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Does education influence the intention to formalize economic activities? Evidence from Morocco

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Abstract: This study examines the role of the level of education in the formation of the intention to formalize economic activities carried out in the informal sector in Morocco. Grounded in the theoretical framework of human capital, the study considers education as a multidimensional lever influencing entrepreneurs' cognitive, organizational, and strategic capacities, as well as their relationship with formal institutions. The objective is to analyze how education shapes trade-offs between remaining in informality and transitioning to the formal sector, by affecting the perception of the costs and benefits of formalization, the management of institutional risk, and access to structured economic opportunities. The empirical analysis is based on a field survey conducted among 275 Moroccan entrepreneurs operating in the informal economy, mainly in the sectors of trade, handicrafts, and services. A binary Logit model is employed to estimate the effect of several education-related mechanisms on the intention to formalize, while incorporating individual and contextual control variables. The results indicate that the intention to formalize is significantly influenced by managerial skills, cost–benefit analysis capacity, integration into formal networks, and a reduction in institutional risk aversion. By contrast, access to information, when considered in isolation, is not sufficient to trigger an intention to formalize. Economic and family characteristics also moderate this decision, highlighting the weight of security constraints and economic viability. These results suggest that formalization in Morocco constitutes a gradual process, closely linked to the development of human capital and the maturity of entrepreneurial trajectories, rather than a simple change in legal status. The study therefore argues for public policies focused on strengthening educational and entrepreneurial capacities, adapted to the specific realities of the Moroccan informal economy.

Keywords: education; human capital; informal economy; intention to formalize; entrepreneurship.

1. Introduction

The persistence of the informal economy constitutes one of the structural features of developing economies, and Morocco is no exception, with a significant share of economic activities carried out outside formal regulatory and institutional frameworks. This situation raises major challenges in terms of economic growth, productivity, social protection, and the mobilization of public resources. In this context, the formalization of economic activities is generally presented as an essential lever of development, likely to improve entrepreneurs' legal security, broaden the tax base, and promote fairer competitive conditions. However, despite the multiplication of administrative reforms, support schemes, and public incentives implemented in Morocco, formalization rates remain relatively limited, which raises questions about the deeper determinants of the choices made by actors in the informal economy. Rather than approaching formalization as a strictly administrative decision or one imposed by constraint, an intention-based approach makes it possible to better capture the cognitive, economic, and

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social mechanisms that precede the actual transition to the formal sector. The intention to formalize thus appears as a decisive intermediate stage, revealing the trade-offs made by Moroccan entrepreneurs between economic opportunities, institutional risks, and structural constraints. Among the factors likely to influence this intention, the level of education occupies a central place, insofar as it shapes analytical capacities, perceptions of institutions, and understanding of the issues associated with formalization. Exploring the role of education thus helps to shed light on the internal drivers of the decision to formalize in Morocco, beyond regulatory instruments and formal incentive measures alone.

Education is traditionally analyzed as an investment in human capital capable of increasing productivity, income, and professional opportunities. Applied to the field of informal entrepreneurship, it can also be viewed as a structuring factor of economic actors' strategic choices. By strengthening managerial skills, anticipatory capacity, and access to information, education alters the way entrepreneurs perceive the costs and benefits associated with formalization. It also influences relationships with institutions, tolerance for regulatory risk, and integration into formal economic networks. However, the effects of education on formalization are neither automatic nor uniform. They depend on the content of training, its adequacy with socio-economic realities, as well as the structural and social constraints within which entrepreneurs operate. In some contexts, general education may have no direct effect, whereas targeted forms of entrepreneurial training produce more significant impacts. Consequently, analyzing the role of the level of education in the intention to formalize makes it possible to move beyond a simplified view of the link between schooling and formality, and to highlight the mechanisms through which human capital influences economic behavior. This study is situated within this perspective, mobilizing a theoretical framework grounded in human capital theory and an empirical approach aimed at identifying the channels through which education shapes the intention to formalize informal economic activities.

