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Perceptual and sociocultural determinants of agricultural entrepreneurship in developing countries: a GEM data analysis

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Abstract

Purpose – Responding to calls for greater understanding of the behavioural drivers of agricultural entrepreneurship, this study examines how perceptual and sociocultural factors, together with key demographic characteristics, influence individuals' engagement in early-stage agricultural entrepreneurship in developing economies.

Design/methodology/approach – This study uses data from the Global Entrepreneurship Monitor (GEM) Adult Population Survey (2020). Logistic regression analysis is applied to examine the influence of perceptual factors (opportunity perception, fear of failure and entrepreneurial self-efficacy), sociocultural factors (entrepreneurial role models, social status of entrepreneurs, media coverage and entrepreneurship as a desirable career choice) and demographic characteristics (age, gender and household income) on individuals' engagement in early-stage agricultural entrepreneurship across 20 developing countries.

Findings – Findings indicate that entrepreneurial self-efficacy is the only perceptual factor with an independent effect on engagement in agricultural entrepreneurship. When the variables were aggregated into broader perceptual and sociocultural constructs, both constructs were significantly associated with engagement in agricultural entrepreneurship, indicating the relevance of both individual perceptions and the broader sociocultural environment. Analysis also reveals a significant gender difference, with women less likely than men to engage in early-stage agricultural entrepreneurial activity.

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Research limitations/implications – Findings indicate that entrepreneurial self-efficacy is the only perceptual factor with an independent effect on engagement in agricultural entrepreneurship. When the variables were aggregated into broader perceptual and sociocultural constructs, both constructs were significantly associated with engagement in agricultural entrepreneurship, indicating the relevance of both individual perceptions and the broader sociocultural environment. Analysis also reveals a significant gender difference, with women less likely than men to engage in early-stage agricultural entrepreneurial activity.

Social implications – Fostering agricultural entrepreneurship could help address poverty, unemployment, and gender disparities in developing countries, as the vast majority are associated with agriculture.

Originality/value – This study contributes to the agricultural entrepreneurship literature by providing empirical evidence on the behavioural drivers of engagement in agricultural entrepreneurship in developing economies. By examining perceptual, sociocultural and demographic determinants using cross-country GEM data, the study advances understanding of the respective roles of individual capabilities and sociocultural environments in agricultural entrepreneurial engagement in agricultural systems where agriculture remains central to rural livelihoods and economic development.

Keywords Agricultural entrepreneurship, Enablers, Perceptual factors, Sociocultural factors, Developing countries, Global entrepreneurship monitor

Paper type Research article

1. Introduction

Drawing on data from the Global Entrepreneurship Monitor (GEM), this study provides empirical evidence on the individual-level determinants of entrepreneurial engagement in the agricultural sector across developing-country contexts. This research is needed as the behavioural drivers underlying engagement in agricultural entrepreneurship remain underexplored in developing economies (Dias *et al.*, 2019; Raza *et al.*, 2024), it remains uncertain whether assumptions derived from general entrepreneurship research adequately explain engagement in this distinctive sectoral and economic context. The research question that this study answers is "how do perceptual and sociocultural factors, together with key demographic characteristics, influence individuals" engagement in early-stage agricultural entrepreneurship in developing economies?' by answering this research question, this study contributes to a more systematic understanding of the behavioural drivers shaping engagement in agricultural entrepreneurship by examining how perceptual, sociocultural and demographic influences shape individuals' participation in early-stage agricultural entrepreneurial activity in developing economies.

In this study the agriculture sector refers to agriculture, forestry and fishing as defined by the International Standard Industrial Classification (ISIC) - Revision 4 (United Nations, 2014). Agricultural entrepreneurship refers to the identification, evaluation and exploitation of business opportunities within agriculture and related rural value chains through the creation of new ventures, new products or services, new markets, or new ways of organizing and deploying agricultural resources (Dias *et al.*, 2019). Beyond traditional farming activities, entrepreneurial initiatives in agriculture often involve farm diversification, value-added production and the development of new agribusiness models that enhance productivity and market participation (Pindado and Sánchez, 2017). As a result, agricultural entrepreneurship plays an important role in supporting employment creation, rural livelihoods and economic development, particularly in developing economies where agriculture remains a major source of income for a large segment of the population (World Bank, 2023).

