

WORKING PAPER

The role of cooperatives in enhancing social and economic inclusion: determinants of turnover growth and survival under COVID-19

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Abstract

The social and solidarity economy, through cooperative structures, has been promoted for its potential to reduce poverty, enhance economic inclusion and provide alternative solutions to labour market issues in developing countries. Nevertheless, very few empirical evaluations of their impact exist. We build an original qualitative and quantitative survey on the population of cooperatives in different sectors in Morocco and estimate the determining factors of their turnover growth, accounting for sample selection bias, as well as their survival rate. Findings point to the existence of three levels of determinants affecting (i) internal factors, (ii) management (president) and (iii) external factors (legal and market environment). We underline the sector's fragility, the possibility of the existence of negative signaling, the heterogeneity between actors and outcomes and the weak role played by women in leadership positions.

JEL classification: B55, L20, L25, O10, Q01

Keywords : Survival-analysis, Women economic inclusion, Sustainable Development Goals, Cooperative Performance, Covid-19

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1 INTRODUCTION

The role of cooperatives, as social and solidarity economy structures, in promoting inclusive and sustainable development has been upheld as being crucial in the realisation of the 2030 Agenda and the SDGs³. Despite numerous actions in favour of developing the social and solidarity economy sector, little progress has been made in empirically understanding its role and impact in both the Global North and South. Cooperatives can adopt a hybrid structure that is both socially responsible and market oriented (Nath and Arrawatia, 2022) for the benefit of their members and local communities. The International Cooperative Alliance (ICA) defines a cooperative as “people-centered enterprises owned, controlled and run by and for their members to realise their common economic, social, and cultural needs and aspirations⁴.”

Literature on the topic underlines the unique organisation of cooperatives, based on equality, workplace democracy and value-rationality, which increase the creation and preservation of employment (see recent refs). In fact, compared to traditional firms, cooperatives can create more jobs per unit of output whilst requiring less capital (Levin 1984: 21). They can also provide innovative approaches to the integrated management of natural ecosystems and contribute to biodiversity management, since they involve local population resources and traditional knowledge (UNDP, Nagoya Protocol, 2017). Still, the scarcity of empirical research on cooperatives, how they operate and their social and economic impact, is not helpful. The few produced bodies of research, in the context of Morocco, do not extensively cover the business model or provide an understanding of determinants of their economic success (turnover growth capacity) and, hence, contribution to the economy. Looking at cooperatives as the most market oriented social and solidarity structure⁵, leveraging market rules for collective benefit, the objective of this research is to provide an analysis of their economic model. We analyse cooperatives as a “sustainable alternative” to reoccurring labour market issues in Morocco.

Much like many countries in the region, Morocco faces persistent labour market issues, pertaining to high youth and graduate unemployment, low female labour force participation and the prevalence of informality, amongst others. Morocco has, however, managed to stabilise its macroeconomic conditions, stimulating growth and job creation in

³ UN Inter-Agency Task Force on the Social and Solidarity Economy

⁴International Cooperative Alliance, explaining what a cooperative is, retrieved March 17th, 2022, <https://www.ica.coop/en/cooperatives/what-is-a-cooperative>

⁵According to the ODCO (Office for Development of Cooperatives), cooperatives provide a framework for intensifying the efforts of producers, mobilisation of material resources, reducing costs - increasing the value of the product - valuing products, providing stable turnover guarantees and raising the social level of their members. These key elements make them more able to create economic opportunities, more than other forms of SSE bodies. Their structures are closer to those of small firms which makes analysis from firm survival and success determinants possible.

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the private sector, although persistently growing inequalities remain areas of concern. Hanchane and El Aoufi (2016) highlight the complicated inequality issues Morocco faces which translate into its labour market, economic growth as well as development outcomes. The issue of employability testifies to the causal links in the chain of real inequalities, ranging from education training to employment, including health and housing. Coupled with growing gender gaps and economic disparities, these labour market issues bring about challenges in finding novel solutions that fit into the sustainable growth agenda. These findings lead us to question the capacity of cooperatives to offer an alternative solution for labour market and socioeconomic issues. This is particularly relevant when we take into consideration that they host 4.5% of the total active population, about 17% of whom are women-only cooperatives and 2% are young graduate cooperatives (ODCO, 2020).

Since the 1960s, Morocco initiated several actions and policy measures to encourage the development of the cooperative economic model. Up until today, one of the most important measures is the fiscal advantages that cooperatives benefit from, pertaining to exemptions from property tax, urban tax, tax on professional profits (law 24-83, article 87) and tax on product sales (law 24-83, article 88) (Ahrouch, 2010). Moreover, a national strategy has been adopted (2010-2020 & 2018-2028 frameworks) to encourage the development of economic activity under the social and solidarity economy, from which cooperatives benefit. In fact, Morocco was the first country in the region to adopt a legal framework for cooperatives, back in 2012. Moreover, the National Initiative for Human Development (INDH) programme, initiated in 2004, has provided the financial assistance and support for the development of cooperatives. This programme was started in response to the persistence of poverty in Morocco and designed to promote leadership, accountability and social cohesion⁷. Its umbrella programmes provided aid to micro businesses in training, machinery or capital contribution and is, arguably, the main human development programme that has been initiated in Morocco. In fact, within the framework of encouraging the growth of cooperatives, many of them benefit from government aid, provided through the INDH.

Our analysis takes into consideration the policies initiated within the framework of the INDH (the National Initiative for Human Development) and other funds aimed at developing and supporting the development and growth of cooperatives. We propose a dual contribution to the literature: the first being, (i) an analysis of determinants of cooperatives' annual turnover growth, and the second being, (ii) a survival-analysis framework for cooperatives under Covid-19. We also construct an original quantitative and qualitative survey, to include cooperatives in manufacturing and service industries.

⁶Saïd Ahrouch, 2010, « les coopératives au Maroc :

Enjeux et évolutions » https://base.socioeco.org/docs/recma322_023026_0.pdf

⁷INDH programme presentation official website <https://www.ondh.ma/fr/presentation-indh>

The present paper is organised as follows. In section two, we present a literature review on the cooperative model, as well as our framework hypothesis. Section three then presents a Heckman two-step estimation model, followed by the application of a Cox proportional hazards model to examine the factors influencing cooperative survival. We present employment data in section four, followed by a discussion of the results and main findings. The last section provides a conclusion, with a policy-relevant discussion.