2. Literature review

Kolm and Larsen (2016) show that the existence of an informal sector directly influences individuals' educational choices when informal opportunities are mainly accessible to low-skilled workers. In this context, higher education becomes less attractive, since the possibility of generating income in informality reduces the incentive to invest in human capital. This dynamic contributes to maintaining a limited stock of educated workers likely to integrate into the formal sector. Bigsten, Kimuyu, and Lundvall (2004) observe that the level of education of business owners plays a decisive role in the decision to operate in the informal sector, suggesting that education structures entrepreneurial trajectories toward more or less regulated forms. Perry et al. (2006) emphasize that education improves income and prospects for occupational mobility, making the transition to the formal sector more attractive for workers with higher levels of schooling. Taken together, these studies imply that education acts simultaneously on economic incentives, access to formal opportunities, and the trade-off between remaining in informality and moving toward regulated activities, thereby influencing the intention to formalize.

Chijikwa and Mulenga (2022) highlight entrepreneurial training as a lever that promotes the development and formalization of small and medium-sized enterprises, emphasizing that education facilitates adaptation to the requirements of the formal sector. These findings are consistent with those of El Hamidi et al. (2021), who empirically show that entrepreneurs' level of education is positively correlated with their intention to formalize informal activities. This relationship is attributed to a better understanding of administrative procedures and the advantages associated with formal status. Paula and Scheinkman (2007) consider education as a proxy for entrepreneurial ability, showing that it interacts with formal status to influence firm size and increase the probability of formalization. Taken together,

these studies imply that education strengthens the informational and decision-making capacities necessary to envisage a transition toward formality. The intention to formalize thus appears linked to the accumulation of knowledge and skills that enable entrepreneurs to anticipate regulatory constraints and assess the expected benefits of integration into the formal economy.

Jiménez et al. (2015) show that education raises entrepreneurs' awareness of the limits and costs of informal entrepreneurship; while providing managerial skills useful for operating in the formal sector, even though practical experience may sometimes play a more decisive role. Kuepie, Nordman, and Roubaud (2009) observe that education enhances access to the formal sector by increasing expected gains and influencing employment choices in urban West Africa. Gallaway and Bernasek (2002) point out that poorly educated individuals, particularly women, are more likely to work in the informal sector, indicating that educational deficits limit access to formal opportunities. These contributions imply that education acts as a selection mechanism toward the more structured segments of the labor market. The intention to formalize thus appears linked to individuals' capacity to mobilize their educational capital to access activities offering greater economic stability and institutional recognition.

Fiona Leach (1996) emphasizes that formal and non-formal education systems often reproduce weakly valued norms and skills, limiting women's capacity to access formalized economic activities. Ed-Dib and El Hamidi (2019) show that, in the Moroccan rural context, women's level of education has no significant effect on entrepreneurial intention, which is instead more strongly influenced by infrastructure and social norms. Muparangi and Makudza (2021) demonstrate that it is the specific dimensions of entrepreneurial education, such as knowledge and attitudes, that positively influence the intention to formalize, rather than the level of general education. These studies imply that schooling, when not adapted to socio-economic realities, may have no direct effect on formalization. By contrast, targeted educational schemes appear more likely to support an orientation toward formal activities.

Muparangi, Makudza, and Kandwa (2022) argue that entrepreneurial education represents a means of transforming informal activities into structured enterprises by equipping actors with skills oriented toward organization, management, and compliance. Their position highlights that formalization does not rely solely on a change in legal status, but on a gradual capacity to structure economic activity. Walther (2013) stresses the development of skills in the informal sector to enable the transition from a subsistence economy to an economy of growth and value added. He emphasizes that investment in training, particularly for actors who already possess a certain level of education, promotes skill upgrading compatible with the requirements of the formal sector. Langer (2013) highlights that targeted skill-based interventions can increase productivity, improve incomes, and facilitate the transition to the formal sector, while taking into account the heterogeneity of the informal sector. Taken together, these studies imply that education, when conceived as capacity building adapted to the economic and organizational realities of the informal sector, supports the intention to formalize by improving actors' ability to structure their activities and interact with formal institutions.

