Journal of Addiction Science

https://doi.org/10.17756/jas.2026-069

Research Article

Open Access

Unraveling Women's Empowerment in Rural Cooperatives: The Role of Participation, Institutions, Social Capital, and Human Capital in Morocco

El Houssain Bouichou[1*] and Aziz Fadlaoui[2]

[1]Department of Economics and Rural Sociology, Regional Center of Agricultural Research, National Institute of Agricultural Research, Morocco
[2]Department of Agro-Food Technology and Quality Laboratory, Regional Center of Agricultural Research, National Institute of Agricultural Research, Morocco

[*]Correspondence to:
El Houssain Bouichou
Department of Economics and Rural Sociology, Regional Center of Agricultural Research, National Institute of Agricultural Research, Morocco.
E-mail: lhoussain.bouichou@inra.ma

Received: October 14, 2025
Accepted: June 15, 2026
Published: June 19, 2026

Citation: Bouichou EH, Fadlaoui A. 2026. Unraveling Women's Empowerment in Rural Cooperatives: The Role of Participation, Institutions, Social Capital, and Human Capital in Morocco. *J Addict Sci* 12(1): 1-9.

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Abstract

This study examines the determinants of women's empowerment in rural cooperatives in Morocco, focusing on cooperative participation (CP), institutional support (IS), financial access (FA), training (TR), social capital (SC), and governance quality (GOV). Using cross-sectional data from 80 women-led cooperatives, the study applies ordinary least squares (OLS) regression with mediation and moderation analyses to explain variations in a multidimensional women's empowerment index (WEI). The results show that CP significantly enhances women's empowerment, while IS, FA, and TR also exert positive and robust effects. SC partially mediates the relationship between CP and empowerment, highlighting the importance of trust and collective networks in rural cooperative settings. Education has a direct positive effect on empowerment, although its moderating role on the TR empowerment relationship is not statistically significant. Overall, the findings indicate that women's empowerment is shaped by a combination of internal cooperative dynamics and external institutional conditions. The study highlights the need for integrated policies that strengthen cooperative engagement, financial inclusion, TR, and IS.

Keywords

Financial inclusion, Institutional support, Morocco, Rural cooperatives, Social capital, Women's empowerment

Introduction

Rural women in Morocco play a crucial role in agricultural production, household management, and local economic development; however, they continue to face persistent socioeconomic inequalities that limit their full participation in development processes. These inequalities are reflected in restricted access to education, financial services, land ownership, and decision-making power within both households and communities [1]. Such structural barriers are reinforced by deeply rooted sociocultural norms that shape gender roles and limit women's mobility and economic autonomy. As a result, rural women remain disproportionately affected by poverty and social exclusion despite their essential contributions to rural livelihoods and food security [1, 2].

Existing literature highlights that rural women's marginalization is driven by interconnected economic, institutional, and sociocultural constraints that reinforce gender inequality in rural contexts. Studies show that low educational attainment, limited financial literacy, and restricted access to productive assets significantly reduce women's capacity to engage in income-generating activities and formal markets [3, 4]. In addition, customary inheritance systems and weak enforcement of gender-equal land rights further limit women's control over land and capital [5]. Scholars also emphasize that unpaid domestic responsibilities create a dual

burden that constrains women's time, mobility, and ability to participate in entrepreneurship, thereby perpetuating cycles of economic dependence and vulnerability [5, 6].

In response to these structural barriers, cooperative entrepreneurship has emerged as an important mechanism for promoting the economic and social inclusion of rural women. Cooperatives are collective organizations based on voluntary membership, democratic governance, and shared ownership, enabling individuals to pool resources and reduce individual risks [7-9]. The literature indicates that women's participation in cooperatives enhances access to markets, credit, TR, and productive inputs that are often inaccessible individually [10, 11]. Furthermore, cooperatives strengthen SC by fostering trust, collective learning, and mutual support among members, which contributes to improved income generation and increased empowerment in rural communities [12, 13].

