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Duality of formal and informal institutions and women's entrepreneurship in rural areas

Dualité des institutions formelles et informelles et entrepreneuriat féminin en milieu rural

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Abstract

This paper examines the influence of formal and informal institutions on female entrepreneurship in rural areas, using Douglass North's institutional theory (1990). Formal institutions, such as public policies and legal infrastructures, and informal institutions, including cultural norms and patriarchal traditions, are analyzed to understand their impact on the entrepreneurial intentions of rural Moroccan women. The study is based on a Logit model applied to a sample of 306 rural women who have benefited from public entrepreneurship training programs. The results show that socio-cultural norms and traditions have a significant negative effect on women's entrepreneurial intentions by limiting their access to essential resources such as credit, professional networks, and tailored training. Conversely, access to adequate legal and economic infrastructures has a positive impact on their entrepreneurial engagement. However, public policies appear to be ineffective due to insufficient implementation or their misalignment with local realities. The interaction between formal and informal institutions proves to be important: better alignment between these two types of institutions promotes female entrepreneurship, whereas their misalignment exacerbates barriers. These findings highlight the need for an integrated approach combining institutional reforms, community initiatives, and awareness campaigns to overcome socio-cultural constraints and enhance the effectiveness of public policies.

Keywords : Women's entrepreneurship, formal institutions, informal institutions, socio-cultural norms, public policies, Morocco.
JEL Classification : L26, J16, O17, R51.

Résumé

Cet article examine l'influence des institutions formelles et informelles sur l'entrepreneuriat féminin dans les zones rurales, en utilisant la théorie des institutions de Douglass North (1990). Les institutions formelles, telles que les politiques publiques et les infrastructures juridiques, ainsi que les institutions informelles, y compris les normes culturelles et les traditions patriarcales, sont analysées pour comprendre leur impact sur les intentions entrepreneuriales des femmes rurales marocaines. L'étude est basée sur un modèle Logit appliqué à un échantillon de 306 femmes rurales ayant bénéficié de programmes publics de formation à l'entrepreneuriat. Les résultats montrent que les normes et traditions socioculturelles ont un effet négatif significatif sur les intentions entrepreneuriales des femmes en limitant leur accès à des ressources essentielles telles que le crédit, les réseaux professionnels et la formation adaptée. En revanche, l'accès à des infrastructures juridiques et économiques adéquates a un impact positif sur leur engagement entrepreneurial. Cependant, les politiques publiques semblent inefficaces en raison d'une mise en œuvre insuffisante ou d'une inadéquation avec les réalités locales. L'interaction entre les institutions formelles et informelles s'avère importante : une meilleure adéquation entre ces deux types d'institutions favorise l'entrepreneuriat féminin, tandis que leur désalignement exacerbe les obstacles. Ces résultats soulignent la nécessité d'une approche intégrée combinant des réformes institutionnelles, des initiatives communautaires et des campagnes de sensibilisation pour surmonter les contraintes socioculturelles et améliorer l'efficacité des politiques publiques.

Mots-clés : entrepreneuriat féminin, institutions formelles, institutions informelles, normes socioculturelles, politiques publiques, Maroc.
Classification JEL : L26, J16, O17, R51.

Introduction

Female entrepreneurship in rural areas represents a major challenge for inclusive and sustainable economic development, particularly in contexts characterized by socio-economic and cultural disparities. Rural women, despite playing a central role in local economies, continue to face multidimensional obstacles that hinder their active participation in the economic sphere. These barriers, often rooted in rigid socio-cultural norms and insufficient institutional systems, make rural female entrepreneurship particularly complex. This issue is especially relevant in Morocco, where rural areas face structural challenges such as patriarchal traditions, unequal access to resources, and limited institutional support. The institutional theory developed by Douglass North (1990) offers a relevant conceptual framework for analyzing these dynamics. According to this theory, institutions, whether formal (laws, regulations, public policies) or informal (cultural norms, beliefs, traditions), play a key role in shaping economic behavior. In rural areas, informal institutions tend to dominate, imposing gender stereotypes and traditions that restrict women's mobility and access to resources.

Furthermore, formal institutions, although designed to promote equal opportunities, often remain ineffective due to inadequate implementation or a disconnect with local socio-cultural realities. This duality creates an ambiguous environment for female entrepreneurs, where formal and informal institutions can conflict, thereby limiting their ability to benefit from economic opportunities. This paper addresses this issue by exploring how formal and informal institutions influence the entrepreneurial intentions of rural Moroccan women. The objective is to analyze the mechanisms through which these institutions, individually and in interaction, shape women's entrepreneurial behaviors and decisions. Through an empirical approach based on a sample of 306 rural women who participated in public training programs, this study seeks to identify the key determinants of entrepreneurial intention and highlight institutional levers that can promote their economic empowerment.

1. Literature review

Gundry et al. (2002) highlight the influence of familial, cultural factors, and goal orientations on rural women entrepreneurs. They emphasize the importance of in-depth research to examine sectoral variations, cultural specificities, and the objectives unique to women-led businesses in these contexts. Their study also draws attention to the specific challenges in developing countries, where these issues are more pronounced. In the same vein, Soysal (2010) identifies major barriers faced by these women, including unequal access to education, cultural constraints, and a lack of institutional support. He recommends targeted policies to reduce these disparities and foster greater participation of women in organized economic activities within their rural communities. Anthopoulou (2010) explores entrepreneurial initiatives of rural women, particularly in the agri-food sector, highlighting their ability to combine entrepreneurial activities with family responsibilities. Often inspired by traditional knowledge, these women succeed in transforming local practices into sustainable income sources, thereby revitalizing local economies and preserving traditions.