2 RELATED LITERATURE

Based on principles of user-owner, user-control and user-benefits (Dunn, 1988), the values and economic models of cooperatives have traditionally been described as opposing those of capitalist and market-oriented firms. Recent literature, however, documents that modern cooperatives have transformed into hybrid structures that combine corporate and cooperative values (Gray and Stevenson, 2008; Chaddad, 2012; Forney and Häberli, 2017). The investigation of this economic model, its structure, economic environment and culture, can provide grounds for analysing cooperatives as production units with a division of labour, cooperative production, exchange and production of manufacturing and services - much like firms - and, by deduction, the extent to which they can contribute to economic growth and job creation.

2.1 What can be the determinants for the growth and survival of cooperatives?

The *raison d'être* of a cooperative is primarily to develop the overall welfare of its members. Soboh, Lansink, Giesen and Van Dijk (2014) distinguish between cooperatives with a single objective and those with multiple objectives. Modern cooperatives combine objectives of societal values and profit maximisation, which makes them hybrid organisations (Porter and Kramer, 2011). Cooperatives with profit-maximising objectives - besides other goals - reflect their hybrid nature of firm profitability and member benefits are examined in this research.

Within this framework, the growth of a cooperative is affected by various factors. Literature highlights the size, economic and legal environment, chairman or president

characteristics as well as female representation, amongst other factors. Evidence pointing to the size (number of adherents) as a growth factor, highlights that the capacity of the cooperative to attract and host more members is a strong indicator of the level of its success and is positively related to its turnover growth (Karasachat & Chimkul, 2009). In this framework, Ibourk (2012) found size to be one of the main factors behind the survival of cooperatives. Looking at young graduate cooperatives (YGCs) in Morocco, Ibourk combined national datasets and qualitative surveys, and found a significant positive relationship between cooperative survival and the number of its adherents, as well as the date of its creation (Ibourk, 2012). Moreover, the level of local and regional economic development also positively affects the economic success of the cooperative (Huang et al., 2002; Karasachat & Chimkul, 2009; Xu & Wu, 2010). In fact, the level of regional and local development becomes crucial, as cooperatives tend to be more integrated in local and regional supply chains and mainly provide value to clients with geographical proximity. Thus, a cooperative implanted in, or close to, urban geographical locations should have a higher propensity to positively grow its annual turnover than those in rural locations. This is explained by greater exposure to markets and a more diversified pool of potential clients with higher purchasing power in urban settings.

An important aspect of this analysis investigates literature that puts the level of women's participation and literacy as determinants of cooperative success. The degree of female participation at every level of activity inside the cooperative, contributes to improving the social impact and, hence, the success of the cooperative (Ferguson, Kepe, 2011). Entrepreneurship literature highlights that the survival of firms on the entrepreneurial stage (birth phase) can be largely attributed to the personal characteristics of the individual proprietor (Peteraf and Shanley, 1997; Praag, 2003). Having a women president can be an indicator that the cooperative is more open towards its community, has a strong democratic style of management and is sustainably giving back to its environment. In turn, this should justify positive annual turnover growth, as its objective is to benefit its members and increase profitability. Lastly, we also consider literature which stresses that, if women members can at least read and write, this contributes to the success of the cooperative and to their own autonomy (Spratt, 1992).

- **Accounting for selection bias in survey data**

Empirically examining the determining factors of the financial success of a cooperative is particularly challenging, due to the scarcity of data, ongoing developments in the sector and in public policies towards the social and solidarity economy. An obvious strategy is to examine the relationship between internal determinants, aside from the support provided by governmental policy and economic environment, and the growth of annual turnover. The reason we propose the analysis of annual turnover evolution is based in the hypothesis that cooperatives that possess the capacity to develop profitable market-oriented economic activity can easily mature to new marketing channels and even evolve their economic model. Hence, they are more likely to benefit from a better legal environment, regional or local economic expansion and from receiving governmental aid. Cooperatives that consistently meet this milestone will more likely survive for longer periods of time and contribute to the development of the sector. However, given the scarcity of data, the response variables that we might adopt for turnover growth and cooperative survival will, undeniably, result in selection bias. The factors that influence survival, and even growth, of some cooperatives can very well be behind the failure of others. Omitted information on cooperatives that failed to communicate their turnover, as well as those that exited the market and those we couldn't collect responses from, can significantly bias the parameter estimates of our models. Literature highlights that two types of selection bias can exist (i) an over-representation of larger entities, and (ii) growth observed in those that survive (Audretsch & Thurik (1999). Little and Rubin (2002) provide a full discussion of types of missing data and estimation techniques. Moreover, whilst national level data follows the evolution of the number of newly created cooperatives, information on the number of failing or exiting cooperatives is almost non-existent (to our knowledge, unpublished). Moreover, Cader and Leatherman (2009) argue that sample selection problems can be more important in the survival analysis of small firms, since many of them exit during their first year of exercise. This is likely to be true for cooperatives as well, since they tend to have the same organisational and managerial characteristics as small firms.

Empirical literature proposed various solutions to correct selection bias issues, to avoid the elimination of observations from the sample. Instead of eliminating explanatory power from the model, literature proposes the use of a model of selection, considering information from the whole available sample, including those for which the response variable is not observed. To account for the selection bias issues and to provide an explanation of the factors

behind cooperatives' turnover growth, we adopt a two-step estimation approach, to paint a fuller picture of their economic potential - much like that proposed by Heckman (1976 and 1979). We then investigate why several cooperatives in our sample ceased to operate, using a Cox proportional hazards model. After the Covid-19 crisis, we followed up with our sample, to discover that many have, in fact, ceased their activities.

2.2 Framework Hypothesis

Based on the literature, a set of internal and external factors have a significant impact. We formulate our hypothesis, based on these bodies of literature.