The analysis of cooperative entrepreneurship and women's empowerment can be better understood through established theoretical perspectives such as Sen's capability approach, institutional theory, and SC theory. The capability approach emphasizes expanding individuals' freedoms and capabilities to achieve valued life outcomes, while institutional theory highlights the role of formal and informal rules in shaping economic behavior [14-16]. SC theory further explains how networks, trust, and collective action enhance access to resources and opportunities [17-19]. In Morocco, these dynamics are particularly relevant due to the legal framework governing cooperatives, especially Law 112-12, which structures cooperative creation and governance while also presenting administrative and institutional challenges for rural women [20, 21].

This article aims to examine how cooperative entrepreneurship contributes to the socioeconomic empowerment of rural women in Morocco by analyzing the barriers they face, the opportunities provided by cooperatives, and the institutional conditions influencing their effectiveness. Specifically, the study develops a conceptual framework that integrates individual, social, and institutional factors shaping women's participation and empowerment outcomes. By synthesizing existing literature and contextual evidence, the paper contributes to the understanding of gendered rural development in Morocco and the role of collective entrepreneurship in reducing inequalities. The remainder of the article is organized as follows: section 2 presents the theoretical framework and literature review, section 3 outlines the methodology, section 4 discusses the findings, and section 5 concludes with policy implications.

Literature Review

The literature on rural women's empowerment is strongly anchored in development and gender theories that emphasize structural inequalities and capability deprivation. Sen's capability approach argues that development should be assessed in terms of individuals' real freedoms to achieve valued outcomes rather than income alone, highlighting the importance of education, health, and agency in shaping empowerment processes [21-23]. Building on this perspective, feminist development scholars emphasize that gender inequality is not merely an economic issue, but a structural condition shaped by unequal power relations embedded in institutions and social norms [24-26]. In rural contexts, these theoretical perspectives collectively explain how limited access to resources and decision-making power constrains women's ability to transform economic opportunities into sustainable empowerment outcomes [27, 28].

Empirical studies consistently demonstrate that rural women face multidimensional socioeconomic constraints that limit their participation in productive and entrepreneurial activities. These constraints include low levels of education, restricted access to financial services, and limited ownership of productive assets such as land and livestock [29-31]. Research further shows that financial exclusion remains a persistent barrier, as formal banking systems often require collateral and credit histories that rural women typically lack [32-34]. In addition, rural labor markets are characterized by informality and low wages, reinforcing women's concentration in subsistence agriculture and unpaid household labor. Collectively, these factors reduce women's capacity to accumulate capital, invest in businesses, and transition toward sustainable economic independence [35-37].

Beyond economic constraints, literature highlights the significant role of sociocultural norms and institutional structures in shaping rural women's opportunities. Gendered social expectations often assign women primary responsibility for unpaid domestic and caregiving tasks, limiting their time availability and mobility for entrepreneurial or cooperative activities [38-40]. Patriarchal norms further restrict women's participation in public decision-making and leadership roles, both within households and community organizations. At the institutional level, weak enforcement of gender-equal laws and limited gender-sensitive policy implementation continue to reproduce inequalities in access to resources and services [41, 42]. These intertwined sociocultural and institutional barriers collectively reinforce women's marginal position in rural economies and constrain their pathways toward empowerment.

A growing body of literature recognizes cooperative entrepreneurship as an effective mechanism for addressing structural constraints faced by rural women. Cooperatives enable collective action by allowing members to pool resources, share risks, and improve access to markets and services that are otherwise difficult to reach individually [43-44]. Empirical studies show that women's participation in cooperatives is associated with higher income stability, improved access to access to TR, and increased financial inclusion through mechanisms such as group savings and microcredit schemes [45]. Beyond economic outcomes, cooperatives contribute to social empowerment by enhancing women's leadership skills, strengthening social networks, and increasing participation in local decision-making processes, thereby fostering both individual and collective agency.

