



# Co-operatives' Significance in Europe: Assessing the Influence of Social, Political, and Economic Factors

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Our paper examines whether certain social, political, and economic factors influence citizens' desire to participate in co-operative projects, thereby increasing co-operatives' significance. Specifically, we analyse the relationship between co-operatives' significance and four factors: (1) citizens' sense of community; (2) the quality of a country's democracy; (3) citizens' trust in government; and (4) a country's economic performance. The empirical analysis is conducted on a sample of 25 European countries. The results highlight that the most significant factors influencing co-operatives' significance are trust in government, followed by the quality of a country's democracy and its economic performance. Furthermore, co-operatives' employment has a significant correlation with both the sense of community and economic performance. We argue that a dynamic learning process, which develops over time, cultivates a stronger sense of community, thereby leading to increased commitment to co-operative employment. Concerning economic performance, our findings reveal a negative relationship, thus supporting the notion of a relative counter-cyclical association.

## Introduction

Co-operatives are people-centred, value-driven enterprises. They are not profit-driven, indeed, the profits generated are intended to be reinvested or returned to their members. The International Cooperative Alliance (2018) identifies seven principles for co-operatives: (1) Voluntary and open membership; (2) Democratic member control; (3) Member economic participation; (4) Autonomy and independence; (5) Education, training, and information; (6) Co-operation among co-operatives; (7) Concern for community.

These principles should allow members to manage co-operatives under good governance, understood as a decision-making process implemented for the well-being of the wider community under a democratic orientation, social responsibility, equity, and inclusion (Bretos et al., 2020; Guzmán et al., 2020a, 2020b; Mazzarol, 2015; Salihu, 2022). The democratic organisation, the social component, and the concern for community stand out (Bretos & Marcuello, 2017; Gijssels & Bussels, 2014; Narvaiza et al., 2017; Pérez & Valiente, 2019). However, it is questionable whether the founders of co-operatives are imbued with these values and principles.

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Against this backdrop, this paper examines whether certain social, political, and economic factors influence citizens' desire to participate in co-operative projects, thereby increasing co-operatives' significance. Specifically, we analyse the relationship between co-operatives' significance and four factors: (1) citizens' sense of community; (2) the quality of a country's democracy; (3) citizens' trust in government; and (4) a country's economic performance. The empirical analysis will be applied to a sample of European countries.

This article contributes to the literature in several ways. First, although an extensive literature has investigated the factors that motivate members to join co-operatives, the existing empirical assessment focuses mainly on micro-level member data and case studies (Ghauri et al., 2021a, 2021b). In contrast, our study proposes a methodology that synthesises statistics from different countries, enabling macro-level conclusions. This innovative approach adds value to the work, although it is not without limitations, as discussed later in the paper. Secondly, this article sheds light on factors that may influence the willingness to join a co-operative. This topic is particularly relevant given the renewed interest in co-operatives and their role in promoting sustainable economic development. From the perspective of policymakers and considering the diverse economic policy measures aimed at promoting co-operatives, the conclusions we will draw can assist policymakers in identifying the most effective measures. For instance, if citizens' sense of community is not a determining factor, investing in training related to co-operative values is likely to be more effective than providing public subsidies.

The remainder of the paper includes the following sections. The next section provides a literature review and formulates the working hypotheses. Section 3 describes the methodology. Section 4 presents the results, followed by a discussion in Section 5. Section 6 concludes.

## **Literature Review**

Theories dealing with co-operatives' participatory process point out that it is influenced by socio-cultural factors, political-governing factors, power dynamics, and historical-spatial-temporal contexts (Bell & Reed, 2022). The analysis of Birchall and Simmons (2004a, 2004b) synthesises what drives co-operative members to participate, based on the "theory of mutual incentives" and the "chain of participation" model. The "theory of mutual incentives" examines two motivations: the individualistic approach, according to which people's participation is motivated by individual rewards and punishments; the collectivist approach, based on the view that participation is motivated by shared objectives, shared values, and a sense of community. On the other hand, the "chain of participation" model points to resource constraints, participant mobilisation, and motivations as important factors in determining the participatory role.

The literature also gives a key role to social capital in influencing co-operatives' significance. Bretos et al. (2016, 2018) and Carrasco and Buendía-Martínez (2013) indicate that trust and social network, as proxies of social capital, positively affect the creation of co-operatives. In a reconsideration of the theoretical framework of social capital, Bianchi (2023) and Bianchi and Vieta (2020) believe that the reasons for setting up a co-operative can vary and depend on the cultural, social, and economic capital of its members.

Our analysis fits in well with this field of research. We focus on analysing the link between the significance of co-operatives in European countries and the following four factors: (1) citizens' sense of community; (2) the quality of a country's democracy; (3) citizens' trust in government; and (4) a country's economic performance. All the variables have been chosen based on empirical research and data availability.

Firstly, our analysis focuses on the idea that those who decide to create or to join a co-operative are people imbued with sense of community, defined as "People who identify with and care about other people who either live in the same area or are like them in some respect" (Birchall & Simmons, 2004a, p. 496).

In this sense, participation is well suited for people who understand their role in society as a collective and participatory one, where decisions or visions must prevail in an essentially democratic way (Ribas et al., 2022). Common values, a willingness to work together, active participation in social affairs, and a concern for the proper functioning of democracy increase people's readiness to participate (Bretos et al., 2016, 2018; Ruiz Jiménez et al., 2010).

The anticipated impact of citizens' sense of community on the significance of co-operatives leads us to formulate the first working hypothesis:

H1: The sense of community has a positive effect on co-operatives' significance.

