with actual performances obtained by the interviewed cooperative.

- When decisions are taken under uncertainty, the cooperative always has a bold attitude to optimize the chance of exploiting opportunities, rather than a cautious and "wait-and-see" attitude.

Regarding the **perceived performances** of the cooperative, we assign up to two point considering the following (in the Likert scale 1-5, we assign 1 point if the answer is 4 and 2 points if the answer is 5):

- the price paid to members compared to the market price;
- the competitive position in the industry;
- the overall profitability;
- the members' satisfaction;
- the ability to achieve vision;
- the overall performance.

We also construct a score for **revealed performance**, where we assign higher scores where

- cooperatives tend to process more the raw commodities, e.g., bottled vs. bulk wine, milk or oil, cheese vs. milk, etc.; the logic here is that a cooperative creating more value added engaging in more processing activities usually create greater value for members;
- when there is a higher average processed price;
- the higher is the ratio of received applications for new membership over the existing membership base; other things equal, a cooperative receiving many new entry applications can be seen as being perceived as performing well;
- when the reasons for leaving are 'physiological', that is related to the farmers' retirement or the sale of the farm; here we want to take into account – and score lees – for members that leave the cooperative to join other firms or cooperatives, etc.;[42]
- to what extent the smaller members – presumably inefficient – are the ones leaving the cooperative; the logic is that if smaller members leave it may means that the cooperative is demanding and probably trying to increase overall efficiency; given that most of the times the members have small farms, losing those with bigger farms is more problematic – and probably a sign of lack of success – than losing small farms members;[43]
- and how important is the capital provision of members in financing the investments in the cooperative; if a cooperative can finance its investments with capital coming from members, other things equal it may imply that members are happy about it and trust that the cooperative will make good use of their capital provision and its investments.

[42]Be aware that the reasons for leaving a cooperative may depend also on market opportunities. Therefore, a cooperative operating in an expanding sector may lose more members than one operating in a difficult market. So this score should be interpreted with care.

[43]We are aware that assuming that a cooperative's performance improves when losing smaller members is questionable. In fact, in many cooperatives such exits are viewed as a sign of failure, and some large members may prefer to retain smaller ones for non-economic reasons. This is a dynamic that deserves further investigation.

Table 8: Score definition for entrepreneurship and performance

↓ Dimension	Score →	(0)	(+1)	(+2)
Entrepreneurship orientation				
Emphasis on technological leadership and innovation		1-3	4	5
Implementation of several new product lines		1-3	4	5
Implementation of important shifts in product lines		1-3	4	5
Being the first to begin actions that the competitors follow		1-3	4	5
Being the first to implement new products, new technologies, new methods		1-3	4	5
Having a very competitive and "beat-the-competitors" attitude		1-3	4	5
Being oriented to high-risk projects with the potential for very high profit		1-3	4	5
Accomplishing its purposes through audacious acts		1-3	4	5
Under uncertainty, having a a bold attitude		1-3	4	5
Perceived performance				
Higher prices paid to members		1-3	–	4-5
Competitive position in the industry		1-3	4	5
Overall profitability		1-3	4	5
Members' satisfaction		1-3	4	5
Ability to achieve vision		1-3	4	5
Overall performance		1-3	4	5
Revealed performance				
% processed product		–	–	See note*
Price processed product	Weighted avg.	–	–	See note**
Entry applications over membership size		–	–	See note*
No 'phisiological' reasons for leaving		–	–	See note*
Smaller patronazing members exit		–	Slightly ab. avg.	Above avg.
Capital investment from members		–	–	See note*

* 0.5 if ($0 <$ value $\leq 20\%$); 1 if ($20\% <$ value $\leq 40\%$); 1.5 if ($40\% <$ value $\leq 60\%$); 2 if ($60\% <$ value $\leq 80\%$); and 2.5 if (value $> 80\%$).

**We assign 0.5 points incrementally for each of the price categories: < 5 €; $5 - 8$ €; $8 - 14$€; $14 - 50$ €; and > 50 €.

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3.1.7 Sustainability

We provide a score also according to sustainability practices. We consider the percentage of acreage the cooperative (its members) have converted to either organic or other certiifcation schemes, and the score goes from 0.5 (up to 20% of total acreage converted) to 2.5 (when more than 80% are converted. We also assign a score using the same points and logic according to the percentage of energy consumption which is covered with alternative sources of energy, i.e., different alternatives sources.

We then consider whether the cooperative follows sustainability certification practices – both social and environmental – and whether they use systemized protocols or guidelines (1 point) or third party certification (2.5 points). In case of external ceritifcation, we assign 1 point for national schemes, and 2.5 points for international ones. We also assign 1 point when the cooperative uses energy from renewable sources, and 2.5 points when the cooperative also produces such a source of energy. Then we assign 2 points if the cooperative prepares a sustainability report and 2 when it has either a sustainability technician or department.

Finally, we provide also 2 point to cooperatives that:

- Pursue sustainable agronomic practices with members (e.g., reduction of pesticide and/or herbicide use; preservation of soil organic matter).
- Collaborate with research centers and/or universities on environmental sustainability issues.
- Implement a plan to reduce water use and/or recover wastewater.
- Calculate water footprint.
- Calculate carbon footprint.
- Implement a plan to reduce waste generation.
- Implement measures to reduce GHG emissions (e.g., bottle weight reduction, alternative packaging, use of electric vehicles for winery operations).
- Use precision agriculture.
- Provide a premium on grape's payment for certified grapes.
- Provide a premium on grape's payment for sustainable agronomic practices (based on controls in the vineyard performed by the cooperative's agronomist).

Table 9: Score definition for sustainability

↓ Dimension	Score →	(+0.5)	(+1)	(+1.5)	(+2)	(+2.5)
Acreage environmental certification	Acreage (%)	< 20	20-40	40-60	60-80	> 80
Acreage organic certification	Acreage (%)	< 20	20-40	40-60	60-80	> 80
Alternative sources of energy	(%)	< 20	20-40	40-60	60-80	> 80
Environmental certification	Yes(No)	–	Protocols	–	–	3rd party
Social certification	Yes(No)	–	Protocols	–	–	3rd party
International certification	Yes(No)	–	National	–	–	International
Renewable energy	Yes(No)	–	Use	–	–	Production
Report preparation	Yes(No)	–	–	–	Yes	–
Environmental technician/department	Yes(No)	–	–	–	Yes	–
Sustainability practices						
Collaboration with research centers	Yes(No)	–	–	–	Yes	–
Support sustainable agr. pr. w/ members	Yes(No)	–	–	–	Yes	–
Use precision agriculture	Yes(No)	–	–	–	Yes	–
Support to members for sustainability	Yes(No)	–	–	–	Yes	–
Water footprint	Yes(No)	–	–	–	Yes	–
Plan to reduce water	Yes(No)	–	–	–	Yes	–
Plan to reduce waste	Yes(No)	–	–	–	Yes	–
Reduce GHC emissions	Yes(No)	–	–	–	Yes	–
Premium payment for certified grapes	Yes(No)	–	–	–	Yes	–
Premium payment for sustainable practices	Yes(No)	–	–	–	Yes	–

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Table 10: Aggregate scores

Dimension	Score
Market orientation	1-5
CEO	1-5
Board of Directors	1-5
Ownership rights	1-5
Social capital 1	1-5
Social capital 2 (SKI+SKII)	1-5
Procurement	1-5
Entrepreneurship orientation	1-5
Perceived performance	1-5
Revealed performance	1-5
Sustainability I	1-5
Sustainability II	1-5

3.1.8 Aggregate scores

We also aggregate over different elements for each dimension covered so far, compute a score for each dimension and normalize it to a common scale going from 1 to 5. For instance, as explained in the previous section, for the market orientation score construction we have considered different aspects, e.g., processed products, average processed price, % of exported products, etc. We thus sum over these different elements and normalize it to have a common scale 1-5 for all dimensions. [44]

4 Benchmarking results

In Appendix 4 we show the spider graphs where we compare the cooperatives of different countries along the different dimensions we have assessed using the scores. In addition, to investigate whether the different scores are related to the country, the crop, or the size of the cooperatives, we run also a set of regressions with different specifications.[45]

Market orientation. Regarding the **market orientation**, looking at the overall comparison we can notice that Italy and Turkey seem to dominate other countries in different dimensions (see Figure 11 in Appendix 4). Italy is scoring well in terms of branded production, % of PDO-PGI, and market channels. Turkey, on the other hand, is doing better in % processed, processed price, and in market channels as well. France is also doing well in some of the items, such as the market destinations (they are the most export-oriented, as we have shown also in the previous sections), the processed prices (measured using the alternative measure), although most of French cooperatives do not seem to work (process) non-members's raw commodities. [46]

[44] Choosing a common scale implies giving the same weight to all dimesions we consider. In a future research effort, we will investigate which dimensions are more important, for instance, in relation with performances.

[45] Since the explanatory variables that we use to explain the different scores are the same, we use the seemingly related regression of Zellner (1962). Due to space limitations, we report only the coefficients of interest. Complete results are available from the author upon request.

[46] As we have argued earlier, while working with non-members raw commodities may give flexibility, less traditional cooperative models have very tightly defined property rights and processing policies.

Table 11: Regression of Market Orientation

	(1) Mkt orientation b/se	(2) Mkt orientation b/se	(3) Mkt orientation b/se	(4) Mkt orientation b/se
Country	0.609***	0.470**	0.669***	0.786***
	(0.204)	(0.206)	(0.236)	(0.208)
Crop	-3.194***	-3.166***	-3.243***	-3.133***
	(0.342)	(0.341)	(0.403)	(0.345)
Members		-0.000		
		(0.000)		
Hectares/cows			0.000	
			(0.000)	
Turnover				-0.001
				(0.001)
Constant	17.916***	18.522***	17.954***	17.516***
	(0.731)	(0.743)	(0.807)	(0.730)
Observations	466	459	396	447
R^2	0.158	0.168	0.141	0.161

Moreover, notice that comparing across countries having cooperatives operating in different sectors may be misleading. For this reason, and given that market orientation is an important variable to explain the cooperatives' performances, as we show in the following sections, we further explore it. We then consider the differences also across sectors (see Figure 12), in which it emerges that the wine cooperatives seem more market oriented in few dimensions, such as the incidence of GIs products, the market destination (export) and channels, the fraction of branded product, and the processed price; the oil cooperatives, on the other hand, have a higher fraction of private labels, a high fraction of processed product, and high processed prices,; last, the dairy cooperatives do well in the market channels, in processed prices, and are top on the working with non-members' raw commodities. A similar analysis is extended to consider the differences across countries in the wine (Figure 13), dairy (Figure 14) and oil (Figure 15) sectors. All in all, it seems that in terms of market orientation there are different 'models' coexisting: dairy cooperatives seem more driven by efficiency considerations, while both wine and oil cooperatives seem more driven by the quest for better market alternatives.

If we look at what may explain the market orientation, notice that the coefficients of country is positive and significant (1% significance level) and that of crop is negative and significant (1% s.l.), while that of size – measured either as membership size, as hectares (or livestock heads in dairy), or as turnover – is not significantly different from zero. This implies that countries are different in terms of the market orientation of their cooperatives. Moreover, given the way we created the variable 'country',[47] it seems that as we 'move away' from France cooperatives have higher scores for market orientation. The sectors are also important in explaining market orientation:[48] as we move away from wine, the market orientation seems to worsen. The size of the cooperatives, on the other hand, no matter how it is measured, does not seem to affect market orientation. In other words, how dynamic and proactive a cooperative is on the market side does not seem to depend on its size.

[47]We assign, in alphabetical order, the following: $FR = 1, GR = 2, IT = 3, ES = 4$ and $TR = 5$.
[48]Here we have assigned the following: $wine = 1, dairy = 2$ and $oil = 3$.

Table 12: Regression of CEO

	(1) CEO b/se	(2) CEO b/se	(3) CEO b/se	(4) CEO b/se
Country	-0.222***	-0.208***	-0.206***	-0.225***
	(0.049)	(0.049)	(0.057)	(0.051)
Crop	-0.089	-0.111	-0.080	-0.092
	(0.082)	(0.082)	(0.097)	(0.085)
Members		0.000**		
		(0.000)		
Hectares/cows			-0.000	
			(0.000)	
Turnover				0.000*
				(0.000)
Constant	2.812***	2.751***	2.712***	2.822***
	(0.175)	(0.179)	(0.194)	(0.180)
Observations	466	459	396	447
R^2	0.158	0.168	0.141	0.161

Governance. Regarding governance issues, we consider two elements. For the first one, the **CEO**, France seems to be different from the other countries: it has more profesisonal CEOs, with sector experience, and remunerated with a variable salary linked to members' payoffs (see Figure 16 in Appendix 4). The country that seems to get closer to France is Italy, which cooperatives have anyway lower scores than French cooperatives but higher than those of other countries. Interesting is the score on the distribution of the value created in the cooperative: it is high in France and in Turkey, which seem to have opposite governance models, with France having more professional CEO and Turkey with more BoD involvement. It thus appears that members are willing (or convinced) to invest more in the cooperative in these two polar cases, that is when managed by professional managers or when there is a strong commitment and involvement of their representatives in the Board.

What affects the CEO score? As can be seen in the next Table, the country coefficient is significant, (1% s.l.) but not that for the crop. Moreover, size seems to matter when measured by the number of members (significance level of 5%) and in terms of turnover (s.l. of 10%). So as we move away from France the CEO score decreases, but it increases in some cases with size.

Regarding the **Board of Directors**, the more active, engaged, with financial expertise, with external professionals, and with an investor mentality are in Turkish cooperatives. Italian ones have BoD components more strategically involved. The Spanish components present quite low values in many dimensions. Greek ones emerge for their strategic involvement. French BoD components do not shine in any dimension, but neither have particular low values in any of the elements considered (see Figure 17).

Considering what may affect the BoD score, as shown in the next Table, notice that both the country (negative coefficient, 5% s.l.) and the crop (positive coefficient, but 5 or 10% s.l.) have an effect. Therefore, as we move away from France the BoD score decreases, while moving from wine to dairy or oil it increases. Moreover, size seems to matter, even if with mixed results: it has positive effect when measured by membershize size (s.l. 5%) and turnover (s.l.1%), but a negative effet when using the hectares (or livestock heads) as a proxy for size (although with a 10% s.l.).

Table 13: Regression of Board of Directors

	(1) Board b/se	(2) Board b/se	(3) Board b/se	(4) Board b/se
Country	-0.055	-0.067	-0.042	-0.039
	(0.069)	(0.070)	(0.080)	(0.072)
Crop	0.234**	0.206*	0.175	0.260**
	(0.115)	(0.116)	(0.136)	(0.118)
Members		0.000		
		(0.000)		
Hectares/cows			-0.000**	
			(0.000)	
Turnover				0.000*
				(0.000)
Constant	5.584***	5.633***	5.648***	5.503***
	(0.246)	(0.253)	(0.272)	(0.251)
Observations	466	459	396	447
R^2	0.158	0.168	0.141	0.161

Ownership rights. We have also the ownership rights to discriminate across countries. Again, it seems that France and Turkey are quite complementary (but not opposite) cases. France has higher scores for a closed door policy, for asking members to pay to exit the cooperative, and for cooperatives owning shares of IOF. Turkey, on the oher hand, has higher scores for asking members to pay to enter the cooperative; for not restricting the ownership rights to members; for having nonreedemable, appreciable and tranferable rights; and because Turkish cooperative have an equity redemption plan. As we have seen on other cases, the other EU countries, such as Greece, Italy and Spain, are in between. Greece has high scores on transferable rights; the other two are usually below either France or Turkey.

Social capital. Considering social capital, we have three different set of variables to measure it. In terms of **social capital 1**, the participation in elections and General Assembly is high in France, where however is highest the use of litigation – the most formal possible procedure – to solve members' complaints with the cooperative. French cooperatives seem also offering more training to members. In Turkey, on the other hand, the time spent by the CEO and the BoD to talk with members is the highest among the countries considered (see Figure 19). [49]

It therefore appears that the two polar models again seem France and Turkey, with Italy closer to France and Greece to Turkey. In France, the cooperative is spending resources in the training of the members, but neither the BoD nor the CEO seem to spend much of their time dealing personally with members. Moreover, complaints and internal issues are handled with litigation or other formal procedures. In Turkey, and in part also in the other countries, both the CEO and the BoD spend more time to deal with the members, and controversies are resolved with more informal procedures, e.g., with internal ones.

Notice that the country coefficient for social capital 1 is negative (s.l. 5%), while that for crop is positive (s.l.1%). So this measure of social capital decreases as we move away from France, but

[49]Notice that, as we already shown in Table 51, Spanish cooperatives did not answer the questions regarding time spent by CEO and BoD with members and those on the provided training and technical assistance. Therefore, those reported in Figure 19 are not low values but missing observations because of lack of answers.

Table 14: Regression of Social Capital 1

	(1) Social c. 1 b/se	(2) Social c. 1 b/se	(3) Social c. 1 b/se	(4) Social c. 1 b/se
Country	-0.296**	-0.260**	-0.445***	-0.302**
	(0.116)	(0.119)	(0.130)	(0.123)
Crop	1.096***	1.116***	1.382***	1.109***
	(0.195)	(0.197)	(0.222)	(0.203)
Members		-0.000		
		(0.000)		
Hectares/cows			-0.000*	
			(0.000)	
Turnover				-0.000
				(0.000)
Constant	9.817***	9.664***	9.988***	9.849***
	(0.417)	(0.429)	(0.446)	(0.429)
Observations	466	459	396	447
R^2	0.158	0.168	0.141	0.161

increases when moving from wine to dairy and oil. Size does not seem to matter much for this measure of social capital.

Regarding **social capital 2**, Turkey is above all the other countries for all social capital items. This is probably the starkest comparison of all. On lower levels we find Spain – for sharing objectives, understanding members' strategy, and agreeing on making the relationship work – and France, for sharing ambition and vision and for having members with a positive attitude (remember that French cooperatives have on average members who are younger and with larger farms). Italy and Greece do not score high on either item (see Figure 20).

On **social capital 3** we get a similar story to tell. Turkey is scoring relatively better than other countries for most of the items, and France is doing relatively low in most of them (see Figure 21). In some cases, Greece – for relating and knowing the members and for maintaing social and personal relationships with members – is doing better than Turkey. Spain and Italy are scoring relatively well in some of the scores, sligthly below Turkey – in terms of relationships of mutual respect and mutual trust – or event better, e.g., in knowing their members.

To investigate the effects on social capital of country, crop and size, we have put together the scores for social capital 2 and 3. As can be seen in the table, the country coefficient is positive (s.l. 1%) – so that moving away from France increases this score – and so is the coefficient for the crop (s.l. 1-5% according to the specification), so that the score for this measure of social capital increases as we move from the wine to the dairy and oil sectors. In terms of size, only when proxied by number of hectares (or livestock heads) it has a negative effect (s.l. 1%), else the coefficients are non-significantly different from zero: as size increases, social capital 2 decreases, as one would probably expect. However, when size is measured by either the membership base or the turnover it turns out not having any effect on social capital.

Procurement. In terms of **procurement** and payments to members (Figure 22), we find again that France and Turkey seem the polar cases, but with switching roles according to which dimension we consider. In effect, French cooperatives are doing better than the rest of the sample in terms of sustainability – both practices and certifications are explicitely recognized in the payment systems – and in recognizing the different production areas. Turkish cooperatives, on

Table 15: Regression of Social Capital 2

	(1) Social c. 2 b/se	(2) Social c. 2 b/se	(3) Social c. 2 b/se	(4) Social c. 2 b/se
SK2				
Country	1.482***	1.443***	1.421***	1.560***
	(0.267)	(0.273)	(0.311)	(0.281)
Crop	1.099**	1.173***	1.374***	1.011**
	(0.447)	(0.453)	(0.529)	(0.464)
Members		-0.000		
		(0.000)		
Hectares/cows			-0.000***	
			(0.000)	
Turnover				-0.001
				(0.001)
Constant	25.873***	26.049***	25.961***	25.862***
	(0.956)	(0.987)	(1.062)	(0.983)
Observations	466	459	396	447
R^2	0.158	0.168	0.141	0.161

the other hand, seem quite involved in recognizing the characteristics of the raw commodities needed for quality products and in comparing the deliveries of each member to the average of the cooperative, so to filter out the common risk. Turkey however has low scores in requiring mandatory delivery: this may be an issue in some cases, as it may induce free-riding by members, but it is not clear whether this is actually an issue in Turkey given that the social capital seems pretty high and so members may feel some peer pressure and behave less opportunistically than formal norms would allow. Spain and Italy seem to be doing well in some dimensions too, for instance in reducing the yields to increase quality, in considering the sanitary state of the raw commodity, and in quality projects, i.e., the selection of the best plots/stables for special quality production lines.

Looking at what may affect the procurement scores, we can see in the next Table that the country in which the cooperative operates has no effects. The crop, on the other hand, matters and has a negative sign (s.l. 1%): moving from the wine sector to dairy and oil the procument score worsens, meaning that in this sector the sophistication and efficiency of the cooperatives choices are on average at the top. Size also matters, always with a positive coefficient (s.l. between 5% and 10% according to which proxy is used): as cooperatives become bigger, the sophistication and efficiency of the cooperative solutions increase as well.

Perceived performances. In terms of perceived performances, we consider two different set of questions. The first one concerns the **perceived entrepreneurship orientation**, where Turkey is again (weakly or strongly) dominanting on all measured items.[50] Only Italy is on the same score level, for believing in technological innovations, for having a 'beat the competition' attitude, and for shifting or introducing new product lines. Apparently the Greek cooperatives seem to lag behind in these dimensions, as they are doing worse also compared to French cooperatives (see Figure 23).

Regarding what may affect the perceived entrepreneurship orientation, notice that the country

[50]Notice that also for this set of questions we do not have answers from Spanish cooperatives.

Table 16: Regression of Procurement

	(1) Procurement b/se	(2) Procurement b/se	(3) Procurement b/se	(4) Procurement b/se
Country	0.082	0.059	0.064	0.103
	(0.085)	(0.086)	(0.100)	(0.089)
Crop	-0.494***	-0.532***	-0.434**	-0.518***
	(0.142)	(0.144)	(0.170)	(0.147)
Members		0.000*		
		(0.000)		
Hectares/cows			0.000**	
			(0.000)	
Turnover				0.000*
				(0.000)
Constant	6.340***	6.436***	6.286***	6.309***
	(0.305)	(0.313)	(0.340)	(0.311)
Observations	466	459	396	447
R^2	0.158	0.168	0.141	0.161

is either non-significant or negative (but with a s.l. of 10%), while the crop has a positive effect (s.l. 1%). Therefore country has a limited if not a non-existent effect, while moving away from the wine to the dairy and oil sector increases this score (probably because of the higher BoD involvement ìn those crops). Size however has not effect, no matter how it is measured.

Regarding **perceived performance**, we find Turkish cooperatives doing relatively better than other ones in overall profitability, overall performance, members satisfaction, and ability to achieve vision. On this latetr dimension, France is doing quite well, and also in the perceived competitive position. Greece, on the other hand, has the highest perceived assessment of the price paid to members compared to the market prices.

Interesting to notice that the perceived performance is negatively affected by country (s.l. 1%) and positively by crop (s.l. 1%). Moving away from France the perceived perfomance score worsens, while it increases as we move from cooperatives working in the wine sector to those in the dairy and oil sectors. Size has a negative effect (5% s.l.) when measured by turnover or members: as the cooperative becomes bigger, the perceived performance worsens. This may go hand-in-hand with some of the negative effect of size on social capital (see, e.g., Nilsson et al., 2012), as less involved members may feel more detached and possibly get a worse perception of the cooperative performances, other things equal.

Revealed performance. We also measured the **revealed performance**, that is a series of performance measures derived from different other items (see Figure 25). In this regard, France is doing well in terms of processed price and having members leaving the cooperative that are smaller and thus presumably inefficient ones. It may thus represent a situation in which an 'efficient' cooperative tries to train members, ask them to be efficient providing support, but on a very professional basis. Then it may be that members that cannot catch-up with the this efficiency-seeking efforts by the cooperative may decide to leave to find other most suitable options, which in France are more easily available (given the favorable market conditions in the wine sector, where most of the sampled cooperatives operate). In effect, French cooperatives have also the highest fraction of members not leaving for 'phisiological' reasons, that is because they retire or sell their farm. This could mean that these members leave because not happy, i.e., they

Table 17: Regression of Entrepreneurship Orientation

	(1) Entrepreneurship b/se	(2) Entrepreneurship b/se	(3) Entrepreneurship b/se	(4) Entrepreneurship b/se
Country	-0.204	-0.183	-0.403**	-0.192
	(0.151)	(0.155)	(0.173)	(0.158)
Crop	0.877***	0.834***	1.006***	0.857***
	(0.253)	(0.257)	(0.294)	(0.262)
Members		0.000		
		(0.000)		
Hectares/cows			-0.000	
			(0.000)	
Turnover				-0.000
				(0.000)
Constant	2.695***	2.604***	3.191***	2.717***
	(0.542)	(0.559)	(0.590)	(0.554)
Observations	466	459	396	447
R^2	0.158	0.168	0.141	0.161

Table 18: Regression of Perceived Performances

	(1) Perc. performance b/se	(2) Perc. performance b/se	(3) Perc. performance b/se	(4) Perc. performance b/se
Country	-0.313***	-0.332***	-0.458***	-0.334***
	(0.085)	(0.086)	(0.096)	(0.089)
Crop	0.682***	0.735***	0.656***	0.731***
	(0.142)	(0.142)	(0.163)	(0.147)
Members		-0.000***		
		(0.000)		
Hectares/cows			-0.000	
			(0.000)	
Turnover				-0.001**
				(0.000)
Constant	5.675***	5.762***	6.191***	5.720***
	(0.304)	(0.309)	(0.328)	(0.310)
Observations	466	459	396	447
R^2	0.158	0.168	0.141	0.161

Table 19: Regression of Sustainability 1

	(1) Sustain. 1 b/se	(2) Sustain. 1 b/se	(3) Sustain. 1 b/se	(4) Sustain. 1 b/se
Country	-0.531***	-0.581***	-0.786***	-0.581***
	(0.155)	(0.158)	(0.182)	(0.164)
Crop	-1.397***	-1.450***	-1.215***	-1.371***
	(0.260)	(0.262)	(0.311)	(0.272)
Members		0.000		
		(0.000)		
Hectares/cows			-0.000	
			(0.000)	
Turnover				-0.000
				(0.000)
Constant	7.225***	7.438***	7.900***	7.348***
	(0.555)	(0.570)	(0.623)	(0.576)
Observations	466	459	396	447
R^2	0.158	0.168	0.141	0.161

'vote-with-their-feet', or because they have been operating in an expanding sector. In Turkey, on the other hand, cooperatives are doing relatively well in terms of processed products and in losing only 'retiring' members. The other countries are in between, and none of them is doing particularly well or bad. [51]

Sustainability. As last dimension, we consider sustainability. French cooperatives appear to be doing better in few indicators (see Figure 26 for the first set of indicators, or **sustainability I**): in hectares of certified production, in social and environmental certification (ex-aequo with Spain), in preparing a sustainability report, in the use and production of renewable energy, in the use of alternative energy sources, in having a sustainability technician or department. Turkey, on the other hand, seems to have less structure in its sustainability practices. Again, Italy, Spain and Greece are in between, with the first two closer to France – Spain is doing well in particular in more structured social and environmental certifications, while Italy in the use of alternative energy sources – while Greece seems closer to Turkey (with the exception of international certifications, for which it gets the highest average score among the five countries). Notice that regarding sustainability 1, the country effect is significat in all the specifications, and so the crop effect. On the other hand, the size effect is not signifcant.

As for **sustainability practices** (see Figure 27), Italy is emerging as the most involved in almost all indicators, with France being top of the class for the use of either the sustainability practices or certification in the payment of the members' raw commodities. Turkey and Greece, on the other hand, appear to be less involved in these practices, at least according to the answers provided by the interviewed in each cooperative.[52] Regarding the sustainability practices, notice

[51] Notice that Spanish cooperatives were not asked the question regarding the reasons for members leaving the cooperative. To keep Spain in the picture, we aribitrarily assigned a low value to this answer for Spain. The alternative would have been to drop Spain altogether from Figure 25. However, regarding the question on the reasons for the members to leave the cooperative, notice thus that Spanish data is in fact missing.