Hypothesis 1: the environment around a cooperative affects their success

External factors can determine the choice of organisational form and can influence the potential for growth. Thus, cooperatives that have been created since 2012, have had prime exposure to a well-organised environment, where they found an accommodating legal framework that encouraged their creation and growth. We suggest that, within the framework of the 2010-2020 period, increased governmental funding and support for cooperatives should have encouraged their annual turnover growth. Moreover, the level of development of the regional economy can also affect the success of a cooperative (Huang et al., 2002; Mosheim, 2002). Depending on its geographical location, a cooperative can be exposed to better economic opportunities: a cooperative, close to an urban geographical location, should be more likely to succeed financially than if in a strictly rural setting (Krasachat and Chimkul, 2009).

Hypothesis 2: the size of a cooperative affects its success

The population of a cooperative's adherents constitutes its main labour force; thus, larger cooperatives have a better potential for success. Hailu et al. (2005) and Krasachat and Chimkul (2009) confirm this finding amongst cooperatives in the agriculture sector. We test for this hypothesis, by including a variable on the size of the cooperative. It will allow us to check if the larger cooperatives can generate more turnover than smaller ones (in proportion to their size). A "too big to fail" cooperative can continue to exist and operate without necessarily growing or creating value for its members and its value-chain. However, there is a threshold beyond which the number of adherents can become a burden, leading to a decreasing turnover.

Hypothesis 3: characteristics of the chairman/woman or president contributes to the success of a cooperative

The board structure and diversity has also been a highlighted feature in the literature (Henehan and Anderson, 1999). First, a gender diverse board should enhance the democratic

processes of decision making, thus increasing the performance of the cooperative (Huang et al., 2008; Xu and Wu, 2010). We test for this, by including the variable “Female President” which tells us whether having a female at the top of a cooperative increases its performance (annual turnover growth). Furthermore, the characteristics of the president or chairman/woman should also affect the probability of a cooperative’s survival (Nath and Arrawatia, 2022).

Hypothesis 4: technology and digital marketing enhances turnover growth

A widespread consensus in the literature highlights that technological breakthroughs should help firms shift towards better production and marketing processes that should, in turn, allow them to increase their turnover (Reis, Amorim, Melao, Maros, 2018). Recent research on the topic, found the use of new technologies can extend existing business models and potentially help the creation of new ones for partner companies in the consortium (Cavalcante, 2013). For our analysis, the availability of new production and marketing technologies should allow cooperatives to shift to enhanced production and marketing channels, resulting in more growth in turnover. During our interviews, we asked if cooperatives used digital platforms as a tool to market and sell their products. Furthermore, we consider that using online marketing could reflect a cooperative’s maturity, managerial and entrepreneurial astuteness and its ability to morph the business model into a more productive framework.

Hypothesis 5: low productivity cooperatives are pushed to the exit in the event of an economic crisis

Low productivity entities can drag down overall economic performance. At different stages of growth and market share, they can inflict serious harm to the economy by impeding the allocation of efficient resources. Besides this, government intervention, in the form of subsidies, financial support and fiscal policy, can induce their formation and prolong their existence. However, in the event of an economic crisis and, especially when they are not “too big to fail⁸”, they are often pushed towards market exit. We suggest that low productivity cooperatives can crack down on productivity in the economy through two channels: first, they are less productive and, thus, their growing presence reduces productivity; second, by competing for resources they hold back investment and production growth by keeping resources from productive and potentially more successful cooperatives. Low productivity cooperatives can drive down growth and, thus, the development of the social and solidarity economy sector. Because cooperatives benefit from a favourable tax system, there shouldn’t be any reason for their market exit, unless they were already barely functioning.

⁸ When an entity is unviable economically, then governmental aid will generally not intervene in the event of an economic crisis to save it. Cooperatives, however big they might be, generally don’t fall into the category of ‘too big to fail’. This means that market rules will apply, in the event of a crisis pushing the weakest to exit the market.

3 EMPIRICAL APPROACH

The determinants of cooperatives' annual turnover growth are examined with a Heckman two-step estimation model, based on Heckman (1979), Heckman (1990) and Vella (1998).

Consider X, Y and Z variables of interest where x_i , y_i and z_i are observations of these variables.

$$y_i^* = x_i' \beta + \varepsilon_i \quad (1)$$

$$d_i^* = z_i' \gamma + v_i \quad (2)$$

Where $i = 1, 2, \dots, N$

$$d_i = 1 \text{ if } d_i^* > 0 ; \text{ otherwise } d_i = 0 \quad (3)$$

$$y_i = y_i^* \times d_i \quad (4)$$

Where y_i^* is defined as the latent endogenous variable with observed estimated coefficients β and γ , and ε_i and v_i are zero mean error terms uncorrelated with the regressors but correlated with each other such as ($E[\varepsilon_i | v_i] \neq 0$).

In our model, the variable of interest Y is the gross annual turnover of a cooperative. This variable is censored at zero. Observations include gross annual turnovers, declared at the year of the survey between their first year of exercise up until 2019, including cooperatives that exited in 2020. Thus, variable Y is partitioned into observations (Y1) greater than zero as y_{1i} and (Y2) equal to zero as y_{2i} . The restrictive form of the general model can be expressed as:

$$y_{2i} = \beta_2' x_{2i} + \varepsilon_{2i} \quad (5)$$

$$y_{1i} = \beta_1' x_{1i} + \varepsilon_{1i} \quad \text{if } y_{2i} > 0 \quad (6)$$

ε_{1i} and ε_{2i} are error terms with zero mean constant variance. If we were to estimate parameters of β_1 from equation (6), the estimates would be biased due to omitted observations issue. Thus, the following equation is derived using Heckman (1979), such as:

$$Y_i = \beta' X_i + \mu \hat{\lambda}_i + \eta_i \quad (7)$$

Where λ_i is the Mill's ratio; a monotone decreasing function of the probability that an observation is selected in the sample. The parameters of β are consistently estimated using OLS.

The sample selection bias is proven by testing $\mu = 0$ and $E(\eta) = 0$; if they hold, then the null hypothesis (no selection bias) is not rejected.