The agricultural sector also provides a distinctive context for examining entrepreneurial activity. Entrepreneurship in agriculture is frequently embedded within family farming systems and rural communities, where social relationships, identity and institutional structures shape entrepreneurial behaviour and decision-making (Fitz-Koch *et al.*, 2018). In addition, agricultural entrepreneurship operates within unique environmental, sociocultural and economic conditions, including climatic uncertainty, seasonal production cycles and market volatility, which distinguish it from many forms of urban or technology-based entrepreneurship (Dias *et al.*, 2019; Martinho, 2020). These contextual characteristics suggest that the factors influencing entrepreneurial engagement in agriculture may differ from those observed in other sectors.

Within developing economies, agricultural entrepreneurship has increasingly been recognised as an important mechanism for rural economic development and livelihood diversification. Entrepreneurial activity can enable farmers and rural actors to strengthen participation in agricultural value chains and improve rural incomes (Manyise and Dentoni, 2021), while innovation and entrepreneurial initiatives have also been identified as important drivers of economic development in rural areas (Kyriakopoulos, 2024). However, agricultural entrepreneurs in developing countries often face structural constraints, including limited access to finance, markets and institutional support, which may influence entrepreneurial decision-making and opportunity exploitation (Raza *et al.*, 2024). Understanding the factors that shape engagement in agricultural entrepreneurship is therefore important for informing policymaking aimed at stimulating agribusiness development and rural economic transformation.

Despite growing scholarly interest in agricultural entrepreneurship, behavioural drivers underlying entrepreneurial engagement in agricultural context remain underexplored not only in developing economies (Dias *et al.*, 2019; Raza *et al.*, 2024) but also in developed economic context (Pindado and Sánchez, 2017). For example, a literature review by Dias *et al.* (2019) shows that much of the extant research has focused on themes such as farm diversification, agribusiness development and rural innovation, while less attention has been given to the behavioural and decision-making processes underlying entrepreneurial engagement in agriculture. Pindado and Sánchez (2017) in the European context highlighted the need to better understand the drivers of entrepreneurial behaviour and venture creation within the agriculture sector. Similarly, Fitz-Koch *et al.* (2018) called for further research that advances understanding the of entrepreneurship within the specific institutional, social and family contexts that characterise agricultural systems.

2. Theoretical background and research hypothesis

2.1 Determinants of agricultural entrepreneurial engagement

Engagement in entrepreneurial activity is influenced by a range of individual, sociocultural and contextual factors. For example, entrepreneurship research has historically highlighted the importance of cognitive mechanisms that shape entrepreneurial behaviours, perceptions of opportunities, capabilities and risk-taking (Shane and Venkataraman, 2000). Entrepreneurship research also suggests that cognitive mechanisms shape perceptions of feasibility and desirability, which in turn play a central role in shaping entrepreneurial intentions and behaviours (Krueger *et al.*, 2000). Recent work continues to emphasise how cognitive mechanisms influence opportunity recognition and entrepreneurial decision-making in uncertain environments (Schlichte and Junge, 2025).

In addition to perceptual factors, sociocultural influences such as social norms, role models and the perceived legitimacy of entrepreneurship can shape attitudes toward entrepreneurial activity and individuals' willingness to pursue entrepreneurial opportunities (Welter, 2011). Social networks, knowledge exchange and value-chain relationships have also been shown to influence entrepreneurial activity among farmers (Manyise and Dentoni, 2021; Dong *et al.*, 2022). Access to information, skills and digital technologies may further influence and support farmers' entrepreneurial behaviour by improving access to resources and market opportunities (Cheng *et al.*, 2024). These insights, i.e. cognitive mechanism and sociocultural influences are relevant in agricultural contexts, where farmers must interpret and understand uncertain markets, environmental and institutional conditions when evaluating entrepreneurial opportunities (Dias *et al.*, 2019; Zhang *et al.*, 2022). Agricultural entrepreneurship is frequently embedded within local communities and rural social systems, where social relationships and institutional environments shape entrepreneurial behaviour (Fitz-Koch *et al.*, 2018).

Besides cognitive mechanism and sociocultural influences, demographic characteristics also influence entrepreneurial engagement by shaping individuals' access to resources,

experience and opportunity structures (Pindado and Sánchez, 2017). Together, these perspectives suggest that entrepreneurial engagement in agriculture can be shaped by perceptual, sociocultural and demographic influences. However, despite growing interest in agricultural entrepreneurship, scholarly attention towards examining behavioural drivers of entrepreneurial engagement in this sector remains comparatively limited (Fitz-Koch *et al.*, 2018; Dias *et al.*, 2019; Pindado and Sánchez, 2017; Raza *et al.*, 2024). The following sections examine how perceptual, sociocultural and demographic factors influence engagement in early-stage agricultural entrepreneurship.