Secondly, we also argue that the quality of a country's democracy influences co-operatives' significance. Democratic governance promotes a more participatory and conscious citizenship (Gerring et al., 2021). People are more likely to participate in shaping welfare services and defend the common good (Pestoff, 2009). In this sense, stronger democracies should produce citizens who are more attuned to the principles and values of co-operatives. Therefore, one would expect that citizens in countries with a higher quality of democracy would be more likely to create co-operatives and/or join them.

Based on the above, the second hypothesis is formulated as follows:

H2: The quality of democracy has a positive effect on co-operatives' significance.

The quality of a country's democracy should be distinguished from citizens' perceptions of it. van der Meer and Hakhverdian (2017) point out that citizens' trust in government and politicians is a function of their assessment of their merits and is broadly related to the perception of good performance. Trust in government and institutions is crucial for the proper functioning of democracy, but also for people to value collective goals (Gijssels & Bussels, 2014). Therefore, our object of study should consider not only the quality of democracy, but also citizens' perceptions of democracy and government. Citizens' perception of democracy and government should yield a greater agreement with the principles and values of co-operatives (Bretos et al., 2018).

Hence the third hypothesis:

H3: Trust in government has a positive effect on co-operatives' significance.

Finally, we argue that a country's economic performance also plays an important role. Scholars in this field recognise that co-operatives and economic issues are linked. On the one hand, co-operatives are seen as organisations capable of fostering local economic development (Bianchi & Vieta, 2020; Bretos & Marcuello, 2017; Melian & Campos, 2010; Tarazona & Albors, 2005). On the other hand, good governance is positively linked with economic growth and even with socio-economic development (Nwalie, 2018; Pinar et al., 2022).

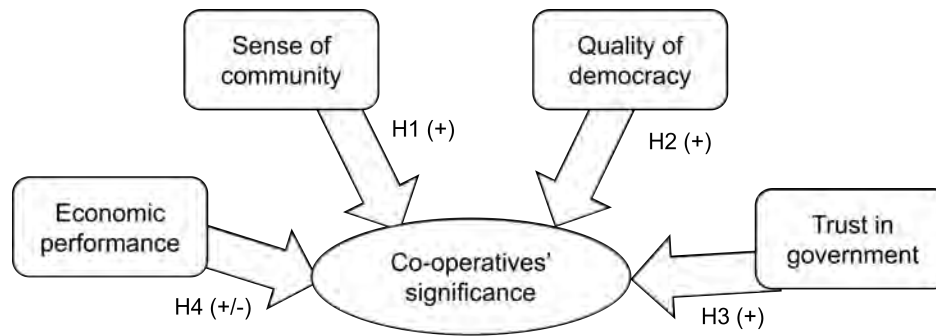
According to the above arguments, we should expect that economic growth enhances the attractiveness of co-operatives. However, there is a robust line of research that finds empirical evidence of counter-cyclical behaviour by co-operatives. In periods of recession, they exert a refuge effect in the face of falling economic activity and rising unemployment (Billiet et al., 2021; Birchall & Hammond Ketilson, 2009; Boone & Özcan, 2014; Calderón & Calderón, 2012a; Cancelo et al., 2022; Carini & Carpita, 2014; Díaz-Foncela & Marcuello, 2015; Grávalos & Pomares, 2001; Monzón, 2012; Pérotin, 2006; Roelants et al., 2012).

The fourth hypothesis is formulated as follows:

H4: Economic performance has a positive/negative effect on co-operatives' significance.

Thus, our overall aim is to assess the extent to which co-operatives' significance is related to the four factors illustrated in Figure 1 below.

Figure 1: Determinants of co-operatives' significance



## Methodology

### Data

The study focuses on a sample of 25 European countries (Table 1). We excluded countries for which statistical information was lacking in some of the sources.

Table 1: Countries under analysis

| Countries in alphabetical order |                 |
|---------------------------------|-----------------|
| Austria                         | Italy           |
| Belgium                         | Lithuania       |
| Bulgaria                        | The Netherlands |
| Croatia                         | Norway          |
| Cyprus                          | Poland          |
| Czech Republic                  | Portugal        |
| Denmark                         | Slovak Republic |
| Estonia                         | Slovenia        |
| Finland                         | Spain           |
| France                          | Sweden          |
| Germany                         | Switzerland     |
| Hungary                         | United Kingdom  |
| Ireland                         |                 |

We proxy co-operatives' significance through three measures: (i) co-operative intensity (CI), (ii) co-operative membership intensity (CMI), and (iii) co-operative employment intensity (CEI) (Table 2). The data come from Quintana Cocolina and Cooperatives Europe's team (2016) and Eum (2017) and refer to 2015. The first data source is part of a project conducted by *Cooperatives Europe*, the European regional organisation of the *International Cooperative Alliance*. The second data source is instead a report published by the *International Organisation of Industrial and Service Cooperatives (CICOPA)*, which is a sector organisation of the *International Cooperative Alliance*.

Table 2: Variables measuring the significance of co-operatives

| Variable                                | Indicator                                                     |
|-----------------------------------------|---------------------------------------------------------------|
| Co-operative intensity (CI)             | <u>Number of co-operatives</u><br>Total number of companies   |
| Co-operative membership intensity (CMI) | <u>Number of members of co-operatives</u><br>Total population |
| Co-operative employment intensity (CEI) | <u>Employment in co-operatives</u><br>Total employment        |

As far as the variables and indicators representing the four factors potentially influencing co-operatives' significance are concerned, these are based on 2014 data. We believe that their impact on co-operatives' significance is time-lagged, hence to account for this, we have applied time-lags to the data of the four determinants.

Data proxying for sense of community are taken from the European Social Survey (ESS7-2014), which is a large biennial cross-national survey of attitudes and behaviours. We took two scopes from the ESS7-2014, namely human value and participatory-social feelings. Within each scope we selected four and five statements, respectively. For each statement and country, the ESS7-2014 survey provides a rating based on a scale (measurement) that we use in our analysis (Table 3). To obtain a value for each country, we constructed a composite index ( $SC_i$ ), as shown in the Appendix.