[52] Again, Spanish cooperatives were not asked some of the sustainability questions, such as the alternative energy sources and the participation into international certifications. However, to keep Spaninsh in the picture, we used the same artifact as explained in the previous footnote. Just remember that Spanish data for some of these is in

Table 20: Regression of Sustainability 2

	(1) Sustain. 2 b/se	(2) Sustain. 2 b/se	(3) Sustain. 2 b/se	(4) Sustain. 2 b/se
Country	-0.180	-0.187	-0.419***	-0.179
	(0.132)	(0.135)	(0.157)	(0.140)
Crop	-1.644***	-1.679***	-1.579***	-1.639***
	(0.222)	(0.224)	(0.268)	(0.232)
Members		0.000		
		(0.000)		
Hectares/cows			-0.000	
			(0.000)	
Turnover				-0.000
				(0.000)
Constant	6.245***	6.275***	6.981***	6.299***
	(0.475)	(0.487)	(0.537)	(0.491)
Observations	466	459	396	447
R^2	0.158	0.168	0.141	0.161

that only the crop effect is signifcant, while niether the country (it is only in one specification, in which cooperative size is proxied by the land/cattle size) nor the size effects are significant.

Aggregate scores. To conclude this benchmarking exercise, we use also the **aggregate scores**, that is the total score for each dimension we have considered (see Figure 28). The overall picture that emerges is quite mixed. France has high scores on the CEO dimension and on perceived performances. Turkey is high in both measures of social capital we have considered,[53] on ownership rights and on entrepreneurship. Italy is high in market oriantation, perceived performance, on both sustainability scores, and the Board of Directors scores. Greece has high scores in perceived and revealed performances. Spain is relatively high in market orientation and social capital 2.[54]

Last, we show the overall scores also across sectors (see Figure 29). Wine cooperatives are doing well in terms of market orientation, of both sustainability aggregate scores and of procurement. Oil cooperatives, on the other hand, are doing well in terms of entrepreneurship, social capital (1 and 2), Board of Directors, perceived and revealed performances. Dairy cooperatives instead do not seem to excel in neither dimension, but sometimes (for instance in social capital 2 and procurement) they do relatively well.

fact missing.

[53]Social capital 2 is the sum of social capital II and III we have considered above.

[54]Notice that Spanish cooperatives were not interviewed regarding some of the sections and so some scores are missing. We assigned a zero value to the missing ones in order to have anyway Spain in the spider graph.

5 Discussion

The sample of cooperatives we have investigated is quite heterogeneous along the different dimensions we have measured. Some differences depend on the country, some on the crop, some may be also related to their size. But are these differences – and for which dimension – related to the cooperative performances? After all, agricultural cooperatives are not charities, that is they have to create value for their members and provide them with useful services at cost. The financial sustainability of cooperatives is important, but it may be seen as a means to reach an end, that is to pay good prices for the raw commodities that members – the owners and patrons of the cooperative itself – deliver to the cooperative. In effect, after different meetings with cooperative leaders and experts, the prices that the cooperative pays to its members is still the most important (although not the only one) performance measure cited for members, managers and Board of Directors.

To have a proxy of the prices paid by the cooperative to its members, we consider the average payment per hectare (per livestock head in case of dairy) that the cooperative pays[55] and we look at what affect (or is affected by) them.[56] In the Tables in Appendix 5 we thus report the analysis of a set of regressions (with a simple OLS estimator, with robust standard errors) starting with a simple specification with only the scores of interest, and then adding the country fixed effect; the crop fixed effect; the production value per hectare/cow at NUTS2 level;[57] and the cooperative's size measured by its turnover. Moreover, we group the scores along similar dimensions, that is *Governance* (including the CEO scores, the BoD, Ownership and Entrepreneurship orientation); *Managerial practices*, such as market orientation, procurement and perceived practices; and the *Social dimensions*, meaning social capital and sustainability.

First of all, by considering the **Governance** variables we find that CEO and BoD are both positive and significant, even though their significance disappears as long as we control for the average revenue obtained in the are where the cooperative operates (see Table 11 in Appendix 5). Notice that cooperative size is not significant, while the average production value per hectare obtained in the NUTS2 area in which the cooperative operates has the expcted sign, positive.

Then, if we look at **Managerial practices** variables, we find that market orientation is the only positive and singificant one, remaining significant across all different specifications. Therefore, even after controlling for the operating environment and the size of the cooperative, the market orientation of the cooperative seems to be related to better cooperative performances (see Table 11 in Appendix 5). In brief, more market oriented cooperatives seem to ensure better payments to members, even after taking into account differences across crops and regions.

When we consider the **Social dimensions**, we find that social capital 2 is negatively associated with payments to members, but only in the first specification. Indeed, as we control for more effects the significance disappears. Sustainablity 1, on the other hand, is positively correlated and remains significant for the first three specifications: once we control for the average revenue per hectare in the area and for the cooperaitve size, its signiifcance disappears (see Table 11 in Appendix 5).

To sum up, and considering all the dimensions together, we find that only market orientation is positively related to payment to members and remain significat across all specifications (see Table 11 in Appendix 5). Thus the market orientation has a positive effect (s.l. 5% in the most complete specifications), implying that cooperatives that have obtained higher scores on market

[55] As explained before, it is the ratio of the total payments to members over the size measured in terms of hectares or livestock heads.

[56] Notice that here we cannot prove causality, only the correlation among the variables we use. Moreover, since many of these scores and the dimensions they try to measure may be very much related, our estimates may suffer from simultaneity and more generally from endogeneity issues.

[57] We use Eurostat data on value of production at producer price (agr_r_accts), area under different crops (ef_lus_allcrops), and heads of dairy cows (agr_r_animal), all at NUTS2 level, to compute the production value per hectare/head. For Turkey, data were kindly rpovided by the Ministry of Agriculture to G. Ozertan.

orientation pay also more their members. Even though we cannot prove causality, the result seems quite intuitive and as expected, in the sense that a cooperative which is better equipped to succeed in the market other things equal may be able to better remunerate its members.

Interestingly enough, the scores regarding the CEO, the BoD, the social capital, the procurement and the *perceived* entrepreneurship orientation are not associated with the measure of performance we are considering, i.e., the payments per hectare/livestock head received by the members. While the result on social capital may not be particularly surprising – after all, the social capital may be independent of this performance measure – the lack of correlation with the CEO, the BoD and the procurement scores are to some extent unexpected. [58]

A better management should improve the results of the cooperative and thus, to some extent, ensure better returns to members. If that does not happen, one starts wondering whether better management has no effect on the cooperative performance (accepting that our scoring measure of CEO is good enough to capture its ability) or whether better managers work more for the financial stability of the cooperative at the expenses (at least in part) of the members' returns for their delivery. This (lack of) effect of the CEO and related questions deserve further investigation.

One could also expect that BoD may in fact have a negative effect, in the sense that a more active and involved BoD may be only a second best option to good professional managers. But it could also go in the other direction, that is a better BoD (absent a CEO) may increase the performances for members. This lack of correlation may then come from this unresolved theoretical expected effect. That the procurement is not correlated however is quite surprising, and it deserves further investigation. For the lack of siginificance of the perceived entrepreneurship orientation, on the other hand, we can use the same arguments as for the BoD.

[58] In fact, in the case of the BoD in column 1, 2 and 3 the effect is positive at the 10% s.l.

6 Concluding remarks

Getting market access by smallholders is not an easy task. It requires financial resources, human capital and time. Small and medium size farmers often do not have much of them. In some instances, a solution to profitably process and market raw commodities is by jointly undertaking common investments, such as forming and investing in agricultural cooperatives or other producer's organizations. This is relevant for developing and developed countries as well. For these latter, for instance, in southern Europe we find that more than half of produced grapes are transformed into wine and sold by wine cooperatives (see, e.g., Garrido, 2022). But such an important role of cooperatives and in general of producer' organizations is the reality for other sectors as well, for instance in dairy, oil, fruit and vegetables sectors, etc.[59]

Given their importance in the EU food sector, the question is whether agricultural cooperatives are actually obtaining good performances in these markets and, given the heterogenity in their performances, to what extent we can learn from the good experiences. In this report we present the results of probably the most systematic (to the best of our knowledge) investigation (at least since Bijman and Hanisch, 2012) of cooperatives involved in the processing and sales of wine, dairy products and oil located in Mediterranean countries such as France, Greece, Italy, Spain and Turkey.

With our project we have distributed a detailed survey to a sample of cooperatives, collecting information from more than 460 of them about their business model, governance structure, ownership rights, social capital, procurement policies, and some performance measures. All these dimensions have been detaily measured and evaluated, that is assigned a score to, in order to judge their potential efficiency effect. The construction of the scores moreover has allowed us to compare (benchmark) cooperatives along the different dimensions. In addition, it enables to investigate the relationship of the different cooperative dimensions with their performances.

First of all, we find that geography, that is the country in which they operate, seems to be explaining part of the heterogenity across cooperatives. In France, for instance, cooperatives deal with bigger farms and younger members, and they operate as what appear to be the most *management-controlled* (in the sense of Hendrikse and Feng, 2013) cooperative: more are indeed the cases in which the CEOs are in charge, they have more sectoral experience, and they are remunerated with packages that make their salary depending on the returns to members. In other words, French cooperatives seem very professionally managed. Moreover, the members monitor their CEO with a Board which is on average younger but also more financially prepared., although less active and less involved in their cooperative strategic setting. Add to this that French cooperatives seem to have the less 'traditional' ownership rights structure, that their CEOs have the shortest tenure, and that they spend more on the technical training of members and we obtain an overall picture of professional cooperatives, where both members and cooperatives actually 'mean business'. Probably a possible model to copy to face the challenges of modern agriculture.

However, French cooperatives are apparently suffering from lower social capital as well. This is evident when we use the measures of social capital already tested in other settings. But we must add that, when using other measures we suggest, we find a higher level of member participation in elections and the General Assembly, probably seen as a way to manifest their opinion to the cooperative. In effect, the time spent directly with members by the CEO or the BoD is the lowest among the countries covered in our analysis, so that elections and assembly may be among the few viable options for members to express their appreciation (or lack of it) for the management of the cooperative.

[59] COGECA (2015), for instance, reports that the market share of agricultural cooperatives is around 55% in dairy, 42% in wine and fruits & vegetables, 38% in olives, 34% in cereals, 27-28% in sugar and pig meat. Melia-Marti et al. (2024), Table 1, report recent applications of the comparative performance between cooperative and IOFs across different agricultural sectors.

But then, do professional managers in less traditional cooperatives dealing with professional members come at the cost of lower social capital? May be, but our interviews and interactions with many cooperative leaders in the Solution Hub meetings[60] have led us to believe that a way out of this apparent trade-off is through better communication with members, based on personal efforts by the CEO and/or BoD or by a dedicated team. When members understand cooperative's choices and strategies, it may become easier to accept them and possibly finance them as well. In effect, while the well used measures of social capital put France at the bottom of the ranking, other measures that we use give a more nuanced view, where in effect French cooperatives are doing not so bad, at least in terms of members participation in the important cooperative moments, i.e., elections and General Assembly. We probably need to investigate on this direction as well.

On the other side of the sprectrum, we find Turkish cooperatives. They appear less professionalized, but with more BoD involvement in the management of the cooperatives, probably an example of *members-controlled* cooperatives (as in Hendrikse and Feng, 2013). But they are also less traditional in their ownership rights structure: therefore, Southern European cooperatives, especially French ones, seem to have a better governance, e..g, a more professionalized management structure, but a more tradiitonal ownership structure. This deserves further investigation, but it seems that some 'inertia' is slowing down the conversion to more less traditional property rights structure in Europe (although some elements, such as the high incidence of cooperatives owning IOF shares, especially for France, seems to point to a path of non-conversion to IOF via cooperatives owning capital seeking entities; see, e.g., Chaddad and Cook, 2004).

Moreover, Turkish cooperatives appear not very sophisticated in terms of market orientation, e.g., they sell mostly in very local destination markets. However, interestingly enough they seem to have the best social capital stock, at least when assessed with the measures commonly found in the literature. In brief, in Turkey we finds cooperatives that seem to be appreciated (not only for their economic performances but) also for their 'social' dimensions.

In between these two polar cases we find the cooperatives of the other EU countries investigated. Italian and Spanish cooperatives are relatively similar to French ones, still possibly showing a greater degree of market orientation and attention to quality, for instance in selling strategies and in procuring raw commodities. The Greek cooperatives, on the other hand, seem placed between Spanish and Turkish cooperatives, with good social capital and also good governance and market orientation practices.

Apart from geography, the sector in which the cooperatives operate has a sizeable effect in explaining the cooperatives heterogeneity and performances. The wine sector is where we find better organized and managed cooperatives, obtaining higher returns for members as well. Then we find dairy cooperatives and last oil cooperatives. Now, given that the prices that these commodities fetch in commodity markets are more or less in the same ordering of the returns to members, one may wonder whether cooperatives' performances (the way we have measured them) are the result of better sector conditions or of better governance choices and management practices. It is probably the latter, since it would be difficult to conjecture the other direction of causality, that is that better organized and managed cooperatives lead to better market conditions (even though, in case the cooperative has an important market share, it may happen).

Another important determinant of scores and performance appears to be represented by the size of the cooperative, in particular its economic size. The question is then whether bigger cooperatives are (leading to) better managed and more performing firms because they can exploit economies of scale, for instance, or because they can afford to pay more and thus attract better managers. Moreover, going back to the sectoral differences in performances, one could also argue that (economically) bigger cooperatives – bigger for their own merit or because operating in a more dynamic and expanding sector – may be able to attract and retain more talented managers. Again, is it the case that a more profitable sector can attract better managers or the other way

[60]These meetings were part of a previous step in the Agricompet Project, in which we interviewed members, managers, and experts from cooperatives in all the countries.

around, that is that better managers lead to a better performing sector? These are questions that deserve further investigation which is left for future research.

We have also found that the payments to members, an important measure of performance, seem to be associated only with the market orientation of the cooperative. None of the other dimensions we have measured seem to matter, once we control for the economic environment in which cooperatives operate. However, these are only preliminary results, and further investigations are needed. In particular, it is sometimes argued that a more market oriented cooperative is the result of cooperatives adopting better governance models, implying that these latter are the necessay condition for the former. This and other hypotheses need to be formally tested with a more risorous analysis, which is left for future research.

To conclude, this project is an attempt to shed light on the relationshipp between cooperatives' governance and managerial practices and their performances. The preliminary results we present here show the potential for very fruitful investigations. Some natural and systemic constraints seem to influence the structural characteristics of farms, e.g., their size, and thus also that of their cooperatives. This seems to induce some choices made by the cooperative itself, such as its market orientation, the quality investments, the governance choices and other management practices. In effect, some of these choices are to some extent related to the obtained performance by the agricultural cooperatives we have investigated.

From our preliminary analysis it is not yet clear whether there is a predominant or unique profitable business-model or organizational choices that can be easily transfered to other settings. Take quality production, for instance. According to some literature, quality products and cooperatives seem almost an oxymoron. But in our investigation we have found and documented some payment schemes which are very sophisticated and probably very efficient to induce good quality raw commodities deliveries by members. However, whether they can be adopted by all cooperatives is far from being established. First, if we stay in the European wine industry, we can agree that it is very much characterized by the 'terroir' idea, that is by the most suitable match between the vineyards and the geo-climatic areas in which they are located. However, we need to recognize that not all terroirs are top-notch. In other words, in some cases the quality potential of a particular area may not be particularly favorable, and in this case cooperative may find better business models to pursue.

Another related issue, possibly more critical, is whether members are ready and willing to make the choices and the investments required by market-oriented cooperatives. As we have seen, the members in different countries are different as well, in terms of age and farm size which we have measured to some extent. Remaining in our wine example, many young and entrepreneurish members may decide to start their own wine-making activity, especially in good market conditions, and this to a certain extent may lead to an unfavorable self-selection in which the cooperative is left with older and/or less dynamic members. This may then exacerbate the demographic problem we have been confronted with in many meetings with cooperative leaders, and may paradoxically lead to situations in which very market-oriented cooperatives may have issues with a less dynamic membership base. Probably another reason for cooperatives working towards a better future to invest also on their membership base. What may be the best way to do it is left for future research.

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7 Appendix 1 - Maps of the surveyed cooperatives

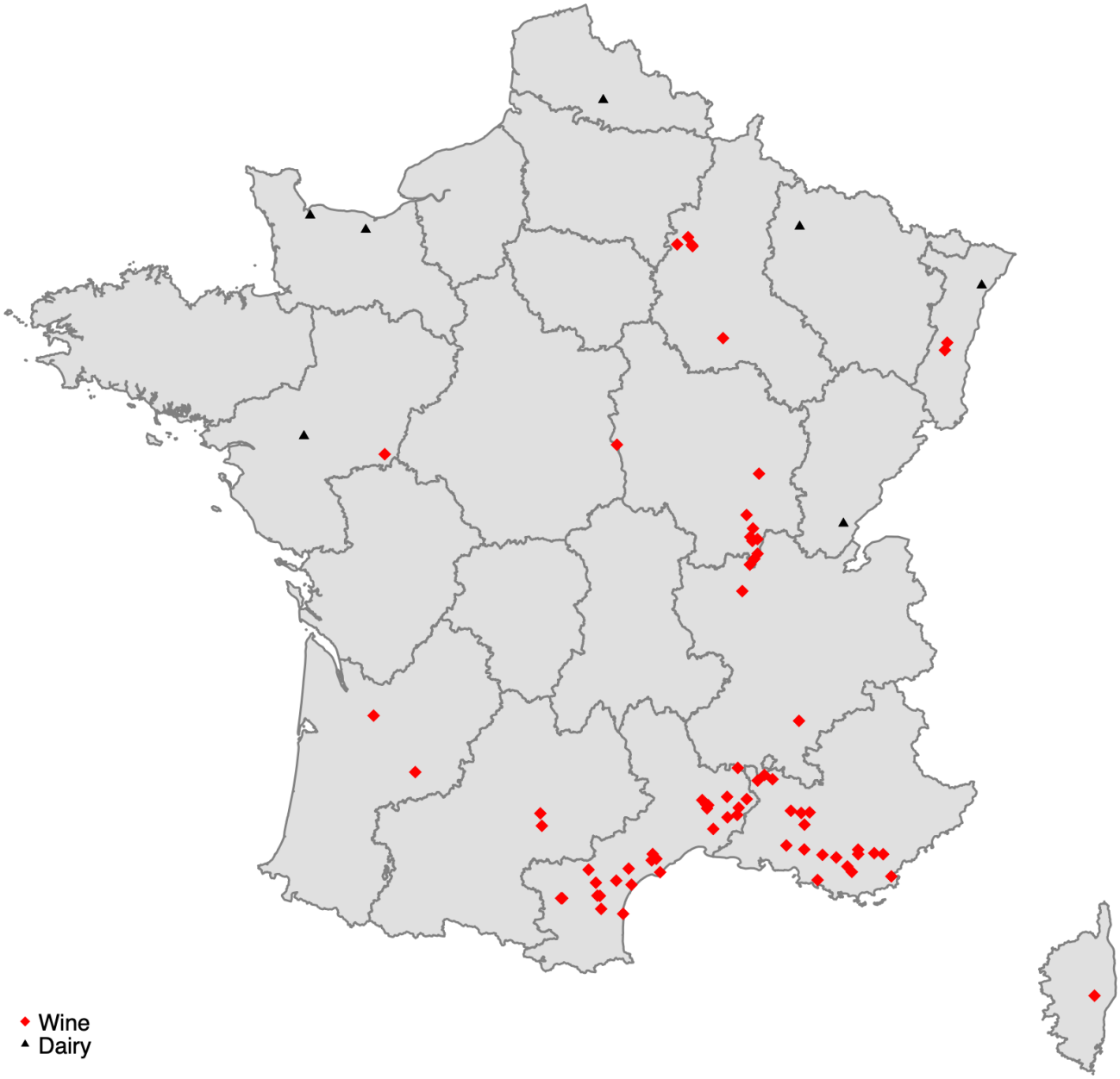

Figure 1: Sampled cooperatives in FRANCE

Figure 2: Sampled cooperatives in GREECE

Figure 3: Sampled cooperatives in ITALY

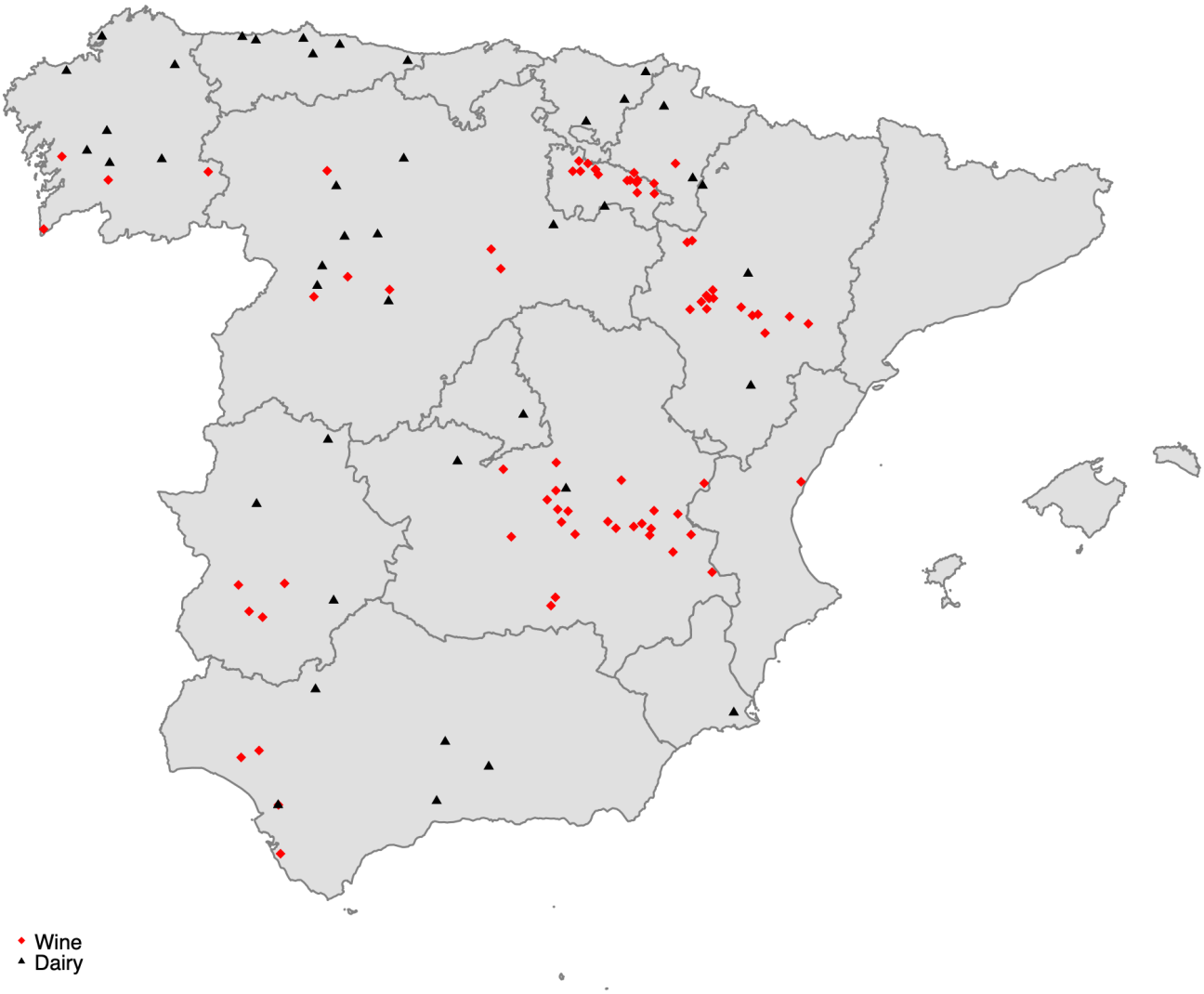

Figure 4: Sampled cooperatives in SPAIN

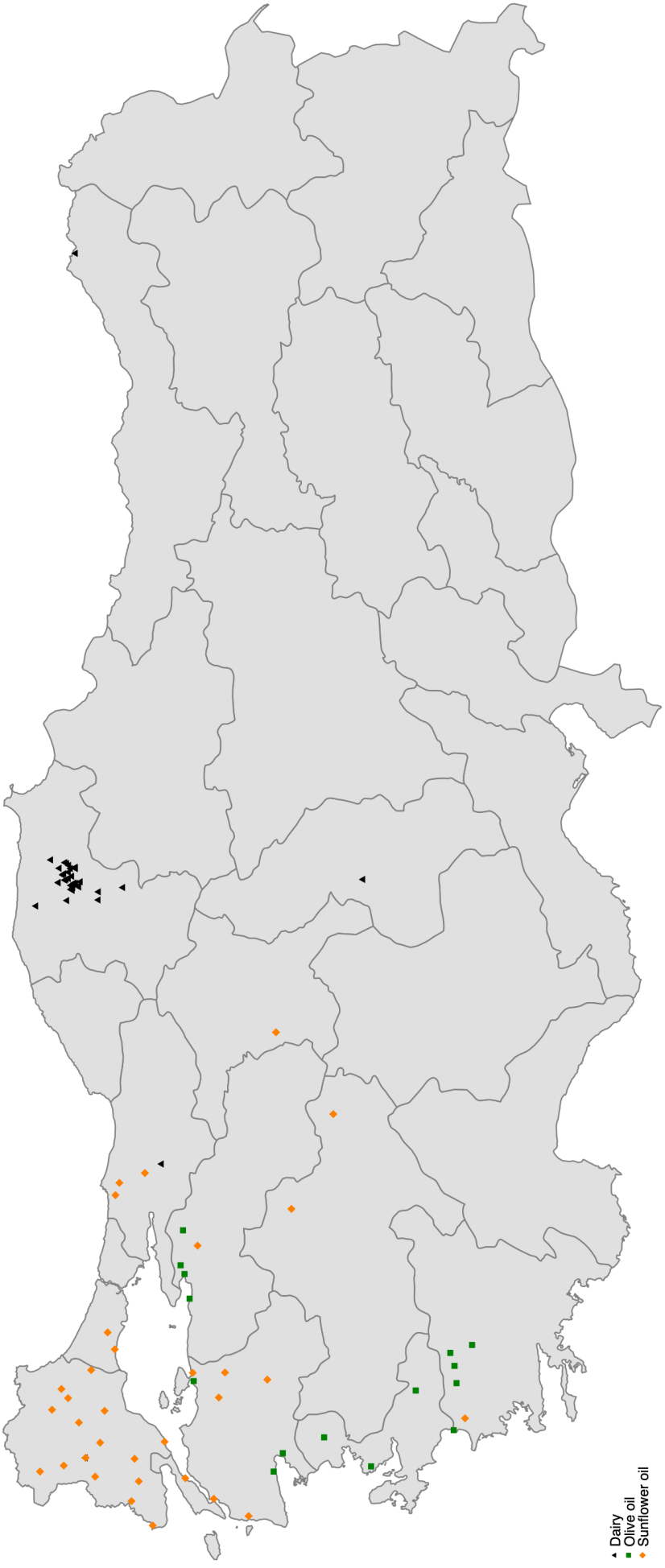

Figure 5: Sampled cooperatives in TURKEY

8 Appendix 2 - Survey Results

Table 21: Structural characteristics of cooperatives (by country)

	France	Greece	Italy	Spain	Turkey	Total
Year of foundation	1946.67	1954.69	1959.17	1968.50	1982.86	1963.62
	(31.22)	(36.18)	(29.66)	(24.95)	(18.86)	(30.13)
	(70)	(54)	(130)	(117)	(87)	(458)
Number of active members	716.54	205.69	329.27	412.29	640.86	454.02
	(2921.57)	(211.20)	(438.33)	(925.48)	(1051.25)	(1341.42)
	(70)	(54)	(131)	(117)	(87)	(459)
Average member's size (ha/herd)	92.97	11.41	2.44	59.35	10.02	33.18
	(623.81)	(35.96)	(1.71)	(133.67)	(14.36)	(245.17)
	(55)	(35)	(123)	(109)	(69)	(391)
Sales turnover (million €)	201.50	2.37	16.31	20.74	3.33	45.70
	(1031.18)	(4.99)	(34.56)	(87.53)	(11.60)	(434.36)
	(77)	(49)	(130)	(117)	(74)	(447)
Size (ha/cows)	4125.85	673.43	808.12	8602.80	2809.42	3793.12
	(24419.22)	(1218.05)	(1326.51)	(34601.81)	(3474.41)	(20721.53)
	(60)	(35)	(123)	(109)	(69)	(396)
Total N. of employees	497.16	10.69	27.48	17.74	10.90	98.36
	(2760.18)	(21.36)	(52.12)	(28.56)	(15.40)	(1136.56)
	(77)	(54)	(126)	(117)	(87)	(461)
Value returned to members (million €)	21.01	1.63	7.59	8.47	2.77	8.47
	(47.65)	(3.61)	(13.79)	(21.85)	(7.52)	(23.75)
	(58)	(39)	(127)	(112)	(61)	(397)
Value to members / turnover (%)	60.43	69.44	51.74	62.01	164.68	73.69
	(22.63)	(41.75)	(26.14)	(30.28)	(366.69)	(144.34)
	(58)	(38)	(126)	(112)	(55)	(389)

Mean (Std. dev.) (No. obs.)