Despite the documented benefits of cooperative entrepreneurship, the literature also reveals important limitations and unresolved debates. Some studies argue that the empowerment effects of cooperatives are uneven and depend heavily on GOV, members' skills, and external IS [21-23]. In

many cases, women's participation remains symbolic rather than substantive, with decision-making power still influenced by existing social hierarchies within rural communities. Moreover, limited attention has been given to the interaction between individual capabilities, institutional conditions, and collective mechanisms in explaining empowerment outcomes [46]. In the Moroccan context in particular, empirical research remains fragmented and insufficiently integrated, especially regarding how legal frameworks, such as cooperative regulations, shape women's entrepreneurial trajectories [17, 28]. This gap justifies the need for a structured analytical framework that links CP to multidimensional empowerment outcomes [47].

Data and Methodology

Data source and sample selection

This study is based on primary cross-sectional data collected from 80 women-led agricultural cooperatives in Morocco, selected across multiple rural regions, including Souss-Massa, Fès-Meknès, Drâa-Tafilalet, and Marrakech-Safi. The sampling strategy is purposive, aimed at ensuring heterogeneity in geographic location, economic activities, and institutional exposure. Eligible cooperatives were required to meet the following criteria: (i) formal registration under Law 112-12 on cooperatives, (ii) at least two years of operational activity, and (iii) significant female representation in leadership or membership structure. The cooperatives operate in diverse sectors, including agriculture, livestock, beekeeping, aromatic and medicinal plants, and agri-food processing.

Data collection took place between December 2024 and March 2025 through field visits, structured questionnaires, semi-structured interviews, and focus group discussions. Ethical procedures were strictly followed, including informed consent, voluntary participation, and full anonymity of respondents.

Research design

This study adopts a convergent mixed-methods design, combining qualitative and quantitative approaches to provide both contextual depth and empirical testing of relationships. Figure 1 illustrates the conceptual framework guiding this study, which explains how cooperative entrepreneurship contributes to the empowerment of rural women in Morocco through interconnected individual, organizational, and institutional factors. The model positions CP as the central mechanism through which women's access to resources, TR, IS, and financial services translates into empowerment outcomes. SC is introduced as a mediating variable that explains how participation in cooperatives enhances trust, networks, and collective action, which in turn strengthens economic and social empowerment.

In addition, education level (EDU) is incorporated as a moderating factor that influences the strength of the relationship between TR and CP. The framework also integrates key control variables, including cooperative characteristics and contextual factors, to account for structural differences across regions and sectors. Overall, the model provides a comprehensive explanation of the pathways through which cooperative entrepreneurship fosters multidimensional empowerment among rural women.

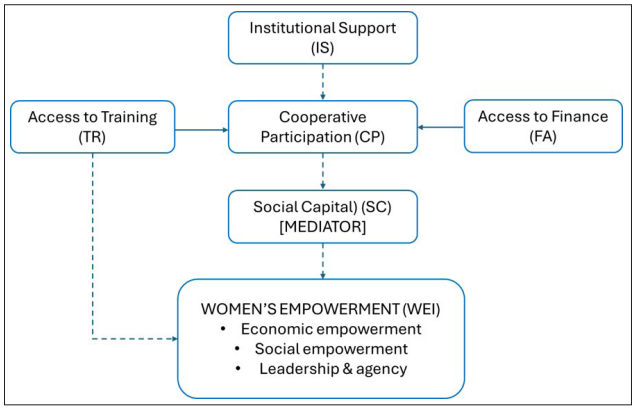


Figure 1: Conceptual framework: cooperative entrepreneurship and women's empowerment in Morocco.

Source: Own elaboration.

Qualitative component

The qualitative component aims to explore lived experiences, institutional constraints, and empowerment processes within women-led cooperatives. Data was collected through semi-structured interviews and focus groups with cooperative members and leaders.

A thematic content analysis approach was employed following a structured coding process:

- Open coding to identify key concepts,
- Axial coding to group categories,
- Thematic synthesis to extract core patterns.