Table 3: Sense of community

| Scope                                    | Statements                                                                          | Measurement                                 |
|------------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------|
| Human value (HV)                         | <i>HV1</i> : Important to understand different people                               | 1 Very much like me<br>6 Not like me at all |
|                                          | <i>HV2</i> : Important that people are treated equally and have equal opportunities | 1 Very much like me<br>6 Not like me at all |
|                                          | <i>HV3</i> : Important to be rich, have money and expensive things                  | 1 Very much like me<br>6 Not like me at all |
|                                          | <i>HV4</i> : To care for nature and the environment                                 | 1 Very much like me<br>6 Not like me at all |
| Participatory —<br>social feelings (PSF) | <i>PSF1</i> : Important to understand different people                              | 1 Very much like me<br>6 Not like me at all |
|                                          | <i>PSF2</i> : Important to help people and care for others' well-being              | 1 Very much like me<br>6 Not like me at all |
|                                          | <i>PSF3</i> : Worked in another organization or association in last 12 months       | 1 Yes<br>2 No                               |
|                                          | <i>PSF4</i> : Able to take active role in political groups                          | 0 Not at all able<br>10 Completely able     |
|                                          | <i>PSF5</i> : Signed a petition in the last 12 months                               | 1 Yes<br>2 No                               |

Source: European Social Survey (ESS7-2014).

Our second key variable of interest, quality of democracy, is constructed from statistics that come from the Varieties of Democracy (V-Dem) dataset. This offers multidimensional and disaggregated information to measure democracy while maintaining a delicate balance between freedom, equality, and control (Bühlmann et al., 2012). *Freedom* is defined as the guarantee of individual rights under a secure rule of law. *Equality* means treating all citizens as equals both in the political process and in access to political power. *Control* means that electoral competition is present and that citizens can hold their representatives accountable. Consistently with recent studies, reporting different attributes of democracy (Quaranta, 2018), Table 4 displays the indicators used to represent this delicate balance, from which we constructed a composite democracy quality index ( $DI_i$ ) (see Appendix).

To proxy trust in government we used data from the ESS7-2014. We selected one scope and three statements from the dataset. For each statement and country, the ESS7-2014 survey assigns a rating based on a scale (measurement) that we employ also in our analysis (Table 5). To obtain a value for each country, we constructed a composite index ( $TG_i$ ) (see Appendix).

Table 4: Quality of democracy

| Principle      | Indicator (V-Dem index)       |
|----------------|-------------------------------|
| Electoral      | Electoral democracy index     |
| Participatory  | Participatory democracy index |
| Deliberative   | Deliberative democracy index  |
| Accountability | Accountability index          |
| Liberal        | Liberal democracy index       |
| Egalitarian    | Egalitarian democracy index   |
| Rule of law    | Rule of law index             |
| Corruption     | Political corruption index    |

Source: Coppedge et al. (2022).

Table 5: Trust in government

| Scope                    | Statements                                                 | Measurement                                        |
|--------------------------|------------------------------------------------------------|----------------------------------------------------|
| Trust in government (TG) | TG1: How satisfied with the way democracy works in country | 0 Extremely dissatisfied<br>10 Extremely satisfied |
|                          | TG2: How satisfied with the national government            | 0 Extremely dissatisfied<br>10 Extremely satisfied |
|                          | TG3: Trust in the legal system                             | 0 Extremely dissatisfied<br>10 Extremely satisfied |

Source: European Social Survey (ESS7-2014)

Finally, our fourth core variable, economic performance, is based on data from Eurostat and the International Monetary Fund (IMF). To capture economic performance, we calculated the Economic Index ( $EI_i$ ) as a derivation of the “Economic Performance Index” of Khramov and Lee (2013), which includes information on inflation (Inf), unemployment (Unem), budget deficit (Def/GDP), and economic growth ( $\Delta GDP$ ) (see Appendix).

## Methodological issues

To test the working hypotheses, we apply two quantitative techniques. First, we carried out an ordinary least squares (OLS) regression to test, for country  $i$ , the relationships between sense of community (SC), quality of democracy (DI), trust in government (TG), and economic performance (EI), on one hand, and each of the three indicators of co-operatives' significance (co-operative intensity — CI, membership intensity — CMI, and employment intensity — CEI), on the other hand. Before entering the estimations, all variables were standardised. The resulting econometric model is:

$$\text{Co-operative significance}_i = \alpha + \beta_1 SC_i + \beta_2 DI_i + \beta_3 TG_i + \beta_4 EI_i + \varepsilon_i \quad (1)$$

The second quantitative technique we use seeks to yield a global overview of the relationship between the significance of co-operatives and the four determinants (SC, DI, TG, and EI). For this purpose, we employ a multi-objective programming model, specifically utilising the compromise programming technique. This approach is well-suited for contexts defined by multiple objectives that need to be optimised, and it enables achieving a set of efficient solutions (Yu, 1973; Zeleny, 1973, 1974). The main objective of this technique is to minimise the distance ( $L_p$ ) between the ideal solution (ide) and the value of the variable. This is achieved through operational mechanics, leading to the construction of a payoff matrix, which is a square matrix with dimensions equal to the number of objectives. The matrix is created by optimising each objective separately and then calculating the values obtained in this optimal solution by the other objectives. The main diagonal of the matrix represents the ideal point, i.e., the best possible value that each objective can attain. Thus, the linear programming model to be solved is as follows:

$$\text{Min } L_p = \left[ \sum_{j=1}^n W_j^p (f_j^{\text{ide}} - f_j(x))^p \right]^{1/p} \quad X \in F \quad (2)$$

We standardise (2) thus:

$$\text{Min } L_p = \left[ \sum_{j=1}^n W_j^p (f_j^{\text{ide}} - f_j(x))^p \right]^{1/p} \quad X \in F \quad (3)$$

where  $W_j$  is the weight assigned to objective  $j$ ;  $f_j^{\text{ide}}$  is the ideal solution of the objective  $j$ ; the anti-ideal solution of the objective  $j$ ;  $f_j(x)$  the expression of the  $j^{\text{th}}$  attribute;  $X$  the vector of decision variables, and  $F$  the restrictions that define the set of possible solutions.