Rajendran (2003) sheds light on persistent challenges such as patriarchal norms, lack of access to financial resources, and absence of institutional support. He advocates for specific development programs and community initiatives, such as self-help groups, to help women overcome these barriers while promoting their empowerment. Chitsike (2000) underscores the weight of patriarchal cultural norms that limit the entrepreneurial ambitions of rural women, confining them to traditional roles and low-profit activities. She stresses the need for tailored

training and enhanced institutional support while calling for approaches integrating a gender perspective to address these structural constraints. Kumbhar (2013) focuses on the challenges rural women entrepreneurs face in India, such as the lack of financial independence, non-ownership of resources, and low risk-taking propensity. He highlights the importance of raising awareness among these women about economic opportunities and implementing training programs to strengthen their entrepreneurial capacities.

Rao Padala Shanmukha (2007) highlights the role of self-help groups in empowering rural women. These groups provide access to credit, training, and collective support, enabling women to overcome socio-economic barriers while enhancing their autonomy. According to him, these initiatives are a key lever to stimulate their active participation in the local economy and improve their living conditions. Roomi et al. (2018) examine the influence of social and cultural norms on female entrepreneurship in rural Pakistan. They note that patriarchal expectations and social pressures pose significant structural challenges, limiting women's involvement in entrepreneurial initiatives. Educational interventions and mentoring programs are proposed to strengthen economic autonomy in these environments. This perspective aligns with Sidhu and Kaur (2006), who argue that entrepreneurship, alongside women's agricultural and domestic activities, contributes to improving their personal and social status. They also emphasize that this dynamic gives them a more active role in family and community decision-making.

Chinomona et Maziriri (2015) highlight the limitations imposed by financial constraints, restricted access to education, and insufficient infrastructure, which hinder rural women's ability to seize entrepreneurial opportunities. They stress the importance of improving education and access to financing to foster greater resilience and innovation in women-led businesses. Dasgupta (2000) adds to this discussion by emphasizing the role of microfinance initiatives in addressing these deficiencies. Through self-help groups, women gain access to credit while reducing transaction costs. He notes that this approach also enhances their empowerment by improving skills and enabling better management of income-generating activities. Jayakumar and Kannan (2014) identify similar barriers, focusing on illiteracy, risk aversion, and lack of training, exacerbated by significant family responsibilities. However, they note the increasing governmental interest in promoting female entrepreneurship, offering promising opportunities through institutional initiatives aimed at supporting women-led microenterprises. Anwar-Ul-Haq et al. (2014) emphasize the critical role of institutional and familial support in overcoming the socio-cultural barriers faced by rural women. They also highlight the challenges related to lack of access to credit and markets, calling for tailored public policies to overcome these obstacles and promote their economic success.

Hanson (2009) examines how female entrepreneurship transforms social and economic dynamics in rural areas. She observes that women's initiatives reshape gender relations while creating opportunities for others. By highlighting the central role of social and community networks, she demonstrates how these amplify the impact of entrepreneurship. Hanson also underscores the importance of access to resources and institutional support in enhancing women's potential as agents of change. Petridou and Glaveli (2008) focus on the role of women's cooperatives in rural entrepreneurship. They argue that these cooperatives enable women to overcome the social and economic barriers specific to rural regions while preserving cultural heritage. They emphasize the impact of training and technical assistance provided by institutions, which strengthen women's empowerment and economic integration. Ozdemir and Yilmaz (2010) similarly emphasize the potential of cooperatives as an

organizational framework to help women address challenges such as poverty and access to financial resources. They highlight how these structures foster solidarity and economic empowerment among women while contributing to the sustainable development of rural areas.

Mutambuka, Kalisa, and Habimana (2016) explore the impact of female entrepreneurship on the socio-economic well-being of rural families. They emphasize the importance of management skills and access to credit as key levers for women's economic empowerment and improvement in social status. They also identify behavioral norms and social networks as critical elements facilitating the social and economic integration of female entrepreneurs. For them, targeted training is essential to make women more resilient to economic and social constraints. Brush, De Bruin, and Welter (2009) shed light on the differences between rural and urban female entrepreneurship. They find that social norms and cultural constraints tied to gender roles hinder rural women's initiatives and advocate for gender-sensitive policies to address these challenges effectively.

Ahmed and Mazumdar (2015) emphasize the ability of rural women to achieve economic autonomy through entrepreneurship. According to them, skills and training not only enhance effective business management but also enable the creation of employment opportunities for other women. They highlight family support as a facilitating factor that helps balance personal and professional life, thereby boosting women's success in entrepreneurial activities. Maheshwari and Sodani (2015) underscore the importance of entrepreneurship as a lever for empowerment among rural women. By providing access to entrepreneurial opportunities, women can reduce social and economic inequalities while developing their skills and financial independence. They assert that targeted policies on financing and entrepreneurial training play a central role in this dynamic. Hovorka (2005) highlights that even in resource-constrained settings, female entrepreneurship transforms rural areas. She focuses on the use of economic activities, such as livestock farming, to generate income and build informal social networks that facilitate knowledge sharing and open up new opportunities. These initiatives progressively redefine gender roles and strengthen women's social and economic positions, especially when institutional programs support such efforts.