2.2 Perceptual factors

Perceptual factors play an important role in shaping entrepreneurial engagement because individuals' evaluations of entrepreneurial opportunities influence whether they pursue entrepreneurial activity (McMullen and Shepherd, 2006). Empirical research highlights the importance of opportunity perception, fear of failure and entrepreneurial self-efficacy as key cognitive mechanisms shaping entrepreneurial decision-making and entrepreneurial behaviour (Cacciotti *et al.*, 2020; Schlichte and Junge, 2025). These perceptual mechanisms are particularly relevant in an agricultural context characterised by environmental uncertainty, fluctuating markets and limited resources (Dias *et al.*, 2019). Farmers and rural actors often operate under conditions shaped by climatic variability, seasonal production cycles and constrained access to resources (Fitz-Koch *et al.*, 2018). Research examining agricultural entrepreneurship highlights that entrepreneurial competency and capability development among farmers play an important role in shaping entrepreneurial behaviour and success in agricultural contexts (Abawa, 2023). Previous studies using GEM data highlight the importance of perceptual factors in shaping participation in entrepreneurial activity within the agricultural sector (Arafat *et al.*, 2020).

Although perceptual drivers have been widely examined in entrepreneurship research, their role in agricultural entrepreneurship remains less explored, particularly in developing economies where environmental uncertainty and institutional constraints may shape perceptions of entrepreneurial opportunities and risks (Fitz-Koch *et al.*, 2018; Raza *et al.*, 2024). This study therefore examines opportunity perception, fear of failure and entrepreneurial self-efficacy. These themes are discussed next in turn.

2.2.1 Opportunity perception. Entrepreneurial opportunity perception refers to an individual's ability to identify and evaluate potential opportunities for new venture creation (Shane and Venkataraman, 2000). Opportunity recognition represents a central stage in the entrepreneurial process because individuals are more likely to engage in entrepreneurial activity when they perceive viable opportunities within their environment (McMullen and Shepherd, 2006). Empirical studies consistently report a positive relationship between opportunity perception and entrepreneurial engagement (Arenius and Minniti, 2005; Stuetzer *et al.*, 2014), with more recent research continuing to highlight its importance for entrepreneurial decision-making (Schlichte and Junge, 2025).

In the agricultural context, opportunity perception may be particularly important because farmers must interpret changing market conditions, technological developments and environmental constraints when identifying entrepreneurial opportunities (Dias *et al.*, 2019). Opportunities often emerge through farm diversification, value-added production and participation in agricultural value chains (Fitz-Koch *et al.*, 2018). Accordingly, the following hypothesis is proposed:

H1. Opportunity perception positively influences individuals' engagement in early-stage agricultural entrepreneurship in developing economies.

2.2.2 Fear of failure. Fear of failure refers to individuals' concerns about the potential negative consequences associated with entrepreneurial activity, including financial loss, social embarrassment and personal setbacks (Conroy *et al.*, 2002). In entrepreneurship research, fear

of failure is widely recognised as a psychological barrier that may discourage individuals from pursuing entrepreneurial opportunities (Arenius and Minniti, 2005). Empirical studies historically have found that that higher levels of fear of failure are associated with lower entrepreneurial participation because perceived risks discourage opportunity exploitation (Stuetzer *et al.*, 2014). More recent work also highlights fear of failure as an important constraint on entrepreneurial engagement in emerging and developing economies where financial insecurity and institutional constraints may amplify perceived risks (Al Halbusi *et al.*, 2024).

In agricultural contexts, entrepreneurial decisions are frequently made under conditions of environmental and market uncertainty, including climate variability, crop risks and price volatility (Dias *et al.*, 2019). These uncertainties may heighten perceived risks associated with entrepreneurial activity. Thus, the following hypothesis is proposed:

H2. Fear of failure negatively influences individuals' engagement in early-stage agricultural entrepreneurship in developing economies.

2.2.3 Entrepreneurial self-efficacy. Entrepreneurial self-efficacy refers to an individual's belief in their ability to successfully perform the tasks required to initiate and manage entrepreneurial activities (Bandura, 1977). Within entrepreneurship research, self-efficacy is recognised as an important cognitive mechanism shaping entrepreneurial behaviour because individuals who believe they possess the necessary skills and capabilities are more likely to pursue entrepreneurial opportunities (Krueger *et al.*, 2000). Empirical research consistently reports a positive relationship between entrepreneurial self-efficacy and entrepreneurial engagement (Shinnar *et al.*, 2014), with more recent studies reaffirming its importance for entrepreneurial behaviour and performance (Amani *et al.*, 2024).