Among the metrics or distance measures ( $L_p$ ), we take  $p = 1$ , which implies solving the following linear program:

$$\text{Min } L_p = \left[ \sum_{j=1}^n W_j^p (f_j^{\text{ide}} - f_j(x))^p \right]^{1/p} \quad X \in F \quad (4)$$

In this study, the model expressed in (4) is represented by the following expression:

$$\text{Min } L1 = W_1 \left[ \frac{SC^{\text{ide}} - (\sum_{i=1}^{25} SC_i X_i)}{SC^{\text{ide}} - SC^{\text{ai}}} \right] + W_2 \left[ \frac{DI^{\text{ide}} - (\sum_{i=1}^{25} DI_i X_i)}{DI^{\text{ide}} - DI^{\text{ai}}} \right] + W_3 \left[ \frac{TG^{\text{ide}} - (\sum_{i=1}^{25} TG_i X_i)}{TG^{\text{ide}} - TG^{\text{ai}}} \right] + W_4 \left[ \frac{(EI^{\text{ide}} - \sum_{i=1}^{25} EI_i X_i)}{EI^{\text{ide}} - EI^{\text{ai}}} \right] \quad (5)$$

where  $X_i$  is the fraction, expressed on a per unit basis, of the relative importance of each country ( $i = 25$ ) in the objective ( $j = 4$ ),  $W_j = 1$  (no variable is awarded),  $F: X > 0$  and  $\sum X_j = 1$ .

The restrictions  $X > 0$  and  $\sum X_j = 1$  imply that the optimisation of equation (5) results in a single  $X_j = 1$ , representing the country whose combination of the five indicators minimises the distance from the ideal point. Subsequently, the  $j-1$  models are optimised, and the country  $j$  whose  $X_j = 1$  in the previous model is removed. Then, countries are ranked on a scale of one to twenty-five, with one being the lowest score (worst performance) and twenty-five being the highest score (best performance).

Based on these multi-criteria results, to illustrate the position of each country, we create an XY graph for each variable that approximates the importance of co-operatives (CI, CMI, CEI). On the x-axis, we represent the multi-criteria score, while on the y-axis, we depict the co-operatives' variables. The y-axis intersects at the mean of the multi-criteria position, and the x-axis intersects at the mean of CI, CMI, and CEI, respectively. A country is in the upper right quadrant of the graph if it demonstrates a significant positive relationship between the importance of co-operatives and the four factors considered in equation (5) (Figure 2).

Figure 2: Interpretation of XY graphs

|                             |                                             |                                             |
|-----------------------------|---------------------------------------------|---------------------------------------------|
| Co-operatives' Significance | <b>Upper-left quadrant</b>                  | <b>Upper-right quadrant</b>                 |
|                             | Not remarkable in multi-objective scoring   | Remarkable in multi-objective scoring       |
|                             | Remarkable in co-operative significance     | Remarkable in co-operative significance     |
|                             | <b>Lower-left quadrant</b>                  | <b>Lower-right quadrant</b>                 |
|                             | Not remarkable in multi-objective scoring   | Remarkable in multi-objective scoring       |
|                             | Not remarkable in co-operative significance | Not remarkable in co-operative significance |
|                             | Multicriteria score                         |                                             |

## Results

### Estimation results

The regression results of equation (1) are displayed in Table 6. Data do not show multicollinearity. The individual values of the variance inflation factor (VIF) are lower than 10 and the average is not substantially greater than 2. Models are estimated using robust standard errors to avoid arbitrary heteroscedasticity.

Column 1 of Table 6 shows the CI estimates on the independent variables. Model 1 does not fit adequately ( $R$ -square 7%). No support for an influence of the independent variables on the CI is found, even the coefficients of SC and DI have an unexpected negative sign. Columns 2 and 3 display the estimated coefficients of membership (CMI) and employment (CEI). In this case, the models fit better than the previous one. We observe that, respectively, 47% and 40% of the variance is explained by the variables included in the model. All independent variables have the expected sign.

As seen in Model 2 of Table 6, membership intensity has a significant positive relationship with TG ( $\beta_2 = 1.14$ ;  $p < 0.01$ ) and DI ( $\beta_3 = 0.7$ ;  $p < 0.05$ ). The quality of democracy and trust in government positively influence willingness to join co-operatives. In contrast, SC has no significant influence. Model 3 indicates that the SC has a significant effect on employment intensity ( $\beta_1 = 0.2$ ;  $p < 0.05$ ).

In the three models, EI has a negative relationship with the dependent variables. Column 1 indicates a non-significant negative relationship. However, columns 2 and 3 reveal that the relationship becomes significant for explaining membership and employment intensity.

Table 6: Regression results

| Independent variable | Model 1: CI       | Model 2: CMI       | Model 3: CEI       |
|----------------------|-------------------|--------------------|--------------------|
| Intercept            | 0.34 (0.17)       | 0.47* (0.19)       | 0.09 (0.13)        |
| SC                   | -0.01 (0.17)      | 0.34 (0.21)        | 0.20* (0.09)       |
| DI                   | -0.32 (0.31)      | 0.70* (0.36)       | 0.25 (0.26)        |
| TG                   | 0.41 (0.37)       | 1.14** (0.39)      | 0.30 (0.30)        |
| EI                   | -0.20 (0.28)      | -0.38* (0.17)      | -0.34* (0.16)      |
|                      | Prob > F = 0.7460 | Prob > F = 0.0309  | Prob > F = 0.053   |
|                      | R-squared = 0.07  | R-squared = 0.4739 | R-squared = 0.3951 |
|                      | Mean VIF = 1.87   | Mean VIF = 2.08    | Mean VIF = 2.79    |

Regressions are calculated with robust standard errors (in parentheses) to adjust for heteroscedasticity.