Adeoye and Adeyeye (2018) show that tax knowledge directly influences the compliance of small and medium-sized enterprises, indicating that an understanding of tax rules facilitates adherence to the formal framework. Their work suggests that education on tax obligations reduces the perceived costs associated with formalization by clarifying firms' rights and duties. Imam et al. (2017) also emphasize that tax education improves knowledge of taxes and positively influences the tax behavior of artisanal enterprises, by strengthening perceptions of fairness and legitimacy within the tax system. Rankin et al. (2010) observe that higher levels of education are associated with a greater probability of formal employment in various African contexts, highlighting the role of education in orienting individuals toward regulated forms of activity. Overall, these results imply that education strengthens economic

actors' capacity to understand, accept, and integrate the institutional requirements related to taxation and formal employment. This capacity helps reduce the cognitive and informational barriers associated with formalization, thereby indirectly supporting the intention to comply with rules and to integrate sustainably into the formal sector.

Glick and Sahn (1997) show that education influences access to employment and wage levels, distinguishing self-employment from wage employment, which sheds light on economic choices without directly addressing formalization. Gregg et al. (2019) emphasize that education and skill enhancement improve the productivity of informal workers and their capacity to integrate into the formal sector by enabling them to meet the requirements of the regulated labor market. Williams and Round (2009) highlight the importance of institutional and normative factors in choices between formality and informality, suggesting that education, as a vector of socialization, influences perceptions of legality and institutional legitimacy. Kingdon et al. (2005) provide a descriptive framework of African economies characterized by high levels of informality and unemployment, situating these dynamics within a structural context. Gërxhani and van de Werfhorst (2011) show that education reduces participation in the informal economy through increased income and, above all, through the internalization of civic values, independently of income level. These contributions imply that education influences the intention to formalize through economic and normative mechanisms that shape individual choices vis-à-vis formal institutions.

3. Methods

3.1. Research hypotheses

Human capital theory, developed by Becker (1964), posits that education and training constitute intangible investments capable of increasing individual and organizational productivity. Indeed, the accumulation of knowledge, skills, and know-how increases individuals' economic value in the labor market and influences their strategic behavior. Far from being limited to an instrumental role, education is considered a vector of rationalization of choices, as it improves analytical capacity, understanding of institutional environments, and risk management. It also strengthens decision-making autonomy and broadens professional horizons by facilitating access to information and integration into structured networks. Applied to the issue of the formalization of economic activities, this theory helps explain how the level of education can transform the perceptions of informal entrepreneurs. A more educated entrepreneur is better able to assess the costs and benefits of formalization, to grasp the opportunities offered by access to finance or public markets, and to reduce aversion to institutional risk. Thus, education acts as a decisive lever that fosters the intention to formalize, making this process not an imposed constraint but a rational strategic choice offering future prospects.

Directly inspired by Becker's (1964) human capital theory, the following mechanisms explain how the level of education can lead informal entrepreneurs to consider formalizing their activities.

- **Skills, analysis, and rational management**: Education constitutes an essential vector for the development of managerial skills, as it enables entrepreneurs to optimize the use of their human, financial, and material resources. This mastery promotes sustainable organization oriented toward strategic planning and the pursuit of efficiency. It is accompanied by a more advanced cost–benefit analysis capacity, which encourages educated individuals to compare the immediate costs of formalization with future benefits such as access to credit, public procurement, or legal protection. By combining economic rationality with organizational skills, education encourages viewing formalization as a relevant choice.
- **Information, anticipation, and strategic vision**: A higher level of education improves understanding of institutional arrangements and facilitates access to administrative information. Better-educated entrepreneurs are able to identify and use public or private

support programs, which reduces information asymmetry and uncertainties related to formalization. Moreover, education develops a strategic vision, transforming formalization into an opportunity rather than a constraint. It enables anticipation of future benefits such as market expansion, partnership creation, or enhanced competitiveness, thereby reinforcing the idea that the transition to formality opens up real growth prospects.

- **Networks and institutional trust:** Education increases the likelihood of integration into formal networks, particularly with banks, public administrations, and professional associations. These networks value legal status and exert an incentive effect toward formalization in order to avoid economic exclusion. In addition, educated entrepreneurs have a better understanding of how institutions function and develop greater trust in public arrangements. This understanding reduces their aversion to institutional risk and transforms formalization into a factor of business security. By combining relational capital and institutional trust, education strengthens the propensity to exit informality.