Table 22: Structural characteristics of cooperatives (by sector)

	Wine	Dairy	Oil	Total
Year of foundation	1955.57	1991.52	1961.91	1963.62
	(29.68)	(20.82)	(22.20)	(30.13)
	(283)	(87)	(88)	(458)
Number of active members	303.94	667.86	698.00	454.02
	(508.76)	(2634.30)	(1025.73)	(1341.42)
	(277)	(94)	(88)	(459)
Average member's size (ha/herd)	22.34	94.96	6.13	33.18
	(288.32)	(155.89)	(8.19)	(245.17)
	(258)	(72)	(61)	(391)
Sales turnover (million €)	13.93	195.51	3.31	45.70
	(31.83)	(997.29)	(10.98)	(434.36)
	(282)	(83)	(82)	(447)
Size (ha/cows)	1718.46	11945.38	3115.62	3793.12
	(11735.53)	(42260.90)	(3588.43)	(20721.53)
	(263)	(72)	(61)	(396)
Total N. of employees	23.84	404.28	7.83	98.36
	(45.04)	(2502.85)	(7.47)	(1136.56)
	(279)	(94)	(88)	(461)
Value returned to members (million €)	7.13	20.66	2.63	8.47
	(17.67)	(45.05)	(6.97)	(23.75)
	(263)	(63)	(71)	(397)
Value to members / turnover (%)	57.46	93.48	117.45	73.69
	(26.20)	(293.42)	(202.03)	(144.34)
	(261)	(57)	(71)	(389)

Mean (Std. dev.) (No. obs.)

Table 23: Stated objectives of cooperatives (by country)

	France	Greece	Italy	Spain	Turkey	Total
Service to members	1.97	2.31	2.21	2.16	2.54	2.24
	(59)	(49)	(76)	(89)	(80)	(353)
Maximize patronage refunds	1.87	2.14	2.57	2.23	2.10	2.31
	(31)	(14)	(108)	(62)	(30)	(245)
Maximize selling price	2.32	2.20	2.12	2.29	1.67	2.11
	(28)	(35)	(76)	(85)	(61)	(285)
Mininimize conflicts among members	1.38	1.93	1.90	1.14	2.43	1.73
	(8)	(14)	(20)	(14)	(7)	(63)
Overall, to serve members	3.10	4.07	4.63	4.49	4.23	4.20
	(77)	(54)	(131)	(117)	(87)	(466)
Ensure coop's financial sustainability	1.84	2.00	1.89	1.54	2.00	1.81
	(19)	(2)	(57)	(24)	(1)	(103)
Maximize returns on coop's assets	2.27	1.60	1.79	1.67	1.89	1.91
	(45)	(10)	(33)	(33)	(56)	(177)
Maximize retained earnings to sustain coop	1.92	2.13	1.31	1.35	1.12	1.52
	(24)	(15)	(13)	(34)	(25)	(111)
Overall, to serve co-op	2.38	0.96	1.40	1.18	1.56	1.49
	(77)	(54)	(131)	(117)	(87)	(466)

Mean (No. observations)

Table 24: Stated objectives of cooperatives (by sector)

	Wine	Dairy	Oil	Total
Service to members	2.10	2.30	2.54	2.24
	(196)	(79)	(78)	(353)
Maximize patronage refunds	2.39	2.00	2.22	2.31
	(188)	(39)	(18)	(245)
Maximize selling price	2.22	1.92	2.04	2.11
	(156)	(76)	(53)	(285)
Mininimize conflicts among members	1.58	1.62	2.20	1.73
	(40)	(8)	(15)	(63)
Overall, to serve members	4.25	4.32	3.93	4.20
	(284)	(94)	(88)	(466)
Ensure coop's financial sustainability	1.85	1.56	2.00	1.81
	(85)	(16)	(2)	(103)
Maximize returns on coop's assets	1.95	2.21	1.65	1.91
	(100)	(28)	(49)	(177)
Maximize retained earnings to sustain coop	1.55	1.43	1.53	1.52
	(56)	(23)	(32)	(111)
Overall, to serve co-op	1.55	1.28	1.52	1.49
	(284)	(94)	(88)	(466)

Mean (No. observations)

Table 25: Stated business model (by country)

	France	Greece	Italy	Spain	Turkey	Total
Share processed product (% turnover)	24.23	78.93	53.24	39.70	55.17	48.39
	(77)	(54)	(131)	(117)	(87)	(466)
Share PDO product	32.09	16.98	57.11	42.35	0.00	33.96
	(77)	(54)	(131)	(117)	(87)	(466)
Share branded product	2.73	37.84	78.34	53.27	5.75	41.31
	(77)	(54)	(131)	(117)	(87)	(466)
Expenditure on brand advertising	1.20	0.74	1.01	1.00	0.00	1.03
	(74)	(23)	(84)	(107)	(2)	(290)
We accept raw commodity from non-members	28.57	21.28	63.36	70.09	79.31	63.24
	(7)	(47)	(131)	(117)	(87)	(389)
Share processed sold in < 5€ range	13.90	10.63	35.47	48.10	4.06	26.33
	(77)	(54)	(131)	(117)	(87)	(466)
Share processed sold in $5 - 8$€ range	25.49	7.90	23.87	11.74	5.11	15.74
	(77)	(54)	(131)	(117)	(87)	(466)
Share processed sold in $8 - 14$€ range	29.43	13.79	17.36	11.97	8.97	16.02
	(77)	(54)	(131)	(117)	(87)	(466)
Share processed sold in $14 - 50$€ range	13.44	1.02	7.92	6.00	8.16	7.59
	(77)	(54)	(131)	(117)	(87)	(466)
Share processed sold in > 50€ range	0.71	0.00	0.98	0.02	7.87	1.87
	(77)	(54)	(131)	(117)	(87)	(466)
Processed price index	2.11	0.72	1.72	1.32	1.13	1.46
	(77)	(54)	(131)	(117)	(87)	(466)

Mean (No. observations)

Table 26: Stated business model (by sector)

	Wine	Dairy	Oil	Total
Share processed product (% turnover)	38.70	74.15	52.14	48.39
	(284)	(94)	(88)	(466)
Share PDO product	49.96	8.90	9.09	33.96
	(284)	(94)	(88)	(466)
Share branded product	56.88	17.65	16.31	41.31
	(284)	(94)	(88)	(466)
Expenditure on brand advertising	1.06	1.02	0.43	1.03
	(232)	(44)	(14)	(290)
We accept raw commodity from non-members	65.89	58.51	61.73	63.24
	(214)	(94)	(81)	(389)
Share processed sold in < 5€ range	40.70	1.69	6.28	26.33
	(284)	(94)	(88)	(466)
Share processed sold in $5 - 8$€ range	21.50	5.03	8.58	15.74
	(284)	(94)	(88)	(466)
Share processed sold in $8 - 14$€ range	17.35	14.66	13.18	16.02
	(284)	(94)	(88)	(466)
Share processed sold in $14 - 50$€ range	7.88	6.17	8.18	7.59
	(284)	(94)	(88)	(466)
Share processed sold in > 50€ range	0.65	0.00	7.78	1.87
	(284)	(94)	(88)	(466)
Processed price index	1.71	0.80	1.35	1.46
	(284)	(94)	(88)	(466)

Mean (No. observations)

Table 27: Stated market channels (by country)

	France	Greece	Italy	Spain	Turkey	Total
Ho.Re.Ca.	11.20	7.67	20.35	15.95	0.21	14.53
	(15)	(30)	(131)	(117)	(47)	(340)
Retailing	41.66	5.47	20.88	14.10	31.03	20.06
	(13)	(30)	(131)	(117)	(68)	(359)
Specialized shops	7.00	2.37	9.22	3.35	0.00	5.22
	(7)	(27)	(131)	(117)	(46)	(328)
B2B & wholesale	63.25	84.91	15.21	35.24	2.71	31.30
	(19)	(45)	(131)	(117)	(48)	(360)
Federated	57.40	4.62	5.09	6.03	1.06	5.93
	(7)	(26)	(131)	(117)	(47)	(328)
Online	2.87	0.04	1.73	1.48	0.00	1.29
	(9)	(27)	(131)	(117)	(46)	(330)
Direct sales	19.90	7.50	18.18	23.76	2.17	17.22
	(20)	(26)	(131)	(117)	(46)	(340)
Other	13.76	14.29	5.63	0.05	7.41	4.73
	(9)	(28)	(131)	(115)	(27)	(310)

Mean (No. observations)

Table 28: Stated market channels (by sector)

	Wine	Dairy	Oil	Total
Ho.Re.Ca.	19.77	8.20	2.06	14.53
	(222)	(50)	(68)	(340)
Retailing	17.91	45.06	0.64	20.06
	(221)	(71)	(67)	(359)
Specialized shops	7.43	2.45	0.06	5.22
	(214)	(49)	(65)	(328)
B2B & wholesale	22.77	53.62	40.08	31.30
	(224)	(53)	(83)	(360)
Federated	7.26	4.94	2.31	5.93
	(214)	(49)	(65)	(328)
Online	1.77	0.85	0.02	1.29
	(217)	(48)	(65)	(330)
Direct sales	22.34	12.88	2.06	17.22
	(228)	(49)	(63)	(340)
Other	3.99	0.31	12.77	4.73
	(214)	(49)	(47)	(310)

Mean (No. observations)

Table 29: Stated market destinations (by country)

	France	Greece	Italy	Spain	Turkey	Total
Local market (%)	10.52	60.19	44.02	50.24	91.95	50.87
	(77)	(54)	(131)	(117)	(87)	(466)
National market (%)	47.96	19.31	37.55	38.48	1.15	30.59
	(77)	(54)	(131)	(117)	(87)	(466)
EU market, no UK (%)	7.73	16.59	9.22	7.26	0.00	7.62
	(77)	(54)	(131)	(117)	(87)	(466)
Other markets (%)	2.53	2.06	6.50	4.02	0.00	3.49
	(77)	(54)	(131)	(117)	(87)	(466)
Export (% turnover)	10.26	18.65	15.73	11.28	0.00	11.11
	(77)	(54)	(131)	(117)	(87)	(466)
Number of export countries covered	13.16	1.24	11.82	.	0.00	7.61
	(51)	(51)	(120)	(0)	(61)	(283)

Mean (No. observations)

Table 30: Stated market destinations (by sector)

	Wine	Dairy	Oil	Total
Local market (%)	37.35	65.40	78.98	50.87
	(284)	(94)	(88)	(466)
National market (%)	38.76	27.27	7.79	30.59
	(284)	(94)	(88)	(466)
EU market, no UK (%)	8.89	1.82	9.69	7.62
	(284)	(94)	(88)	(466)
Other markets (%)	4.93	1.24	1.26	3.49
	(284)	(94)	(88)	(466)
Export (% turnover)	13.82	3.06	10.95	11.11
	(284)	(94)	(88)	(466)
Number of export countries covered	10.93	9.50	0.43	7.61
	(171)	(26)	(86)	(283)

Mean (No. observations)

Table 31: Ownership rights (by country)

	France	Greece	Italy	Spain	Turkey	Total
Own. rights are restricted to members	98.70	97.92	84.38	96.58	63.24	88.36
	(77)	(48)	(128)	(117)	(68)	(438)
Own. rights are redeemable	96.10	80.85	82.64	74.36	11.48	72.34
	(77)	(47)	(121)	(117)	(61)	(423)
Own. rights are not appreciable	90.91	68.00	43.33	56.41	3.70	53.59
	(77)	(50)	(120)	(117)	(54)	(418)
Own. rights transferable to a familiy member	36.36	83.33	56.15	74.36	85.06	70.93
	(11)	(54)	(130)	(117)	(87)	(399)
Own. rights transferable to another Coop member	95.65	10.64	48.46	51.28	2.30	43.56
	(69)	(47)	(130)	(117)	(87)	(450)
Own. rights transferable to a non-Coop member	0.00	28.26	17.69	9.40	0.00	12.14
	(7)	(46)	(130)	(117)	(87)	(387)
Own. rights not transferable	60.00	2.17	19.08	15.38	5.75	14.07
	(10)	(46)	(131)	(117)	(87)	(391)
Our Coop owns shares of IOF	68.57	19.23	20.61	28.21	8.43	27.59
	(70)	(52)	(131)	(117)	(83)	(453)

Mean (No. observations)

Table 32: Ownership rights (by sector)

	Wine	Dairy	Oil	Total
Own. rights are restricted to members	91.67	96.00	71.26	88.36
	(276)	(75)	(87)	(438)
Own. rights are redeemable	83.70	67.65	40.00	72.34
	(270)	(68)	(85)	(423)
Own. rights are not appreciable	58.15	67.21	29.89	53.59
	(270)	(61)	(87)	(418)
Own. rights transferable to a familiy member	64.52	67.02	90.91	70.93
	(217)	(94)	(88)	(399)
Own. rights transferable to another Coop member	61.82	24.47	3.70	43.56
	(275)	(94)	(81)	(450)
Own. rights transferable to a non-Coop member	14.08	7.45	12.50	12.14
	(213)	(94)	(80)	(387)
Own. rights not transferable	15.21	18.09	6.25	14.07
	(217)	(94)	(80)	(391)
Our Coop owns shares of IOF	30.91	29.35	15.12	27.59
	(275)	(92)	(86)	(453)

Mean (No. observations)

Table 33: Equity capital acquisition (by country)

	France	Greece	Italy	Spain	Turkey	Total
From members	96.10	49.19	66.18	55.94	64.25	66.23
	(77)	(54)	(131)	(117)	(87)	(466)
From non-members	0.00	5.56	1.48	4.05	0.34	2.14
	(77)	(54)	(131)	(117)	(87)	(466)
From direct investment	2.60	0.37	13.47	7.54	1.55	6.44
	(77)	(54)	(131)	(117)	(87)	(466)
From other sources	.	41.81	.	32.75	65.55	38.61
	(0)	(27)	(0)	(116)	(22)	(165)

Mean (No. observations)

Table 34: Equity capital acquisition (by sector)

	Wine	Dairy	Oil	Total
From members	72.20	37.87	77.23	66.23
	(284)	(94)	(88)	(466)
From non-members	1.37	2.98	3.75	2.14
	(284)	(94)	(88)	(466)
From direct investment	8.12	7.02	0.40	6.44
	(284)	(94)	(88)	(466)
From other sources	26.89	47.17	53.89	38.61
	(76)	(70)	(19)	(165)

Mean (No. observations)

Table 35: Members' investment in the cooperative (by country)

	France	Greece	Italy	Spain	Turkey	Total
Yes: – in permanent capital	9.09	20.00	30.77	16.24	4.60	17.35
	(77)	(50)	(130)	(117)	(87)	(461)
– via a % retained from payments	1.30	31.37	13.08	24.79	47.13	22.51
	(77)	(51)	(130)	(117)	(87)	(462)
– Yes, in other ways	0.00	4.35	0.77	5.13	2.30	2.41
	(77)	(46)	(130)	(117)	(87)	(457)
No	88.31	58.33	59.54	53.85	19.54	55.22
	(77)	(48)	(131)	(117)	(87)	(460)
Yes, members receive: – interest for their loan to coop	10.39	6.52	24.43	2.56	0.00	10.04
	(77)	(46)	(131)	(117)	(87)	(458)
– for retained earnings	5.19	2.17	1.54	2.56	8.05	3.72
	(77)	(46)	(130)	(117)	(87)	(457)
– from other sources	1.30	0.00	2.31	5.13	5.75	3.28
	(77)	(46)	(130)	(117)	(87)	(457)
No, members do not receive any interest	53.25	87.04	71.54	89.74	78.16	76.13
	(77)	(54)	(130)	(117)	(87)	(465)

Mean (No. observations)

Table 36: Members' investment in the cooperative (by sector)

	Wine	Dairy	Oil	Total
Yes: – in permanent capital	21.20	9.57	13.10	17.35
	(283)	(94)	(84)	(461)
– via a % retained from payments	14.84	10.64	61.18	22.51
	(283)	(94)	(85)	(462)
– Yes, in other ways	2.12	2.13	3.75	2.41
	(283)	(94)	(80)	(457)
No	63.38	54.26	28.05	55.22
	(284)	(94)	(82)	(460)
Yes, members receive: – interest for their loan to coop	13.73	6.38	1.25	10.04
	(284)	(94)	(80)	(458)
– for retained earnings	2.12	5.32	7.50	3.72
	(283)	(94)	(80)	(457)
– from other sources	3.18	3.19	3.75	3.28
	(283)	(94)	(80)	(457)
No, members do not receive any interest	73.14	75.53	86.36	76.13
	(283)	(94)	(88)	(465)

Mean (No. observations)

Table 37: Value distribution (by country)

	France	Greece	Italy	Spain	Turkey	Total
Value created allocated to members (%)	74.47	49.95	74.36	67.13	93.50	73.22
	(15)	(37)	(118)	(117)	(70)	(357)
Value created retained for investments (%)	72.29	42.44	29.60	30.22	43.61	35.05
	(17)	(43)	(99)	(117)	(18)	(294)
Value created for other (%)	87.33	35.06	5.76	2.70	70.00	13.63
	(12)	(35)	(55)	(115)	(1)	(218)
To members, in proportion to patronage	98.70	59.26	82.44	71.79	34.48	70.82
	(77)	(54)	(131)	(117)	(87)	(466)
To members, in proportion to capital invested	0.00	3.70	2.29	8.55	13.79	5.79
	(77)	(54)	(131)	(117)	(87)	(466)
To members, in proportion to patronage & capital	0.00	3.70	5.34	8.55	9.20	5.79
	(77)	(54)	(131)	(117)	(87)	(466)
To members, in proportion to other	0.00	7.41	6.11	11.11	13.79	7.94
	(77)	(54)	(131)	(117)	(87)	(466)

Mean (No. observations)

Table 38: Value distribution (by sector)

	Wine	Dairy	Oil	Total
Value created allocated to members (%)	75.44	63.24	78.04	73.22
	(207)	(80)	(70)	(357)
Value created retained for investments (%)	30.59	45.81	40.93	35.05
	(194)	(57)	(43)	(294)
Value created for other (%)	10.10	10.82	40.71	13.63
	(145)	(49)	(24)	(218)
To members, in proportion to patronage	85.56	35.11	61.36	70.82
	(284)	(94)	(88)	(466)
To members, in proportion to capital invested	3.87	6.38	11.36	5.79
	(284)	(94)	(88)	(466)
To members, in proportion to patronage & capital	4.23	7.45	9.09	5.79
	(284)	(94)	(88)	(466)
To members, in proportion to other	3.87	23.40	4.55	7.94
	(284)	(94)	(88)	(466)

Mean (No. observations)

Table 39: CEO (by country)

	France	Greece	Italy	Spain	Turkey	Total
There is a CEO in the Coop	68.83	37.50	52.31	58.12	58.62	56.21
	(77)	(48)	(130)	(117)	(87)	(459)
The BoD Chair is also CEO	9.09	56.00	45.80	7.69	43.68	30.74
	(77)	(50)	(131)	(117)	(87)	(462)
In the BoD there are professional managers	0.00	0.00	6.15	0.00	20.69	5.69
	(77)	(46)	(130)	(117)	(87)	(457)
There are prof. managers running the Coop	1.30	17.02	12.21	16.24	20.69	13.51
	(77)	(47)	(131)	(117)	(87)	(459)
The CEO is a woman	6.49	3.70	3.82	15.38	1.15	6.65
	(77)	(54)	(131)	(117)	(87)	(466)
Years of CEO tenure	7.67	11.00	11.15	13.59	7.72	10.40
	(48)	(21)	(100)	(70)	(67)	(306)
CEOs changed in the last 10 years	0.87	0.90	0.78	0.68	1.21	0.87
	(46)	(21)	(97)	(71)	(67)	(302)
Women CEOs in the last 10 years	0.13	0.15	0.08	0.37	0.59	0.27
	(47)	(20)	(98)	(71)	(61)	(297)
CEO is a Coop member	5.19	20.83	36.64	13.68	42.53	25.00
	(77)	(48)	(131)	(117)	(87)	(460)
CEO is former member of other Coop	0.00	2.17	0.77	0.85	1.15	0.88
	(77)	(46)	(130)	(117)	(87)	(457)
CEO is manager with sector experience	51.95	13.04	33.85	27.35	2.30	27.13
	(77)	(46)	(130)	(117)	(87)	(457)
CEO is manager without sector experience	5.19	10.64	4.62	19.66	2.30	8.73
	(77)	(47)	(130)	(117)	(87)	(458)
CEO with variable salary	50.75	11.11	25.00	15.94	5.36	24.20
	(67)	(18)	(104)	(69)	(56)	(314)

Mean (No. observations)

Table 40: CEO (by sector)

	Wine	Dairy	Oil	Total
There is a CEO in the Coop	56.89	41.49	70.73	56.21
	(283)	(94)	(82)	(459)
The BoD Chair is also CEO	27.82	39.36	30.95	30.74
	(284)	(94)	(84)	(462)
In the BoD there are professional managers	2.83	18.09	1.25	5.69
	(283)	(94)	(80)	(457)
There are prof. managers running the Coop	9.51	28.72	9.88	13.51
	(284)	(94)	(81)	(459)
The CEO is a woman	8.10	6.38	2.27	6.65
	(284)	(94)	(88)	(466)
Years of CEO tenure	10.88	11.42	7.95	10.40
	(193)	(53)	(60)	(306)
CEOs changed in the last 10 years	0.78	0.72	1.32	0.87
	(188)	(54)	(60)	(302)
Women CEOs in the last 10 years	0.18	0.21	0.62	0.27
	(190)	(52)	(55)	(297)
CEO is a Coop member	22.18	25.53	34.15	25.00
	(284)	(94)	(82)	(460)
CEO is former member of other Coop	0.71	1.06	1.25	0.88
	(283)	(94)	(80)	(457)
CEO is manager with sector experience	37.81	12.77	6.25	27.13
	(283)	(94)	(80)	(457)
CEO is manager without sector experience	7.42	14.89	6.17	8.73
	(283)	(94)	(81)	(458)
CEO with variable salary	28.70	22.50	8.62	24.20
	(216)	(40)	(58)	(314)

Mean (No. observations)

Table 41: Board of Directors (by country)

	France	Greece	Italy	Spain	Turkey	Total
Components of Board of Directors (BoD)	.	5.30	9.75	8.40	1.16	6.81
	(0)	(54)	(128)	(117)	(85)	(384)
Presence of internal executive committee	76.62	11.76	17.19	14.66	4.05	23.99
	(77)	(51)	(128)	(116)	(74)	(446)
Average age of BoD components	46.21	52.19	52.72	51.77	53.31	51.47
	(75)	(54)	(127)	(117)	(87)	(460)
Average tenure of BoD components	10.92	7.19	4.39	8.76	7.66	7.52
	(76)	(52)	(128)	(117)	(87)	(460)
BoD components that are Coop members	99.90	100.00	97.43	99.62	38.06	87.56
	(77)	(54)	(129)	(117)	(87)	(464)
BoD components that are Coop employees	8.00	0.00	7.18	7.22	10.73	7.27
	(1)	(38)	(62)	(116)	(83)	(300)
BoD components that are members & employees	.	0.00	7.20	7.22	8.02	6.31
	(0)	(38)	(59)	(116)	(48)	(261)
BoD components neither members nor employees	.	0.00	3.03	0.15	2.63	1.11
	(0)	(38)	(59)	(117)	(27)	(241)
BoD components that are women	11.86	3.90	7.04	12.38	2.11	8.85
	(40)	(41)	(82)	(117)	(27)	(307)
BoD components with financial experience	12.23	9.21	7.03	4.63	3.30	6.69
	(38)	(43)	(65)	(116)	(30)	(292)
BoD components that are external professionals	0.00	0.98	1.07	0.22	2.57	0.64
	(70)	(41)	(59)	(117)	(28)	(315)
Chair of BoD must be a Coop member	100.00	100.00	75.78	100.00	100.00	93.25
	(75)	(54)	(128)	(117)	(85)	(459)
Chair must come from Coop main production area	80.00	50.98	49.58	59.83	98.82	66.89
	(75)	(51)	(119)	(117)	(85)	(447)
Chair of BoD is a woman	6.85	1.89	4.46	5.98	1.18	4.32
	(73)	(53)	(112)	(117)	(85)	(440)

Mean (No. observations)

Table 42: Board of Directors (by sector)

	Wine	Dairy	Oil	Total
Components of Board of Directors (BoD)	9.37	4.58	2.84	6.81
	(211)	(85)	(88)	(384)
Presence of internal executive committee	30.71	21.25	4.65	23.99
	(280)	(80)	(86)	(446)
Average age of BoD components	50.90	50.72	54.05	51.47
	(278)	(94)	(88)	(460)
Average tenure of BoD components	7.03	10.88	5.45	7.52
	(279)	(94)	(87)	(460)
BoD components that are Coop members	98.67	62.26	78.99	87.56
	(282)	(94)	(88)	(464)
BoD components that are Coop employees	4.32	10.52	9.31	7.27
	(144)	(88)	(68)	(300)
BoD components that are members & employees	4.27	11.21	2.12	6.31
	(141)	(87)	(33)	(261)
BoD components neither members nor employees	1.38	0.24	1.72	1.11
	(142)	(67)	(32)	(241)
BoD components that are women	8.29	12.14	5.17	8.85
	(199)	(73)	(35)	(307)
BoD components with financial experience	5.37	8.54	9.30	6.69
	(179)	(76)	(37)	(292)
BoD components that are external professionals	0.42	0.25	2.71	0.64
	(212)	(68)	(35)	(315)
Chair of BoD must be a Coop member	88.93	100.00	100.00	93.25
	(280)	(93)	(86)	(459)
Chair must come from Coop main production area	61.48	75.27	75.00	66.89
	(270)	(93)	(84)	(447)
Chair of BoD is a woman	4.96	5.38	1.18	4.32
	(262)	(93)	(85)	(440)

Mean (No. observations)

Table 43: Board of Directors attitude (by country)

	France	Greece	Italy	Spain	Turkey	Total
Our BoD is active	4.55	5.02	4.82	4.52	5.22	4.79
	(77)	(50)	(130)	(117)	(83)	(457)
Our BoD is engaged	4.71	5.04	4.92	4.81	4.89	4.86
	(77)	(50)	(130)	(117)	(83)	(457)
Our BoD has an investor mentality	4.04	4.45	3.92	3.87	4.32	4.06
	(77)	(49)	(129)	(117)	(84)	(456)
Our BoD represents the entire Coop	4.44	5.16	5.04	4.67	4.29	4.72
	(77)	(49)	(128)	(117)	(84)	(455)