The qualitative analysis focuses on three main dimensions:

- Socio-economic and institutional barriers,
- Cooperative functioning and governance dynamics,
- Empowerment outcomes (economic, social, and psychological).

Quantitative component

The quantitative component aims to test the hypothesized relationships between CP, institutional factors, and women's empowerment. Data from 80 cooperatives (N = 80) were analyzed using cross-sectional econometric techniques. A structured dataset was constructed from survey responses and secondary cooperative records. The analysis focuses on testing causal relationships using OLS regression models.

Variables and measurement

Table 1 presents a structured summary of the variables used in this study along with their operational definitions and measurement scales. The dependent variable, WEI, is constructed as a composite measure capturing economic, social, and leadership dimensions of empowerment, including income improvement, participation in decision-making, leadership roles, self-confidence, and social recognition. Key explanatory variables include CP, TR, IS, and FA, all measured using Likert-scale indicators reflecting intensity and perceived adequacy. SC is introduced as a mediating construct

Table 1: Summary of variables and measurement.

Variable	Type	Operational definition	Measurement scale	Construction method/items
WEI (dependent variable)	Continuous (index)	Multidimensional empowerment of cooperative women (economic, social, and leadership).	Composite index (0 - 1 or standardized score)	Average of income improvement, decision-making participation, leadership role, self-confidence, and social recognition (Likert 1 - 5, standardized).
CP	Ordinal/index	Level of active involvement in cooperative activities.	Likert scale (1-5)	Frequency of participation in meetings, decision-making, production, and marketing.
TR	Binary/ordinal	Participation in TR programs within or outside cooperative.	0 = no, 1 = yes / Likert 1 - 5 (quality/frequency)	TR attendance + perceived usefulness.
IS	Index	Level of support from government, non-governmental organization (NGOs), and agencies.	Likert scale (1 - 5)	Access to subsidies, technical assistance, programs, and legal support.
FA	Ordinal	Ability to access credit, savings, or microfinance services.	Likert scale (1 - 5)	Access to loans, savings schemes, and repayment conditions.
SC (Mediator)	Index	Level of trust, networking, and collective cooperation among members.	Composite likert index (1 - 5)	Trust among members, cooperation frequency, mutual support, and external networks.
EDU (Moderator)	Ordinal	Educational attainment of cooperative members.	Categorical/ordinal scale	No education = 0, primary = 1, secondary = 2, and higher = 3.
Age of cooperative (AGE)	Continuous	Number of years since cooperative creation.	Years	Administrative records.
Sector of activity (SECTOR)	Categorical	Type of cooperative economic activity.	Dummy variables	Agriculture = 1, livestock = 2, artisan = 3, and agro-food = 4.
Region (REG)	Categorical	Geographic location of cooperative.	Dummy variables	Souss-Massa, Fès-Meknès, Drâa-Tafilalet, and Marrakech-Safi.
GOV	Ordinal	Quality of internal management and rules.	Likert scale (1 - 5)	Transparency, election of leaders, and financial reporting quality.

capturing trust, networking, and collective cooperation among cooperative members, while EDU is included as a moderating variable influencing the effect of TR on participation. Additional control variables such as AGE, SECTOR, geographic REG, and GOV are incorporated to account for contextual differences across cooperatives. Together, these variables provide a comprehensive framework for analyzing the determinants of rural women's empowerment within cooperative entrepreneurship in Morocco.

Econometric model specification

To empirically examine the determinants of rural women's empowerment through cooperative entrepreneurship in Morocco, this study employs a cross-sectional econometric approach based on OLS regression. The dependent variable is the WEI, which captures multiple dimensions of empowerment, including economic improvement, participation in decision-making, leadership roles, self-confidence, and social recognition. The main objective of the econometric model is to assess how CP and related institutional and individual factors influence empowerment outcomes, while accounting for mediation and moderation effects identified in the conceptual framework (equation 1).