Timmapur and Hasalkar (2018) explore the major constraints faced by women entrepreneurs in rural areas, including restrictive social norms and structural barriers. They highlight challenges such as balancing family and professional responsibilities, lack of family support, administrative hurdles in accessing government aid, and high interest rates. These factors limit women's access to sustainable entrepreneurial ventures. Tambunan (2007) complements this perspective by emphasizing rural women entrepreneurs' limited access to financing and technical support. He stresses the importance of community institutions and local programs in promoting entrepreneurship, particularly by valuing craft and agricultural activities as drivers of local economic development. Goyal and Yadav (2014) focus on the complexity of challenges faced by rural women entrepreneurs in developing countries. They identify specific issues such as reduced access to financing, socio-cultural biases, and low self-esteem. These are compounded by institutional gaps and inadequate entrepreneurial education, exacerbating their difficulties. To address these issues, they advocate for a holistic approach centered on strengthening public policies and implementing tailored initiatives to support women in their entrepreneurial journeys.

2. Methodology
2.1. Hypotheses and model

The institutional theory developed by Douglass North (1990) provides a particularly relevant analytical framework for examining the socio-cultural barriers that women face in their pursuit of entrepreneurship in rural areas. According to this theory, institutions, whether formal or informal, play a decisive role in shaping individual and collective behaviors. Formal institutions include elements such as laws, regulations, and public policies that establish the official rules of the game for economic actors. In parallel, informal institutions encompass values, cultural norms, traditions, and shared beliefs that deeply influence individual behaviors and choices, often in subtle yet powerful ways. In rural contexts, these informal institutions gain particular importance as they often dictate the roles and responsibilities assigned to women, limiting their access to resources essential for entrepreneurship, such as credit, training, or professional networks. Patriarchal traditions, for instance, may restrict their mobility or reinforce gender stereotypes that discourage women from exploring economic opportunities. On the other hand, formal institutions, such as policies supporting female entrepreneurship or anti-discrimination laws, may be insufficient or poorly implemented in these areas, exacerbating inequalities.

By combining the analysis of formal and informal institutions, institutional theory provides a deeper understanding of the mechanisms that hinder the economic emancipation of women in rural areas and helps identify levers to overcome these barriers. Applying this theory to our specific context allows us to discern:

- **The role of informal institutions (cultural norms and traditions):** In rural areas, cultural norms and traditions play a central role in defining the roles assigned to women in society. These deeply rooted informal institutions uphold traditional gender roles, which restrict women's access to entrepreneurship. By imposing social expectations about what is considered acceptable for women, these norms limit their active participation in the economy and hinder their ability to fully exploit their entrepreneurial potential. Furthermore, widespread patriarchal beliefs in these contexts perpetuate gender stereotypes, reinforcing the notion that women are less competent or less capable of managing a business. These biased perceptions not only discourage women from engaging in entrepreneurial initiatives but also negatively influence the attitudes of investors, business partners, and local communities toward them.

- **Influence of formal institutions (policies and regulations):** Public policies and infrastructure in rural areas are often insufficient to meet the needs of women entrepreneurs. Limited access to credit and the lack of tailored training programs adapted to their realities represent major institutional barriers. These gaps in public policies and infrastructural support exacerbate existing inequalities, making it even more challenging for women to overcome the structural obstacles they face in their entrepreneurial journey. Moreover, in some contexts, the absence of gender-equality-promoting laws or protective legal frameworks hinders women's ability to assert themselves as entrepreneurs. Without a clear and supportive legal environment, women are often left unprotected against discrimination and systemic barriers, curtailing their active participation in economic development and limiting their contribution to local innovation and growth.

- **Duality between formal and informal institutions:** In rural areas, women entrepreneurs often face conflicts between formal and informal institutions. On one hand, formal institutions, such as laws and public policies promoting female

entrepreneurship, aim to foster equal opportunities and encourage women's economic empowerment. On the other hand, informal institutions, particularly deeply rooted patriarchal norms, continue to dictate social expectations and restrict the roles women can play in the economic sphere. This opposition between the two types of institutions creates an ambiguous environment for women, making it difficult to fully leverage the opportunities provided by public policies. Although favorable laws may exist, their impact remains limited in a context where cultural and social norms disapprove of or actively hinder female entrepreneurship. This significantly reduces women's ability to benefit from available support measures and overcome the challenges they face in their entrepreneurial journey.

That said, institutional theory provides a particularly relevant framework for analyzing and understanding female entrepreneurship in rural areas. In this perspective, the following research hypotheses are formulated:

i. Informal Institutions : Cultural norms and traditions

- **H1: Unfavorable cultural norms and traditions have a negative impact on the likelihood of a woman becoming an entrepreneur in rural areas.**
- **H2: Rigid gender stereotypes negatively affect women's access to entrepreneurial opportunities.**

ii. Formal institutions: Policies and regulations

- **H3: The existence of tailored public policies has a positive impact on female entrepreneurship in rural areas.**
- **H4: A supportive legal infrastructure positively influences women's entrepreneurial engagement in rural areas.**

iii. Interaction between formal and informal institutions

- **H5: Greater coherence between formal and informal institutions positively impacts the likelihood of a woman becoming an entrepreneur.**