Mean (No. observations)

Table 44: Board of Directors attitude (by sector)

	Wine	Dairy	Oil	Total
Our BoD is active	4.68	4.82	5.14	4.79
	(279)	(94)	(84)	(457)
Our BoD is engaged	4.82	4.95	4.92	4.86
	(279)	(94)	(84)	(457)
Our BoD has an investor mentality	3.92	4.43	4.12	4.06
	(278)	(93)	(85)	(456)
Our BoD represents the entire Coop	4.80	4.67	4.49	4.72
	(277)	(93)	(85)	(455)

Mean (No. observations)

Table 45: Board of Directors strategic involvement (by country)

	France	Greece	Italy	Spain	Turkey	Total
The BoD is not involved in developing strategy	1.30	0.00	2.31	.	11.49	4.12
	(77)	(46)	(130)	(0)	(87)	(340)
The BoD ratifies proposals developed by managers	1.30	18.75	16.92	.	13.79	12.87
	(77)	(48)	(130)	(0)	(87)	(342)
The BoD questions proposal to revise strategies	12.99	4.35	16.15	.	0.00	9.71
	(77)	(46)	(130)	(0)	(87)	(340)
The BoD helps developing strategy in Board meetings	12.99	22.92	22.31	.	8.05	16.67
	(77)	(48)	(130)	(0)	(87)	(342)
The BoD helps in and between Board meetings	22.08	26.09	38.93	.	18.39	28.15
	(77)	(46)	(131)	(0)	(87)	(341)
The BoD develops strategy separately from management	1.30	10.64	3.08	.	11.49	5.87
	(77)	(47)	(130)	(0)	(87)	(341)

Mean (No. observations)

Table 46: Board of Directors strategic involvement (by sector)

	Wine	Dairy	Oil	Total
The BoD is not involved in developing strategy	1.92	0.00	12.50	4.12
	(208)	(52)	(80)	(340)
The BoD ratifies proposals developed by managers	12.98	21.15	7.32	12.87
	(208)	(52)	(82)	(342)
The BoD questions proposal to revise strategies	13.46	5.77	2.50	9.71
	(208)	(52)	(80)	(340)
The BoD helps developing strategy in Board meetings	19.23	9.62	14.63	16.67
	(208)	(52)	(82)	(342)
The BoD helps in and between Board meetings	31.58	9.62	31.25	28.15
	(209)	(52)	(80)	(341)
The BoD develops strategy separately from management	2.88	1.92	16.05	5.87
	(208)	(52)	(81)	(341)

Mean (No. observations)

Table 47: Members' voting rights (by country)

	France	Greece	Italy	Spain	Turkey	Total
Non-ordinary members have right to vote	1.30	3.77	20.18	19.66	9.09	12.79
	(77)	(53)	(114)	(117)	(77)	(438)
Members vote: – is based on one head-one vote	84.42	100.00	98.41	90.80	97.59	94.35
	(77)	(52)	(126)	(87)	(83)	(425)
– in proportion to shares	15.58	0.00	1.59	9.20	2.41	5.65
	(77)	(52)	(126)	(87)	(83)	(425)
– in proportion to patronage	0.00	0.00	0.00	6.14	0.00	1.53
	(77)	(54)	(128)	(114)	(85)	(458)
– in proportion to investments	0.00	0.00	0.00	0.00	0.00	0.00
	(77)	(54)	(128)	(107)	(85)	(451)
– in prop. to shares/investments	0.00	0.00	0.00	0.00	0.00	0.00
	(77)	(54)	(128)	(107)	(85)	(451)
Members lose right to vote: – after 1 year inactivity	2.60	6.25	5.51	.	3.17	4.44
	(77)	(48)	(127)	(0)	(63)	(315)
– after 2 year inactivity	1.30	31.25	14.17	.	7.94	12.38
	(77)	(48)	(127)	(0)	(63)	(315)
– after patronage redeeemd	94.81	4.17	24.41	.	1.59	33.97
	(77)	(48)	(127)	(0)	(63)	(315)
– for other reasons	1.30	58.33	55.91	.	87.30	49.21
	(77)	(48)	(127)	(0)	(63)	(315)

Mean (No. observations)

Table 48: Members' voting rights (by sector)

	Wine	Dairy	Oil	Total
Non-ordinary members have right to vote	14.66	17.86	2.27	12.79
	(266)	(84)	(88)	(438)
Members vote: – is based on one head-one vote	91.73	97.65	98.84	94.35
	(254)	(85)	(86)	(425)
– in proportion to shares	8.27	2.35	1.16	5.65
	(254)	(85)	(86)	(425)
– in proportion to patronage	2.15	1.10	0.00	1.53
	(279)	(91)	(88)	(458)
– in proportion to investments	0.00	0.00	0.00	0.00
	(273)	(90)	(88)	(451)
– in prop. to shares/investments	0.00	0.00	0.00	0.00
	(273)	(90)	(88)	(451)
Members lose right to vote: – after 1 year inactivity	4.41	11.11	2.38	4.44
	(204)	(27)	(84)	(315)
– after 2 year inactivity	11.76	11.11	14.29	12.38
	(204)	(27)	(84)	(315)
– after patronage redeeemd	47.55	29.63	2.38	33.97
	(204)	(27)	(84)	(315)
– for other reasons	36.27	48.15	80.95	49.21
	(204)	(27)	(84)	(315)

Mean (No. observations)

Table 49: Entry & Exit (by country)

	France	Greece	Italy	Spain	Turkey	Total
ENTRY: – Coop accepts all entry applications	5.19	53.70	32.82	44.44	72.09	40.86
	(77)	(54)	(131)	(117)	(86)	(465)
– No. entry applications per year (average last 5 years)	6.72	5.11	10.85	12.37	26.90	13.61
	(18)	(53)	(129)	(117)	(81)	(398)
– Entry applications over membership size	3.07	3.79	5.57	6.26	7.27	5.74
	(18)	(48)	(117)	(94)	(74)	(351)
– Coop requires capital/shares investment to enter	100.00	100.00	55.12	82.05	27.71	69.87
	(77)	(54)	(127)	(117)	(83)	(458)
EXIT: – It implies a payment to Coop	50.65	13.21	21.60	0.00	2.63	16.74
	(77)	(53)	(125)	(117)	(76)	(448)
– Co-op foresees an equity redemption plan	92.11	16.00	15.32	39.32	31.58	37.70
	(76)	(50)	(124)	(117)	(76)	(443)
How many members left in last 5 years?	1.77	2.43	2.45	2.59	2.48	2.38
	(75)	(53)	(124)	(117)	(81)	(450)
Members left: – because of retirement or farm sale (%)	73.74	17.30	54.84	.	75.35	58.53
	(74)	(46)	(119)	(0)	(72)	(311)
– to join other Co-op (%)	10.38	2.24	9.24	.	1.46	6.67
	(74)	(46)	(119)	(0)	(72)	(311)
– to start/partecipate another firm (%)	9.58	6.96	8.61	.	0.69	6.76
	(74)	(46)	(119)	(0)	(72)	(311)
– for other reasons (%)	6.30	71.54	23.08	.	20.97	25.77
	(74)	(46)	(119)	(0)	(72)	(311)
Which members (size) left the Co-op? (1=small, 4=big)	1.91	1.93	1.73	1.57	3.11	1.91
	(74)	(46)	(115)	(108)	(47)	(390)

Mean (No. observations)

Table 50: Entry & Exit (by sector)

	Wine	Dairy	Oil	Total
ENTRY: – Coop accepts all entry applications	29.23	48.39	70.45	40.86
	(284)	(93)	(88)	(465)
– No. entry applications per year (average last 5 years)	9.82	10.46	27.12	13.61
	(225)	(89)	(84)	(398)
– Entry applications over membership size	5.38	6.63	5.88	5.74
	(202)	(70)	(79)	(351)
– Coop requires capital/shares investment to enter	74.64	75.27	48.24	69.87
	(280)	(93)	(85)	(458)
EXIT: – It implies a payment to Coop	22.66	4.55	9.76	16.74
	(278)	(88)	(82)	(448)
– Co-op foresees an equity redemption plan	40.94	29.41	35.37	37.70
	(276)	(85)	(82)	(443)
How many members left in last 5 years?	2.24	2.25	2.94	2.38
	(277)	(85)	(88)	(450)
Members left: – because of retirement or farm sale (%)	60.42	77.58	46.19	58.53
	(197)	(33)	(81)	(311)
– to join other Co-op (%)	9.48	6.06	0.10	6.67
	(197)	(33)	(81)	(311)
– to start/partecipate another firm (%)	9.30	0.61	3.09	6.76
	(197)	(33)	(81)	(311)
– for other reasons (%)	18.24	15.76	48.16	25.77
	(197)	(33)	(81)	(311)
Which members (size) left the Co-op? (1=small, 4=big)	1.74	1.68	2.63	1.91
	(268)	(44)	(78)	(390)

Mean (No. observations)

Table 51: Social capital (by country)

	France	Greece	Italy	Spain	Turkey	Total
Coop provides technical training to members	100.00	64.81	57.25	.	38.10	60.56
	(53)	(54)	(131)	(0)	(84)	(322)
On training, coop spends around (% turnover)	0.27	2.45	1.67	.	0.93	1.59
	(10)	(30)	(66)	(0)	(27)	(133)
Coop provides technical assistance (TA) to members	100.00	82.69	83.85	.	80.23	86.38
	(77)	(52)	(130)	(0)	(86)	(345)
TA is provided by Coop	58.44	59.52	85.32	.	91.55	76.25
	(77)	(42)	(109)	(0)	(71)	(299)
TA is provided by private consultants	19.48	63.64	31.48	.	15.49	29.33
	(77)	(44)	(108)	(0)	(71)	(300)
TA is provided by public consultants	12.99	33.33	10.19	.	26.76	18.12
	(77)	(42)	(108)	(0)	(71)	(298)
Participation: – in the last BoD election (%)	61.64	54.41	58.09	48.01	64.58	56.64
	(52)	(54)	(129)	(117)	(86)	(438)
– in the last General Assembly (%)	42.62	45.74	55.27	43.19	62.80	51.06
	(39)	(54)	(128)	(117)	(85)	(423)
Interests of members are (1=different, 4=similar)	3.39	3.04	3.11	3.28	3.61	3.29
	(75)	(50)	(127)	(117)	(83)	(452)
Time spent on relationship with members: – by CEO	4.01	4.65	4.32	.	5.00	4.47
	(77)	(46)	(127)	(0)	(86)	(336)
– by Chair	3.07	4.89	3.95	.	5.16	4.00
	(76)	(18)	(93)	(0)	(51)	(238)
Complaints managed: – internally	10.75	87.34	92.96	55.61	12.13	61.08
	(28)	(53)	(125)	(117)	(68)	(391)
– with amicable settlement	41.68	11.32	2.28	42.18	85.81	32.79
	(28)	(53)	(125)	(117)	(68)	(391)
– with arbitration	17.82	0.00	0.38	0.18	0.29	1.50
	(28)	(53)	(125)	(117)	(68)	(391)
– with litigation	58.25	2.22	2.39	2.03	2.50	3.20
	(4)	(32)	(62)	(117)	(4)	(219)

Mean (No. observations)

Table 52: Social capital (by sector)

	Wine	Dairy	Oil	Total
Coop provides technical training to members	68.11	56.86	46.51	60.56
	(185)	(51)	(86)	(322)
On training, coop spends around (% turnover)	1.47	0.74	2.31	1.59
	(77)	(20)	(36)	(133)
Coop provides technical assistance (TA) to members	88.94	70.59	89.53	86.38
	(208)	(51)	(86)	(345)
TA is provided by Coop	74.19	72.50	83.56	76.25
	(186)	(40)	(73)	(299)
TA is provided by private consultants	25.95	35.00	34.67	29.33
	(185)	(40)	(75)	(300)
TA is provided by public consultants	11.89	50.00	16.44	18.12
	(185)	(40)	(73)	(298)
Participation: – in the last BoD election (%)	54.46	63.38	55.92	56.64
	(258)	(93)	(87)	(438)
– in the last General Assembly (%)	47.87	58.65	51.97	51.06
	(244)	(92)	(87)	(423)
Interests of members are (1=different, 4=similar)	3.23	3.51	3.23	3.29
	(277)	(89)	(86)	(452)
Time spent on relationship with members: – by CEO	4.20	5.31	4.60	4.47
	(202)	(51)	(83)	(336)
– by Chair	3.61	3.14	5.31	4.00
	(166)	(14)	(58)	(238)
Complaints managed: – internally	69.60	43.54	52.37	61.08
	(234)	(71)	(86)	(391)
– with amicable settlement	21.67	54.17	45.41	32.79
	(234)	(71)	(86)	(391)
– with arbitration	2.42	0.00	0.23	1.50
	(234)	(71)	(86)	(391)
– with litigation	3.24	3.33	2.65	3.20
	(147)	(49)	(23)	(219)

Mean (No. observations)

Table 53: Social capital 1 (by country)

	France	Greece	Italy	Spain	Turkey	Total
Management share same ambition and vision with members	5.62	5.33	5.45	5.68	6.41	5.70
	(77)	(52)	(130)	(117)	(86)	(462)
Management share the goals and objectives with members	5.92	5.58	5.92	5.95	6.40	5.98
	(77)	(52)	(130)	(117)	(86)	(462)
Management understand the members' strategy and needs	5.55	5.96	5.82	5.94	6.33	5.93
	(62)	(52)	(129)	(117)	(86)	(446)
Coop & members agree to make the relationship working	5.88	5.48	5.61	5.85	6.20	5.81
	(76)	(52)	(129)	(117)	(86)	(460)
Members have positive attitudes for a coop. relat.	5.45	5.17	5.32	5.32	6.30	5.51
	(76)	(52)	(130)	(117)	(86)	(461)
Management usually relate with our members	5.79	6.49	5.84	6.34	6.43	6.14
	(77)	(53)	(130)	(117)	(86)	(463)
Management knows the members on a personal level	4.53	6.71	6.37	6.48	6.15	6.09
	(77)	(52)	(129)	(117)	(86)	(461)
Man. maintains close social relationships with members	4.68	6.00	5.75	5.79	6.03	5.66
	(77)	(53)	(130)	(117)	(86)	(463)
Man. receives advice from members & they know each other	5.25	5.84	5.90	6.12	6.12	5.88
	(77)	(51)	(128)	(117)	(86)	(459)
Management has personal relationships with members	4.89	6.12	5.36	5.37	6.10	5.51
	(76)	(51)	(129)	(117)	(86)	(459)
Rel. char. by mutual respect between the parties	5.81	5.86	6.20	6.24	6.43	6.15
	(77)	(51)	(128)	(117)	(86)	(459)
Rel. char. by mutual trust between the parties	5.62	5.81	6.03	6.11	6.22	5.99
	(77)	(52)	(129)	(117)	(86)	(461)
Rel. char. by high reciprocity between the parties	4.79	5.80	5.93	5.79	6.29	5.76
	(77)	(50)	(130)	(117)	(85)	(459)
Rel. char. by personal friendship between the parties	4.47	5.61	4.99	4.97	6.01	5.16
	(77)	(51)	(130)	(117)	(86)	(461)

Mean (No. observations)

Table 54: Social capital 1 (by sector)

	Wine	Dairy	Oil	Total
Management share same ambition and vision with members	5.55	5.74	6.13	5.70
	(281)	(94)	(87)	(462)
Management share the goals and objectives with members	5.95	5.91	6.15	5.98
	(281)	(94)	(87)	(462)
Management understand the members' strategy and needs	5.78	6.02	6.29	5.93
	(266)	(94)	(86)	(446)
Coop & members agree to make the relationship working	5.75	5.80	6.01	5.81
	(280)	(93)	(87)	(460)
Members have positive attitudes for a coop. relat.	5.37	5.53	5.92	5.51
	(281)	(93)	(87)	(461)
Management usually relate with our members	5.98	6.31	6.51	6.14
	(282)	(94)	(87)	(463)
Management knows the members on a personal level	5.96	6.11	6.48	6.09
	(281)	(94)	(86)	(461)
Man. maintains close social relationships with members	5.50	5.70	6.15	5.66
	(282)	(94)	(87)	(463)
Man. receives advice from members & they know each other	5.86	5.68	6.18	5.88
	(280)	(94)	(85)	(459)
Management has personal relationships with members	5.25	5.72	6.13	5.51
	(281)	(93)	(85)	(459)
Rel. char. by mutual respect between the parties	6.14	6.07	6.26	6.15
	(280)	(94)	(85)	(459)
Rel. char. by mutual trust between the parties	5.97	5.88	6.19	5.99
	(281)	(94)	(86)	(461)
Rel. char. by high reciprocity between the parties	5.59	5.86	6.20	5.76
	(282)	(94)	(83)	(459)
Rel. char. by personal friendship between the parties	4.88	5.38	5.84	5.16
	(282)	(94)	(85)	(461)

Mean (No. observations)

Table 55: Self-perceived performances and orientationt (by country)

	France	Greece	Italy	Spain	Turkey	Total
Price paid by Co-op compared to average market price	3.48	3.96	3.27	3.43	3.82	3.53
	(77)	(50)	(128)	(108)	(85)	(448)
Co-op performance in terms of: – competitive position	4.05	3.80	3.78	3.58	3.84	3.79
	(77)	(54)	(131)	(117)	(86)	(465)
– overall profitability	3.86	3.74	3.65	3.53	3.74	3.68
	(77)	(53)	(130)	(117)	(86)	(463)
– members' satisfaction	3.65	4.06	3.76	3.57	3.94	3.76
	(77)	(54)	(131)	(117)	(86)	(465)
– ability to pursue objectives	3.95	3.83	3.85	3.43	3.86	3.76
	(77)	(53)	(130)	(117)	(86)	(463)
– overall performances	3.82	3.96	3.87	3.49	3.77	3.76
	(77)	(52)	(131)	(117)	(86)	(463)
Our co-op: – believes in technological innovation	3.21	3.44	3.72	.	3.84	3.59
	(77)	(52)	(129)	(0)	(77)	(335)
– started new product lines in last 5 years	3.09	2.34	3.57	.	3.57	3.28
	(77)	(47)	(128)	(0)	(77)	(329)
– changed product lines in last 5 years	2.60	2.51	3.49	.	3.56	3.16
	(77)	(45)	(128)	(0)	(78)	(328)
Co-op is usually first-mover	3.04	2.94	2.96	.	3.74	3.16
	(77)	(51)	(126)	(0)	(78)	(332)
– is often first in new products, technologies, methods	2.81	2.63	2.91	.	3.68	3.03
	(77)	(46)	(125)	(0)	(79)	(327)
– has a 'I can do better than my competitors' attitude	3.32	2.89	3.60	.	3.70	3.46
	(77)	(47)	(129)	(0)	(77)	(330)
– undertakes risky but profitable projects	1.58	1.84	2.14	.	3.56	2.30
	(77)	(49)	(127)	(0)	(79)	(332)
– is rather audacious in pursuing its objectives	2.58	2.49	2.36	.	3.59	2.71
	(77)	(47)	(127)	(0)	(75)	(326)
– is rather audacious in uncertain times	2.30	2.10	2.48	.	3.64	2.64
	(77)	(49)	(127)	(0)	(74)	(327)

Mean (No. observations)

Table 56: Self-perceived performances and orientationt (by sector)

	Wine	Dairy	Oil	Total
Price paid by Co-op compared to average market price	3.36	3.33	4.28	3.53
	(281)	(84)	(83)	(448)
Co-op performance in terms of: – competitive position	3.79	3.31	4.30	3.79
	(284)	(94)	(87)	(465)
– overall profitability	3.67	3.20	4.26	3.68
	(283)	(94)	(86)	(463)
– members' satisfaction	3.69	3.40	4.38	3.76
	(284)	(94)	(87)	(465)
– ability to pursue objectives	3.74	3.38	4.23	3.76
	(283)	(94)	(86)	(463)
– overall performances	3.75	3.31	4.27	3.76
	(284)	(94)	(85)	(463)
Our co-op: – believes in technological innovation	3.51	3.37	3.89	3.59
	(207)	(43)	(85)	(335)
– started new product lines in last 5 years	3.40	3.12	3.08	3.28
	(206)	(43)	(80)	(329)
– changed product lines in last 5 years	3.18	3.09	3.16	3.16
	(205)	(44)	(79)	(328)
Co-op is usually first-mover	3.00	3.20	3.53	3.16
	(204)	(45)	(83)	(332)
– is often first in new products, technologies, methods	2.88	3.14	3.36	3.03
	(202)	(44)	(81)	(327)
– has a 'I can do better than my competitors' attitude	3.48	3.26	3.51	3.46
	(207)	(43)	(80)	(330)
– undertakes risky but profitable projects	1.93	2.83	2.96	2.30
	(205)	(46)	(81)	(332)
– is rather audacious in pursuing its objectives	2.45	2.93	3.29	2.71
	(205)	(45)	(76)	(326)
– is rather audacious in uncertain times	2.40	3.16	2.99	2.64
	(205)	(44)	(78)	(327)

Mean (No. observations)

Table 57: Procurement (by country)

	France	Greece	Italy	Spain	Turkey	Total
Members have to deliver whole or most production to Co-op	93.51	92.45	89.23	87.93	1.18	73.75
	(77)	(53)	(130)	(116)	(85)	(461)
Members quality is compared to average Co-op quality	71.11	17.78	74.16	93.06	98.75	76.13
	(45)	(45)	(89)	(72)	(80)	(331)
We pay bonus if above average quality	0.00	41.67	40.51	42.59	62.96	47.28
	(2)	(24)	(79)	(108)	(81)	(294)
We apply penalty if below average quality	50.00	13.64	10.13	38.89	20.99	24.32
	(2)	(22)	(79)	(108)	(81)	(292)
We have both bonuses and penalties	96.97	38.10	53.16	14.81	11.11	33.23
	(33)	(21)	(79)	(108)	(81)	(322)
We enforce reduced yields compared to external rules	19.48	21.28	34.43	41.03	23.53	31.32
	(77)	(47)	(122)	(117)	(17)	(380)
Work in the field/stable is monitored by Co-op	75.00	41.18	80.15	77.59	71.64	72.79
	(76)	(51)	(131)	(116)	(67)	(441)
The Co-op food-maker is in charge	14.29	5.00	45.71	36.19	23.08	34.60
	(7)	(20)	(105)	(105)	(52)	(289)
The Co-op agronomist is in charge	98.08	47.83	71.43	51.43	7.69	57.86
	(52)	(23)	(105)	(105)	(52)	(337)
An external consultant is in charge	50.00	19.05	9.62	21.90	1.92	14.73
	(10)	(21)	(104)	(105)	(52)	(292)
Others are in charge	0.00	36.36	8.65	1.90	67.31	18.69
	(6)	(22)	(104)	(105)	(52)	(289)
Average payment to member per hectare	0.47	1230.63	10.39	2.65	90.58	120.07
	(7)	(22)	(107)	(98)	(12)	(246)
Annual payment in how many instalments	10.56	1.75	3.27	.	0.36	4.70
	(70)	(36)	(128)	(0)	(28)	(262)
Last payment before the next harvest	21.43	72.22	19.35	.	97.30	37.83
	(70)	(36)	(124)	(0)	(37)	(267)

Mean (No. observations)

Table 58: Procurement (by sector)

	Wine	Dairy	Oil	Total
Members have to deliver whole or most production to Co-op	91.52	48.39	42.35	73.75
	(283)	(93)	(85)	(461)
Members quality is compared to average Co-op quality	76.68	90.00	64.10	76.13
	(193)	(60)	(78)	(331)
We pay bonus if above average quality	52.00	7.23	90.16	47.28
	(150)	(83)	(61)	(294)
We apply penalty if below average quality	33.33	21.69	5.08	24.32
	(150)	(83)	(59)	(292)
We have both bonuses and penalties	41.44	34.94	5.17	33.23
	(181)	(83)	(58)	(322)
We enforce reduced yields compared to external rules	34.91	18.57	28.57	31.32
	(275)	(70)	(35)	(380)
Work in the field/stable is monitored by Co-op	75.27	64.86	71.43	72.79
	(283)	(74)	(84)	(441)
The Co-op food-maker is in charge	48.84	5.00	22.81	34.60
	(172)	(60)	(57)	(289)
The Co-op agronomist is in charge	69.59	56.67	16.67	57.86
	(217)	(60)	(60)	(337)
An external consultant is in charge	12.64	30.00	5.17	14.73
	(174)	(60)	(58)	(292)
Others are in charge	7.06	3.33	67.80	18.69
	(170)	(60)	(59)	(289)
Average payment to member per hectare	8.04	0.62	1340.10	120.07
	(169)	(56)	(21)	(246)
Annual payment in how many instalments	5.72	.	0.95	4.70
	(206)	(0)	(56)	(262)
Last payment before the next harvest	23.27	.	83.08	37.83
	(202)	(0)	(65)	(267)

Mean (No. observations)

Table 59: Characteristics of the raw commodities being paid (by country)

	France	Greece	Italy	Spain	Turkey	Total
Final price of raw commodity depend on: –variety	83.12	38.30	84.73	48.72	63.22	66.45
	(77)	(47)	(131)	(117)	(87)	(459)
– sugar/protein/fat content	58.44	36.73	87.79	85.47	95.40	78.31
	(77)	(49)	(131)	(117)	(87)	(461)
– other component content	16.88	64.81	25.19	56.41	95.40	49.36
	(77)	(54)	(131)	(117)	(87)	(466)
– sanitary conditions	61.04	53.70	70.99	73.50	66.67	67.17
	(77)	(54)	(131)	(117)	(87)	(466)
– presence of extraneous material	9.09	33.33	26.15	33.33	25.29	25.71
	(77)	(48)	(130)	(117)	(87)	(459)
– production area	48.05	29.17	23.66	23.08	25.29	28.48
	(77)	(48)	(131)	(117)	(87)	(460)
– results of monitoring visits	32.47	14.29	30.77	10.26	52.87	28.26
	(77)	(49)	(130)	(117)	(87)	(460)
– environmental sustainable practices	41.56	33.33	16.15	7.69	27.59	22.29
	(77)	(51)	(130)	(117)	(87)	(462)
– environmental sustainable certifications	76.62	25.49	33.59	10.26	45.98	36.29
	(77)	(51)	(131)	(117)	(87)	(463)
– other factors	57.14	17.02	11.54	15.38	22.99	16.75
	(7)	(47)	(130)	(117)	(87)	(388)

Mean (No. observations)

Table 60: Characteristics of the raw commodities being paid (by sector)

	Wine	Dairy	Oil	Total
Final price of raw commodity depend on: –variety	83.10	11.70	71.60	66.45
	(284)	(94)	(81)	(459)
– sugar/protein/fat content	78.52	89.36	65.06	78.31
	(284)	(94)	(83)	(461)
– other component content	25.00	89.36	85.23	49.36
	(284)	(94)	(88)	(466)
– sanitary conditions	67.96	72.34	59.09	67.17
	(284)	(94)	(88)	(466)
– presence of extraneous material	16.61	59.57	18.29	25.71
	(283)	(94)	(82)	(459)
– production area	24.65	50.00	17.07	28.48
	(284)	(94)	(82)	(460)
– results of monitoring visits	26.15	25.53	38.55	28.26
	(283)	(94)	(83)	(460)
– environmental sustainable practices	20.14	25.53	25.88	22.29
	(283)	(94)	(85)	(462)
– environmental sustainable certifications	39.08	44.68	17.65	36.29
	(284)	(94)	(85)	(463)
– other factors	12.21	32.98	9.88	16.75
	(213)	(94)	(81)	(388)

Mean (No. observations)

Table 61: Drivers for the adoption of sustainability actions (by country)