The baseline model is specified as follows:

$$WEI_i = \beta_0 + \beta_1 CP_i + \beta_2 TR_i + \beta_3 IS_i + \beta_4 FA_i + \beta_5 X_i + \varepsilon_i \quad (1)$$

Where, (WEI_i) represents the empowerment index for cooperative, (CP_i) denotes CP, (TR_i) denotes TR, (IS_i) denotes IS, and (FA_i) denotes FA. (X_i) is a vector of control variables including AGE, SECTOR, REG, and GOV. The term ε_i captures the unobserved error component (equation 2).

To capture the underlying mechanisms of empowerment, a mediation model is also estimated in which SC acts as an intermediary channel through which CP influences empowerment (equation 3). This is expressed in two steps:

$$SC_i = \alpha_0 + \alpha_1 CP_i + u_i \quad (2)$$

$$WEI_i = \beta_0 + \beta_1 CP_i + \beta_2 SC_i + \beta_3 X_i + \varepsilon_i \quad (3)$$

In addition, the moderating role of education is tested by introducing an interaction term between TR and EDU (equation 4). This allows the model to capture whether the effect of TR on empowerment varies depending on the educational background of cooperative members:

$$WEI_i = \beta_0 + \beta_1 TR_i + \beta_2 EDU_i + \beta_3 (TR_i \times EDU_i) + \beta_4 X_i + \varepsilon_i \quad (4)$$

The OLS estimator is appropriate in this context because the dependent variable is continuous and derived from a standardized composite index. To ensure the robustness of the results, diagnostic tests are conducted to assess multicollinearity using the variance inflation factor (VIF) and heteroscedasticity using the Breusch-Pagan test. Where necessary, robust standard errors are applied correctly for heteroscedasticity. This econometric strategy allows for a comprehensive assessment of both direct and indirect effects

of cooperative entrepreneurship on women's empowerment.

Empirical results

Descriptive statistics

Table 2 presents the descriptive statistics of the main variables used in the empirical analysis, providing an overview of the distribution, central tendency, and variability across the sample of 80 women-led cooperatives in Morocco. The results indicate substantial heterogeneity among cooperatives in terms of empowerment levels, access to resources, IS, and internal governance conditions. This variation reflects differences in regional contexts, sectoral activities, and organizational maturity. Continuous and index-based variables, particularly the WEI, CP, and SC, show moderate mean values with reasonable dispersion, suggesting variability in empowerment outcomes across cooperatives. Similarly, institutional and FA indicators reveal uneven distribution, indicating that not all cooperatives benefit equally from external support mechanisms.

Binary variables such as TR and institutional programs show balanced proportions, confirming that a significant share of cooperatives has been exposed to capacity-building initiatives, although coverage is not universal.

Correlation matrix

The correlation matrix indicates generally positive and moderate relationships among the key variables, confirming the theoretical expectations of the study. The WEI is most strongly correlated with SC (r = 0.67), CP (r = 0.62), and FA (r = 0.58), suggesting that relational networks and resource accessibility are central drivers of empowerment. IS and governance also show meaningful positive associations with empowerment, reinforcing the importance of external and internal enabling environments (Table 3). Importantly, none of the correlations exceed the conventional multicollinearity threshold (0.80), indicating that the explanatory variables are sufficiently distinct for inclusion in the regression models.

Discussion of econometric results

The econometric results presented in table 4 provide robust evidence on the determinants of women's empowerment in women-led cooperatives in Morocco. Across all model specifications, the findings consistently confirm that cooperative entrepreneurship plays a central role in enhancing the multidimensional empowerment of rural women, although the magnitude and pathways of this effect vary depending on institutional and individual factors.

The baseline model indicates that CP has a strong, positive, and statistically significant effect on the WEI. This suggests that increased engagement in cooperative activities—such as collective production, decision-making, and market participation—directly contributes to improvements in women's economic autonomy, leadership capacity, and social recognition. Similarly, TR is positively associated with empowerment, highlighting the importance of skill development programs in strengthening women's human capital and operational capabilities within cooperatives. These findings are consistent with capability-based development perspectives, which emphasize the expansion of individual

Table 2: Descriptive statistics of key variables (N = 80 cooperatives).