Based on these elements, and to test the formulated hypotheses, the following econometric model is developed:

$$ENTR = \beta 0 + \beta 1.NORM + \beta 2.TRAD + \beta 3.POLY + \beta 4.INFR \\ + \beta 5.POLY \times NORM + \gamma 1.AGEW + \gamma 2.EDUC + \gamma 3.INCM + \epsilon$$

ENTR is a binary variable indicating whether a rural woman intends to become an entrepreneur (1 = Yes, 0 = No). This variable measures the primary objective of the analysis: entrepreneurial intention among rural women. The explanatory variables encompass several key dimensions. NORM assesses the perceived impact of gender norms and stereotypes on rural women, while TRAD measures the effect of cultural traditions on their economic role. POLY captures the perception of norms and public policies tailored to the needs of women entrepreneurs, and INFR reflects the level of access to legal and economic infrastructures. Each of these explanatory variables is measured using six items on a 7-point Likert scale. To synthesize each concept, a principal component analysis (PCA) is employed to create a

representative variable, considering their qualitative nature. POLY×NORM analyzes the interaction between formal institutions (public policies) and informal institutions (socio-cultural norms). AGEW represents the woman's age, EDUC corresponds to the level of education, and INCM reflects household income.

2.2. Choice of Logit modeling ?

The use of a Logit model in this study is primarily justified by the nature of the dependent variable. Entrepreneurial intention among rural women is measured by a binary variable (ENTR) that takes the value 1 if a woman intends to become an entrepreneur and 0 otherwise. The Logit model is particularly well-suited for this type of variable, as it directly estimates the probability of an event occurring while constraining predicted values to lie between 0 and 1, ensuring statistical coherence. Moreover, the Logit model accounts for the non-linearity of relationships between explanatory variables and the probability of the studied event. In the context of this research, determinants such as cultural norms, patriarchal traditions, or public policies may have marginal effects that vary depending on their intensity or combination. The Logit model allows these relationships to be modeled more realistically, unlike a classic linear regression, which assumes a linear relationship between variables. Another reason to favor the Logit model is its ability to provide easily interpretable results. The coefficients can be transformed into odds ratios, allowing for direct quantification of the effect of each explanatory variable on the probability of female entrepreneurship. For instance, an odds ratio greater than 1 indicates that an increase in a variable, such as access to infrastructure (INFR), raises the likelihood of a woman becoming an entrepreneur.

2.3. Data presentation

The sample for this study consists of 306 rural Moroccan women who participated in various public training programs aimed at raising awareness and introducing rural women to entrepreneurship. These trainings, organized within different institutional frameworks, were designed to provide basic knowledge of business management, develop practical skills, and promote the economic empowerment of women in rural areas. The participants come from several rural regions of Morocco, reflecting geographical and sociocultural diversity. This diversity allows for an analysis of how norms and traditions vary across regions and differently influence entrepreneurial intention.

The women were recruited through public support programs, local associations, and government initiatives aimed at promoting female entrepreneurship. The training sessions covered topics such as access to credit, local marketing, financial management, and leadership skill development. These initiatives aim not only to raise awareness among rural women about economic opportunities but also to overcome the formal and informal institutional barriers that hinder their active participation in the local economy.

3. Results
3.1. Robustness of the Logit model

The specification of an econometric model is critically important as it directly influences the validity and reliability of the results obtained. In the context of this study, where the objective is to understand the determinants of rural women's entrepreneurial intentions, proper specification ensures the appropriate inclusion of relevant variables such as formal and informal institutions and their interactions. An incorrect specification could lead to biased estimates, limit the explanatory power of the model, and result in erroneous conclusions. In a Logit model, which relies on the maximum likelihood estimation (MLE) method, the Ramsey

RESET test, commonly used to verify specification in linear models, cannot be applied. This inapplicability is due to several characteristics specific to the Logit model. Unlike linear regression models, the Logit model does not rely on the assumption of normally distributed errors but instead uses a likelihood function to estimate parameters. Furthermore, the Ramsey test, designed to detect specification errors in linear relationships, is not suitable for the non-linear structure of the Logit model, which employs a logistic transformation to model the probability of the event. To address this limitation, the use of recursive coefficient tracking allows for the verification of the stability and consistency of estimates across successive subsamples.