	France	Greece	Italy	Spain	Turkey	Total
INTERNAL drivers: – protect landscape (t)	2.81	3.88	3.86	.	4.07	3.67
	(70)	(8)	(129)	(0)	(83)	(290)
– reduce pollution (t)	4.00	4.00	3.93	.	3.89	3.94
	(70)	(8)	(129)	(0)	(70)	(277)
– increase product quality (o)	3.97	4.38	4.12	.	4.12	4.09
	(70)	(8)	(128)	(0)	(83)	(289)
– product differentiation & competitiveness (o)	3.59	3.88	4.03	.	3.89	3.88
	(70)	(8)	(129)	(0)	(80)	(287)
– obtain higher market price (o)	3.54	4.12	3.84	.	4.18	3.88
	(70)	(8)	(128)	(0)	(83)	(289)
– protect biodiversity (t)	3.80	4.25	3.74	.	4.07	3.85
	(70)	(8)	(127)	(0)	(69)	(274)
– technical support to members	3.31	4.12	3.73	.	3.98	3.71
	(70)	(8)	(128)	(0)	(81)	(287)
EXTERNAL drivers: – respond to cons. demand (o)	4.10	3.00	3.77	.	4.03	3.90
	(70)	(8)	(128)	(0)	(69)	(275)
– improve work safety (t)	3.49	3.88	4.02	.	4.13	3.91
	(70)	(8)	(129)	(0)	(71)	(278)
– comply with regulations (t)	4.27	4.25	4.09	.	4.09	4.14
	(70)	(8)	(128)	(0)	(80)	(286)
– obtain targeted public subsidies (o)	2.99	4.00	3.67	.	3.83	3.54
	(70)	(8)	(127)	(0)	(64)	(269)
– safeguard health of local community	4.00	4.62	4.16	.	4.06	4.11
	(70)	(8)	(129)	(0)	(82)	(289)
– safer products for consumers	3.69	4.75	4.28	.	4.13	4.11
	(70)	(8)	(128)	(0)	(82)	(288)
– access to specific markets (o)	3.36	3.62	3.74	.	4.05	3.73
	(70)	(8)	(127)	(0)	(81)	(286)
– pressure from local community (t)	3.21	2.75	2.54	.	3.71	3.00
	(70)	(8)	(126)	(0)	(65)	(269)
Total Opportunities	3.59	3.83	3.86	.	4.12	3.85
	(70)	(8)	(125)	(0)	(62)	(265)
Total Threaths	3.60	3.83	3.68	.	4.08	3.76
	(70)	(8)	(124)	(0)	(63)	(265)

Mean (No. observations)

Table 62: Drivers for the adoption of sustainability actions (by sector)

	Wine	Dairy	Oil	Total
INTERNAL drivers: – protect landscape (t)	3.51	3.66	4.38	3.67
	(207)	(35)	(48)	(290)
– reduce pollution (t)	3.96	4.08	3.78	3.94
	(207)	(24)	(46)	(277)
– increase product quality (o)	4.08	3.86	4.31	4.09
	(206)	(35)	(48)	(289)
– product differentiation & competitiveness (o)	3.87	3.56	4.10	3.88
	(207)	(32)	(48)	(287)
– obtain higher market price (o)	3.75	3.91	4.38	3.88
	(206)	(35)	(48)	(289)
– protect biodiversity (t)	3.78	3.64	4.28	3.85
	(205)	(22)	(47)	(274)
– technical support to members	3.60	3.58	4.25	3.71
	(206)	(33)	(48)	(287)
EXTERNAL drivers: – respond to cons. demand (o)	3.85	3.96	4.07	3.90
	(206)	(23)	(46)	(275)
– improve work safety (t)	3.84	3.83	4.27	3.91
	(207)	(23)	(48)	(278)
– comply with regulations (t)	4.16	3.84	4.25	4.14
	(206)	(32)	(48)	(286)
– obtain targeted public subsidies (o)	3.45	3.95	3.77	3.54
	(205)	(21)	(43)	(269)
– safeguard health of local community	4.13	3.91	4.17	4.11
	(207)	(34)	(48)	(289)
– safer products for consumers	4.10	4.12	4.15	4.11
	(206)	(34)	(48)	(288)
– access to specific markets (o)	3.60	3.94	4.13	3.73
	(205)	(34)	(47)	(286)
– pressure from local community (t)	2.78	3.67	3.73	3.00
	(204)	(21)	(44)	(269)
Total Opportunities	3.76	4.01	4.17	3.85
	(203)	(21)	(41)	(265)
Total Threaths	3.66	3.94	4.14	3.76
	(202)	(20)	(43)	(265)

Mean (No. observations)

Table 63: Factors hindering the adoption of sustainability actions (by country)

	France	Greece	Italy	Spain	Turkey	Total
Extreme weather events	3.27	4.00	3.75	.	4.19	3.77
	(70)	(6)	(127)	(0)	(85)	(288)
Greater workload	3.60	3.83	3.34	.	3.89	3.56
	(70)	(6)	(128)	(0)	(76)	(280)
Lack of market price premium	3.74	4.29	3.53	.	3.99	3.72
	(70)	(7)	(128)	(0)	(70)	(275)
Lack of skilled labor	2.29	4.17	3.00	.	3.82	3.05
	(70)	(6)	(129)	(0)	(71)	(276)
Extra investments needed	3.33	4.40	3.50	.	3.83	3.56
	(70)	(5)	(129)	(0)	(80)	(284)
Additional time costs	3.33	4.33	3.50	.	3.83	3.56
	(70)	(6)	(129)	(0)	(75)	(280)
Bureaucracy burden for certification schemes	3.61	4.67	3.40	.	3.57	3.53
	(70)	(6)	(127)	(0)	(72)	(275)
Lack of alternative to chemicals	2.99	4.17	3.21	.	3.79	3.33
	(70)	(6)	(126)	(0)	(73)	(275)
Insufficient public funding	2.36	4.29	3.16	.	3.87	3.19
	(70)	(7)	(128)	(0)	(79)	(284)
Ill designed public funding	2.96	3.67	3.28	.	3.86	3.38
	(70)	(6)	(128)	(0)	(81)	(285)
Not requested by consumers	2.70	3.60	2.96	.	3.94	3.15
	(70)	(5)	(128)	(0)	(68)	(271)
Insufficient price premium to cover extra costs	2.70	4.33	3.12	.	3.89	3.26
	(70)	(6)	(128)	(0)	(81)	(285)
Sustainability not important for members	3.19	3.00	2.65	.	3.87	3.11
	(70)	(5)	(127)	(0)	(70)	(272)
Sustainability not important for management	3.09	1.80	2.14	.	3.83	2.81
	(70)	(5)	(125)	(0)	(70)	(270)

Mean (No. observations)

Table 64: Factors hindering the adoption of sustainability actions (by sector)

	Wine	Dairy	Oil	Total
Extreme weather events	3.59	3.59	4.65	3.77
	(203)	(37)	(48)	(288)
Greater workload	3.44	3.79	3.96	3.56
	(204)	(28)	(48)	(280)
Lack of market price premium	3.63	3.72	4.13	3.72
	(205)	(25)	(45)	(275)
Lack of skilled labor	2.79	3.85	3.80	3.05
	(205)	(26)	(45)	(276)
Extra investments needed	3.46	3.70	3.91	3.56
	(204)	(33)	(47)	(284)
Additional time costs	3.46	3.52	4.02	3.56
	(205)	(29)	(46)	(280)
Bureaucracy burden for certification schemes	3.51	3.70	3.49	3.53
	(203)	(27)	(45)	(275)
Lack of alternative to chemicals	3.16	3.75	3.82	3.33
	(202)	(28)	(45)	(275)
Insufficient public funding	2.93	3.78	3.95	3.19
	(205)	(36)	(43)	(284)
Ill designed public funding	3.18	3.69	4.00	3.38
	(204)	(36)	(45)	(285)
Not requested by consumers	2.89	3.88	3.98	3.15
	(203)	(24)	(44)	(271)
Insufficient price premium to cover extra costs	3.01	3.91	3.87	3.26
	(204)	(35)	(46)	(285)
Sustainability not important for members	2.84	3.92	3.84	3.11
	(202)	(25)	(45)	(272)
Sustainability not important for management	2.46	3.92	3.78	2.81
	(200)	(25)	(45)	(270)

Mean (No. observations)

Table 65: About sustainability actions (by country)

	France	Greece	Italy	Spain	Turkey	Total
SOCIAL sust.: – self-assessed w/ vol. standards	27.14	12.50	53.44	57.33	34.48	43.94
	(70)	(8)	(131)	(75)	(87)	(371)
– self-assessed w/ systemized protocols	4.29	0.00	2.29	1.33	1.15	2.16
	(70)	(8)	(131)	(75)	(87)	(371)
– certified by a third-party	25.71	0.00	25.95	6.67	0.00	15.36
	(70)	(8)	(131)	(75)	(87)	(371)
– none of the above	15.71	12.50	20.61	40.00	42.53	28.57
	(70)	(8)	(131)	(75)	(87)	(371)
ENVIRONMENTAL sust.: – self-assessed w/ vol. standards	30.00	12.50	46.15	58.67	35.63	42.43
	(70)	(8)	(130)	(75)	(87)	(370)
– self-assessed w/ systemized protocols	4.29	0.00	3.85	4.00	0.00	2.97
	(70)	(8)	(130)	(75)	(87)	(370)
– certified by a third-party	28.57	0.00	32.82	18.67	0.00	20.75
	(70)	(8)	(131)	(75)	(87)	(371)
– none of the above	1.43	12.50	20.77	32.00	41.38	24.05
	(70)	(8)	(130)	(75)	(87)	(370)
Hectares certified organic (%)	5.71	11.60	12.77	8.92	.	9.69
	(70)	(5)	(106)	(75)	(0)	(256)
Hectares certified by other scheme (%)	18.51	0.00	34.76	4.03	.	18.66
	(70)	(1)	(70)	(75)	(0)	(216)
% from alternative energy sources	1.43	0.00	25.99	.	5.22	16.13
	(70)	(1)	(116)	(0)	(9)	(196)
Cooperative produces sustainability report	7.35	0.00	29.23	12.00	19.23	18.82
	(68)	(5)	(130)	(75)	(78)	(356)
Cooperative has environmental technician/department	48.57	0.00	21.54	9.33	5.06	20.33
	(70)	(5)	(130)	(75)	(79)	(359)
Management: – is committed to envir. & social protection	3.63	4.20	4.31	.	3.84	4.01
	(70)	(5)	(130)	(0)	(70)	(275)
– fully supports env. & social programs	3.93	4.20	4.34	.	3.88	4.12
	(70)	(5)	(130)	(0)	(69)	(274)
– is involved in formulating envir. & social strategies	3.63	3.00	4.21	.	3.85	3.95
	(70)	(5)	(130)	(0)	(66)	(271)

Mean (No. observations)

Table 66: About sustainability actions (by sector)

	Wine	Dairy	Oil	Total
SOCIAL sust.: – self-assessed w/ vol. standards	46.83	52.63	20.41	43.94
	(284)	(38)	(49)	(371)
– self-assessed w/ systemized protocols	2.46	0.00	2.04	2.16
	(284)	(38)	(49)	(371)
– certified by a third-party	20.07	0.00	0.00	15.36
	(284)	(38)	(49)	(371)
– none of the above	24.30	5.26	71.43	28.57
	(284)	(38)	(49)	(371)
ENVIRONMENTAL sust.: – self-assessed w/ vol. standards	44.52	52.63	22.45	42.43
	(283)	(38)	(49)	(370)
– self-assessed w/ systemized protocols	3.89	0.00	0.00	2.97
	(283)	(38)	(49)	(370)
– certified by a third-party	27.11	0.00	0.00	20.75
	(284)	(38)	(49)	(371)
– none of the above	18.73	2.63	71.43	24.05
	(283)	(38)	(49)	(370)
Hectares certified organic (%)	9.69	.	.	9.69
	(256)	(0)	(0)	(256)
Hectares certified by other scheme (%)	18.66	.	.	18.66
	(216)	(0)	(0)	(216)
% from alternative energy sources	16.66	2.33	6.67	16.13
	(187)	(3)	(6)	(196)
Cooperative produces sustainability report	18.71	13.79	22.45	18.82
	(278)	(29)	(49)	(356)
Cooperative has environmental technician/department	24.64	0.00	8.16	20.33
	(280)	(30)	(49)	(359)
Management: – is committed to envir. & social protection	4.07	3.33	4.11	4.01
	(205)	(24)	(46)	(275)
– fully supports env. & social programs	4.20	3.26	4.20	4.12
	(205)	(23)	(46)	(274)
– is involved in formulating envir. & social strategies	3.98	3.40	4.04	3.95
	(205)	(20)	(46)	(271)

Mean (No. observations)

Table 67: Sustainability practices implemented in last 5 years (by country)

	France	Greece	Italy	Spain	Turkey	Total
SOCIAL practices: – monitoring risks for community	7.14	0.00	29.77	.	35.63	25.34
	(70)	(8)	(131)	(0)	(87)	(296)
– monitoring problems with local comm.	8.57	0.00	20.77	.	18.39	16.61
	(70)	(8)	(130)	(0)	(87)	(295)
– allocating fin. res. to local comm.	7.14	0.00	10.00	.	9.20	8.81
	(70)	(8)	(130)	(0)	(87)	(295)
– monitoring of business climate	22.86	0.00	44.62	.	6.90	27.12
	(70)	(8)	(130)	(0)	(87)	(295)
– adoption gender equality mesures	25.71	0.00	23.08	.	5.75	17.97
	(70)	(8)	(130)	(0)	(87)	(295)
– monitoring of occupational injuries	28.57	0.00	44.27	.	4.60	27.70
	(70)	(8)	(131)	(0)	(87)	(296)
– sponsorships of events	25.71	0.00	52.67	.	4.60	30.74
	(70)	(8)	(131)	(0)	(87)	(296)
– staff training beyond law requirements	24.29	0.00	43.51	.	10.34	28.04
	(70)	(8)	(131)	(0)	(87)	(296)
ENVIRON. practices: – alternative energy sources prod.	12.86	0.00	55.73	.	44.83	40.88
	(70)	(8)	(131)	(0)	(87)	(296)
– alternative energy sources use	4.29	0.00	16.03	.	16.09	12.84
	(70)	(8)	(131)	(0)	(87)	(296)
– collaboration with res. centers	11.43	12.50	41.22	.	4.60	22.64
	(70)	(8)	(131)	(0)	(87)	(296)
– sustainable agr. practices with members	18.57	12.50	65.65	.	4.60	35.14
	(70)	(8)	(131)	(0)	(87)	(296)
– use precision agriculture	10.00	0.00	22.90	.	10.34	15.54
	(70)	(8)	(131)	(0)	(87)	(296)
– support to members for sustainability	22.86	12.50	39.69	.	3.45	24.32
	(70)	(8)	(131)	(0)	(87)	(296)
– calculation water footprint	7.14	0.00	26.72	.	2.30	14.19
	(70)	(8)	(131)	(0)	(87)	(296)
– calculation carbon footprint	24.29	0.00	19.85	.	2.30	15.20
	(70)	(8)	(131)	(0)	(87)	(296)
– water use reduction	28.57	0.00	33.59	.	5.75	23.31
	(70)	(8)	(131)	(0)	(87)	(296)
– plan to reduce waste	21.43	0.00	25.95	.	3.45	17.57
	(70)	(8)	(131)	(0)	(87)	(296)
– plan to reduce GHC	17.14	0.00	29.77	.	2.30	17.91
	(70)	(8)	(131)	(0)	(87)	(296)

Mean (No. observations)

Table 68: Sustainability practices implemented in last 5 years (by sector)

	Wine	Dairy	Oil	Total
SOCIAL practices: – monitoring risks for community	21.05	0.00	63.27	25.34
	(209)	(38)	(49)	(296)
– monitoring problems with local comm.	15.87	5.26	28.57	16.61
	(208)	(38)	(49)	(295)
– allocating fin. res. to local comm.	8.65	0.00	16.33	8.81
	(208)	(38)	(49)	(295)
– monitoring of business climate	35.58	0.00	12.24	27.12
	(208)	(38)	(49)	(295)
– adoption gender equality mesures	23.08	0.00	10.20	17.97
	(208)	(38)	(49)	(295)
– monitoring of occupational injuries	37.32	0.00	8.16	27.70
	(209)	(38)	(49)	(296)
– sponsorships of events	41.63	0.00	8.16	30.74
	(209)	(38)	(49)	(296)
– staff training beyond law requirements	35.41	0.00	18.37	28.04
	(209)	(38)	(49)	(296)
ENVIRON. practices: – alternative energy sources prod.	39.23	0.00	79.59	40.88
	(209)	(38)	(49)	(296)
– alternative energy sources use	11.48	26.32	8.16	12.84
	(209)	(38)	(49)	(296)
– collaboration with res. centers	30.14	2.63	6.12	22.64
	(209)	(38)	(49)	(296)
– sustainable agr. practices with members	47.85	0.00	8.16	35.14
	(209)	(38)	(49)	(296)
– use precision agriculture	17.70	0.00	18.37	15.54
	(209)	(38)	(49)	(296)
– support to members for sustainability	33.01	0.00	6.12	24.32
	(209)	(38)	(49)	(296)
– calculation water footprint	19.14	0.00	4.08	14.19
	(209)	(38)	(49)	(296)
– calculation carbon footprint	20.57	0.00	4.08	15.20
	(209)	(38)	(49)	(296)
– water use reduction	30.62	0.00	10.20	23.31
	(209)	(38)	(49)	(296)
– plan to reduce waste	23.44	0.00	6.12	17.57
	(209)	(38)	(49)	(296)
– plan to reduce GHC	24.40	0.00	4.08	17.91
	(209)	(38)	(49)	(296)

Mean (No. observations)