\*  $p < 0.05$ ; \*\*  $p < 0.01$ ; \*\*\*  $p < 0.001$

### Multicriteria results

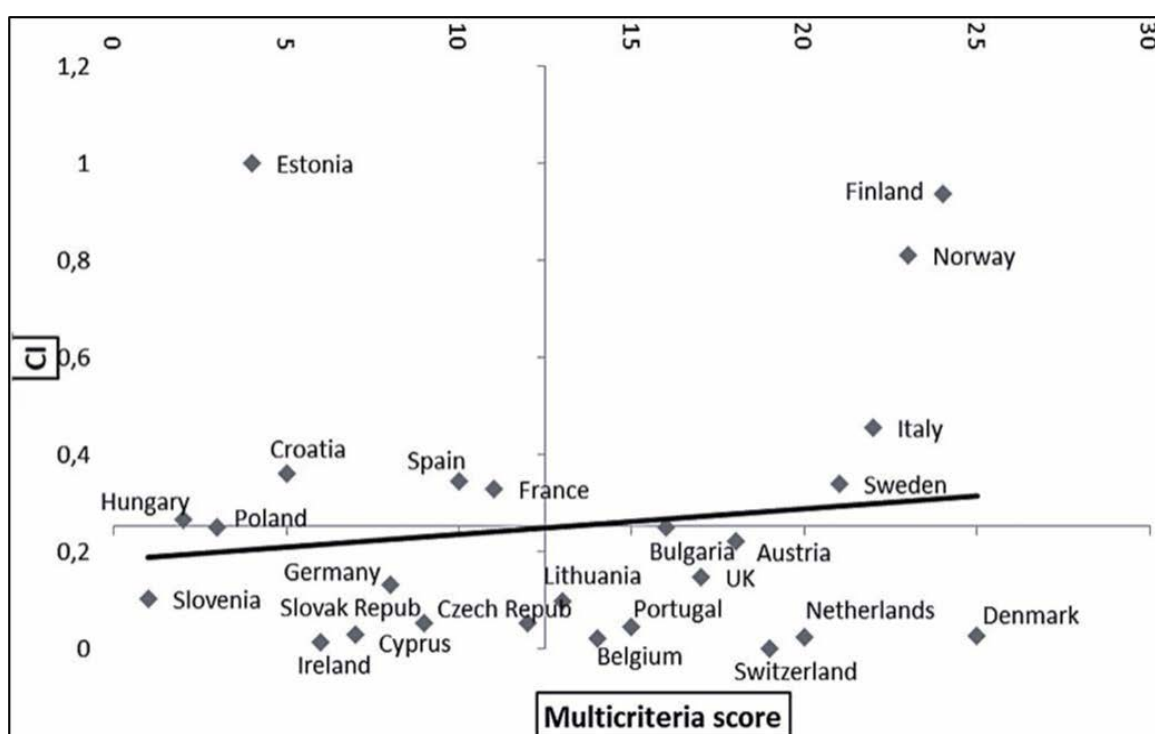
Figures 3, 4, and 5 illustrate the XY plots along with their respective trend lines. Table 7 displays the country scores obtained from expression (5). To consider the negative relationship between economic performance and co-operative figures, the ideal value for economic performance is not the maximum but the minimum. Therefore, expression (5) is:

$$\text{Min } L1 = W_1 \left[ \frac{SC^{ide} - (\sum_{i=1}^{25} SC_i X_i)}{SC^{ide} - SC^{ai}} \right] + W_2 \left[ \frac{DI^{ide} - (\sum_{i=1}^{25} DI_i X_i)}{DI^{ide} - DI^{ai}} \right] + W_3 \left[ \frac{TG^{ide} - (\sum_{i=1}^{25} TG_i X_i)}{TG^{ide} - TG^{ai}} \right] + W_4 \left[ \frac{(\sum_{i=1}^{25} EI_i X_i) - EI^{ide}}{EI^{ai} - EI^{ide}} \right]$$