In agricultural contexts, entrepreneurial initiatives often occur in environments characterised by environmental uncertainty, limited resources and evolving market conditions (Dias *et al.*, 2019). Confidence in one's entrepreneurial capabilities may therefore play a critical role in shaping engagement in agricultural entrepreneurship. Accordingly, the following hypothesis is proposed:

H3. Entrepreneurial self-efficacy positively influences individuals' engagement in early-stage agricultural entrepreneurship in developing economies.

Opportunity perception, fear of failure and entrepreneurial self-efficacy represent key perceptual mechanisms shaping individuals' evaluations of entrepreneurial opportunities, risks and capabilities. While these cognitive evaluations influence individuals' engagement in early-stage agricultural entrepreneurship, sociocultural influences shape how entrepreneurship is perceived, supported and legitimised within the broader social environment.

2.3 Sociocultural factors

Entrepreneurial behaviour is embedded within broader sociocultural environments that shape how entrepreneurship is perceived, supported and legitimised within society (Bell and Bell, 2024). Sociocultural contexts influence entrepreneurial behaviour by shaping the social norms, institutional environment and cultural attitudes that support entrepreneurial activity (Méndez-Picazo *et al.*, 2021).

In the agricultural context, these influences may be particularly significant because farming activities are often embedded within local communities and family-based production systems (Fitz-Koch *et al.*, 2018). Social networks, community relationships and local institutional environments can shape perceptions of the desirability and feasibility of entrepreneurial activity and influence whether individuals pursue opportunities within agricultural value chains. Recent studies examining agricultural entrepreneurship highlight the importance of social influences and cultural perceptions in shaping individuals' intentions to pursue

agricultural entrepreneurship in a developing-country context (Dhanapal Chelliah and Christopher, 2025).

Previous research also indicates that exposure to entrepreneurial role models, the perceived social status of entrepreneurs and positive societal narratives about entrepreneurship can influence individuals' attitudes toward entrepreneurial activity and their likelihood of pursuing entrepreneurial opportunities (Bosma *et al.*, 2012). More recent research highlights those sociocultural environments, including the social recognition of entrepreneurship and the perceived attractiveness of entrepreneurial careers, can encourage individuals to consider entrepreneurship as a viable career path (Brownell *et al.*, 2025; Fuentelsaz *et al.*, 2025; Tripopsakul, 2025).

Building on these perspectives, this study examines four sociocultural factors that may influence engagement in agricultural entrepreneurship: entrepreneurial role models, the perceived social status of entrepreneurs, media attention to entrepreneurship and perceptions of entrepreneurship as a desirable career choice. While these sociocultural influences have been widely examined in entrepreneurship research, their role in shaping agricultural entrepreneurship remains comparatively underexplored, particularly in developing economies. Recent work highlights the importance of social influences in shaping entrepreneurial behaviour in rural environments (Naranjo-Valencia *et al.*, 2025), reinforcing calls for greater understanding of the social and institutional factors influencing agriculture entrepreneurship (Raza *et al.*, 2024).

2.3.1 Entrepreneurial role models. Entrepreneurial role models refer to individuals whose entrepreneurial activities influence others' attitudes and behaviours toward entrepreneurship. The importance of role models is grounded in social learning theory, which suggests individuals learn by observing others within their social environment (Bandura, 1977). Empirical research shows that individuals who know entrepreneurs personally are more likely to consider entrepreneurship as a viable career option (Bosma *et al.*, 2012; Nanda and Sørensen, 2010).

In an agricultural context, entrepreneurial role models may be particularly influential because farming activities are embedded within local communities where knowledge and experience are shared through social interactions and networks (Fitz-Koch *et al.*, 2018; Haq and Davies, 2023). Observing successful agricultural entrepreneurs may therefore encourage others to pursue opportunities within agricultural value chains. Accordingly, the following hypothesis is proposed:

H4. Exposure to entrepreneurial role models positively influences individuals' engagement in early-stage agricultural entrepreneurship in developing economies.

2.3.2 Entrepreneurs' social status. Entrepreneurs' social status refers to the level of respect, recognition and prestige attributed to entrepreneurs (Farkas, 2022). Perceptions of social status can influence attitudes toward entrepreneurial activity, as occupations associated with higher social recognition tend to be viewed as more attractive career options (Aldrich and Fiol, 1994).

Empirical research suggests that the perceived status of entrepreneurs can shape entrepreneurial engagement. Individuals are more likely to consider entrepreneurship when entrepreneurs are viewed as respected members of society (Bosma *et al.*, 2012). Similarly, higher levels of social prestige associated with entrepreneurship can increase the attractiveness of entrepreneurial careers and encourage opportunity-driven entrepreneurial activity (Liñán *et al.*, 2011). When entrepreneurship is socially recognised and respected, individuals may be more inclined to pursue entrepreneurial opportunities. Accordingly, the following hypothesis is proposed:

H5. The perceived social status of entrepreneurs positively influences individuals' engagement in early-stage agricultural entrepreneurship in developing economies.