Subsequently, the analysis of determinants of a cooperative's survival rate is done using the Cox proportional hazards model (see Cox, 1972) – applications in firm survival analysis by Cader and Leatherman (2009) and Baumöhl, E., Iwasaki, I., & Kočenda, E. (2020) and others. Survival analysis examines the relationship of the survival distribution to covariates, which entails the specification of a linear-like model for the log hazard. Take T as a continuous random variable with the probability density function $f(t)$ and the cumulative distribution function $F(t)$, the probability of surviving after time t is defined by the surviving function $S(t)$:

$$S(t) = \Pr(T > t) = 1 - F(t) = \int_0^{\infty} f(x)dx \quad (1)$$

A hazard function $h(t)$, representing the probability of occurrence of an event t (cooperative seizing activity) is:

$$h(t) = \lim_{dt \rightarrow 0} \frac{\Pr \{t \leq T < t + dt | t \leq T\}}{dt} \quad (2)$$

Then, the survival $S(t)$ and hazard $h(t)$ functions result in alternative characterisations of the distribution of T. The relationship between $S(t)$ and $h(t)$ is expressed as:

$$S(t) = \exp\left(-\int_0^t h(x)dx\right), h(t) = -\frac{f(t)}{S(t)} \quad (3)$$

The Cox proportional hazards model assumes that the baseline hazard $h_0(t)$ is dependent on time t as well as a set of relevant covariates x_{in} :

$$h(t|x_{i1}, \dots, x_{in}) = h_0(t) \exp(\beta_1 x_{i1} + \beta_2 x_{i2} + \dots + \beta_n x_{in}) = h_0(t) \exp(X^T \beta), h_0(t) > 0 \quad (4)$$

where, β_1, \dots, β_n are the parameters to be estimated.

Considering two observations, i and i', with different covariates (x-values), with linear representations:

$$\eta_i = \beta_1 x_{i1} + \beta_2 x_{i2} + \dots + \beta_n x_{in} \quad (5)$$

and

$$\eta'_i = \beta_1 x'_{i1} + \beta_2 x'_{i2} + \dots + \beta_n x'_{in} \quad (6)$$

Then, the hazard ratios for the observations η_i and η'_i are defined as independent of time t , such as:

$$\frac{h_i(t)}{h_{i'}(t)} = \frac{h_0(t) \exp \eta_i}{h_0(t) \exp \eta_{i'}} = \frac{\exp \eta_i}{\exp \eta_{i'}} \quad (7)$$

With the baseline hazard $h_0(t)$ dependent on time t , it can take any form and the covariates are, then, linear in the model. The Cox model is, thus, semi-parametric with robust estimates. These estimates for parameters β are a result of the maximum likelihood estimation of the logarithmic transformation of specification (4) presented by the linear model (5):

$$\ln h(t|x_{i1}, \dots, x_{in}) = \ln h_0(t) + \sum_{j=1}^n b_j x_{ij} \quad (8)$$

The parameters β represent the hazard ratios indicating the probability of a cooperative exiting the market and by how much this probability changes when a specific covariate x changes by one unit. When the probability of a covariate x is over 1, literature considers this factor as causing the exit of the cooperative from the market. Inversely, when the parameter of the probability coefficient is less than 1, the factor is considered as supporting the survival of the cooperative. Moreover, much like Baumöhl, E., Iwasaki, I., & Kočenda, E. (2020), our estimation strategy allows our survival analysis to be free from endogeneity issues as (i) our independent variable is not a future variable; (ii) the estimation period is not short but rather spans several years, and (iii) the dependent variable is a dummy (discretional) variable in the event of ceasing activity.

4 DATA

Survey answers were collected over the span of several months (between 2018 and 2019) from SSEs around Morocco, active in different sectors of the economy. A follow-up round was carried out in 2020, several months following the COVID-19 economic crisis. The questionnaire was addressed to the cooperative chairman/woman (president), alternatively to the secretary chairman/woman, or treasurer. The date of creation of the interviewed SSEs goes as far back as 2005 and as recently as 2017. Thus, about 36% were operating before the adoption of the law on cooperatives, which gives us a snapshot of their evolutionary trajectory before governmental support for the sector intensified. It should be noted that the law N°112.12 of 2012 has encouraged the creation of new SSE structures, as well as expansion, by providing an easily adaptable legal framework and fast-tracked administrative measures, as illustrated in figure 1 (cf. annexes). They have also benefitted from government support through funding, which includes training and technical assistance opportunities. In fact, about 90% of SSEs in our sample have benefitted from a governmental subsidising fund (either financially and/or with machinery). Most of this funding was distributed, on a case-by-case basis, through the National Initiative for Human Development (INDH), but also through other programmes, such as “Plan Maroc Vert”, which is mainly intended for the agricultural sector.

Our initial sample included many types of SSE structures representing different sectors of the economy. This initial sample included some 14% of associations, 11% mutuals and 75% cooperatives. For coherence purposes and because they are the most widespread and market rule oriented, only observations on cooperatives are included in this analysis. The sample includes about 134 cooperatives active in manufacturing and service sectors. About 60% of cooperatives were created in or after 2012, thus, within the framework of the 2012 law; about 34% of cooperatives are in an urban geographical location, making the bulk of cooperatives in rural Morocco. These stylised facts in the sample are consistent with national data published by ODCO and the 2010-2020 strategy framework documentation, which is aimed at boosting economic activity in peripheral regions of Morocco (see references below)⁹. The sample reflects a significant presence of women within the framework of cooperatives, as 42% of their presidents are female. This is not surprising, since the structure and model of SSEs are more flexible and can provide women, especially in rural Morocco, with work opportunities accessible from home or in a home-like setting. Putting it into a social context, it's much more attractive for women to work under the structure of a cooperative. Besides, cooperatives allow these women to derive an income from activities traditionally performed by them, such as agriculture and Argan, especially in rural area.

⁹ Kingdom of Morocco, 2011, “National strategy for social and solidarity economy 2010-2020”.