Figure 1 : Specification Test : recursive coefficients
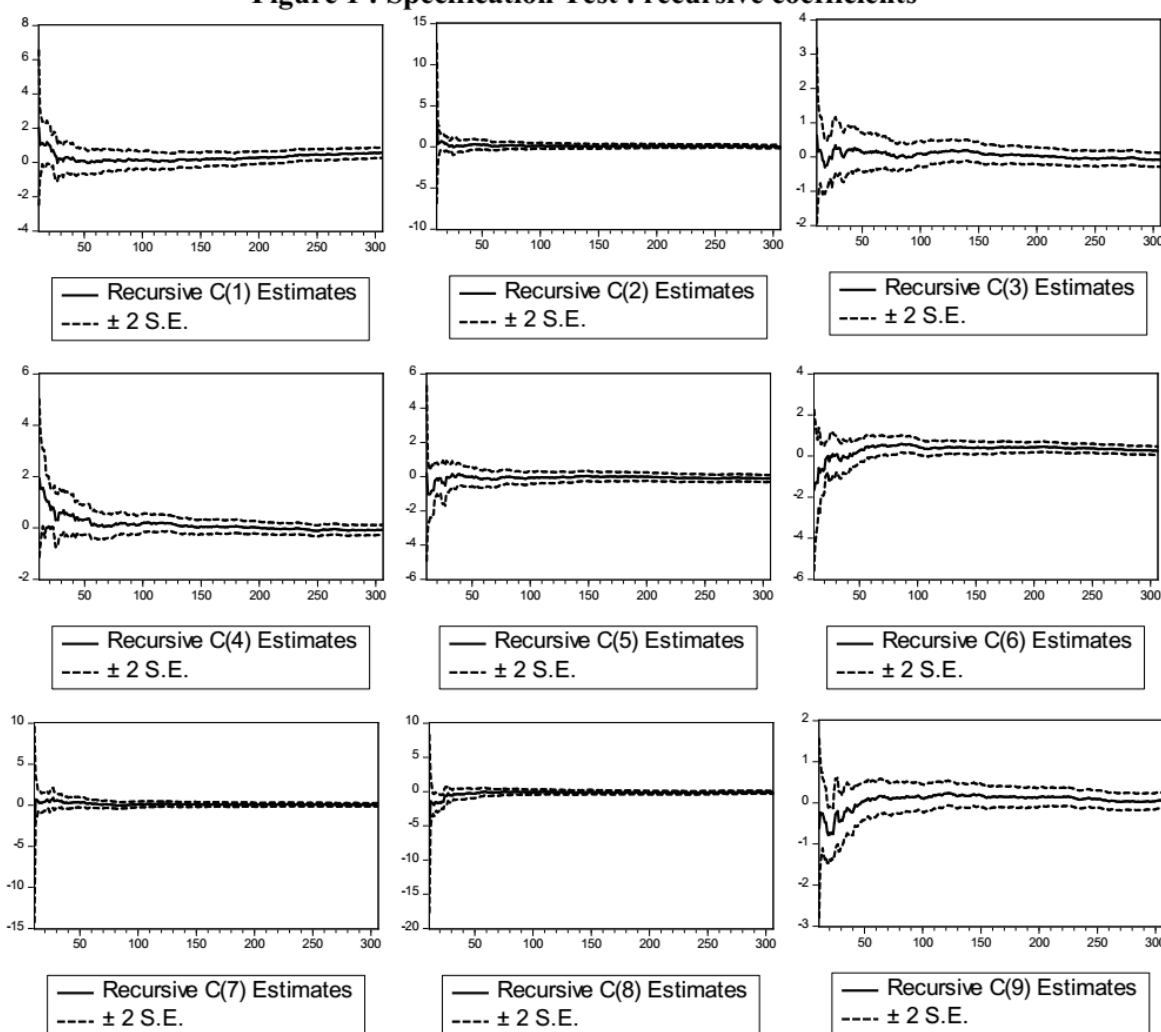
Source: authors

Figure 1 illustrates the recursive coefficients for the various variables in the Logit model, accompanied by their two-standard-error confidence intervals (±2 S.E.), as part of the model specification test. These graphs allow verification of whether the estimated coefficients remain stable and converge as progressively larger data subsamples are added. Correct model specification is suggested when the coefficients stabilize quickly and remain within the confidence intervals. In this figure, the coefficients exhibit clear convergence after an initial

phase of fluctuation, indicating that the model is appropriately specified for data analysis. The early fluctuations reflect the impact of limited subsample sizes on initial estimates, but the progressive stability of the coefficients reinforces the validity of the specification choices, confirming that the model is suitable for examining the relationships between explanatory variables and the entrepreneurial intentions of rural women.

Tests for multicollinearity, such as the Variance Inflation Factor (VIF), are not directly applicable to Logit models due to the nature of these models and the assumptions underlying VIF. Unlike linear regression models, where the relationships between explanatory variables and the dependent variable are linear, the Logit model relies on a non-linear relationship, using a logistic function to model the probability of the event. The VIF calculation assumes a linear structure among the explanatory variables, making its interpretation unsuitable for a Logit model. Confidence ellipses offer a more appropriate alternative for assessing collinearity in a Logit model. These ellipses provide a graphical representation of the relationship between two or more explanatory variables and their combined impact on coefficient estimates. A highly elongated or diagonally oriented ellipse indicates strong collinearity among variables, as it reflects high correlation in parameter estimates. Conversely, more circular or compact ellipses suggest low collinearity. This approach is better suited to Logit models because it does not rely on linearity assumptions and visually represents interactions and relationships between explanatory variables in a multivariate space.