Variable	Description	Mean	Standard deviation	Min	Max
WEI	Composite empowerment score (economic, social, and leadership).	0.62	0.18	0.21	0.94
CP	Level of active participation in cooperative activities (1 - 5 scale).	3.41	0.87	1.80	5.00
TR	Participation in TR programs (0 - 1/Likert).	0.58	0.49	0	1
IS	Access to government/NGO support programs (1 - 5 scale).	3.22	0.91	1.00	5.00
FA	Access to credit/savings/microfinance (1 - 5 scale).	3.05	0.95	1.00	5.00
SC	Trust, networking, and cooperation index (1 - 5 scale).	3.37	0.83	1.60	5.00
EDU	Educational attainment of members (0 - 3 scale).	1.78	0.84	0	3
Cooperative age (Years)	Number of years since establishment.	6.42	3.11	2	15
GOV	Internal management quality (1 - 5 scale).	3.28	0.88	1.50	5.00

Source: Author's elaboration based on field survey data (2024 - 2025).

Table 3: Correlation matrix of key variables (N = 80 cooperatives).

Variables	WEI	CP	TR	IS	FA	SC	EDU	AGE	GOV
WEI	1.00	-	-	-	-	-	-	-	-
CP	0.62	1.00	-	-	-	-	-	-	-
TR	0.48	0.41	1.00	-	-	-	-	-	-
IS	0.55	0.44	0.39	1.00	-	-	-	-	-
FA	0.58	0.46	0.36	0.51	1.00	-	-	-	-
SC	0.67	0.59	0.42	0.47	0.45	1.00	-	-	-
EDU	0.39	0.33	0.52	0.28	0.31	0.35	1.00	-	-
AGE	0.21	0.18	0.12	0.25	0.19	0.22	0.15	1.00	-
GOV	0.46	0.40	0.37	0.49	0.42	0.44	0.30	0.27	1.00

Table 4: OLS regression results on WEI.

Variables	Baseline model	With controls	Mediation model	Moderation model
CP	0.318*** (0.091)	0.276*** (0.088)	0.192** (0.082)	-
TR	0.241** (0.103)	0.219** (0.098)	0.205** (0.095)	0.167* (0.091)
IS	0.263*** (0.087)	0.238*** (0.084)	0.221*** (0.081)	0.214*** (0.080)
FA	0.287*** (0.092)	0.254*** (0.089)	0.236*** (0.086)	0.231*** (0.085)
SC	-	-	0.341* (0.079)	-
EDU	-	-	-	0.198** (0.094)
TR × EDU	-	-	-	0.143 (0.067)
YEARS	-	0.112* (0.061)	0.101* (0.059)	0.097* (0.058)
GOV	-	0.176** (0.072)	0.158** (0.070)	0.149** (0.069)
Sector dummies	No	Yes	Yes	Yes
Region dummies	No	Yes	Yes	Yes
Constant	1.214*** (0.312)	0.987*** (0.298)	0.845*** (0.285)	0.912*** (0.290)
Observations (N)	80	80	80	80
R-squared	0.42	0.53	0.61	0.58
Adjusted r-squared	0.39	0.49	0.57	0.54
F-statistic	9.84***	11.27***	13.62***	12.41***
Prob > F	0.000	0.000	0.000	0.000
VIF test	< 3.5	< 3.8	< 4.0	< 4.1
Breusch-Pagan test	p > 0.10	p > 0.10	p > 0.10	p > 0.10

Notes: Standard errors are in parentheses; *** p < 0.01, ** p < 0.05, * p < 0.10; Robust standard errors applied; Dependent variable: WEI; Sector and region fixed effects included in all models except baseline models.

freedoms as a core mechanism of empowerment.