In line with Becker's (1964) human capital theory, education appears as a central lever influencing the strategic choices of informal entrepreneurs. It strengthens their skills, improves their access to information, and alters their perception of the opportunities and risks associated with formalization. On this basis, the research hypotheses are formulated as follows:

- ***H1: The strengthening of managerial skills through education has a positive effect on the intention to formalize economic activities.***
- ***H2: The cost–benefit analysis capacity developed through education has a positive effect on the intention to formalize economic activities.***
- ***H3: Easier access to information enabled by education has a positive effect on the intention to formalize economic activities.***
- ***H4: Strategic vision and anticipation of opportunities acquired through education have a positive effect on the intention to formalize economic activities.***
- ***H5: Integration into formal networks facilitated by education has a positive effect on the intention to formalize economic activities.***
- ***H6: The reduction of aversion to institutional risk through education has a positive effect on the intention to formalize economic activities.***

3.2. The model

In order to empirically test the hypotheses, an econometric model is employed to analyze the impact of the level of education on the intention to formalize economic activities. On this basis, the model is presented as follows:

$$FORM_{\mathrm{i}} = \beta_0 + \beta_1.GEST_{\mathrm{i}} + \beta_2.COBE_{\mathrm{i}} + \beta_3.INFO_{\mathrm{i}} + \beta_4.STRA_{\mathrm{i}} + \beta_5.NETW_{\mathrm{i}} + \beta_6.RISK_{\mathrm{i}} + \beta_7.AGEE_{\mathrm{i}} + \beta_8.GENR_{\mathrm{i}} + \beta_9.INCM_{\mathrm{i}} + \beta_{10}.FAMI_{\mathrm{i}} + \varepsilon_{\mathrm{i}}$$

The binary dependent variable FORM denotes the intention to formalize economic activities (FORM = 1). This indicator captures the propensity of informal entrepreneurs to consider a transition toward the formal sector. The variable GEST refers to managerial skills developed through education, reflecting the ability to organize and optimize the use of human, financial, and material resources. Such mastery promotes a more rational approach to business activity and makes formalization more attractive. COBE, in turn, expresses the capacity for cost–benefit analysis, stemming from the human capital accumulated through education, which allows entrepreneurs to compare fiscal and administrative constraints with the advantages associated with formalization, such as access to credit or legal protection. INFO reflects facilitated access to information through education, particularly with regard to regulation, taxation, and public or private support schemes.

The variable STRA captures strategic vision and the ability to anticipate opportunities fostered by education, thereby transforming formalization into a lever for growth and expansion. NETW relates to integration into formal networks, strengthened by the level of education and opening the door to institutional partnerships. Finally, RISK corresponds to the reduction of aversion to institutional risk, as educated entrepreneurs develop a better understanding of the regulatory framework and perceive formalization as a factor of business security. The main explanatory variables are measured by six items each on a Likert scale ranging from 1 to 5, with the average value constituting the retained indicator. In addition, control variables are included in order to account for individual and contextual specificities. AGEE represents the entrepreneur's age and captures the effect of accumulated experience. GENR denotes gender, which may influence access to resources and opportunities for formalization. INCM refers to satisfaction with income generated by the informal activity. FAMI represents the number of dependents, which may weigh on economic decision-making and the importance attached to securing the activity.

3.3. Choice of econometric method

The use of a binary Logit model is justified by the nature of the dependent variable, which is defined as an intention to formalize with two distinct outcomes: to formalize (1) or not to formalize (0). In this case, linear regression models are not appropriate, as they do not ensure probability values bounded between 0 and 1 and may lead to model misspecification. The Logit model is based on a cumulative logistic distribution function that transforms the linear combination of explanatory variables into a bounded probability, thereby allowing a proper linkage between observed determinants and the probability of formalization. From an analytical perspective, this model makes it possible to estimate the effect of explanatory variables on the logarithm of the odds ratio (log-odds), thus enabling interpretation of the relative variation in probabilities associated with each factor.