Figure 2 : Confidence ellipse matrix
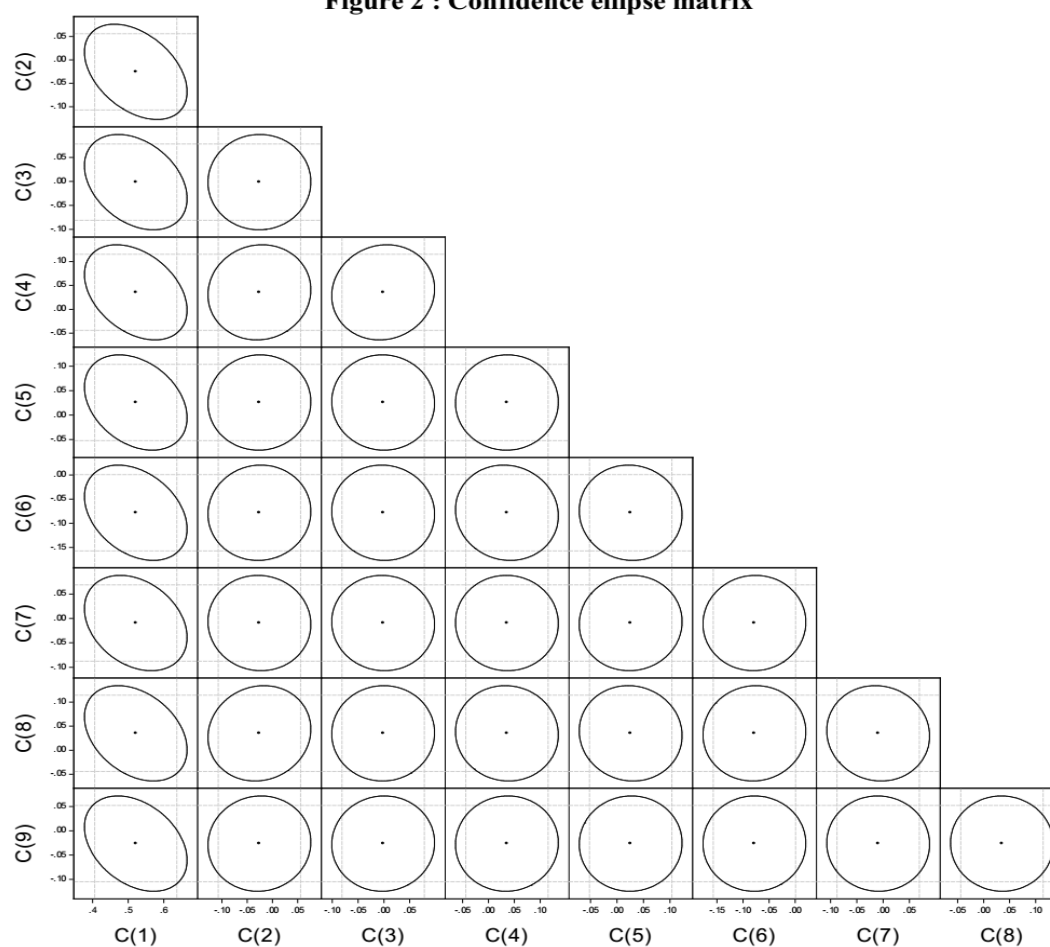
Source: authors

Figure 2 depicts the confidence ellipse matrix for the coefficients. In this figure, the ellipses are generally circular and compact, indicating low correlation between the estimated coefficients. This suggests no significant multicollinearity issue among the model's explanatory variables. The circular configuration of the ellipses also demonstrates that the relationships between explanatory variables are independent in the multivariate space. This supports the specification of the Logit model, confirming that each variable included provides a distinct contribution to explaining rural women's entrepreneurial intentions without major redundancy.

The choice of White's heteroscedasticity test for the Logit model is justified by its adaptability to the structural and non-linear specifics of this type of model. Unlike classical tests such as Breusch-Pagan, which rely on assumptions of linearity and normality of residuals, White's test is non-parametric and can detect complex forms of heteroscedasticity as well as potential misspecification in interaction terms or quadratic relationships. In a Logit model, where the dependent variable represents a probability constrained between 0 and 1, residuals do not follow a normal distribution, and their variance may vary non-linearly with explanatory variables. White's test is thus more robust as it does not depend on these restrictive assumptions. Furthermore, this test is particularly useful for identifying the effects of interactions, such as those between public policies and cultural norms (e.g., POLY × NORM), which may introduce variations in the residual variance. By analyzing a matrix of cross-products of explanatory variables, White's test provides a flexible and suitable approach to detecting heteroscedasticity in Logit model data.

Table 1: Heteroskedasticity Test: White Test

Heteroskedasticity Test: White			
F-statistic	1.039941	Prob. F(54,251)	0.4088
Obs*R-squared	55.94530	Prob. Chi-Square(54)	0.4017
Scaled explained SS	3.817806	Prob. Chi-Square(54)	1.0000

Source: authors

The results of White's heteroscedasticity test (Table 1) indicate that the null hypothesis of no heteroscedasticity cannot be rejected, confirming that the Logit model is homogeneous in terms of residual variance. The F-statistic of 1.039941, with a p-value of 0.4088, and the Obs*R-squared statistic of 55.94530, with a p-value of 0.4017, suggest that residual variations are not significantly related to the explanatory variables. Additionally, the Scaled explained SS value of 3.817806, with a p-value of 1.0000, further corroborates the absence of statistical evidence for heteroscedasticity in the model. These results demonstrate that the residuals exhibit constant variance, validating the model's specification and ensuring the robustness of the obtained estimates.