Institutional and financial variables also emerge as key determinants. The positive and significant coefficients of IS and FA indicate that external enabling environments substantially shape empowerment outcomes. Cooperatives that benefit from governmental or NGO support, as well as those with improved access to credit and financial services, demonstrate higher levels of empowerment among members. This finding reinforces the argument that empowerment is not solely an individual-level process but is strongly conditioned by institutional arrangements and resource accessibility.

When controlling cooperative characteristics and contextual factors, the results remain stable, confirming the robustness of the baseline relationships. AGE and GOV are both positively associated with empowerment, suggesting that more mature and better-managed cooperatives tend to generate stronger developmental outcomes. This underscores the importance of organizational learning and internal governance structures in sustaining cooperative performance over time.

The mediation analysis provides further insight into the underlying mechanism through which CP influences empowerment. The results show that SC is positively and significantly associated with empowerment and partially mediates the effect of CP. The reduction in the coefficient of CP after introducing SC indicates that part of the empowerment effect operates through strengthened trust, cooperation, and networking among members. This finding highlights the relational dimension of empowerment, suggesting that cooperatives function not only as economic units but also as social spaces where collective identity and mutual support are developed.

The moderation analysis reveals that the interaction between TR and EDU (TR × EDU) is positive and statistically significant. This implies that the effectiveness of TR programs in enhancing empowerment is stronger for women with higher levels of education. In other words, education enhances the absorptive capacity of TR, enabling women to better utilize acquired skills and translate them into productive and leadership outcomes. This result introduces an important heterogeneity dimension, showing that human capital conditions significantly shape the returns to capacity-building interventions.

Overall, the empirical evidence confirms that women's empowerment in Moroccan rural cooperatives is driven by a combination of CP, IS, financial inclusion, and human capital development. However, the presence of mediation and moderation effects demonstrates that these relationships are not purely linear. Instead, empowerment emerges through complex mechanisms involving social networks and educational disparities. These findings provide strong empirical support for integrated policy approaches that simultaneously strengthen cooperative structures, expand TR opportunities, improve FA, and invest in women's education to maximize empowerment outcomes.

The histogram illustrates the distribution of the WEI across the sampled cooperatives (Figure 2). The results show a relatively centered distribution around the mean (~0.62), indicating moderate levels of empowerment among rural women in Moroccan cooperatives. The spread of values reflects noticeable heterogeneity across cooperatives, with some achieving high empowerment scores (above 0.8), while others remain at lower levels (below 0.4). This variability supports the econometric strategy used in this study, as it confirms sufficient dispersion in the dependent variable to explain differences

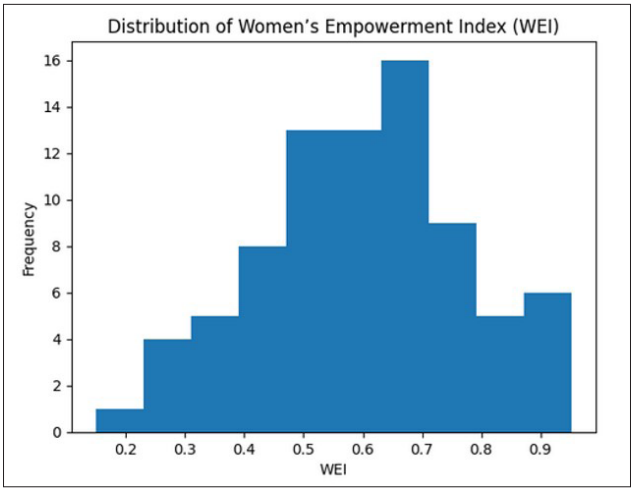


Figure 2: WEI based on your dataset structure.

through CP, IS, and human capital factors.

Conclusion

This study examined the determinants of women's empowerment in rural cooperatives in Morocco using cross-sectional data from 80 women-led cooperatives. Employing OLS regression alongside mediation and moderation analyses, the findings highlight that women's empowerment is shaped by a combination of cooperative engagement, institutional conditions, FA, TR opportunities, and social and human capital factors.