3.4. Presentation of the sample

The empirical analysis is based on a sample of 275 Moroccan entrepreneurs operating in the informal sector, selected through a field survey conducted among actors engaged in unregistered economic activities. The sample consists of individuals involved in income-generating activities mainly in trade, handicrafts, and services, sectors that are characterized in Morocco by a high prevalence of informality. Respondents were identified according to precise criteria attesting to their effective belonging to the informal sector, notably the absence of administrative registration, regular tax declaration, or formal social security coverage. The diversity of observed profiles makes it possible to capture marked heterogeneity in terms of age, gender, level of education, and family situation, thus providing a relevant analytical basis for the study of the intention to formalize. The age of the entrepreneurs covers a wide range, reflecting differentiated professional trajectories, from early entry into informal activity to more experienced paths. The gender dimension highlights the presence of both men and women, allowing the integration of potential disparities related to social and institutional constraints specific to the Moroccan context. The level of education, a central variable in the study, displays a contrasted distribution, ranging from the absence of formal schooling to secondary and higher levels of education. Finally, consideration of satisfaction with income and the number of dependents makes it possible to incorporate the economic and family constraints likely to influence the strategic choices of Moroccan entrepreneurs.

4. Results

4.1. Robustness analysis

Table 1, devoted to the Ramsey RESET specification test, confirms that the model explaining the intention to formalize is correctly specified. The results show a complete absence of functional form error, as indicated by the t-statistic (0.1534; $p = 0.8782$), the F-statistic (0.0235; $p = 0.8782$), and the Likelihood Ratio (0.0246; $p = 0.8754$), all of which are not statistically significant. The inclusion of the squared fitted values does not lead to any improvement in the model, which means that there are neither relevant omitted variables nor unaccounted-for nonlinearities. The closeness between the Restricted SSR (66.82098) and the Unrestricted SSR (66.81500) confirms this conclusion. Thus, Table 1 attests to the good specification of the retained Logit model.

Table 1. Ramsey RESET Specification Test

Specification: FORM C GEST COBE INFO STRA NETW RISK AGEE GENR INCM FAMI			
Omitted Variables: Squares of fitted values			
	Value	df	Probability
t-statistic	0.153408	263	0.8782
F-statistic	0.023534	(1, 263)	0.8782
Likelihood ratio	0.024607	1	0.8754
F-test summary:			
	Sum of Sq.	df	Mean Squares
Test SSR	0.005979	1	0.005979
Restricted SSR	66.82098	264	0.253110
Unrestricted SSR	66.81500	263	0.254049

Source: authors;

Table 2, related to the Variance Inflation Factors (VIF), confirms the absence of multicollinearity problems among the explanatory variables of the model. The centered VIF values range between 1.003 and 1.039, well below the critical threshold of 5, indicating that the relationships among the variables are weak and do not bias the estimations. The uncentered VIF values are higher, but they are not problematic, as they incorporate the constant term. The variances of the coefficients remain low, showing the stability of the model parameters. Thus, Table 2 attests that the model structure is sound: no predictor exerts an excessive influence on another, and the coefficients can be interpreted reliably.

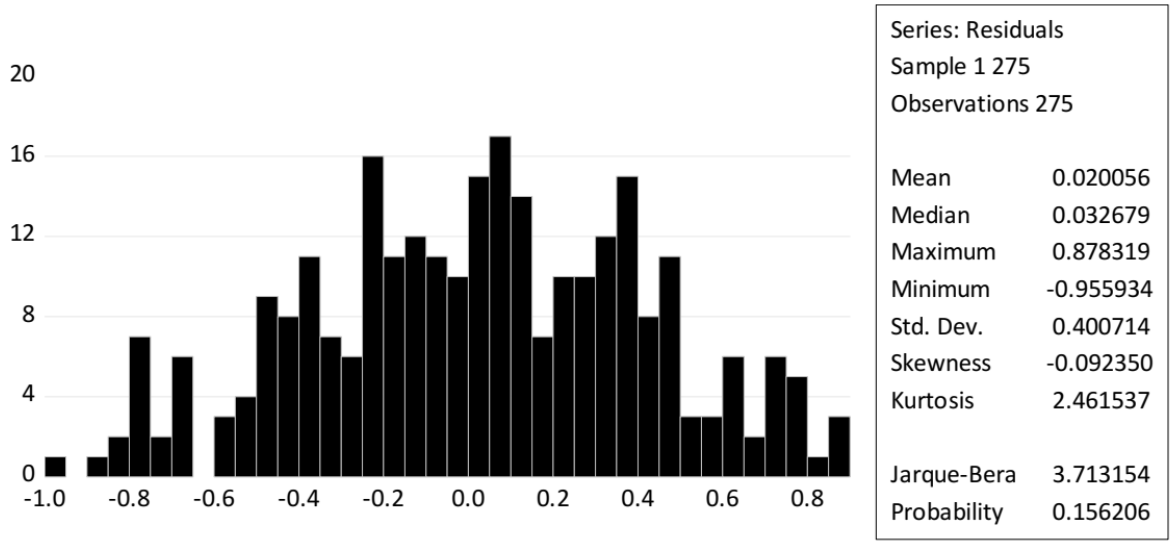
Table 2. Variance Inflation Factors (VIF)