Table 7: Country scores

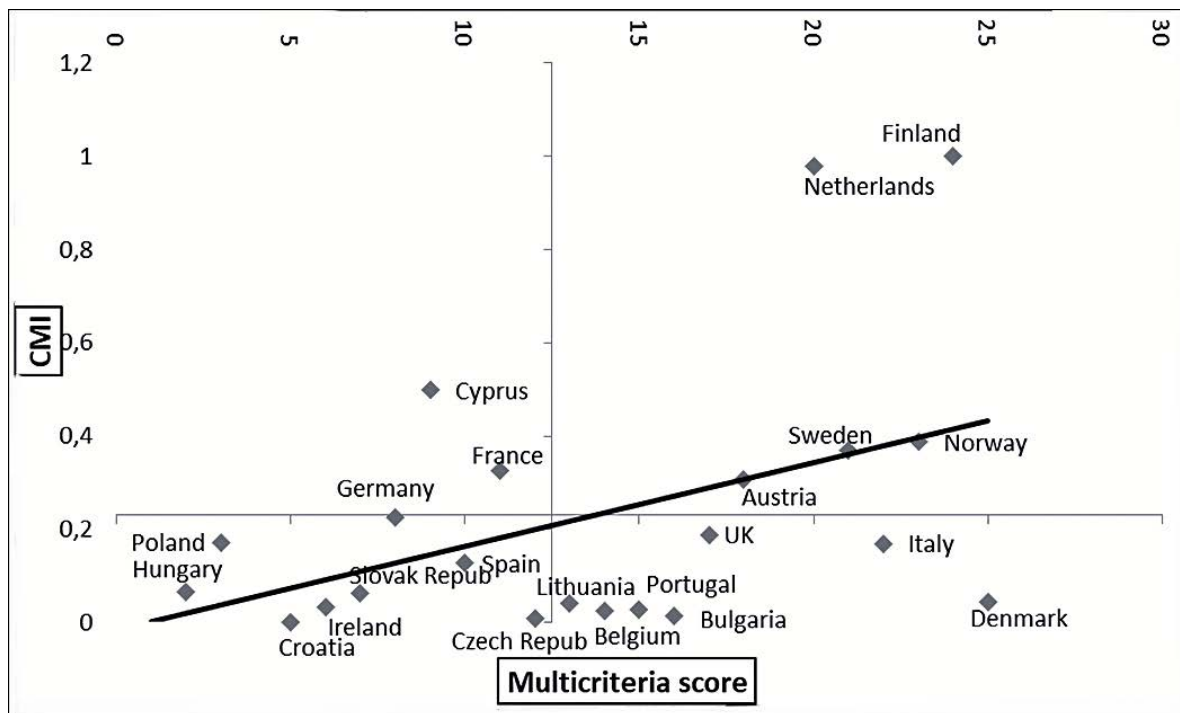
| Country            | Multi-objective score<br>(25 to 13) | Country         | Multi-objective score<br>(12 to 1) |
|--------------------|-------------------------------------|-----------------|------------------------------------|
| Denmark            | 25                                  | Czech Republic  | 12                                 |
| Finland            | 24                                  | France          | 11                                 |
| Norway             | 23                                  | Spain           | 10                                 |
| Italy              | 22                                  | Cyprus          | 9                                  |
| Sweden             | 21                                  | Germany         | 8                                  |
| The Netherlands    | 20                                  | Slovak Republic | 7                                  |
| Switzerland        | 19                                  | Ireland         | 6                                  |
| Austria            | 18                                  | Croatia         | 5                                  |
| The United Kingdom | 17                                  | Estonia         | 4                                  |
| Bulgaria           | 16                                  | Poland          | 3                                  |
| Portugal           | 15                                  | Hungary         | 2                                  |
| Belgium            | 14                                  | Slovenia        | 1                                  |
| Lithuania          | 13                                  |                 |                                    |

Figure 3: Compromise programming and co-operative intensity



Source: EES; V-Dem; IMF and authors' own

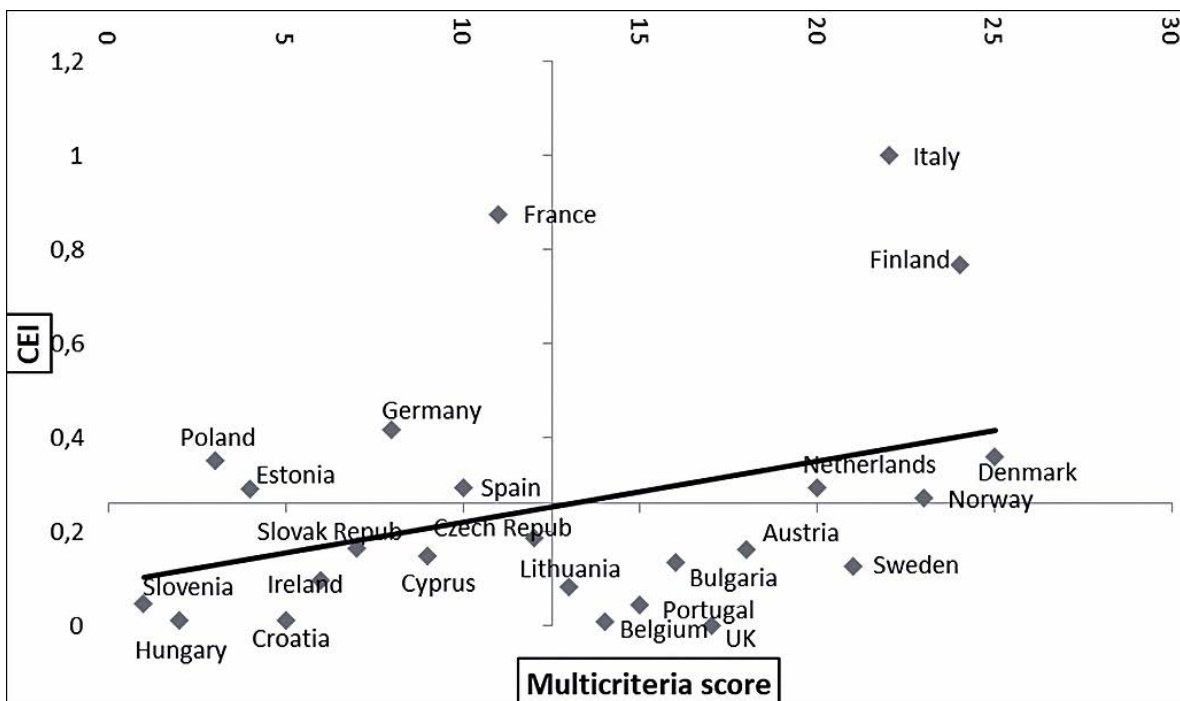
Figure 4: Compromise programming and co-operative membership intensity



Note: The Netherlands and Finland multiple membership. Estonia, Slovenia, and Switzerland no data.

Source: EES; V-Dem; IMF and authors' own

Figure 5: Compromise programming and co-operative employment intensity



Note: Switzerland no data.