9 Appendix 3 - Heat maps of the decision-making

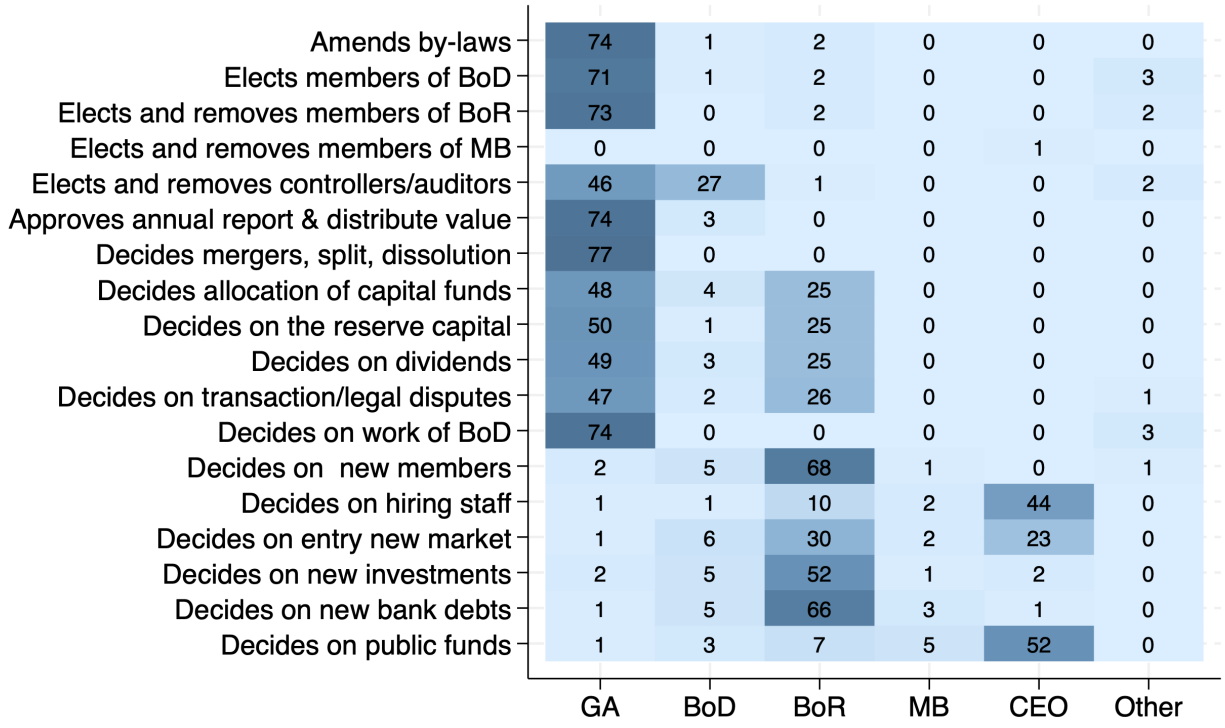

Figure 6: Governance and decision making – FRANCE

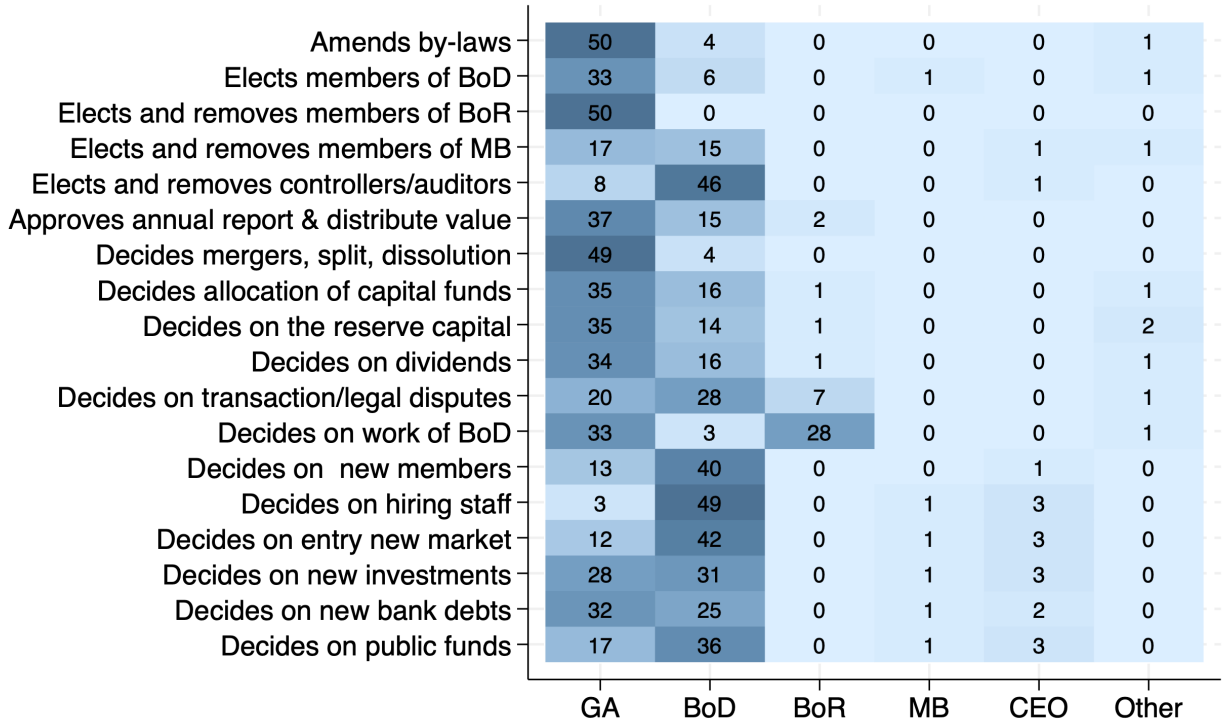

Figure 7: Governance and decision making – GREECE

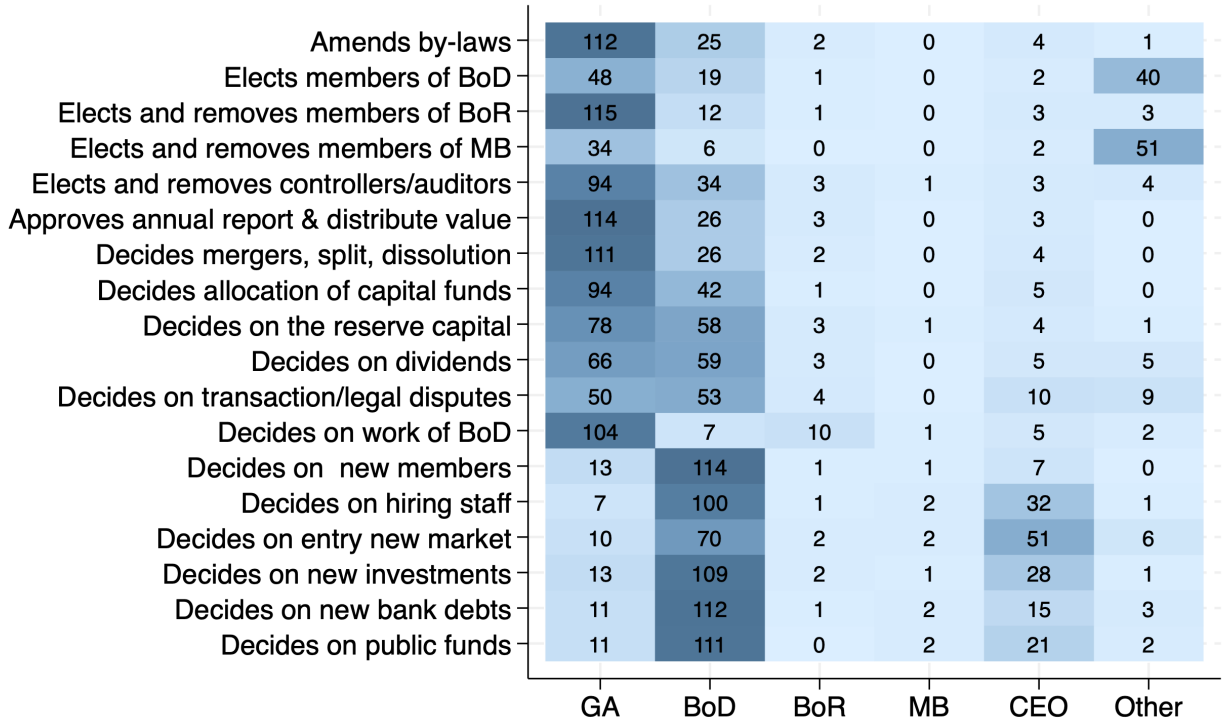

Figure 8: Governance and decision making – ITALY

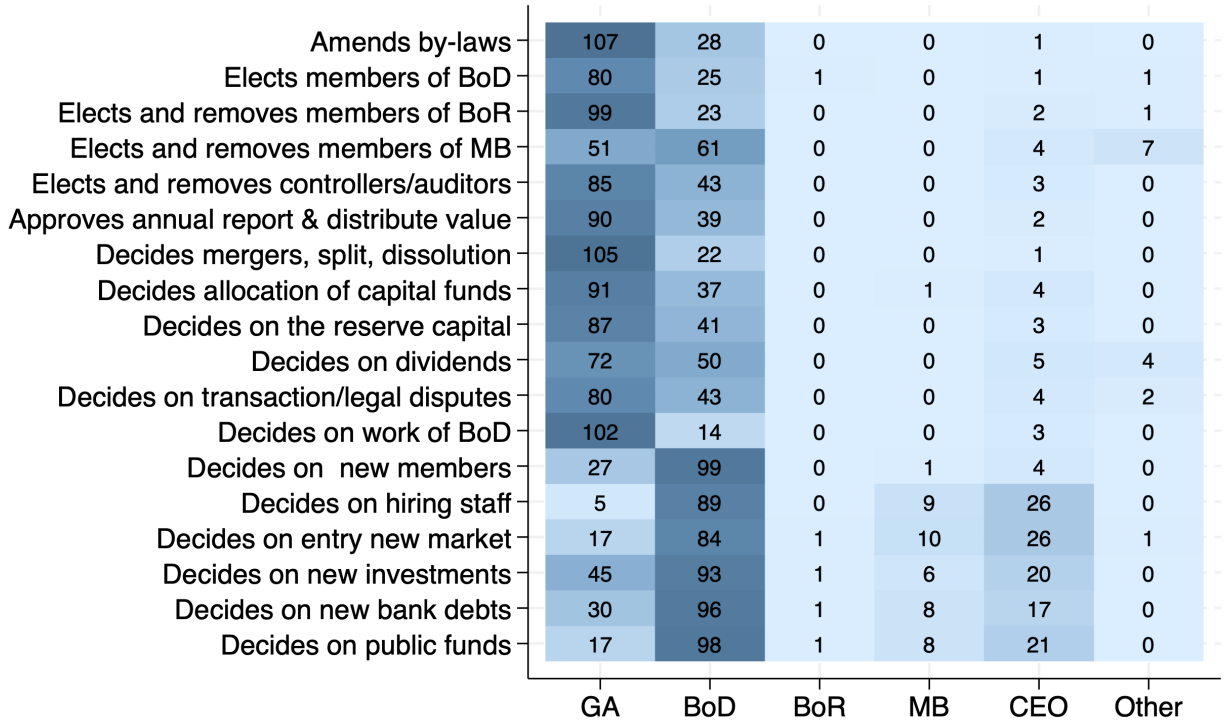

Figure 9: Governance and decision making – SPAIN

10 Appendix 4 - Score results and benchmarking

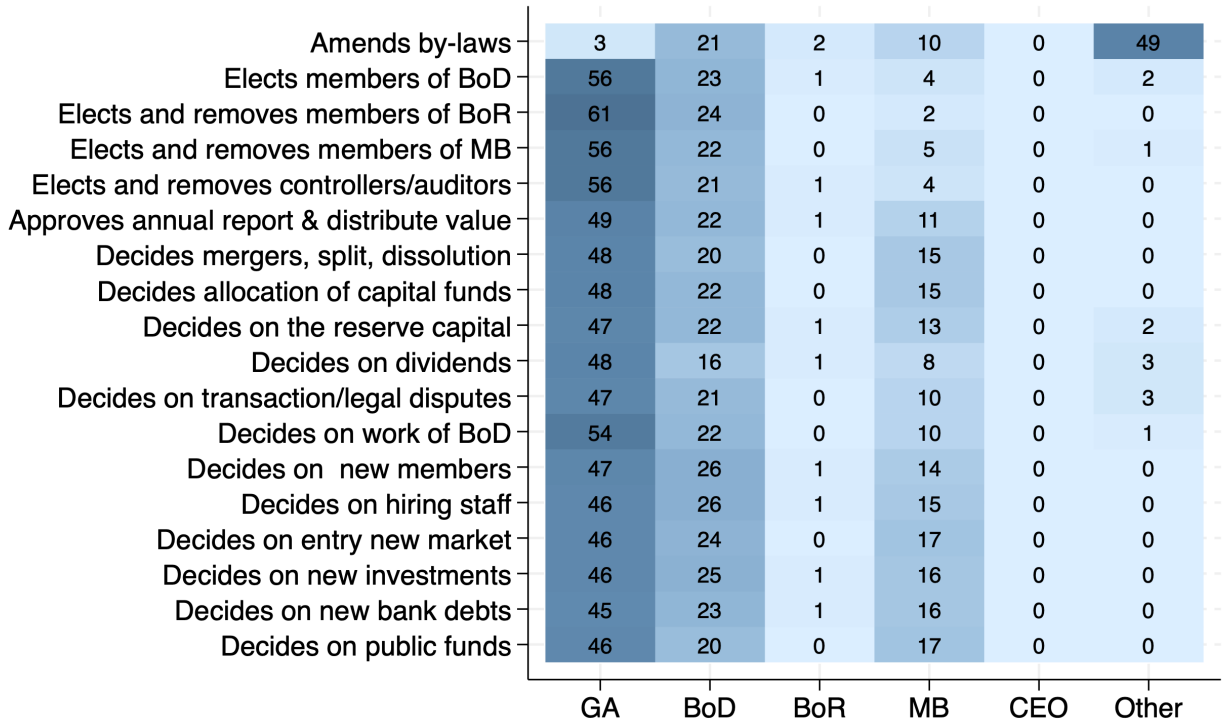

Figure 10: Governance and decision making – TURKEY

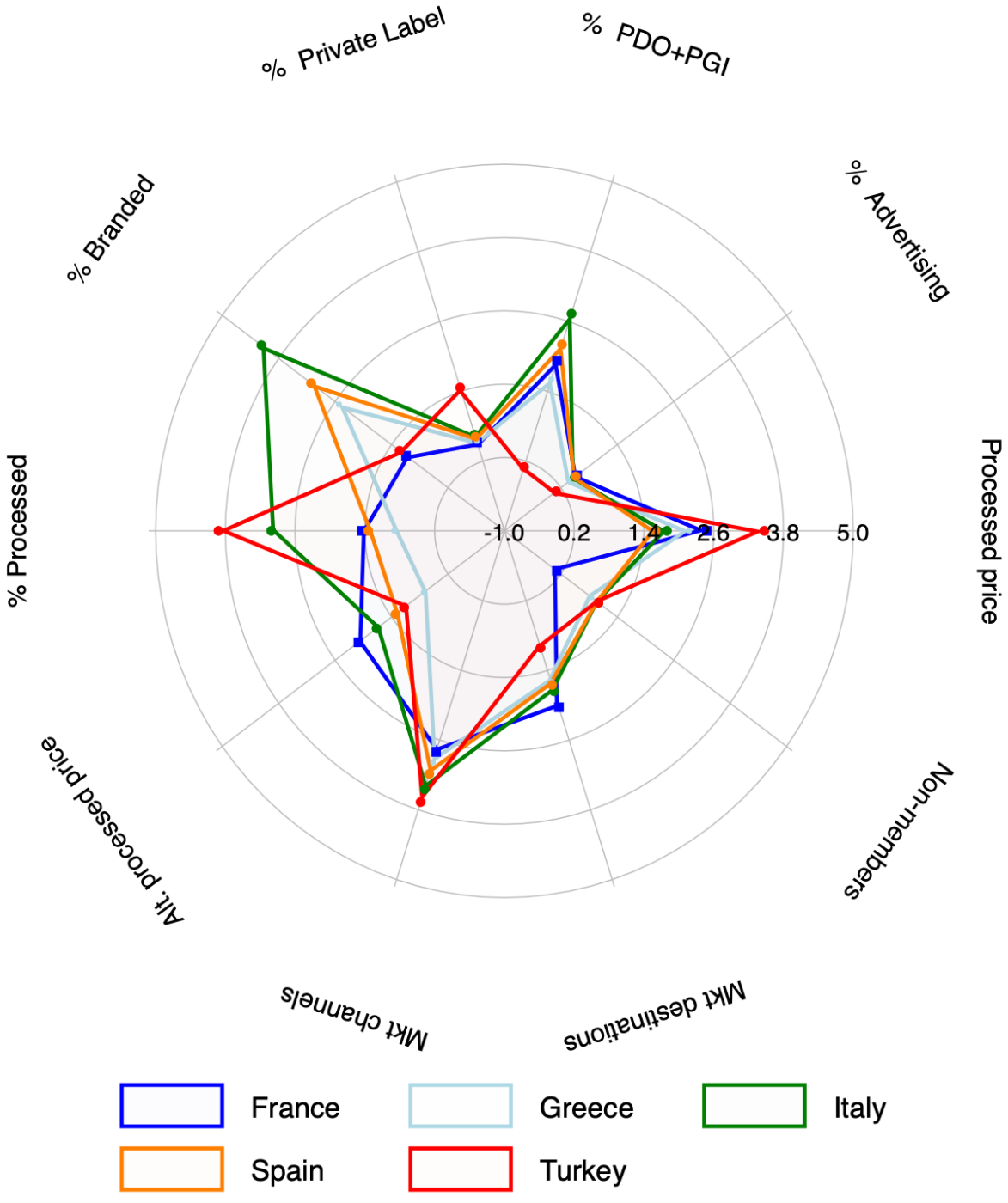

Figure 11: Market Orientation – Overall

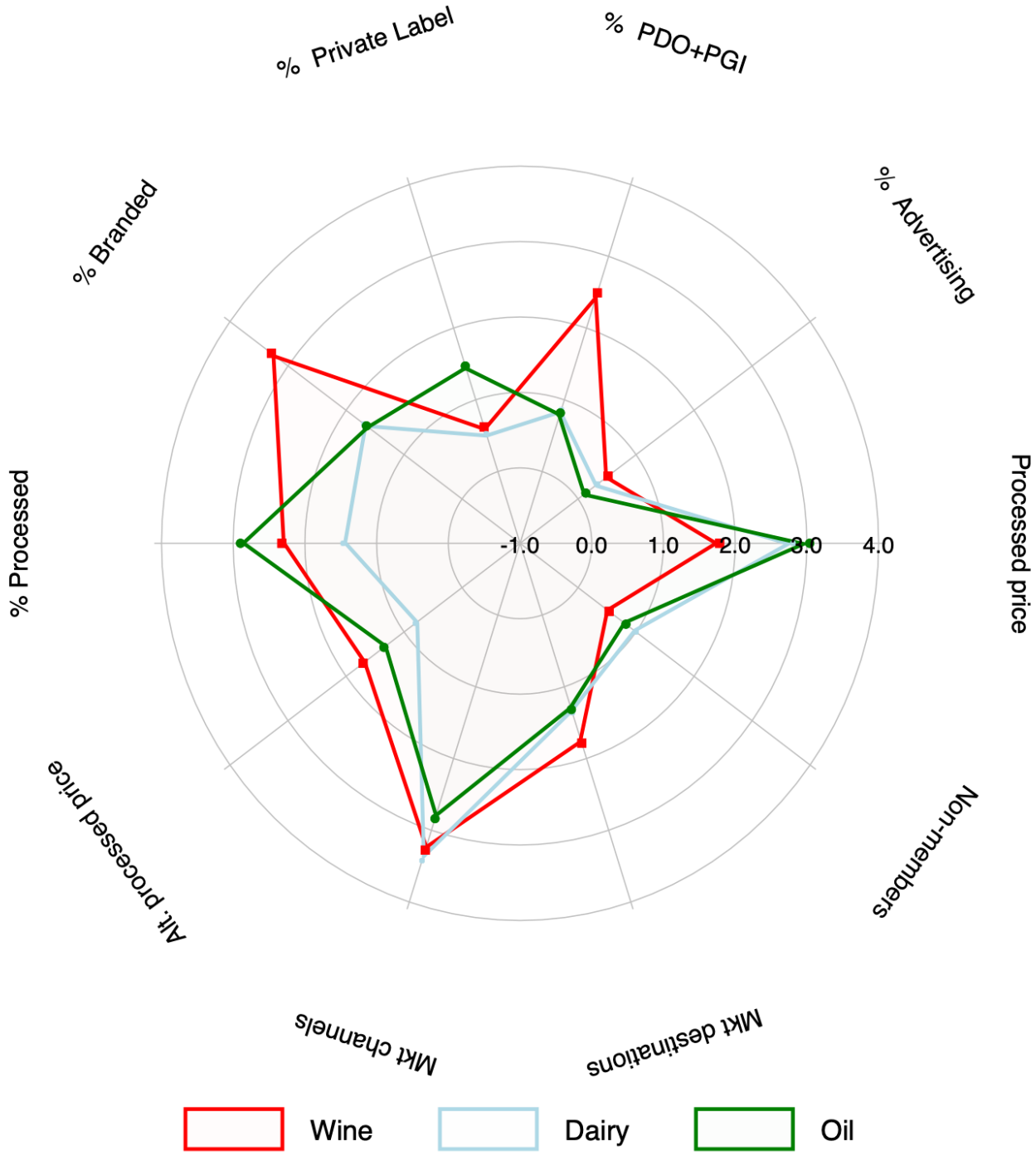

Figure 12: Market Orientation – By sector

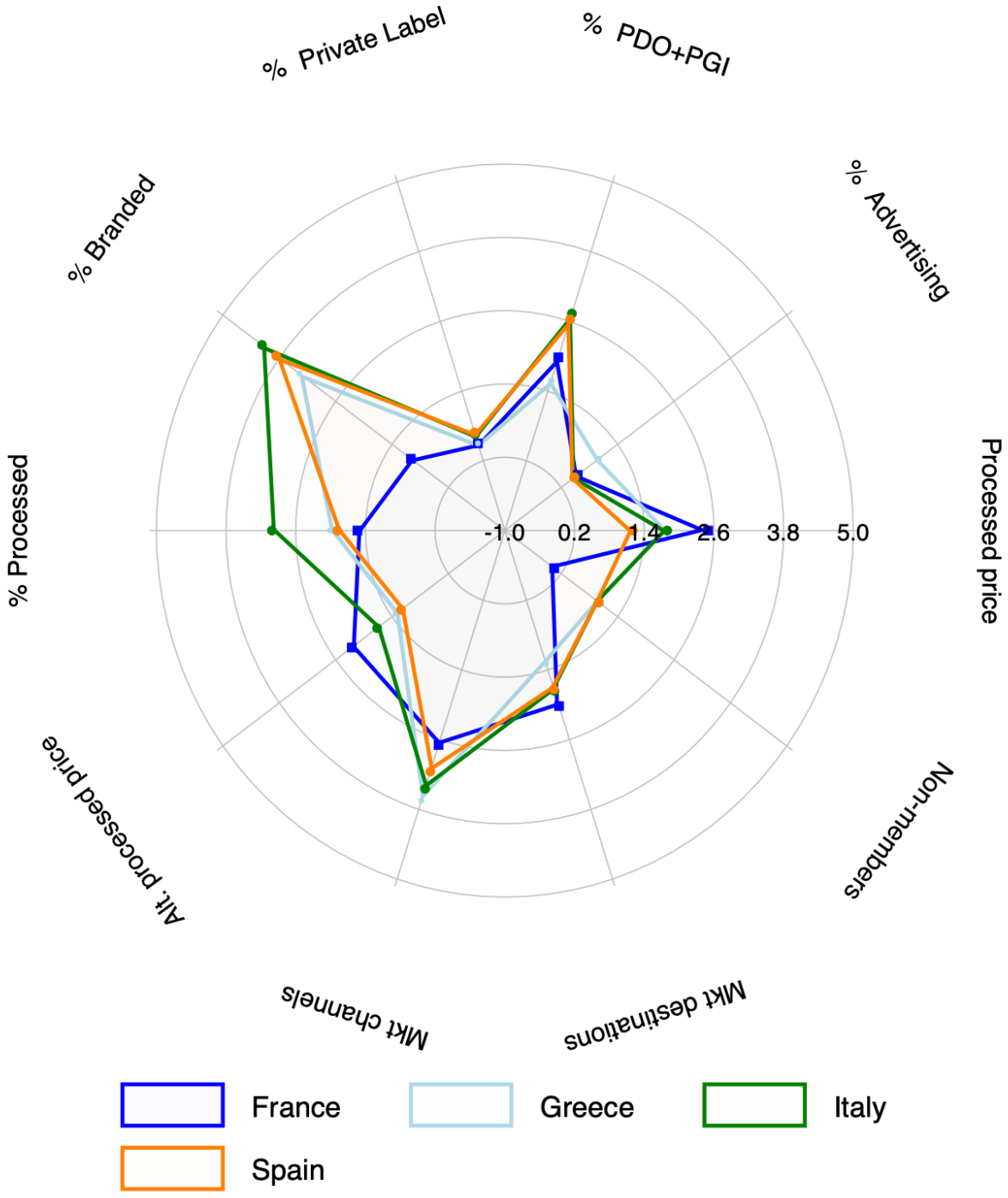

Figure 13: Market Orientation – Wine

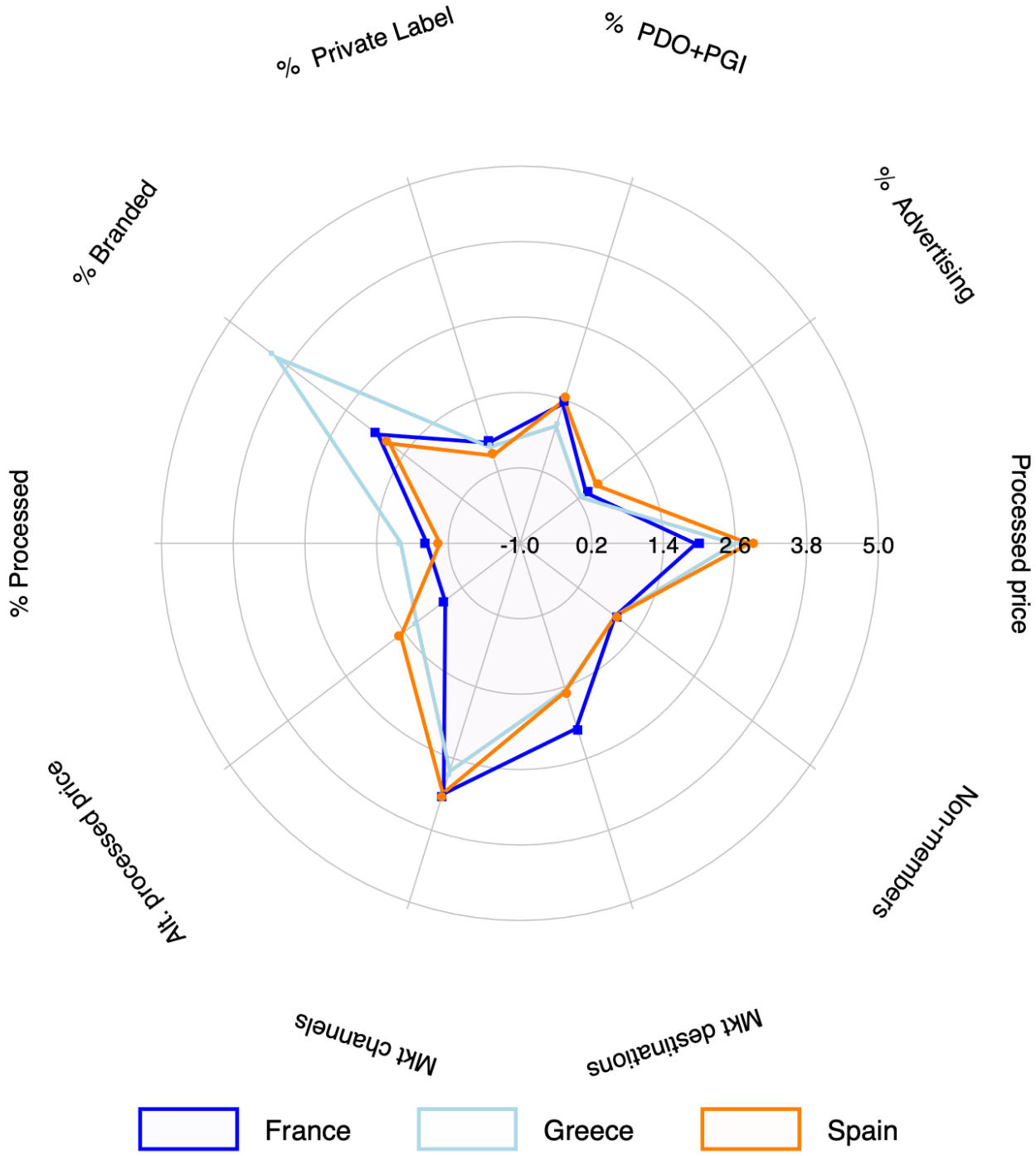

Figure 14: Market Orientation – Dairy

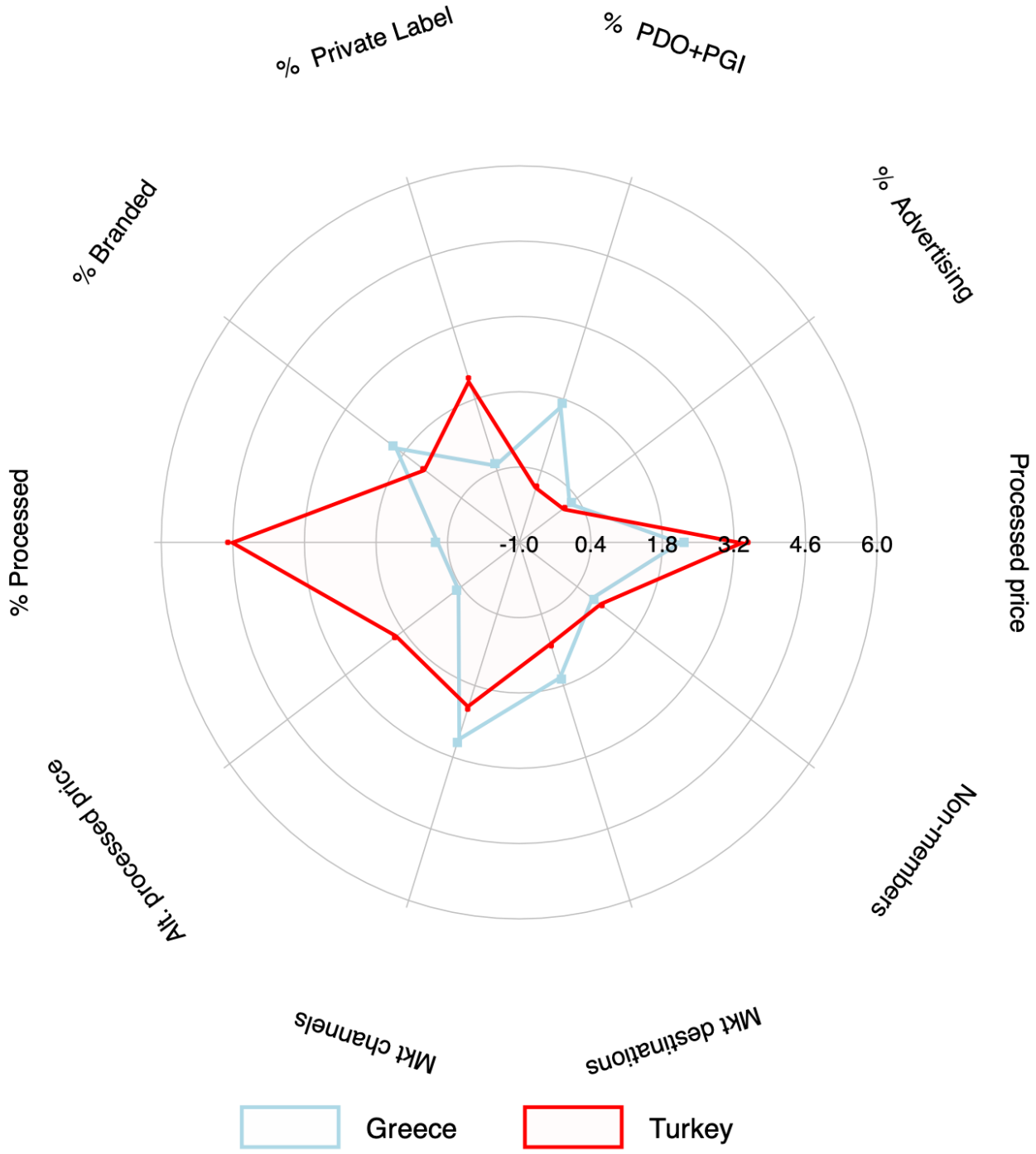

Figure 15: Market Orientation – Oil

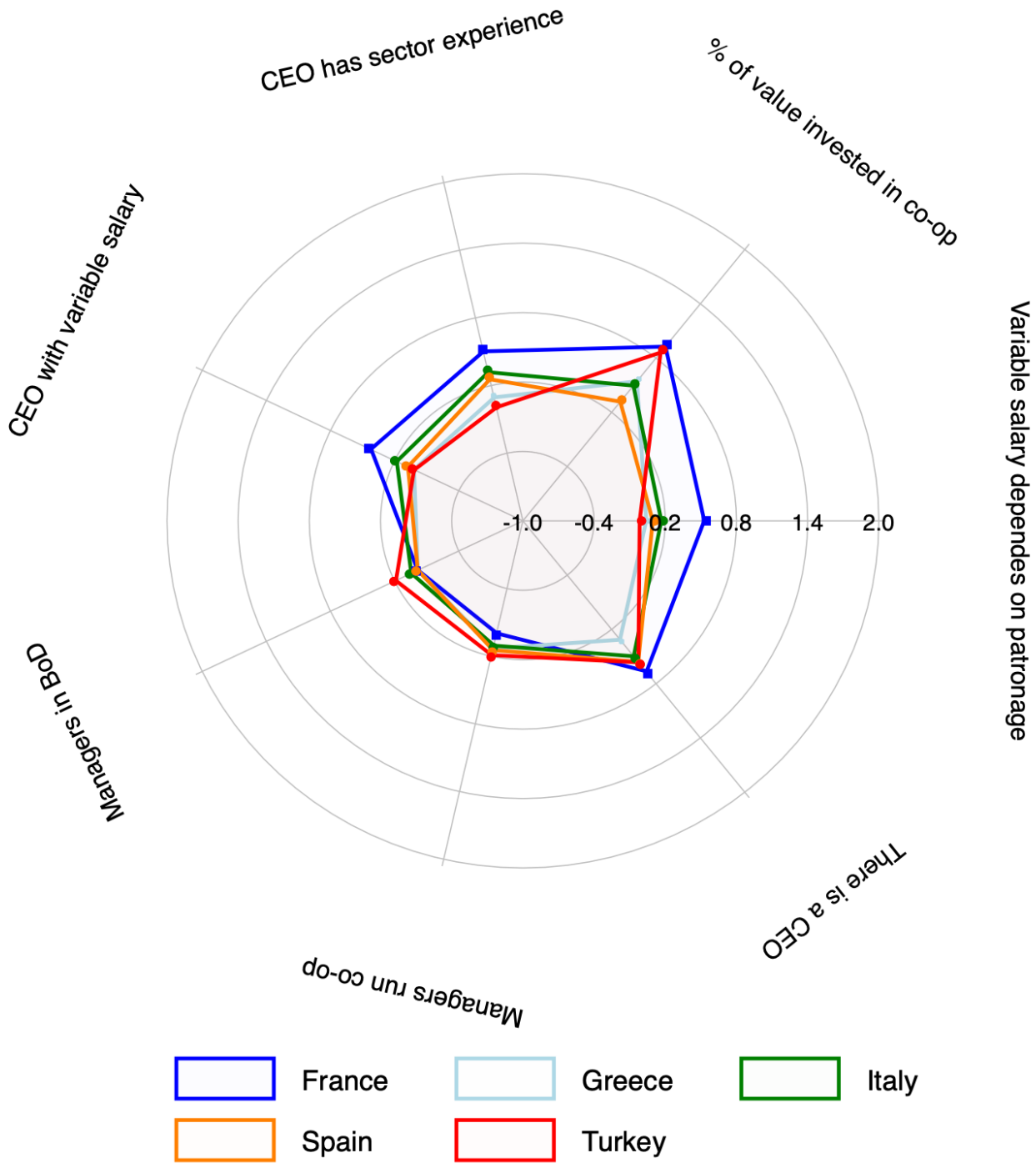

Figure 16: CEO

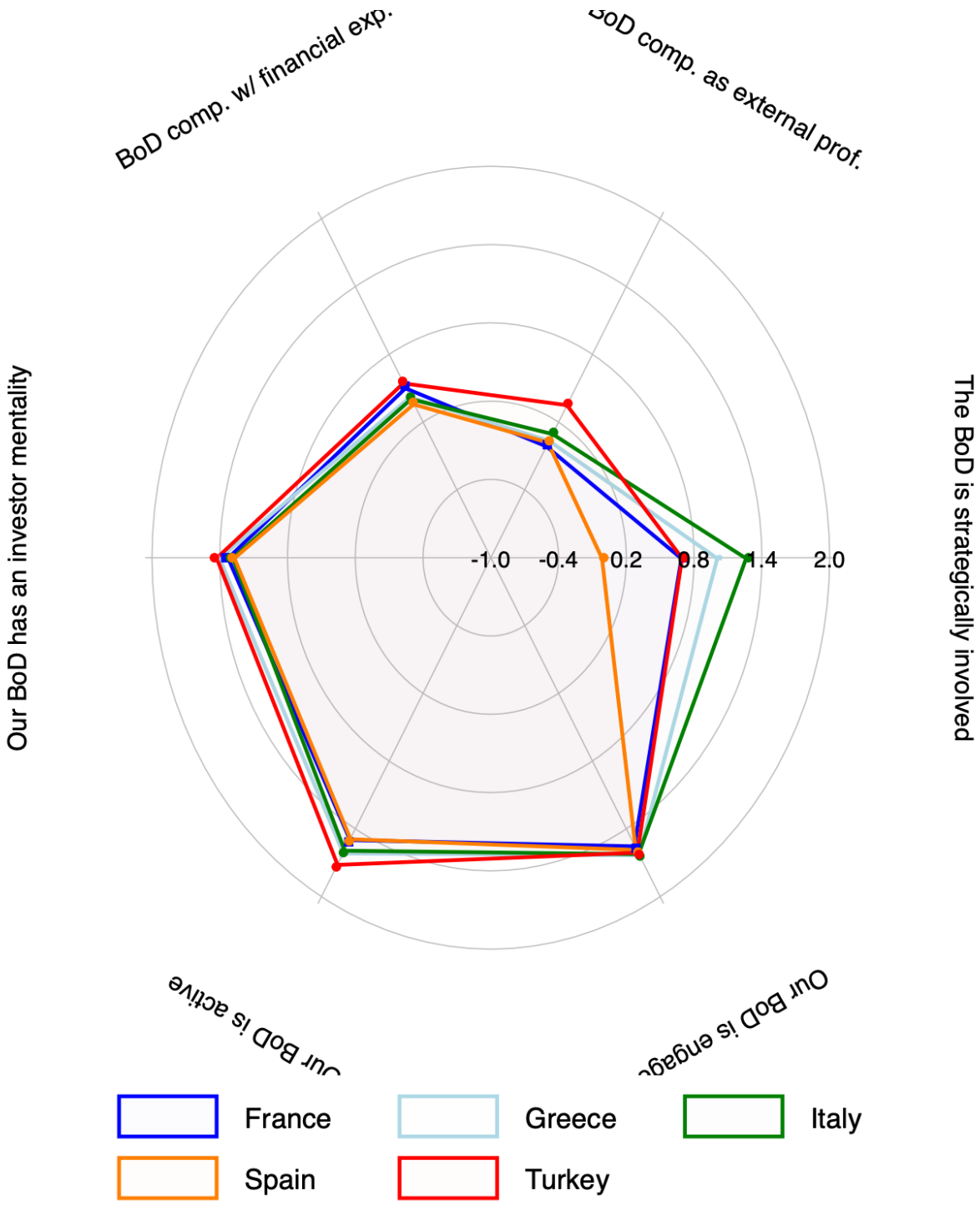

Figure 17: BoD

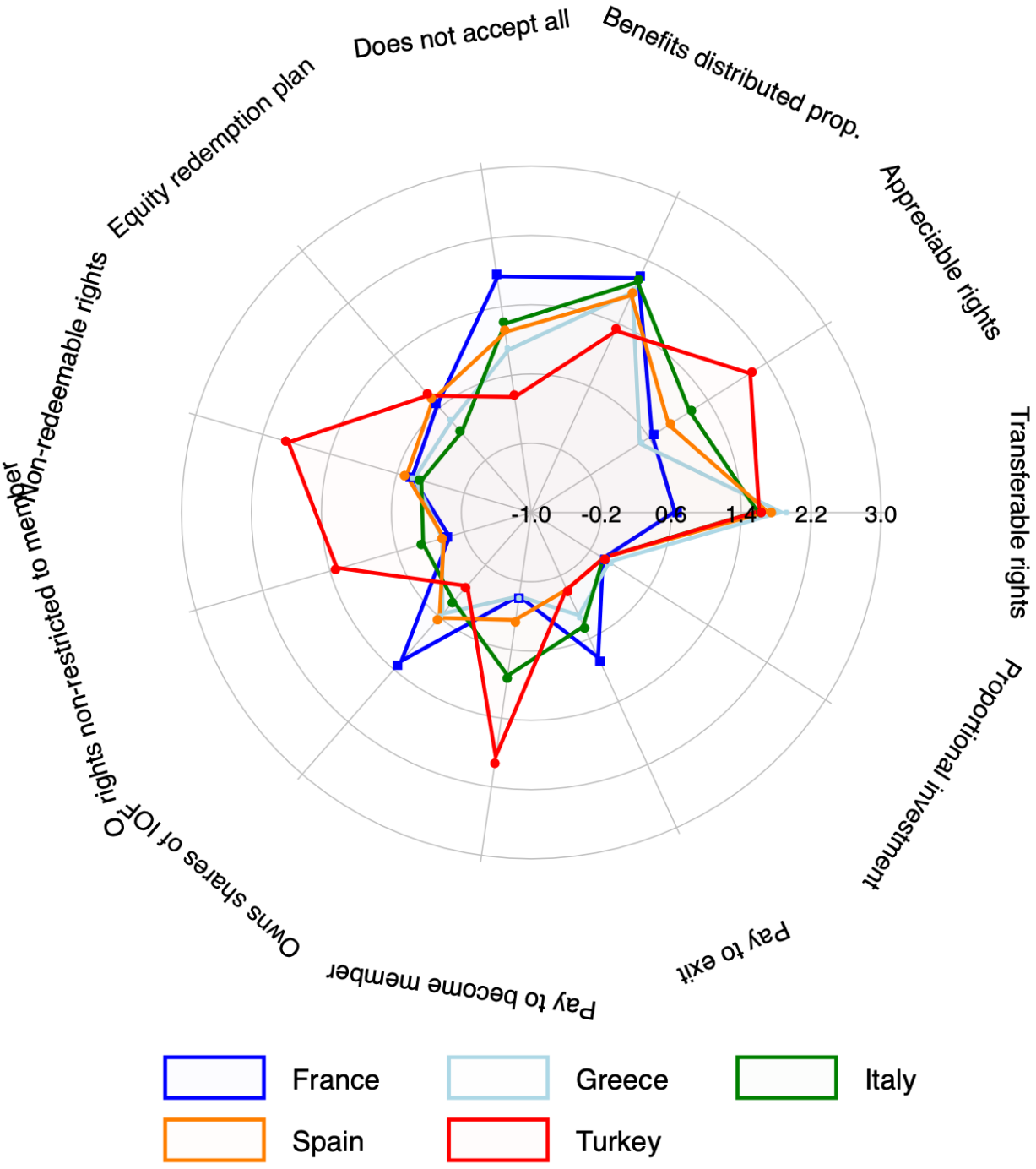

Figure 18: Ownership rights

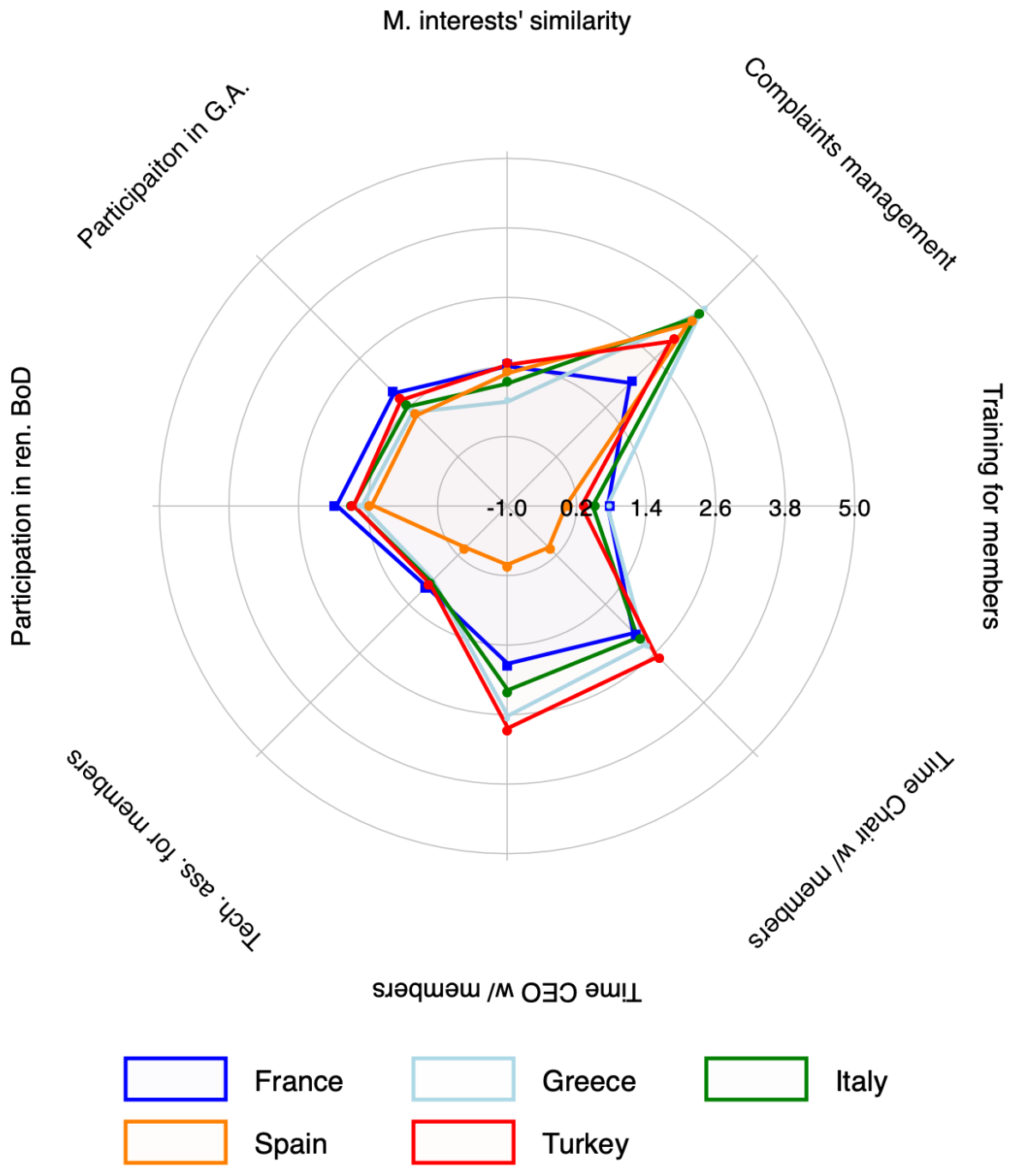

Figure 19: Social capital I

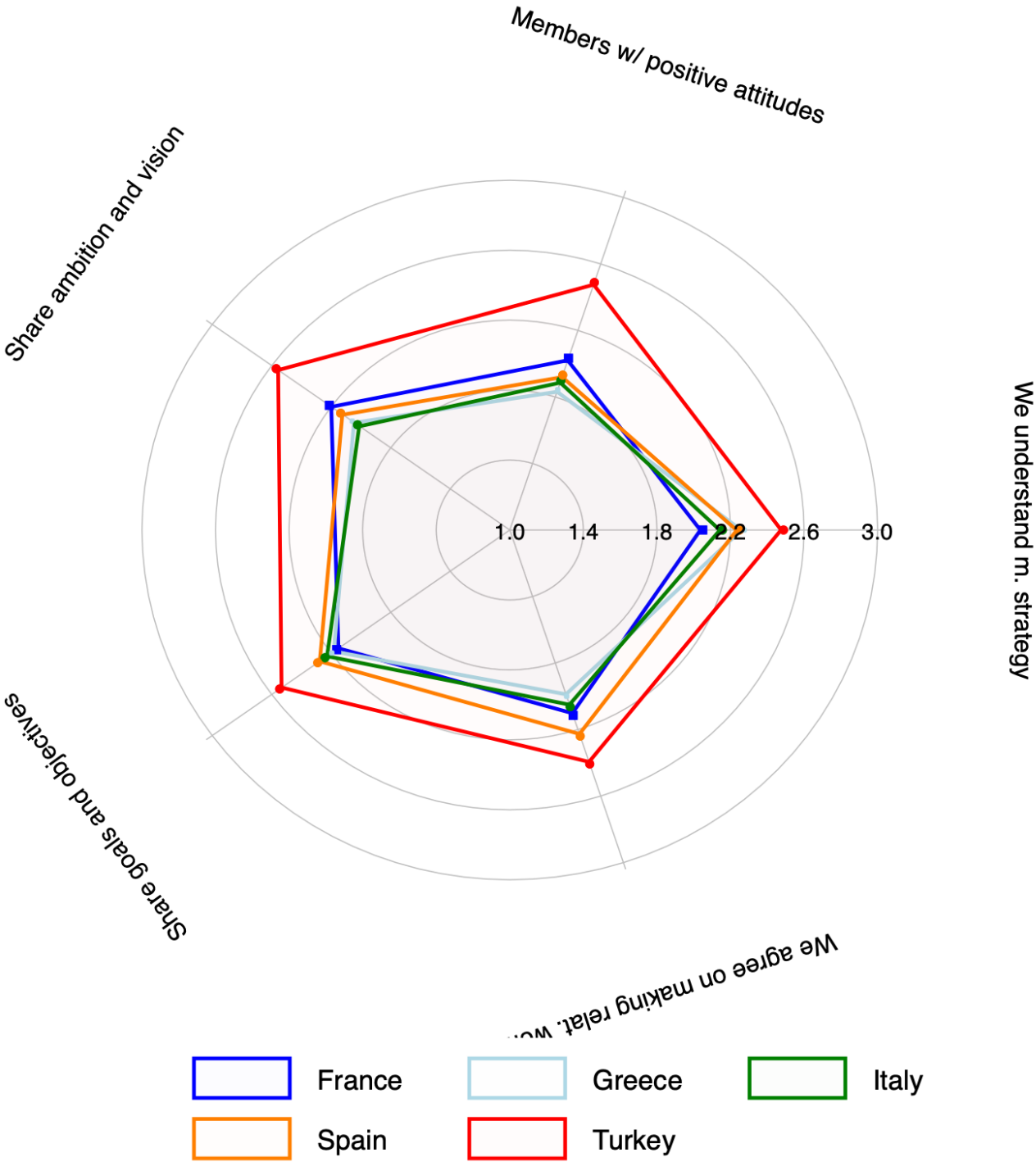

Figure 20: Social capital II

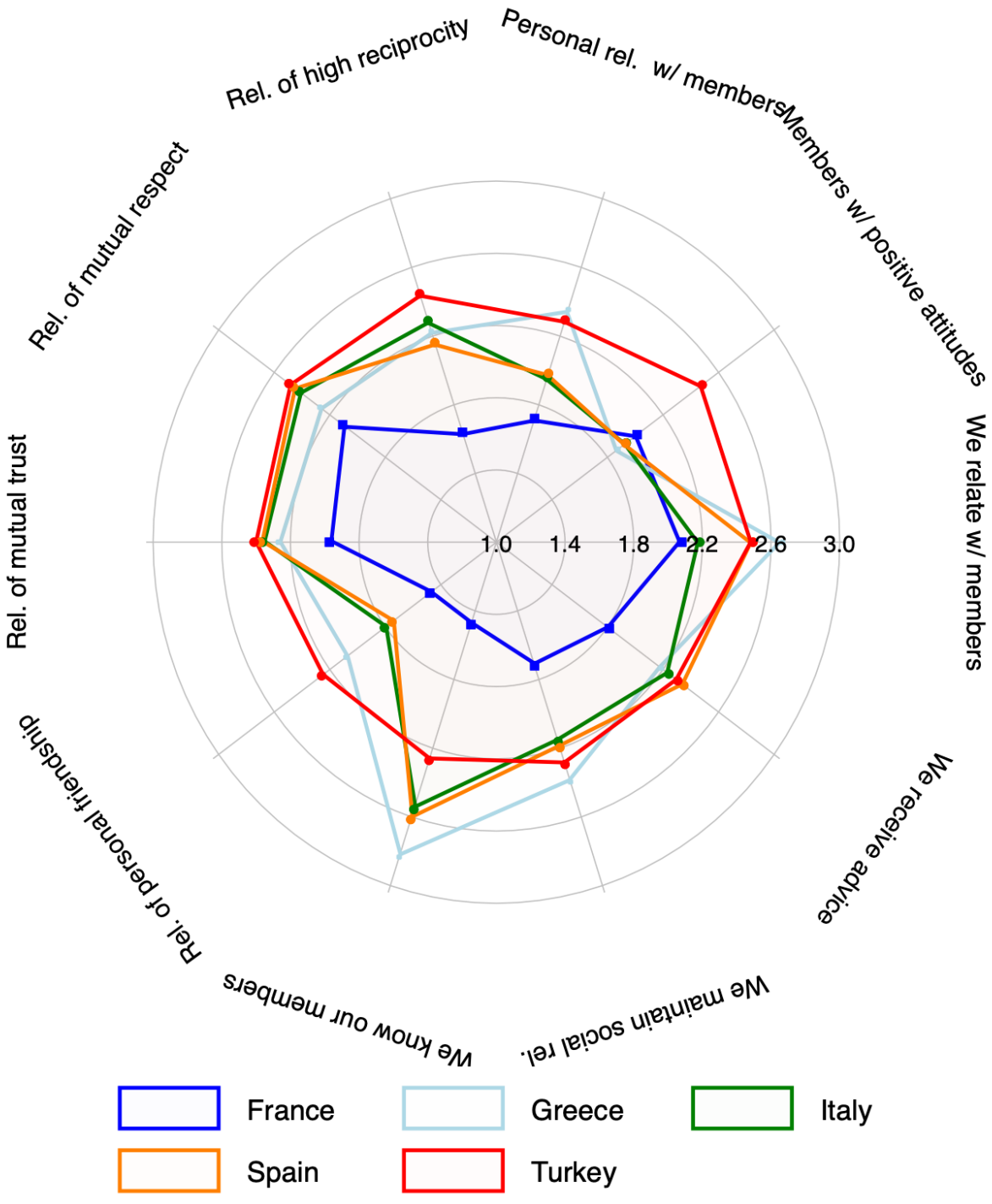

Figure 21: Social capital III

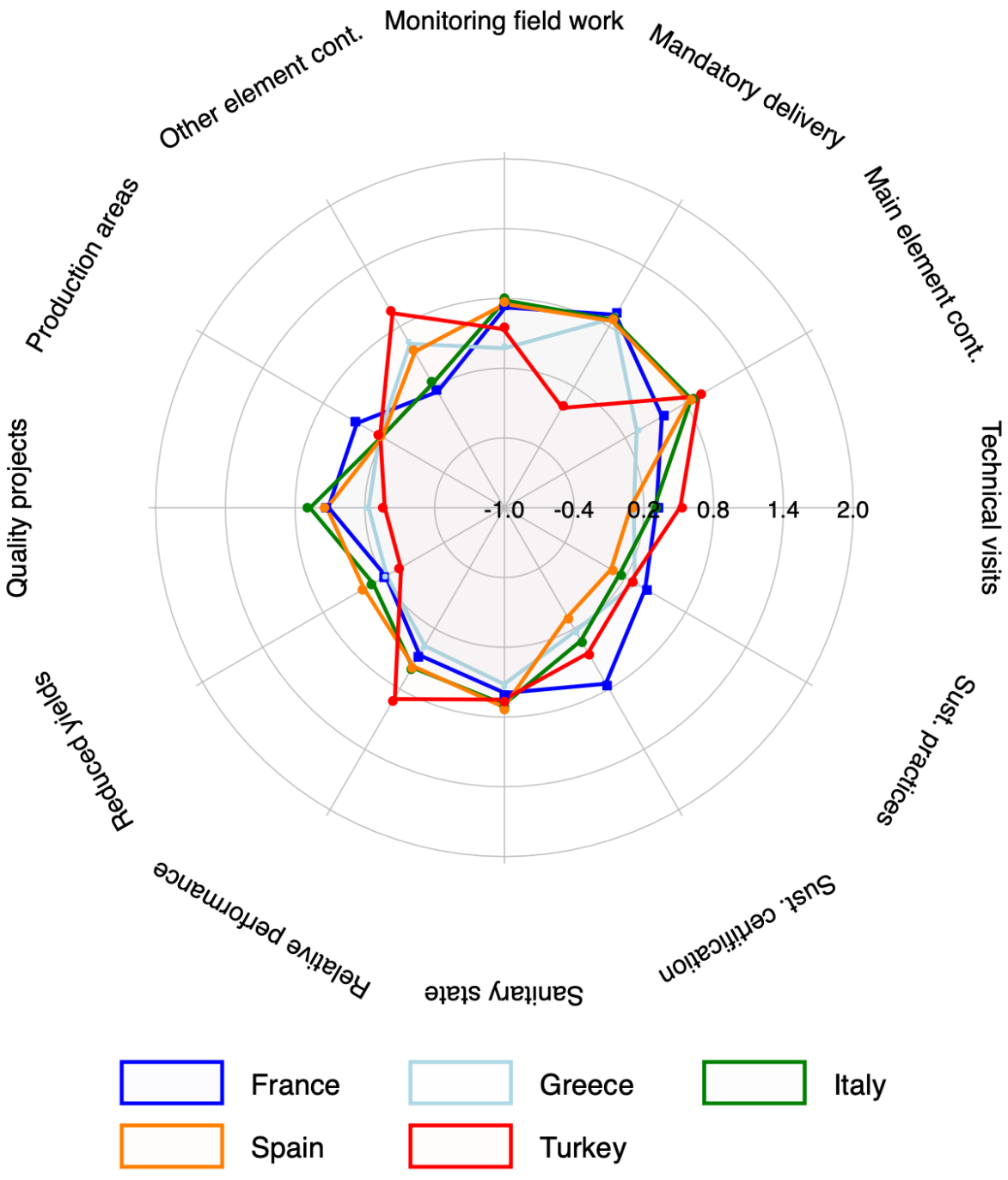

Figure 22: Procurement

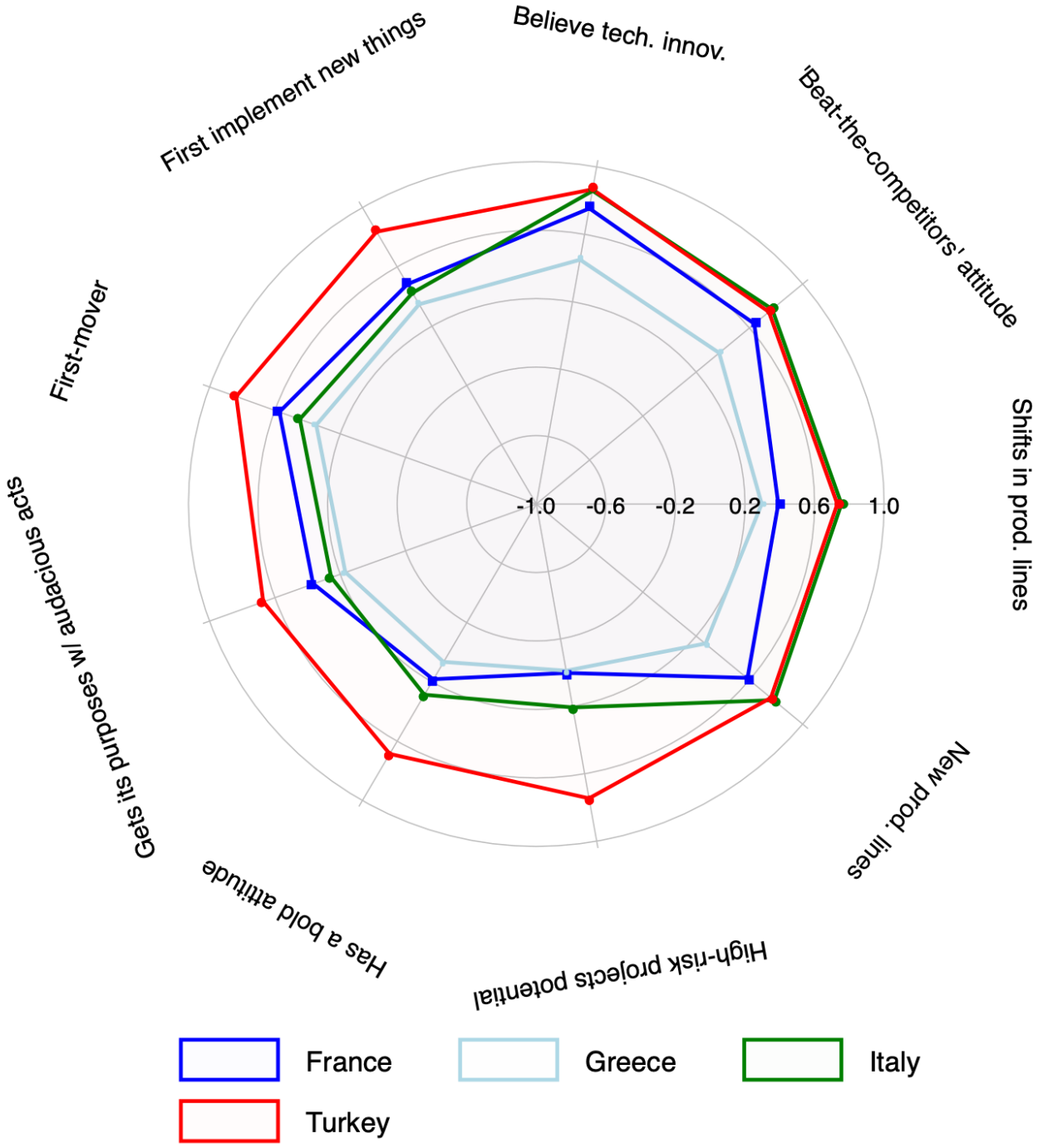

Figure 23: Perceived entrepreneurship orientation

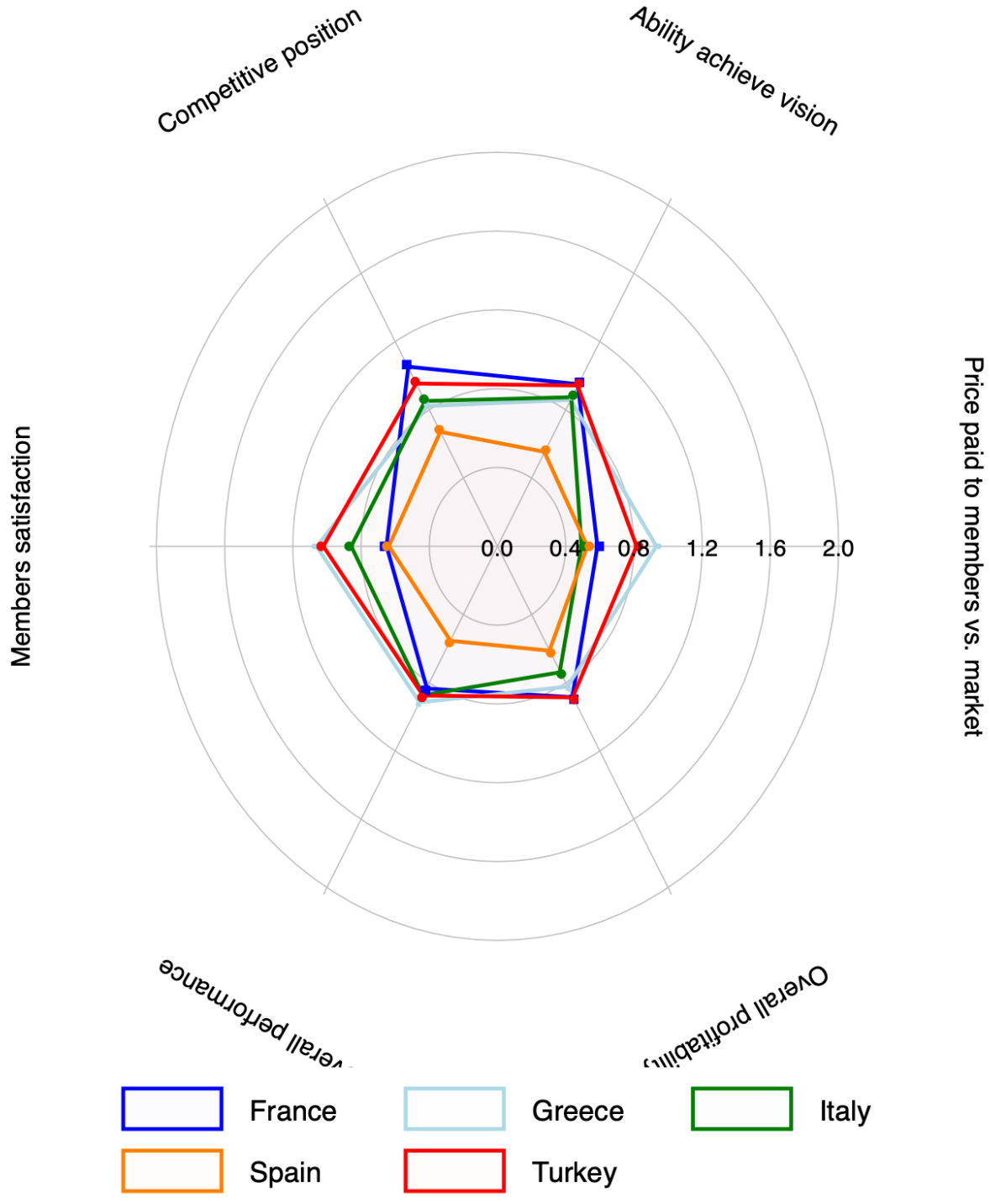

Figure 24: Perceived performance

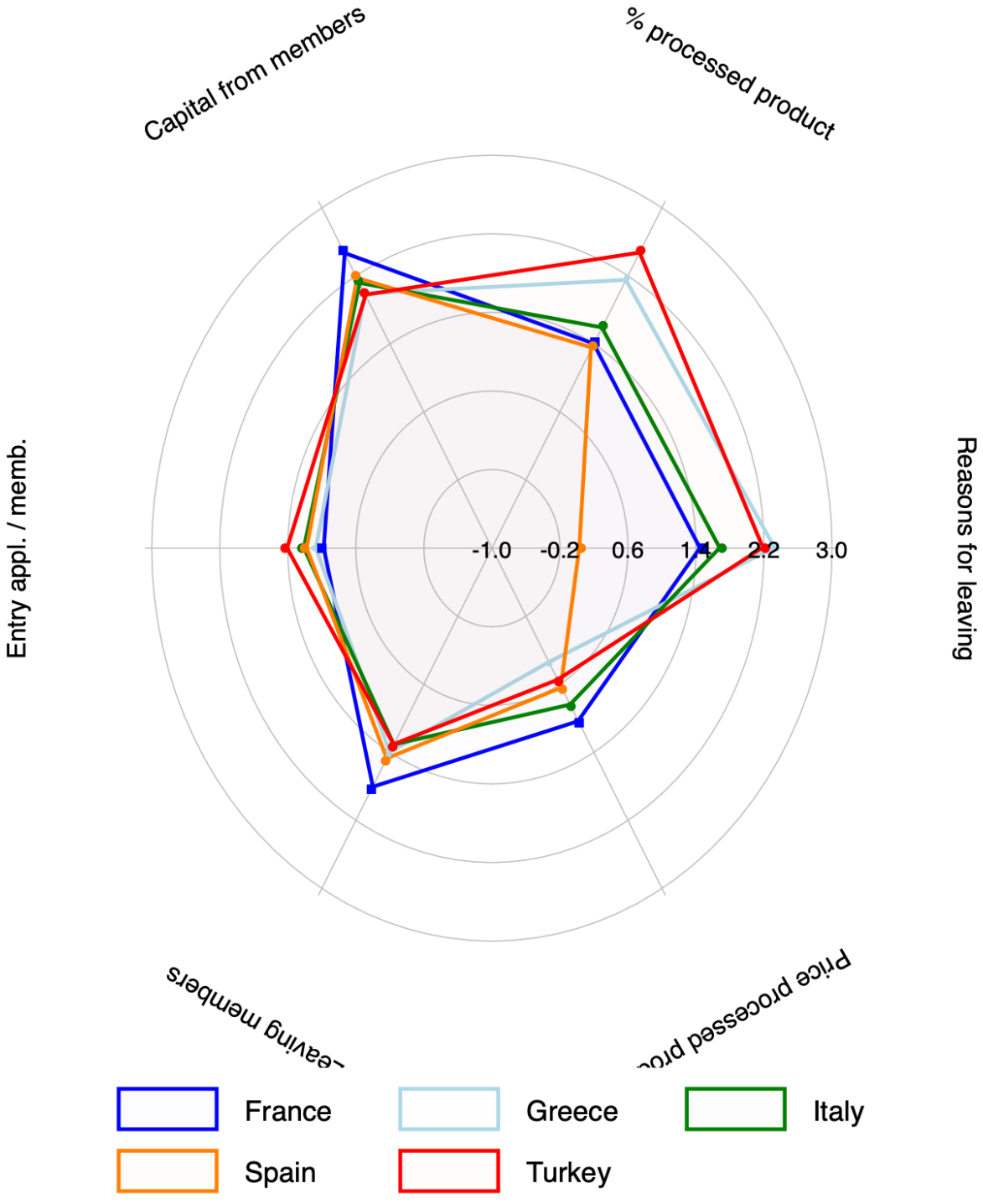

Figure 25: Revealed performance

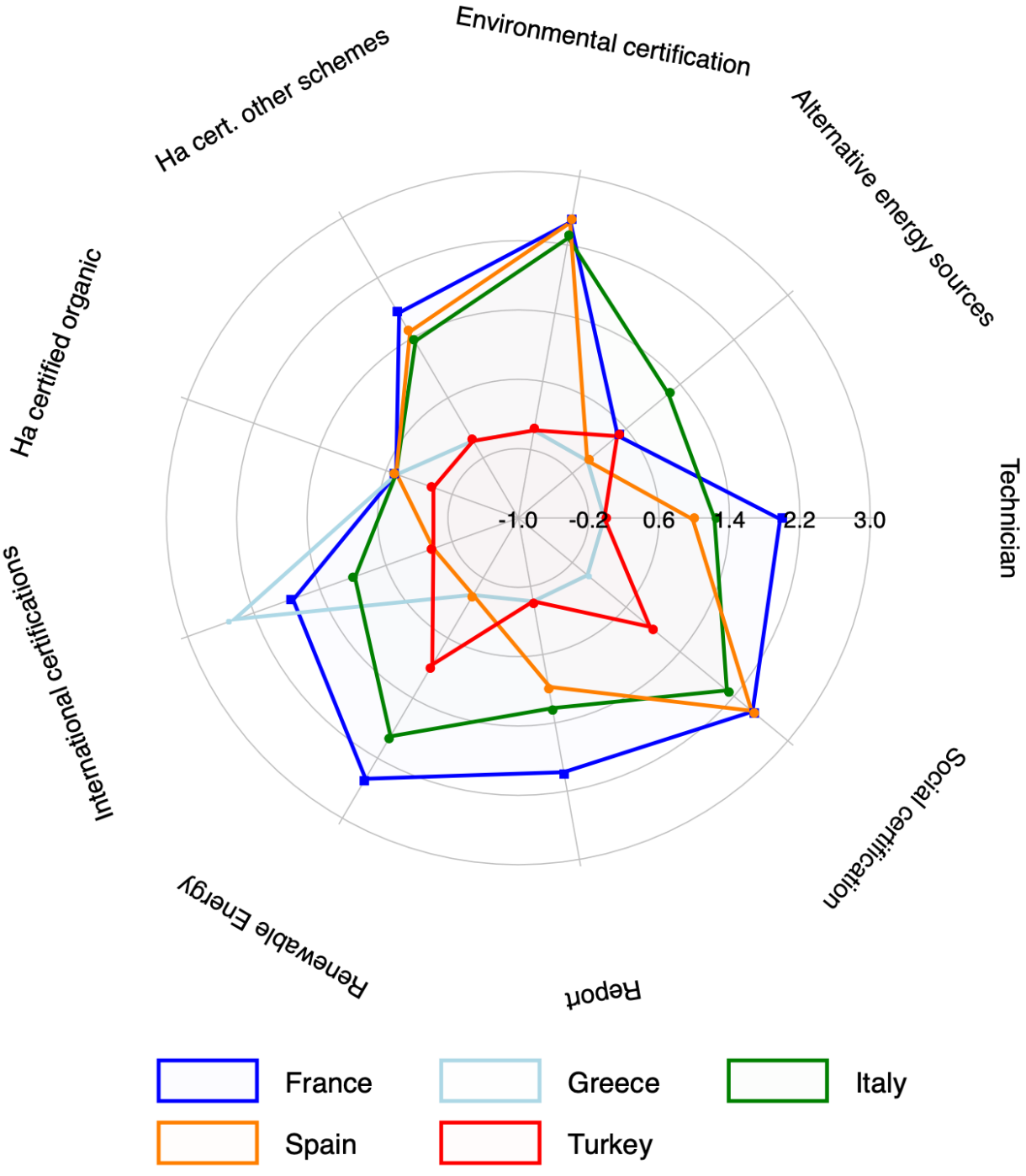

Figure 26: Sustainability I

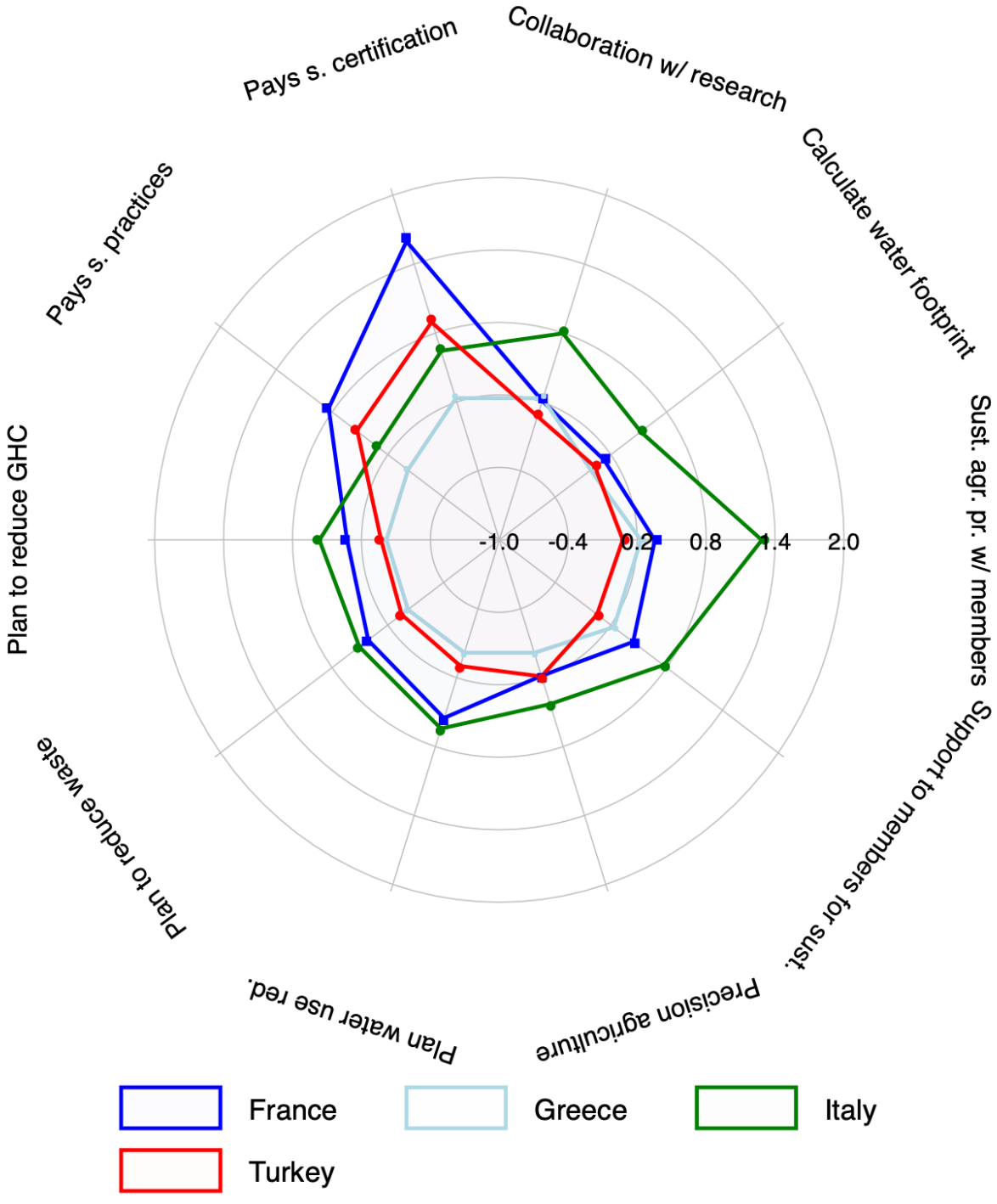

Figure 27: Sustainability II

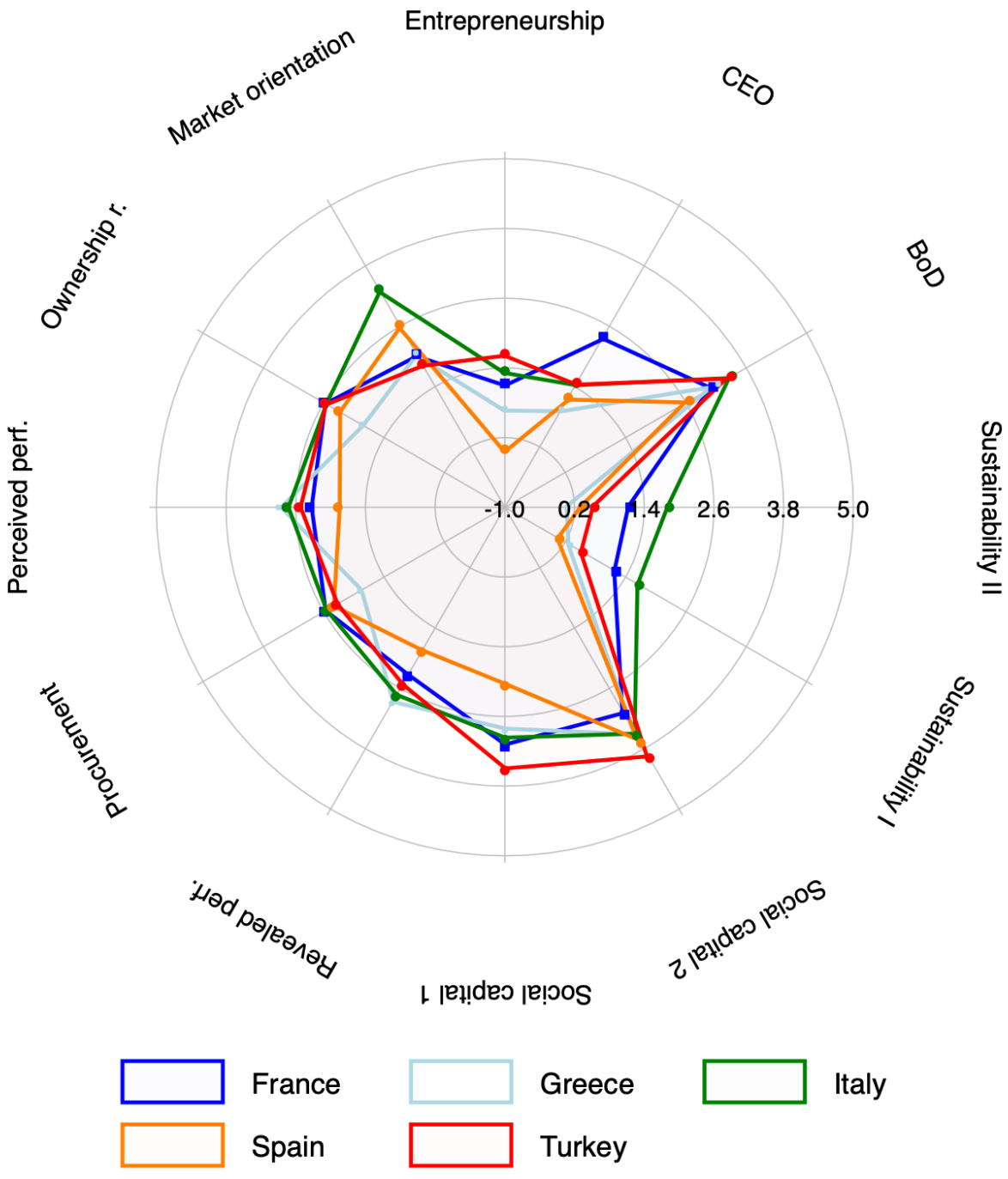

Figure 28: Overall – by country

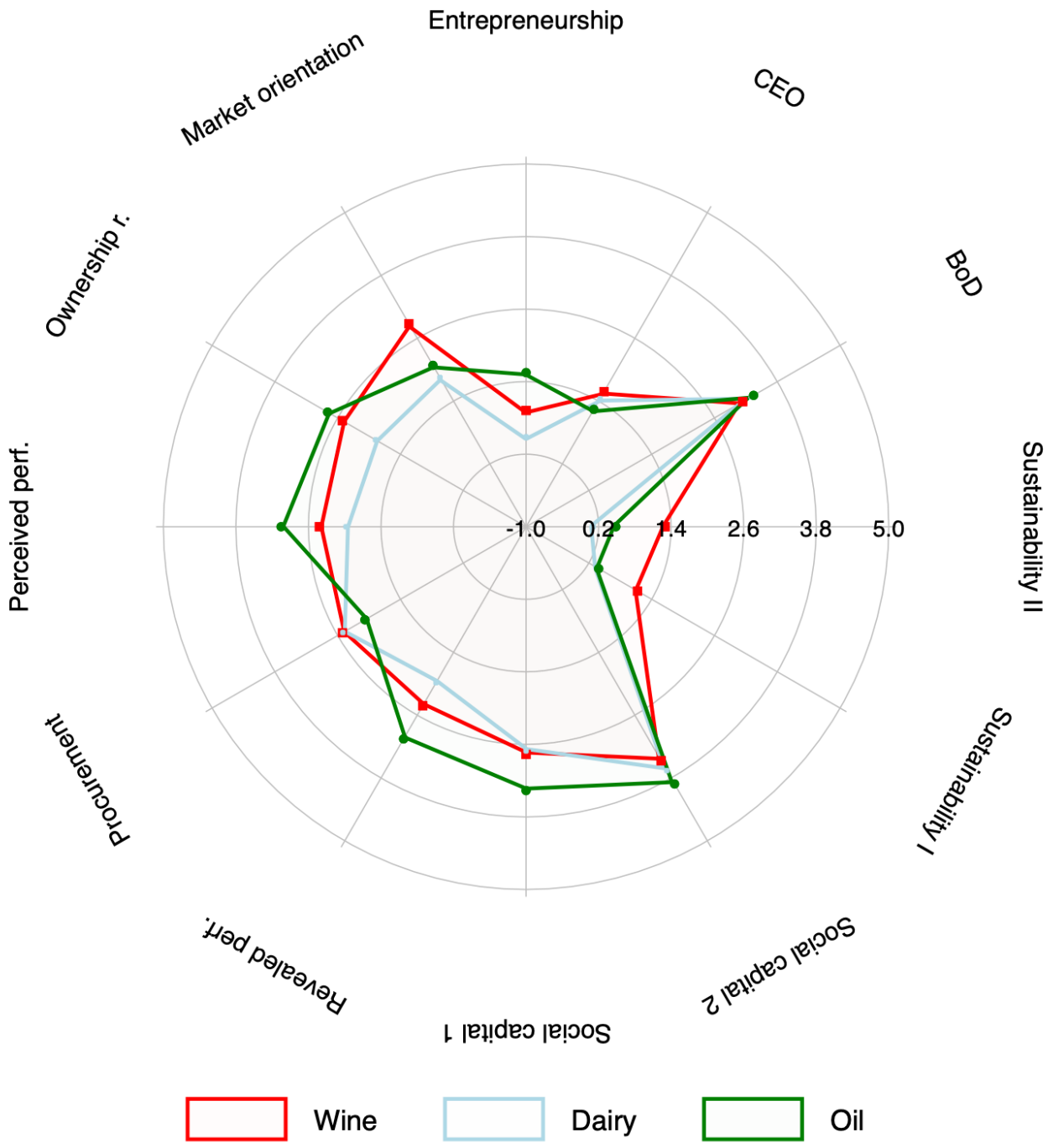

Figure 29: Overall – by crop

11 Appendix 5 - What explain performances

Table 69: Performance and Governance

	(1) paym_ha b/se	(2) paym_ha b/se	(3) paym_ha b/se	(4) paym_ha b/se	(5) paym_ha b/se
CEO	1.831***	0.997*	1.028*	0.785	0.665
	(0.504)	(0.538)	(0.540)	(0.513)	(0.527)
BoD	1.256***	0.780**	0.816**	0.203	0.155
	(0.361)	(0.360)	(0.372)	(0.282)	(0.285)
Entrepr. orient.	0.080	-0.062	-0.063	0.144	0.130
	(0.151)	(0.173)	(0.177)	(0.147)	(0.150)