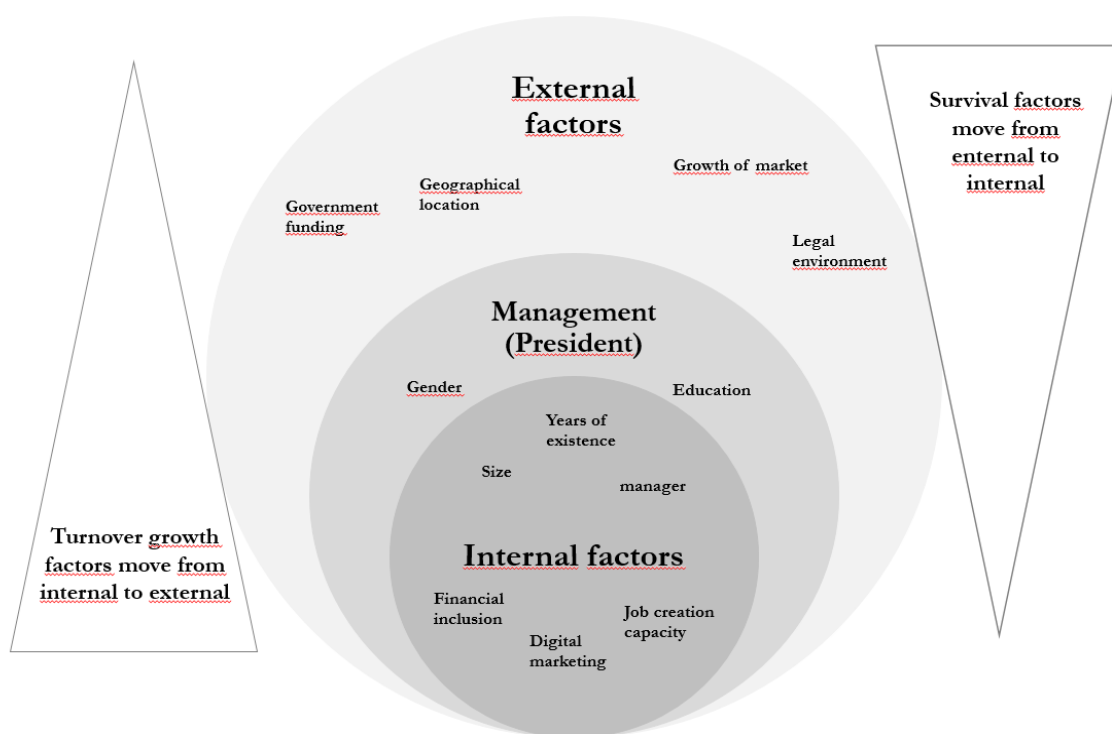
Additionally, the survey asked if the members had bank accounts and if they have taken out a loan to finance their activity. This set of questions was included to measure the level of financial inclusion of cooperatives. For reference, a broad definition of financial inclusion is adopted, such as: having access to a transaction account can be a gateway to broader financial inclusion (see World Bank¹⁰ definition). Although about 47% of cooperatives have a bank account (for accounting purposes), only 6% of the adherents in the sample have a bank account. It is usually a board member (president, vice-president, accountant...) who manages the finances. Also, no interviewed SSE has financed its activity by resorting to the banking sector. Those that needed loans, took them from non-institutional sources, likely to be informal or acquaintance channels.

5 RESULTS AND DISCUSSIONS

A model explaining the intersection of internal, managerial and external factors and their effect on the turnover growth and survival of cooperatives is presented. The findings point in the direction of a stronger effect of external factors and the president's characteristics, in determining the survival rate of a cooperative. Conversely, internal factors have stronger effects on cooperative turnover growth. The following figure displays that for turnover, the intensity of effects is stronger at the "internal factors" circle and dies down as we move towards "president's characteristics" and then to "external factors". As for survival factors, the same reasoning is applied, with the intensity being stronger moving in the opposite direction – from "external factors" to "internal factors".

¹⁰ According to the World Bank, financial inclusion means that individuals and businesses have access to useful and affordable financial products and services that meet their needs, delivered in a responsible and sustainable way. Being able to have access to a transaction account is a first step towards broader financial inclusion, since a transaction account allows people to store money, and send and receive payments. World Bank – Financial Inclusion: key enabler to reducing poverty and boosting prosperity: see <https://www.worldbank.org/en/topic/financialinclusion/overview#1>

Figure 2 - Factors behind cooperatives' survival and turnover growth



Source : authors

5.1 Determinants of annual turnover growth

A Heckman two-step estimation model was adopted to determine the factors behind cooperatives' turnover growth. This model allows accounting for selection bias in the sample. The significance and direction of coefficients in the Heckman two-step model provide a fuller picture on determinants of turnover growth. First, the magnitude of Mills ratio shows the significant correction that is operated for the selection bias in the sample.

- **Internal factors explain turnover growth consistently with literature**

The internal factors are the most statistically significant in explaining turnover growth in the sample (*cf. tables 2 and 3*). First, consistent with literature, size is one of the most important factors in explaining turnover growth, partially confirming the 'too big to fail' theory. Results also highlight the existence of a threshold beyond which more cooperative adherents become a burden to turnover growth. This is further established by the variable per capita turnover. Striking a balance in the number of adherents benefits both the cooperative's turnover growth and its members. Second, for cooperatives that have faced a management challenge, there is a significant and negative impact on turnover growth, with a magnitude of over -544.000 Moroccan Dirhams (equivalent to over -60.000 USD) a year. This finding

confirms the necessity to provide training to strengthen management skills, as well as other soft and hard skills. It also confirms the well-established link in literature between human capital accumulation and growth of economic units. This is further supported by the significant and positive effect of using digital marketing tools, which results in a higher turnover with a magnitude of 443.925 Moroccan Dirhams (equivalent to over 49.000 USD) a year. Thus, the ability of a cooperative, much like a firm, to adopt new technologies strengthens its market position. These findings further confirm the strong link between education, human capital accumulation and economic inclusion.

- **Strengthening management capacities becomes critical to cooperative success**

As far as turnover growth is concerned, no significant impact is found for having a female president. This is further analysed when looking at the impact of having a female president on a cooperative's survival. This outcome could hint at the low agency of women, which is strongly linked to leadership qualities and access to economic opportunities. Women's low literacy rates, amongst other socio-economic constraints, can explain their inability to effectively step into leadership roles.