Figure 3: DFFITS Influence statistics
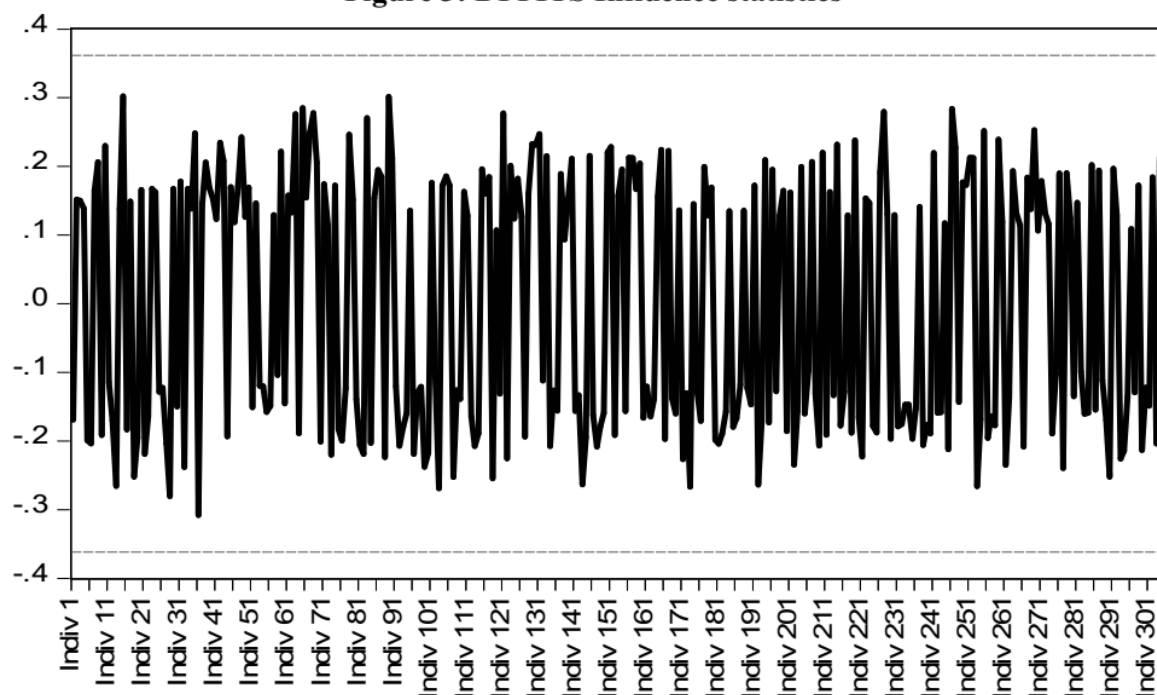
Source: authors

Figure 3 displays the DFFITS statistics for each observation, used to assess the individual influence of data points on the model's stability. DFFITS identifies observations that may have a significant impact on the estimated coefficients by indicating how much an observation alters these coefficients when it is included or excluded. In this graph, no observation exceeds the critical thresholds, suggesting that all data points contribute evenly to the model's results. This absence of highly influential observations confirms the stability of the Logit model and strengthens the reliability of the obtained estimates. The results indicate that the model is robust and that conclusions regarding the determinants of rural women's entrepreneurial intentions are not biased by outlier data points.

3.2. Results

The empirical methodology is based on the application of North's (1990) institutional theory to analyze how formal institutions (policies and infrastructures) and informal institutions (norms and traditions) influence the entrepreneurial intentions of rural Moroccan women. A Logit model was employed to estimate the probability of this intention, using a sample of 306 women who participated in public entrepreneurship training programs. The analysis highlights the interaction between institutions and individual behaviors, aiming to understand the mechanisms that hinder or promote female entrepreneurship in rural areas while identifying pathways to overcome institutional barriers.

The robustness of the Logit model was assessed through several approaches tailored to its non-linear nature. First, recursive coefficients were analyzed to verify their stability across successive subsamples, showing convergence and confirming proper specification. Confidence ellipses were used to evaluate collinearity among the explanatory variables, indicating significant independence and low redundancy in their contributions. Additionally, White's heteroscedasticity test confirmed the homogeneity of residual variance, with high p-values across different indicators, ensuring the absence of heteroscedasticity. Finally, the

DFFITS statistics revealed that no observation exerted disproportionate influence on the model, validating its stability and the reliability of the obtained estimates.

Table 2: results of the Logit model

Dependent Variable: ENTR				
Method: ML - Binary Logit (Newton-Raphson / Marquardt steps)				
Sample: 1 306				
Included observations: 306				
Convergence achieved after 4 iterations				
Coefficient covariance computed using observed Hessian				
Variable	Coefficient	Std. Error	z-Statistic	Prob.
C	1.698306	0.611779	2.776012	***0.0058
NORM	-1.081585	0.394816	-2.739465	***0.0065
TRAD	-0.868256	0.414237	-2.096038	**0.0369
POLY	0.302855	0.397144	0.762582	***0.4463
INFR	1.246999	0.415028	3.004614	**0.0029
POLY.NORM	1.046325	0.423807	2.468872	**0.0141
AGEW	1.111385	0.403841	2.752035	***0.0063
EDUC	-0.545580	0.420923	-1.296152	0.1959
INCM	0.738154	0.397360	1.857644	*0.0642

Source: authors; ***Significant at 1%; **Significant at 5%; *Significant at 10%.

The results of the Logit model indicate that unfavorable gender norms (NORM) have a significant and negative effect on the entrepreneurial intentions of rural women, significant at the 1% level. This confirms H1, which posits that cultural norms and traditions play a restrictive role by limiting women's entrepreneurial opportunities. These norms impose sociocultural expectations on women's roles, thereby hindering their ability to engage in economic initiatives. Cultural traditions (TRAD), with a significant negative coefficient at the 5% level, also negatively affect female entrepreneurship. These findings validate H2, which states that rigid gender stereotypes and patriarchal values reduce women's access to essential entrepreneurial resources, such as credit, networks, and training. Regarding public policies promoting female entrepreneurship (POLY), the positive coefficient is not significant (p-value = 0.4463). This suggests that while policies may theoretically have a positive impact, their implementation or relevance remains limited in the studied context. Consequently, H3 is not supported by these results, highlighting the need to improve the design and execution of public policies.