Source: EES; V-Dem; IMF and authors' own

Figures 3, 4, and 5 confirm that there is no strong positive relationship between the independent variables, when taken together, and the variables related to co-operatives. The upper-right quadrant encompasses only a limited number of countries, and furthermore, a small number of them achieve high values, moving away from the trendline. These findings align with the moderate explanatory power obtained in the model estimates (Table 6).

## Discussion

Model 1 reveals that there is no significant relationship between co-operative intensity (CI) and the independent variables. Similar conclusions were reached by Bretos et al. (2016), who used associative density, civic participation, and an aggregate index of social capital as their independent variables. However, co-operative intensity might not be the most suitable predictor of willingness to join a co-operative. Therefore, it is essential to compare the results of all the other variables related to co-operatives' significance with the hypotheses established (hereafter H1, H2, H3, and H4).

H1 is partially corroborated. Model 3 reveals that countries where citizens have a stronger sense of community exhibit a greater weight of co-operative employment. The literature explains this result by indicating that the greater the care about other people shown by co-operatives' membership (sense of community), the greater the capacity for adjustment through hours worked rather than the number of workers, providing them with greater employment stability (Buheji & Bebana, 2022; Calderón & Calderón, 2012b; Ribas et al., 2022; Roelants et al., 2012). However, Model 2 reveals that a stronger sense of community does not necessarily translate into higher membership intensity. This result suggests that participation in co-operatives is perceived more as a "means to an end" rather than an "end in itself" (Birchall, 1999) and is supported by other studies such as Morfi et al. (2018). However, these findings are at odds with studies by Birchall and Simmons (2004b) and Bianchi (2023).

H2 and H3 are supported at the level of membership intensity (Model 2) and the results are in line with our expectations. Democracy is deeply ingrained in co-operatives and its active role enhances member commitment (Mazzarol et al., 2022). To ensure the preservation of co-operatives' identity, legitimacy, philosophy, theory, and assumptions (the "talk"), there must be alignment with their organising, beliefs, and practices (the "walk") (Ghauri et al., 2021a).

The results presented so far can be attributed to a learning process within co-operatives that, over time, educates members to view participation "as an end in itself". Noble and Ross (2021) indicate that initially individualistic factors play a significant role. As the utilitarian approach suggests, people initially value the fact that co-operatives provide them with more rewards (lower costs) than other organisations (Byrne & McCarthy, 2005; Jussila et al., 2012). However, there is a positive correlation between co-operatives' educational activities and members' commitment (Jussila et al., 2012). Gradually, sharing values and norms align personal and organisational values, intensifying the involvement and commitment of co-operatives' membership, and fostering collective learning to act together (Birchall & Simmons, 2004a, 2004b; Bretos et al., 2016; Buheji & Bebana, 2022; Cicognani et al., 2012; Ghauri et al., 2021b; Mazzarol, 2015). This learning process reinforces the sense of community, increasing the power of co-operatives (Borgen, 2001; Iyer et al., 2021). The presence of members' democratic principles and the learned sense of community enhance a commitment to collective action (Cechin et al., 2013). Greater commitment to collective action translates into greater commitment to employment rather than prioritising profit maximisation (Guzmán et al., 2020a).

H4 is corroborated for membership intensity and employment intensity (Models 2 and 3). The negative influence of the economic index on the significance of co-operatives supports counter-cyclical theories. During crisis times, some capitalist enterprises may become co-operatives to preserve employment and survive. Additionally, workers may establish their own enterprises to combat structural unemployment rates (Calderón & Calderón, 2012a; Coque Martínez et al., 2012; Grávalos & Pomares, 2001; Lejarriaga & Martín, 2010). Co-operatives' intensity tends to grow when unemployment rises and overall economic growth slows down (Pérotin, 2006).

However, in our analysis, we do not observe a downturn effect but an upturn one. The years to which the data refer, 2014-2015, represent a period of economic recovery. We question whether the counter-cyclical phenomenon is reproduced during boom periods. The results of Models 2 and 3 show a significant negative impact of economic performance on membership and employment in boom periods. During economic growth, total employment tends to increase more dynamically compared to employment in co-operatives. Moreover, there is a shift in employment from co-operatives to capitalist companies (Cos et al., 2021). Thus, a counter-cyclical effect related to participation and employment is observed even during periods of economic expansion.

The analysis of the joint influence of the four factors on the significance of co-operatives, conducted through multi-criteria analysis, also leads to the conclusion that a moderate relationship exists. This result confirms that the decision to participate in a co-operative is initially driven more by individualistic incentives rather than members' beliefs or ideologies. However, we posit that collectivist incentives are learned over time. As numerous studies have demonstrated, the greater the influence of affective commitment, the stronger the desire to remain a member of a co-operative (Byrne & McCarthy, 2005; Cechin et al., 2013; Cicognani et al., 2012; Jones et al., 2016; Jussila, Byrne & Tuominen, 2012; Jussila, Goel & Tuominen, 2012; Mazzarol et al., 2022; Ruiz Jiménez et al., 2010).

## Conclusion

This study shows that the social, political, and economic factors considered do not have a similar impact on co-operatives' significance. The results highlight that the most significant factors influencing co-operatives' significance are trust in government, followed by the quality of a country's democracy, and its economic performance. Furthermore, co-operatives' employment has a significant correlation with both the sense of community and economic performance. We propose that a dynamic learning process, which develops over time, cultivates a stronger sense of community, thereby leading to increased commitment to co-operative employment.

As far as economic performance is concerned, our findings support the notion that co-operatives' employment and membership intensity decline during boom periods. Economic growth tends to favour job creation, and during such times, co-operatives may experience a decrease in their resilience. Additionally, there is a shift in employment from co-operatives to capitalist enterprises as the overall job market improves.