- **Government funding is the main external factor behind turnover growth**

In analysing determinants of turnover growth, benefitting from governmental funding is significantly linked to turnover growth, with a magnitude of about 1.357.695 Moroccan Dirhams (equivalent to over 150.000 USD) (*cf. table 3*). We believe this finding is significantly explained by the fact that governmental financial aid is coupled with training and periodical follow up. As for geographical location, being in a rural setting is also significantly and negatively linked to turnover growth, with a magnitude of about -349.947 Moroccan Dirhams (equivalent to almost 39.000 USD).

Thus, so far, the internal factors show up to be more statistically significant in determining the growth of a cooperative's annual turnover. On the other hand, having a "female president" is, in fact, negatively correlated with turnover growth. It can be directly linked to the "management challenge" variable, as well as other cultural factors that are not measured here. Moreover, the variables related to the president and to environmental factors can provide better explanations for cooperative survival, instead of turnover growth. Whilst these variables do not contribute directly to turnover growth, they are, instead, contributing more to survival. This is particularly evident given the fragility of the sector. The following section provides a measure of cooperative survival.

5.2 Determinants of cooperatives' survival rate

The results from the survival analysis model show that a wholistic mix of internal factors, combined with public policy, contribute to the survival of cooperatives (*cf. table 5*). Whilst an overarching analysis can be drawn for all cooperatives, slight differences are

highlighted between those who are active in the manufacturing sectors and those in the service sectors. Following the literature, three levels of factor are affecting the survival of cooperatives (see figure 1 above). Consistent with literature on firm survival, the two most important milestones in a cooperative's lifetime are the first and the fifth years of activity. In fact, a significant number of cooperatives fail during their first year of activity and, amongst those that survive, many die by their fifth year.

- **Cooperative internal factors**

Consistent with literature, there is support for the link between the size of a cooperative and its survival, which reinforces the hypothesis that larger entities are less likely to fail, as found in literature on firm survival (Geroski, (1995, 2010); Buehler et al. (2006)) and on cooperative growth (Hailu et al. (2005); Krasachat and Chimkul (2009) and Ibourk (2012)). These determinants are often identified as stylised facts on firm survival. This link is significant for cooperatives who are active in the manufacturing sectors (including traditional ones such as agriculture) and those active in the service sectors. Moreover, women-only cooperatives are more likely to survive, especially when they are active in the manufacturing sectors. This is consistent with national level data, since women cooperatives are mainly concentrated in traditional sectors, such as agriculture and Argan. When looking at service sectors, women cooperatives are more likely to fail. This finding reflects the weak contribution of women in the labour force. Whilst women cooperatives might be successful in manufacturing sectors, they are not in services where more human capital accumulation is needed. Furthermore, activities performed in manufacturing sectors are, in fact, those that are traditionally performed by women within the framework of unpaid work, such as agricultural work on family-owned land. Recent statistics from the HCP (2021), highlight that 35% of women are in unpaid jobs, compared to only 8.6% of active men¹¹.

On another hand, cooperatives that are using digital marketing to promote their products and services are more likely to survive. This finding is worth further investigation, given the fast-paced developments, in general, of smartphone use and nationwide internet access, which should increase the contribution of digital media (mainly social media) in the marketing of cooperatives. Moreover, the ability of a cooperative to create jobs seems to be negatively correlated with its survival. As the sector develops, this finding should also be further investigated. For now, it can be considered inconclusive, since cooperatives mainly rely on work performed by adherents.

- **Traits of the president are crucial to the survival of a cooperative**

The incidence that the gender and the education of the president have on the survival of a cooperative are both significant. Whilst having a female president is more likely to lead to

¹¹ For more information, see « Note d'information du Haut-Commissariat au Plan à l'occasion de la journée internationale des femmes du 8 mars 2021 », HCP 2021, in https://www.hcp.ma/Note-d-information-du-Haut-Commissariat-au-Plan-a-l-occasion-de-la-journee-internationale-des-femmes-du-8-mars-2021_a2670.html

the demise of a cooperative, it's worthwhile examining the mechanisms behind such a finding. In fact, this is likely to be related to the level of education of the president, regardless of their gender, as the variable "education of president" significantly lowers the predisposition of a cooperative death event occurrence. This finding further confirms that allowing women access to leadership roles should be supported with their capacity building, mainly through educational attainment.

- **External factors have varying degrees of impact on the cooperatives' survival**

The closest level of environmental factors is related to funding policies, as well as the legal framework directly aimed at providing cooperatives with the means for survival and growth. Cooperatives that benefitted from funding were more likely to survive. In fact, this is mainly explained by the assistance, training and support that programmes such as INDH provide, along with funding. This is supported by the fact that the variable "legal environment" is significantly positively correlated with the end of a cooperative death, especially in the service sectors. Meanwhile, the legal environment positively enhances survival of cooperatives in the manufacturing sectors. This finding emphasises two plausible conclusions: (i) the legal and institutional framework might yield positive results in the long run; over the shorter term, however, direct policy intervention measures are more effective; (ii) an important segment of cooperatives might be heavily reliant on government support. Thus, we suspect a non-negligible number of non-performing and low-performing cooperatives are, in fact, surviving on government financial support and thanks to the fact that they do not have many overheads. This finding should be further investigated by providing access to data such as the balance sheets of cooperatives and to official national figures on the number of cooperatives which cease their activities annually.

Moreover, the second level of environmental factors includes being in a rural or urban geographical setting and the number of newly created cooperatives in the sector. The rural geographical location negatively impacts the survival of a cooperative. This is more significant for cooperatives in the service sector. Additionally, market growth, that is the number of new cooperatives created in the same sector, also negatively impacts survival. Thus, more competition weakens a cooperative's chances of survival. This finding highlights the economic fragility of many cooperatives. In fact, national data shows that an important number of cooperatives were created after 2012. Thus, one can suspect that, whilst a better legal framework facilitated the creation of an important number of cooperatives, market selection could take place to single out the low performers. However, there is little evidence to support market competition positively affecting cooperative efficiency and survival in the case of Morocco. This is yet another question that needs to be investigated in the case of Morocco.