Legal and economic infrastructures (INFR) show a significant positive effect on entrepreneurial intention, with a coefficient significant at the 1% level. These results support H4, which postulates that access to adequate infrastructures plays a key role in strengthening rural women's entrepreneurial engagement. The interaction between formal and informal institutions (POLY.NORM) is also significant at the 5% level. This validates H5, demonstrating that coherence between public policies and sociocultural norms fosters female entrepreneurship. This result underscores the importance of creating synergies between institutions to overcome institutional barriers. The age of women (AGEW) shows a significant positive effect at the 1% level, indicating that older women have greater entrepreneurial intentions. This may be explained by increased experience or better socioeconomic stability. Education (EDUC), on the other hand, is not significant (p-value =

0.1959), suggesting that, in this context, the level of formal education does not have a direct effect on entrepreneurial intention. Finally, household income (INCM) shows a marginal positive influence (p-value = 0.0642, significant at the 10% level). This suggests that women from higher-income households have more resources to engage in entrepreneurial activities.

3.3. Discussion

The results highlight the predominant influence of sociocultural norms and cultural traditions on rural female entrepreneurship. These informal barriers shape the perceptions and behaviors of rural Moroccan women, limiting their economic participation and ability to explore entrepreneurial opportunities. These dynamics reinforce stereotypes and restrict access to essential resources such as financing, professional networks, and training. For rural Moroccan women, societal transformation is necessary to help them overcome these obstacles. Community and educational initiatives involving both rural women and influential members of rural communities could help shift these perceptions while promoting their inclusion in more equitable local economic ecosystems. Public policies and tailored legal infrastructures play an important role in facilitating rural female entrepreneurship. However, the results show that current policies are ineffective in their implementation or fail to fully address the specific needs of women. Economic and legal infrastructures, when available, emerge as critical levers for enhancing their capacity to undertake entrepreneurial activities. These findings call for a revision of public policies to incorporate a more targeted approach to rural challenges. This could include developing training programs adapted to the realities of rural Moroccan women, simplified mechanisms for accessing credit, and initiatives to strengthen local institutional capacities to better enforce existing laws. Coherence between formal policies and informal sociocultural realities is essential to maximize their impact.

The interaction between formal and informal institutions underscores that introducing public policies without addressing the surrounding social norms is insufficient. An integrated approach, combining institutional reforms with community awareness campaigns, could create a more supportive environment for rural female entrepreneurship. For instance, partnerships between governments, non-governmental organizations, and local communities could help align laws with the needs and realities of women. The findings thus show that transforming informal norms, combined with inclusive and well-implemented public policies, is essential to removing institutional barriers that hinder rural female entrepreneurship. These measures can not only boost the economic participation of rural women but also contribute to more equitable and sustainable development in rural areas.

Conclusion

This paper focuses on the duality between formal and informal institutions and their influence on rural female entrepreneurship, using Douglass North's (1990) institutional theory as an analytical framework. It demonstrates how sociocultural norms, patriarchal traditions, and public policies interact to shape the opportunities and challenges faced by rural women in their entrepreneurial pursuits. Informal institutions, such as cultural norms and gender stereotypes, play a central role in limiting women's entrepreneurial intentions. These deeply entrenched norms impose rigid social expectations about gender roles and restrict women's access to essential resources, such as credit, specialized training, or professional networks. For instance, stereotypes suggesting that women are less competent in managing businesses create barriers not only in their self-perception but also in the perceptions of investors, business partners, and local communities. Additionally, patriarchal traditions directly affect women's mobility and economic autonomy, reinforcing disparities that limit their entrepreneurial potential.

In parallel, formal institutions, though essential for creating a favorable framework for female entrepreneurship, exhibit notable weaknesses. Public policies and legal infrastructures in rural areas, while potentially reducing inequalities, are often poorly adapted or insufficiently enforced. For example, limited access to targeted support programs or appropriate financing mechanisms exacerbates the structural challenges faced by women. Despite the existence of some gender-equality laws and policies, their impact remains marginal in areas where dominant cultural norms disapprove of women's economic empowerment. The paper also highlights the importance of the interaction between formal and informal institutions. The findings show that coherence between these two types of institutions is crucial to maximizing the impact of public policies. For instance, positive interaction between appropriate legal infrastructures and supportive social norms can help remove sociocultural barriers, whereas a lack of alignment creates an ambiguous environment.

Gender norms and cultural traditions have a significantly negative effect on rural women's entrepreneurial intentions, while access to appropriate infrastructures has a positive impact. The interaction between public policies and sociocultural norms also demonstrates a positive influence, emphasizing the need to create synergies between these dimensions. Thus, the paper underscores the necessity of an integrated approach to overcoming institutional barriers that hinder rural female entrepreneurship. This approach involves not only strengthening public policies and economic infrastructures but also transforming sociocultural norms through community initiatives, awareness campaigns, and partnerships between public and private actors. Such an approach would foster a more inclusive and supportive environment for women's empowerment while promoting sustainable and equitable economic development in rural areas. These measures are essential to addressing the specific needs of rural women and maximizing their contribution to local and national development.

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