Ownership	0.091	0.204	0.219	0.070	0.029
	(0.244)	(0.246)	(0.268)	(0.263)	(0.283)
Greece		-10.185***	-7.770*	0.062	-0.211
		(3.808)	(4.038)	(2.562)	(2.600)
Italy		-2.734	-2.783	0.164	0.148
		(3.798)	(3.804)	(2.247)	(2.258)
Spain		-9.288**	-8.531**	3.670*	3.294*
		(3.668)	(3.680)	(1.872)	(1.917)
Turkey		-12.784***	-9.553***	-1.545	-1.522
		(3.463)	(3.494)	(1.787)	(1.837)
Dairy			-2.631***	-6.058***	-6.805***
			(0.938)	(1.391)	(1.515)
Oil			-3.455**	0.852	0.864
			(1.555)	(1.815)	(1.849)
Prod. value per ha/head				0.649***	0.634***
				(0.146)	(0.145)
Turnover					0.016
					(0.015)
Constant	-4.026	6.000	5.640	-3.196	-2.204
	(2.899)	(4.315)	(4.585)	(3.411)	(3.642)
Observations	339	339	339	338	333
R^2	0.0757	0.179	0.183	0.405	0.408

Table 70: Performance and Managerial Practices

	(1) paym_ha b/se	(2) paym_ha b/se	(3) paym_ha b/se	(4) paym_ha b/se	(5) paym_ha b/se
Mkt orientation	0.499***	0.520***	0.534***	0.290**	0.299**
	(0.116)	(0.136)	(0.152)	(0.124)	(0.125)
Procurement	0.333	0.040	0.069	-0.261	-0.331
	(0.343)	(0.353)	(0.353)	(0.326)	(0.326)
Perc. perf.	0.833*	0.568	0.655	0.471	0.464
	(0.501)	(0.491)	(0.524)	(0.371)	(0.373)
Greece		-12.847***	-10.147***	-3.222	-3.106
		(3.558)	(3.288)	(1.979)	(2.047)
Italy		-7.281**	-7.415**	-2.991	-2.997
		(3.655)	(3.698)	(1.924)	(1.910)
Spain		-12.132***	-12.020***	0.287	0.087
		(2.884)	(3.007)	(1.877)	(1.905)
Turkey		-13.372***	-10.026***	-2.852*	-2.724
		(3.293)	(2.858)	(1.568)	(1.704)
Dairy			-0.049	-4.508***	-5.395***
			(1.309)	(1.589)	(1.624)
Oil			-4.256**	0.356	0.161
			(2.040)	(1.438)	(1.534)
Prod. value per ha/head				0.610***	0.590***
				(0.138)	(0.137)
Turnover					0.021
					(0.015)
Constant	-7.117***	4.762**	3.877	-2.393	-2.039
	(2.210)	(2.406)	(2.414)	(2.193)	(2.176)
Observations	339	339	339	338	333
R^2	0.117	0.229	0.233	0.420	0.427

Table 71: Performance and Social Dimensions

	(1) paym_ha b/se	(2) paym_ha b/se	(3) paym_ha b/se	(4) paym_ha b/se	(5) paym_ha b/se
Social capital 1	0.289	0.340	0.339	0.298	0.270
	(0.214)	(0.269)	(0.273)	(0.228)	(0.237)
Social capital 2	-0.183**	-0.108	-0.117	-0.078	-0.069
	(0.079)	(0.072)	(0.073)	(0.072)	(0.072)
Sustainability 1	0.639***	0.411*	0.425*	0.231	0.208
	(0.211)	(0.227)	(0.229)	(0.179)	(0.177)
Sustainability 2	0.298	0.087	0.046	-0.152	-0.176
	(0.223)	(0.236)	(0.242)	(0.227)	(0.228)
Greece		-9.458***	-8.576***	-1.549	-1.385