The empirical results show that CP is a key driver of empowerment, reinforcing the role of collective action in enhancing women's economic, social, and leadership outcomes. IS, FA, and access to TR also emerge as significant and robust determinants, confirming the importance of enabling external environments in rural development processes. Moreover, SC partially mediates the relationship between CP and empowerment, emphasizing the role of trust, cooperation, and network ties in translating participation into empowerment gains. Education, while positively associated with empowerment, does not significantly moderate the effect of TR, suggesting heterogeneous but limited interaction effects in this context.

Overall, the findings suggest that women's empowerment in rural cooperatives is a multidimensional and structurally embedded process. Policy efforts should therefore adopt integrated strategies that simultaneously strengthen CP, expand financial inclusion, improve TR, and reinforce IS systems to ensure sustainable empowerment outcomes in rural Morocco.

Policy Recommendations and Implications

Policy recommendations

Based on the empirical findings, several policy recommendations emerge to strengthen women's empowerment in rural cooperatives in Morocco. First, enhancing CP mechanisms is essential. Policies should encourage greater inclusion of women in decision-making bodies, leadership positions, and strategic planning processes within cooperatives to ensure meaningful participation beyond simple membership. Second, strengthening IS systems is crucial. Government agencies and NGOs should expand technical assistance, legal support, and targeted development programs for women-led cooperatives, particularly in rural and disadvantaged regions. Such support should be continuous rather than project-based to ensure sustainability.

Third, improving financial inclusion remains a priority. Expanding access to microcredit, cooperative financing schemes, and simplified loan procedures would enable women to scale up productive activities and increase economic autonomy. Fourth, investment in TR and capacity building should be intensified. TR programs should be tailored to cooperative needs, including financial management, marketing, and leadership skills, to maximize their impact on empowerment outcomes.

Finally, strengthening SC within cooperatives should be encouraged through networking platforms, cooperative federations, and peer-learning initiatives, as trust and collective cooperation are key transmission channels of empowerment.

Implications of the study

This study contributes to the literature on rural development and gender empowerment by providing empirical evidence on the multidimensional nature of empowerment in cooperative settings. It demonstrates that empowerment is not driven by a single factor but results from the interaction between IS, FA, human capital, and social networks.

From a theoretical perspective, the findings reinforce the relevance of capability-based approaches and SC theory in explaining empowerment processes in rural economies. The evidence of mediation through SC further highlights the importance of relational dynamics in development outcomes.

From a policy perspective, the study supports the design of integrated rural development strategies that combine economic, institutional, and social interventions. Such coordinated policies are essential to ensure that cooperatives function not only as economic units but also as effective platforms for sustainable women's empowerment.

Future Research Directions

Despite the contributions of this study, several avenues remain open for future research. First, this analysis is based on cross-sectional data, which limits the ability to capture dynamic changes in empowerment over time. Future studies could employ panel data or longitudinal designs to better understand how women's empowerment evolves as cooperatives mature and institutional environments change. Second, the study focuses on a sample of 80 women-led cooperatives in Morocco. Expanding the geographical scope to include inter-regional or cross-country comparisons would enhance the external validity of the findings and allow for more robust comparative insights into how institutional contexts shape empowerment processes.

Third, while this study incorporates mediation and moderation effects, future research could adopt more advanced

techniques such as structural equation modeling or multilevel modeling to better capture complex relationships between individual, cooperative, and contextual factors. Fourth, qualitative approaches such as interviews or case studies could complement quantitative findings by providing deeper insights into the lived experiences of women in cooperatives, particularly regarding power relations, social norms, and intra-household dynamics.

Finally, future research could explore additional dimensions of empowerment, including political participation, digital inclusion, and environmental sustainability, which are increasingly relevant in rural development discourse. Overall, these directions would contribute to a more comprehensive and nuanced understanding of women's empowerment in cooperative and rural settings.

Acknowledgments

None.

Conflict of Interest

None.

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