Some important analytical limitations must be taken into consideration. The main limitation is the scarcity of data concerning co-operatives, which may affect the depth of our analysis. Additionally, while our study suggests some factors that may influence the importance of co-operatives, we acknowledge that we have not covered all aspects comprehensively. For instance, we did not delve into specific types of co-operatives, the evolving motives of co-operators over time and in different contexts, the influence of legislation and government policies, or the variations among the European countries analysed, among other significant factors. These omissions may limit the comprehensive understanding of co-operatives and their significance. A second limitation regards the use of aggregate indices, which we employ as independent variables. While composite indices are useful for consolidating a diverse set of variables, they have faced criticism due to the value judgement involved in their construction. Some of the concerns include the selection of indicators, the standardisation process, and the assignment of weights to these indicators (Pinar et al., 2022).

We wish to emphasise that this paper offers a valuable framework for future research. Firstly, addressing the limitations of the current sample and including a more extensive dataset will undoubtedly enhance the relevance of the topic, justifying its inclusion in future research agendas. Secondly, it is important to consider other factors that may affect the significance of co-operatives. Additionally, the use of panel data would yield more robust and comprehensive results that are not currently achievable. Lastly, an area of future research worth exploring

is linking our research to studies that investigate how co-operatives handle the process of degeneration, aiming to preserve their co-operative identity over time and avoid becoming more corporate in nature. Such investigations will contribute to a deeper understanding of the dynamics of co-operatives and their evolution.

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## Appendix

*Sense of community*. Composite index ( $SC_i$ ):

**Aggregation:** the index is formed by taking the average of the weighted average of each statement measures, as well as the multiplicative interaction between those measures. This is halfway between a straight average and strict multiplication, meaning the average of the two (Coppedge et al., 2022).

**Weights:** The best value achieved in the country distribution is considered the ideal value (maximum value or minimum value depending on the statement under consideration). This maximum (max) or minimum (min) is set as the reference value. The values of the remaining countries are measured against this reference value (Konrad Adenauer Foundation & PoliLat, 2016). In the calculation of  $SC_i$ , except for HV3, the reference value is always the maximum value. The formula is:

$$SC_i = \frac{1}{2} \left( \frac{HV_{1i}}{HV_{1i_{max}}} + \frac{HV_{2i}}{HV_{2i_{max}}} + \frac{HV_{3i_{min}}}{HV_{3i}} + \frac{HV_{4i}}{HV_{4i_{max}}} + \frac{PSF_{1i}}{PSF_{1i_{max}}} + \frac{PSF_{2i}}{PSF_{2i_{max}}} + \frac{PSF_{3i}}{PSF_{3i_{max}}} + \frac{PSF_{4i}}{PSF_{4i_{max}}} + \frac{PSF_{5i}}{PSF_{5i_{max}}} \right) + \frac{1}{2} (HV_{1i} * HV_{2i} * HV_{3i} * HV_{4i} * PSF_{1i} * PSF_{2i} * PSF_{3i} * PSF_{4i} * PSF_{5i})$$

where  $i$  = country

**Democracy quality.** We built a composite index ( $DI_i$ ) in the same way as for sense of community. Except for corruption, in  $DI_i$  the reference value is always the maximum value.

$$DI_i = \frac{1}{2} \left( \frac{Electoral_i}{Electoral_{max i}} + \frac{Participatory_i}{Participatory_{max i}} + \frac{Deliberative_i}{Deliberative_{max i}} + \frac{Accountability_i}{Accountability_{max i}} \right. \\ \left. + \frac{Liberal_i}{Liberal_{max i}} + \frac{Egalitarian_i}{Egalitarian_{max i}} + \frac{Rule\ of\ law_i}{Rule\ of\ law_{max i}} + \frac{Corruption_{min i}}{Corruption_i} \right) \\ + \frac{1}{2} (Electoral_i \cdot Participatory_i \cdot Deliberative_i \cdot Accountability_i \cdot Liberal_i \\ \cdot Egalitarian_i \cdot Rule\ of\ law_i \cdot Corruption_i)$$

*Trust in government.* We built a composite index (TG<sub>i</sub>) in the same way as for sense of community. The reference value is always the maximum value.

$$TG_i = \frac{1}{2} \left( \frac{TG1i}{TG1_{max i}} + \frac{TG2i}{TG2_{max i}} + \frac{TG3i}{TG3_{max i}} \right) + \frac{1}{2} (TG1i \cdot TG2i \cdot TG3i)$$

*Economic performance.* The composite index (EI<sub>i</sub>) is constructed assuming desired values of each economic variable. However, it is by no means an easy task to establish these desired values with the wide range of countries that we consider in this analysis. Hence, we establish the ideal value as the maximum or minimum depending on the variable considered.

Ideal value (ide):

Inflation: | The lowest value of this rate |

The inflation index is taken in absolute value because positive or negative deviation from a stable price level (in our case from ideal value) leads to welfare losses (Khramov & Lee, 2013).

Unemployment: The lowest value of this rate

Budget deficit: The highest positive rate or the lowest negative rate

Economic growth: The highest positive rate or the lowest negative rate

Weights: The weights (W) are constructed taking into account the standard deviation (Std) for each variable (j) and the average deviation of all the variables:

$$W_j = \frac{1}{Std_j} \cdot \left( \frac{1}{4} \sum_{j=1}^4 Std_j \right)$$

The index is:

$$EI_i = 100\% - W_{inf} \cdot (|\%Inf_i - \%Inf_{ide}|) - W_{unem} \cdot (\%Unem_i - \%Unem_{ide}) - \frac{W_{Def}}{GDP} \cdot \left( \frac{\%Def}{GDP_{ide}} - \frac{\%Def}{GDP_i} \right) - W_{\Delta GDP} \cdot (\%\Delta GDP_{ide} - \%\Delta GDP_i)$$