Variance Inflation Factors Sample: 1 275 Included observations: 275			
Variable	Coefficient Variance	Uncentered VIF	Centered VIF
C	0.029709	32.27830	NA
GEST	0.010982	4.002445	1.038567
COBE	0.011828	4.045587	1.016917
INFO	0.011478	4.213814	1.028592
STRA	0.011006	3.968051	1.024435
NETW	0.010385	3.706271	1.003905
RISK	0.010174	3.513032	1.021390
AGEE	0.010810	3.963122	1.018483
GENR	0.011297	4.153760	1.026766
INCM	0.011949	4.392721	1.012689
FAMI	0.012143	4.194744	1.024539

Source: authors;

Figure 1, depicting the distribution of the residuals along with the Jarque–Bera normality test, confirms the good adequacy of the model. The histogram displays an overall symmetric shape around zero, with no excessive flattening or abnormal peaks, reflecting a regular dispersion of the residuals. The statistical indicators support this observation: a mean close to zero (0.0200), a similar median, low skewness (−0.092), and moderate kurtosis (2.46). The Jarque–Bera statistic of 3.71, associated with a probability of 0.156, is not statistically significant, indicating the absence of any notable deviation from normality. Thus, Figure 1 shows that the residuals satisfy the assumptions of residual normality.

Figure 1. Distribution of Residuals and Jarque–Bera Normality Test



Source: authors;

Table 3, devoted to the Harvey heteroskedasticity test, confirms the homoskedasticity of the residuals and the stability of the variance in the estimated model. The three reported statistics—the F-statistic (1.1097; p = 0.3549), the Obs*R-squared (11.0929; p = 0.3503), and the Scaled Explained SS (0.2777; p = 1.0000)—are all not statistically significant. These probabilities, which are well above the 5% threshold, indicate that the null hypothesis of homoskedasticity cannot be rejected. In other words, the variance of the errors remains constant, with no evidence of distortion related to the explanatory variables. Thus, Table 3 attests that the model does not suffer from heteroskedasticity.

Table 3. Harvey Heteroskedasticity Test

Statistic	Value	Associated Test	Probability
F-statistic	1.109681	F(10, 264)	0.3549
Obs*R-squared	11.09291	Chi-Square(10)	0.3503
Scaled explained SS	0.277696	Chi-Square(10)	1.0000

Source: authors;

Figure 2, which illustrates the RStudent values (studentized residuals), shows the absence of influential observations that could compromise the stability of the model. The graph reveals a dispersion of values mainly fluctuating between −2 and +2, which corresponds to the acceptable range according to standard diagnostic criteria. No point exceeds the usual critical thresholds (±3), indicating that none of the observed SMEs exerts an excessive influence on the coefficients or on the overall fit of the model. The dense, homogeneous distribution without any particular pattern also confirms the absence of structural anomalies or extreme cases that could bias the results. Thus, Figure 2 attests that the model is robust to individual observations and that the estimates produced are not driven by atypical values.

Figure 2. Influence Statistics: RStudent Values

Source: authors;

All the tests performed confirm the robustness and reliability of the estimated model. The Ramsey RESET test shows the absence of specification error, indicating that the functional form is correctly defined. The centered VIF values, all close to 1, attest to a complete absence of multicollinearity, ensuring the stability of the coefficients. The distribution of the residuals is regular and symmetric, and the non-significant Jarque–Bera test confirms their normality. The Harvey heteroskedasticity test rejects any abnormal variation in the variance of the errors, validating homoskedasticity. Finally, the RStudent values reveal no influential points or problematic observations. Taken together, these results demonstrate that the model is well specified, statistically consistent, and free from structural biases.