		(2.708)	(2.679)	(1.999)	(2.051)
Italy		-3.260	-3.249	-0.117	-0.013
		(3.532)	(3.543)	(2.011)	(2.016)
Spain		-6.945***	-6.298**	3.921*	3.503
		(2.604)	(2.623)	(2.076)	(2.143)
Turkey		-11.632***	-10.044***	-2.329	-2.030
		(3.020)	(2.880)	(1.583)	(1.699)
Dairy			-2.704***	-6.493***	-7.290***
			(0.937)	(1.414)	(1.508)
Oil			-1.336	1.830	1.402
			(0.965)	(1.264)	(1.404)
Prod. value per ha/head				0.643***	0.628***
				(0.138)	(0.138)
Turnover					0.017
					(0.014)
Constant	7.022***	11.137***	11.592***	-0.172	0.087
	(2.483)	(3.130)	(3.243)	(3.231)	(3.280)
Observations	339	339	339	338	333
R^2	0.127	0.184	0.187	0.405	0.409

Table 72: Performance and Scores

	(1) paym_ha b/se	(2) paym_ha b/se	(3) paym_ha b/se	(4) paym_ha b/se	(5) paym_ha b/se
CEO	0.959*	0.381	0.408	0.614	0.507
	(0.544)	(0.622)	(0.623)	(0.547)	(0.560)
BoD	0.585*	0.571*	0.630*	0.235	0.192
	(0.338)	(0.332)	(0.343)	(0.310)	(0.311)
Entrepr. orient.	-0.106	-0.067	-0.040	0.174	0.170
	(0.203)	(0.184)	(0.188)	(0.164)	(0.167)
Ownership	-0.114	-0.096	-0.030	-0.014	-0.046
	(0.274)	(0.302)	(0.315)	(0.293)	(0.308)
Mkt. orientation	0.420***	0.485***	0.483***	0.268**	0.284**
	(0.125)	(0.138)	(0.150)	(0.129)	(0.132)
Procurement	-0.367	-0.372	-0.344	-0.570	-0.588
	(0.408)	(0.438)	(0.434)	(0.384)	(0.387)
Perc. perf.	0.591	0.581	0.657	0.427	0.423
	(0.471)	(0.518)	(0.541)	(0.376)	(0.379)
Social capital 1	0.190	0.174	0.190	0.175	0.165
	(0.251)	(0.299)	(0.300)	(0.257)	(0.261)
Social capital 2	-0.195***	-0.145**	-0.137*	-0.099	-0.092
	(0.073)	(0.073)	(0.074)	(0.066)	(0.065)
Sustainability I	0.510**	0.391	0.368	0.254	0.236
	(0.234)	(0.266)	(0.267)	(0.222)	(0.221)
Sustainability II	0.139	0.011	0.013	-0.145	-0.156
	(0.244)	(0.258)	(0.258)	(0.230)	(0.232)
Greece		-10.907***	-8.015**	-1.096	-1.423
		(3.417)	(3.560)	(2.685)	(2.762)
Italy		-6.991*	-7.033*	-2.180	-2.305
		(3.952)	(3.973)	(2.246)	(2.272)
Spain		-8.096***	-7.682**	3.947	3.382
		(2.828)	(3.006)	(3.097)	(3.229)
Turkey		-10.710***	-7.646***	-1.414	-1.666
		(2.909)	(2.755)	(2.048)	(2.148)
Dairy			-0.402	-4.770***	-5.568***
			(1.357)	(1.711)	(1.789)
Oil			-4.203*	0.006	0.045
			(2.277)	(2.017)	(2.034)
Prod. value per ha/head				0.609***	0.593***
				(0.134)	(0.133)
Turnover					0.017
					(0.015)
Constant	-2.162	4.395	2.440	-3.582	-2.763
	(3.264)	(3.443)	(3.987)	(3.495)	(3.682)
Observations	339	339	339	338	333
R^2	0.205	0.254	0.258	0.435	0.439