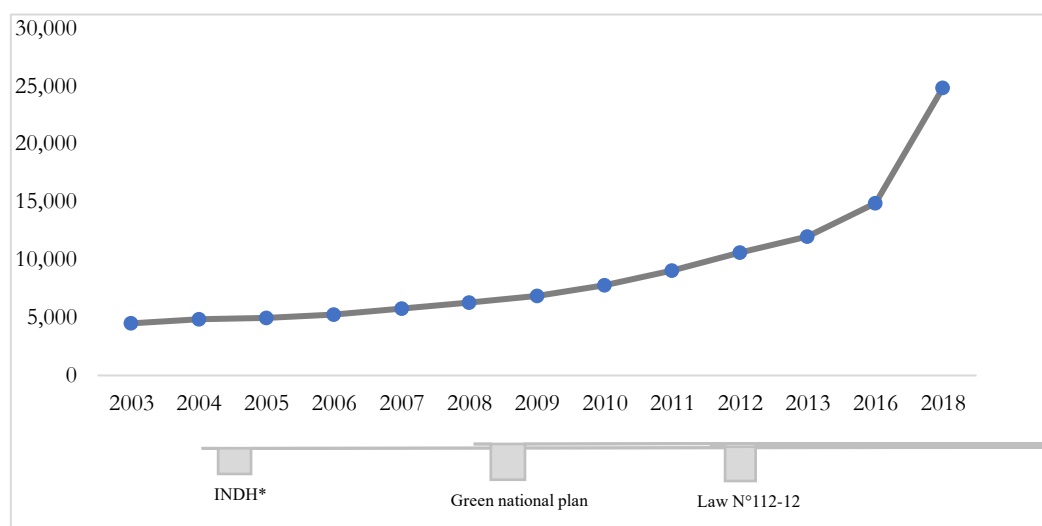
6 DISCUSSION AND CONCLUSION

Growing interest in the social and solidarity economy as an alternative route to economic inclusion is not matched with sufficient theoretical and empirical research, especially in the context of Morocco, due to the scarcity of data. We construct a quantitative and qualitative survey on the social and solidarity economy covering organisational, managerial and financial aspects. The findings from a pilot survey point to the existence of three levels of determinants of turnover growth and of survival rate: (i) internal factors, (ii) management (chairman/woman or president), (iii) external factors. Determinants of turnover growth are strongly related to internal factors, with the intensity decreasing as we move towards external factors. Where the analysis of turnover growth fails to explain how cooperative activity evolves, the survival analysis provides a fuller picture.

Based on the interviews conducted and the national data made available, it is apparent that the social and solidarity economy sector has not yet reached the desired outcomes. The sector is still fragile in leading the way to effective poverty reduction and the creation of economically inclusive opportunities. From a cooperative lifespan standpoint, the findings highlight that cooperatives that don't struggle are, in fact, still in their start-up stages. As for those struggling to generate turnover growth, they are more likely to exit the market. The danger, though, is that they might have negative externalities on the development of the sector: (i) they can prevent resources from getting to other cooperatives, (ii) they can also send out negative signals to the market. Because the sector is still fragile, negative signaling could be detrimental to its development, leading many potentially well-performing units to avoid entering the market at all, or hindering them from accessing financial aid when needed. Another contribution provides a glimpse into the condition of women's labour force participation. Whilst women cooperatives have higher survival rates, women-led cooperatives are more likely to fail. This highlights the significant advances that need to take place to enable women to step into economic empowerment and leadership roles, mainly through training and education.

7 APPENDIXES

7.1 Appendix 1 - Figure 1-Evolution of number of cooperatives per year (2003-2018)



Source: authors' calculations using ODCO data, 2019

7.2 Appendix 2 - Table 1 – Descriptive statistics. Cooperative sample

| Variable | Description | Mean | Std. Dev. |
|------------------------------------|---|----------|-----------|
| Annual turnover | Total turnover of the cooperative at the date of the survey (mean in MAD) | 1,222,04 | 3,104,9 |
| Per capita turnover | Share of turnover per adherent of the cooperative | 3 | 97 |
| Government funding ratio | Ratio of the government funding of total initial capital of the cooperative | 46,771 | 119,578 |
| Age (number of years of existence) | Number of years of existence, as difference between the year of survey and year of creation | 0.57 | 0.22 |
| Year of creation | A variable indicating the year of creation of the cooperative | 7.6 | 3.09 |
| Legal environment | A dummy variable of 1, if the cooperative was created after the adoption of 2012 law | 2012 | 3.9 |
| Geographical location | A dummy variable of 1, if the geographical location is rural | 0.55 | 0.49 |
| Government funding ratio | The share of government's funding of total capital of the cooperative | 0.66 | 0.47 |
| Digital marketing | A dummy variable of 1, if the cooperative uses online marketing tools | 0.57 | 0.22 |
| Size | The total number of cooperative members | 0.52 | 0.5 |
| President's education | Total years of education of the president | 52 | 96 |
| Female president | A dummy variable of 1, if the president of the cooperative is female | 6.3 | 2.1 |
| Women cooperative | A dummy variable of 1, if the cooperative is composed of women only | 0.41 | 0.49 |

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| | | | |
|--------------------------|---|------|------|
| Growth of market | Ratio of growth of the number of cooperatives in the same economic branch (during year of survey) | 1.1 | 1.28 |
| Financial inclusion | A dummy variable of 1, if the cooperative has at least one bank account | 0.47 | 0.5 |
| Loan | A dummy variable of 1, if the cooperative benefitted from a bank loan to support its activities | 0.06 | 0.23 |
| Covid stop | A dummy variable of 1, if the cooperative stopped activity with the Covid-19 crisis | 0.12 | 0.32 |
| <i>Sample size : 134</i> | | | |

Source: authors' calculations (based on own survey**)