4.2. Regression results

Table 4 presents the results of the binary Logit model estimating the intention to formalize (FORM) based on a sample of 275 observations. The model is estimated using the maximum likelihood method, employing the Newton–Raphson and Marquardt algorithms, with convergence reached quickly after three iterations, which attests to the numerical stability of the estimation. The variances of the coefficients are computed from the observed Hessian matrix, ensuring a rigorous estimation of the uncertainty surrounding the parameters.

Table 4. Binary Logit Model Results

Dependent Variable: FORM Method: ML - Binary Logit (Newton-Raphson / Marquardt steps) Sample: 1 275 Included observations: 275 Convergence achieved after 3 iterations Coefficient covariance computed using observed Hessian				
Variable	Coefficient	Std. Error	z-Statistic	Prob.
C	6.248222	2.300721	2.715768	***0.0070
GEST	13.074014	4.732410	2.762655	***0.0061
COBE	2.902246	1.191213	2.436379	**0.0155
INFO	-0.456489	0.858399	-0.531791	0.5953
STRA	3.243819	1.715972	1.890369	*0.0598
NETW	11.971693	4.259075	2.810867	***0.0053
RISK	6.436814	3.645157	1.765854	*0.0785
AGEE	2.310341	0.853210	2.707821	***0.0072
GENR	-1.043269	2.677479	-0.389646	0.6971
INCM	1.345802	0.440893	3.052446	***0.0025
FAMI	-5.292630	2.130290	-2.484464	**0.0136

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

GEST displays a positive sign and a statistically significant effect at the 1% level (p = 0.0061), indicating that the strengthening of managerial skills increases the probability of considering formalization. This result validates H1, in line with the idea that organizational mastery and the ability to structure business activities make the transition to the formal framework more attractive, as it is perceived as a rational extension of already organized practices. COBE also shows a positive sign, with significance at the 5% level (p = 0.0155). This relationship confirms H2 and suggests that cost–benefit analysis capacity plays a decisive role in the trade-off between remaining informal and moving to the formal sector. The implication is that individuals who are able to assess the future benefits of formalization are more inclined to accept its immediate constraints. INFO is characterized by a negative but non-significant sign (p = 0.5953), indicating the absence of a statistically demonstrated effect on the intention to formalize. H3 is therefore rejected, implying that access to information, when considered in isolation, is not sufficient to trigger an intention to formalize if it is not accompanied by appropriation capacities or concrete incentive mechanisms.

STRA presents a positive sign and significance at the 10% level (p = 0.0598). This result allows H4 to be accepted at a moderate level and suggests that strategic vision and anticipation capacity contribute to orienting entrepreneurs toward formalization, by perceiving it as a growth opportunity rather than as a mere regulatory obligation. NETW shows a strongly positive sign and significance at the 1% level (p = 0.0053). This result clearly validates H5 and highlights that integration into formal networks constitutes a powerful lever encouraging formalization. The implication is that relational embeddedness with institutions, partners, or structured organizations makes formal status economically and socially more desirable. RISK displays a positive sign with significance at the 10% level (p = 0.0785), leading to the acceptance of H6. This result implies that the reduction of aversion to institutional risk promotes the intention to formalize, by transforming the relationship with rules and institutions into a factor of security rather than a source of uncertainty.

AGEE exhibits a positive sign and significance at the 1% level (p = 0.0072), indicating that accumulated experience associated with age strengthens the intention to formalize. The implication is that older entrepreneurs tend to prioritize stability, legal security, and the sustainability of their activity, bringing them closer to the formal framework. GENR shows a negative but non-significant sign (p = 0.6971), suggesting that gender does not exert a statistically established differential effect on the intention to formalize in this model. This implies that, all else being equal, educational and organizational determinants dominate gender-related effects. INCM presents a

positive sign with significance at the 1% level (p = 0.0025). This result indicates that satisfaction with income derived from informal activity increases the intention to formalize, implying that formalization is envisaged as a means of consolidating an activity already perceived as economically viable. FAMI is characterized by a negative sign and significance at the 5% level (p = 0.0136). This result suggests that family burden reduces the intention to formalize, implying that economic constraints related to dependents reinforce risk aversion and encourage preference for more flexible forms of activity, even if they remain informal.