7.3 Appendix 3 – Table 2 – Share of economic sectors in sample

| | % |
|-------------|--------|
| Agriculture | 16% |
| Apiculture | 16.32% |
| Argan | 31.10% |
| Artisanary | 6.58% |
| Services | 30% |
| Sample size | 134 |

Source: authors' calculations (based on own survey**)

7.4 Appendix 4 - Table 3 – Estimated coefficients for determinants of turnover growth

| | Cooperative's turnover (Probit) | Cooperative's turnover (Heckman selection model) |
|-------------------------------------|---------------------------------|--|
| Intercept | -2.112* (1.099) | -4240920.6* (2533582.9) |
| Cooperative internal factors | | |
| Size | 0.0115 (0.00707) | 49328.1*** (5.37) |
| Size square | -0.0000231* (0.0000126) | -84.38*** (17.65) |
| Age (number of years of existence) | 0.0480 (0.105) | 63934.0 (161441.4) |
| Per capita turnover | 0.0000229* (0.00000992) | 20.80*** (1.926) |
| Management challenge | -1.386** (-3.07) | -1435318.5* (709247.3) |
| Digital marketing | 0.713* (0.98) | 1171088.2* (593621.7) |
| Cooperative's president | | |
| Female president | -0.455 (0.326) | -237087.6 (550538.0) |
| Environmental factors | | |
| Government funding ratio | 3.086*** (0.764) | 3581637.6** (1986667.9) |
| Rural geographical location | -0.209 | -923171.9* |

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| | | |
|--|---------|-------------|
| | (0.381) | (554268.3) |
| Legal environment | 0.447 | -7760.6 |
| | (0.627) | (881929.6) |
| Growth of market | -0.125 | -231287.7 |
| (growth in number of cooperatives in the same economic branch %) | (0.144) | (203895.2) |
| Mills (lambda) | | 2255305.3* |
| | | (1282137.2) |
| Rho | | 0.97590 |
| Sigma | | 2311008 |
| Number of observations | | 134 |

Notes: Coefficients are reported, with t statistics in parenthesis. ***, **, and * indicate respectively significance at the 1%, 5% and 10% levels.

7.5 Appendix 5 – Table 4 – Marginal effects

| | Cooperative's turnover |
|--|----------------------------|
| Cooperative internal factors | |
| Size | 18698.86*** (3873.597) |
| Size square | -31.98453*** (6.660179) |
| Age (number of years of existence) | 24235.54 (60348.1) |
| Per capita turnover | 7.885341*** (1.087443) |
| Management challenge | -544087.6* (241822.6) |
| Digital marketing | 443925.6* (196687.2) |
| Cooperative's president | |
| Female president | -89873.03 (203563.5) |
| Environmental factors | |
| Government funding ratio | 1357695** (636458.2) |
| Geographical location | -349947.7* (216673.7) |
| Legal environment | -2941.806 (334412.5) |
| Growth of market (growth in number of cooperatives in the same economic branch %) | -87674.47 (76403.21) |

Notes: Coefficients are reported, with t statistics in parenthesis. ***, **, and * indicate respectively significance at the 1%, 5% and 10% levels.

7.6 Appendix 6 – Table 5 – Relative frequency of all cooperatives' survival in sample

| Survival in years | Count | Fail | Net lost | Survivor function |
|-------------------|-------|------|----------|-------------------|
| <1 | 134 | 1 | 5 | 0.9925 |
| <2 | 128 | 5 | 10 | 0.9538 |
| <3 | 113 | 2 | 24 | 0.9369 |
| <4 | 87 | 1 | 12 | 0.9261 |
| <5 | 74 | 0 | 14 | 0.9261 |
| <6 | 60 | 2 | 10 | 0.8952 |
| <7 | 48 | 2 | 10 | 0.8579 |
| <8 | 36 | 2 | 7 | 0.8103 |
| <9 | 27 | 0 | 9 | 0.8103 |
| <10 | 18 | 0 | 3 | 0.8103 |
| <11 | 15 | 0 | 10 | 0.8103 |
| <12 | 5 | 1 | 4 | 0.6482 |

Source: authors' calculations (based on own survey**)

7.7 Appendix 7 – Table 6 – Estimated coefficients for the hazard model (Weibull distribution)

| Dependent variable : Covid stop | All cooperatives | Manufacturing sectors | Service sectors |
|--|-----------------------|-----------------------|---------------------|
| Intercept | -5.930** (2.300) | -2.102 (9.503) | -9.401 (6.958) |
| Cooperative's internal factors | | | |
| Size | -0.0849** (0.0263) | -0.332* (0.142) | -0.170* (0.0885) |
| Women-only cooperative | -3.346*** (1.051) | -2.436* (3.513) | 0.230 (2.417) |
| Digital marketing | -19.39 (2099.5) | -22.99 (9959.4) | -26.86 (7647.6) |
| Job creation capacity | 0.795 (0.832) | -1.807 (3.821) | 2.558 (2.006) |
| Cooperative's president (board) | | | |
| Female president | 3.447** (1.051) | 5.369* (3.012) | 1.506 (3.325) |
| Education of president | -0.696*** (0.184) | -1.681* (0.837) | -1.785** (0.656) |
| Environmental factors | | | |
| Government funding ratio | -3.317* (1.722) | -9.618** (4.589) | -15.82* (7.603) |
| Legal environment | 2.761** (0.917) | -2.66 (2.794) | 6.879*** (2.287) |
| Rural geographical location | 1.046 | -1.698 | 6.333* |

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| | | | |
|--|-------------------------------|-----------------------------|------------------------------|
| Growth in number of cooperatives (by economic branch) | (0.709) 0.948** (0.351) | (2.155) 14.21 (12.05) | (2.728) 2.153* (1.179) |
| λ (inverse Mills ratio) | 1.410*** (0.208) | 1.897*** (0.327) | 2.192*** (0.291) |
| Scale | 0.244 | 0.150 | 0.111 |
| Log likelihood | -16.109545 | -1.7199511 | -0.09653194 |
| N observations | 134 | 92 | 41 |

Notes: Coefficients are reported, with t statistics in parantheses. ***, **, and * indicate significance at the 1%, 5% and 10% levels.

****survey data accessible upon request from authors**

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