5. Discussion

The empirical results highlight that the intention to formalize is primarily driven by mechanisms related to acquired capacities and the rationalization of economic choices. The observed positive effects confirm that when entrepreneurs possess strong organizational and decision-making skills, they are more inclined to view formalization as a logical continuation of their activity rather than as an external constraint. This dynamic is fully consistent with human capital theory, according to which the accumulation of skills enhances the ability to compare immediate costs with future benefits and to adopt strategies oriented toward sustainability. Formalization thus appears as a reasoned choice, grounded in the anticipation of advantages such as legal security, access to new markets, or the consolidation of entrepreneurial trajectories. The results also emphasize the central role of social and institutional interactions, showing that embeddedness in structured environments increases the attractiveness of formal status. This observation is in line with the literature that stresses the importance of networks and institutional trust in reducing the uncertainty associated with the transition to formality. By contrast, the absence of a significant effect of certain informational mechanisms suggests that the mere availability of information is not sufficient to trigger an intention to formalize if it is not accompanied by appropriation capacities, analytical skills, and credible economic prospects. Thus, the results confirm that formalization relies less on the passive accumulation of information than on its transformation into coherent strategic decisions oriented toward growth.

Moreover, the results related to individual and contextual characteristics provide additional insight into the conditions under which the intention to formalize emerges. The positive effect associated with accumulated experience suggests that formalization is more likely to be considered at a stage where the activity reaches a certain level of maturity, encouraging entrepreneurs to seek stability and long-term security. This logic is consistent with the idea that formalization becomes relevant when the activity moves beyond an immediate survival rationale and enters a perspective of sustainability. Similarly, the favorable influence of economic satisfaction indicates that formalization is not perceived as a response to precariousness, but rather as a means of consolidating an activity already regarded as viable. Conversely, the negative effect related to family constraints highlights that economic responsibilities increase risk aversion and orient choices toward forms of activity offering greater flexibility, even at the cost of remaining informal. The absence of a differentiated gender effect suggests that, within this analytical framework, educational and organizational determinants outweigh sociodemographic characteristics. Overall, these results confirm that the intention to formalize is the product of a complex trade-off between individual capacities, economic security, and social constraints, and that it depends less on isolated factors than on their gradual combination within entrepreneurial trajectories.

6. Conclusion

This study highlights that the intention to formalize informal economic activities is closely linked to the structuring role of education conceived as a multidimensional form of human capital. The results confirm that education acts less as a simple indicator of schooling level than as a cognitive and strategic lever that transforms the way entrepreneurs perceive their economic and institutional environment. By strengthening managerial, analytical, and anticipatory capacities, education alters the trade-off between the immediate costs and the future benefits associated with formalization, making the latter more acceptable and more desirable. Formalization thus appears as a rational choice based on an informed assessment of growth opportunities, legal security, and access to resources, rather than as an imposed administrative obligation. This interpretation is fully consistent with human capital theory, according to which the accumulation of knowledge and skills improves the quality of economic decision-making and the ability to manage uncertainty. The study also shows that the effect of education depends on its capacity to be translated into operational skills and concrete strategic behaviors. In this respect, purely

informational mechanisms prove insufficient when they are not accompanied by capacities for appropriation, interpretation, and effective use of information. The intention to formalize therefore appears as the outcome of a gradual cognitive process, nourished by education, through which the entrepreneur redefines their relationship with risk, institutions, and the development prospects of their activity.

Moreover, the results emphasize that the decision to formalize is embedded in an economic and social context that strongly conditions the effectiveness of educational levers. Formalization tends to emerge when the activity reaches a certain degree of maturity and economic stability, encouraging entrepreneurs to seek more secure and sustainable forms of organization. Conversely, family constraints and immediate subsistence imperatives may hinder the intention to formalize by increasing risk aversion and favoring the flexibility inherent in informality. These findings invite formalization to be considered not as a one-off act, but as a gradual process, dependent on the entrepreneur's individual trajectory and socio-economic environment. They also suggest that public policies aimed at promoting formalization would benefit from moving beyond uniform approaches based on regulatory incentives or access to information, to incorporate targeted educational and training schemes adapted to the realities of the informal sector. Strengthening organizational capacities, improving understanding of the institutional framework, and reducing uncertainty emerge as essential levers to support a sustainable transition to the formal sector. Ultimately, formalization appears inseparable from the development of human capital and the improvement of the institutional environment, which condition the progressive transformation of informal activities into structured economic initiatives.

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