2.3.3 Entrepreneurs' media coverage. Media attention to entrepreneurship refers to the extent to which entrepreneurial activities and entrepreneurs are portrayed in media and public

discourse. Media representation can shape societal perceptions of entrepreneurship by influencing social norms and values associated with entrepreneurial activity (Garud *et al.*, 2014). Positive portrayals of entrepreneurs may encourage individuals to view entrepreneurship as an attractive career option (Radu and Redien-Collot, 2008).

Empirical research suggests that favourable media coverage can increase the visibility and legitimacy of entrepreneurship and encourage individuals to consider entrepreneurial careers (Pinkovetskaia *et al.*, 2020). Exposure to positive media portrayals of entrepreneurs can increase individuals' perceptions of entrepreneurship as a feasible career path (Hopp and Sonderegger, 2015). Moreover, media attention to entrepreneurship is positively associated with startup activity (Hindle and Klyver, 2007).

The role of media may be particularly significant in developing economies, where positive representations of entrepreneurship can help reshape sociocultural attitudes and reduce stigma associated with entrepreneurial careers (Bosma *et al.*, 2012). Accordingly, the following hypothesis is proposed:

H6. Positive media coverage of entrepreneurship positively influences individuals' engagement in early-stage agricultural entrepreneurship in developing economies.

2.3.4 Entrepreneurship as a desirable career choice. The perception of entrepreneurship as a desirable career choice reflects the extent to which individuals view entrepreneurship as an attractive and socially valued professional path. Sociocultural environments shape these perceptions by influencing the attitudes and norms associated with entrepreneurial activity. Individuals are more likely to pursue entrepreneurship when it is viewed as an attractive and socially supported career option (Bell *et al.*, 2019).

Cultural and societal attitudes therefore play an important role in shaping the perceived desirability of entrepreneurship. Societies that celebrate entrepreneurial success and recognise entrepreneurs as contributors to economic and social development may foster more positive attitudes toward entrepreneurial careers (Bosma *et al.*, 2008). Cultural narratives and social norms surrounding entrepreneurship can therefore influence whether individuals view entrepreneurship as a legitimate and rewarding career path (Haq *et al.*, 2024). Positive perceptions of entrepreneurship as a viable and attractive career have been found to increase entrepreneurial intentions and behaviour (Schlaegel and Koenig, 2014). In an agricultural context, favourable perceptions of entrepreneurship may encourage individuals to pursue opportunities within agricultural value chains and agribusiness activities. Therefore, the following hypothesis is proposed:

H7. The perception of entrepreneurship as a desirable career choice positively influences individuals' engagement in early-stage agricultural entrepreneurship in developing economies.

While sociocultural environments influence how entrepreneurship is perceived and supported within society, individual demographic characteristics may also shape individuals' opportunities, resources and motivations to engage in entrepreneurial activity.

2.4 Demographic factors

In addition to perceptual and sociocultural influences, individual demographic characteristics may also shape entrepreneurial engagement. Demographic factors can affect individuals' access to resources, experience and networks, thereby influencing their likelihood of participating in entrepreneurial activity (Arenius and Minniti, 2005). Age has frequently been examined as a determinant of entrepreneurial activity. For example, according to Álvarez-Herranz *et al.* (2011), entrepreneurial participation often follows a life-cycle pattern, increasing during early career stages, peaking around middle age and declining thereafter. Younger individuals may display stronger entrepreneurial intentions, whereas middle-aged individuals often possess greater experience, resources and networks that support venture creation (Syed *et al.*, 2024).

Gender differences in entrepreneurial participation have also been widely documented. Research consistently finds that men are more likely to engage in entrepreneurial activity than women, reflecting differences in access to resources, institutional barriers and sociocultural expectations (Markussen and Røed, 2017). These disparities may be particularly pronounced in developing economies where structural and cultural constraints limit entrepreneurial activity (Hechavarría and Ingram, 2019; Raza *et al.*, 2025).

Household income may also influence entrepreneurial engagement, as financial resources affect individuals' ability to initiate and sustain new ventures. Individuals from higher-income households may have greater access to capital and financial security, whereas those from lower-income households may face financial constraints that limit entrepreneurial activity (Nandamuri and Gowthami, 2013).

Demographic factors (such as age, gender and household income) may be especially relevant in agricultural context, where access to land, capital and farming experience varies across individuals and may influence participation in entrepreneurial activities within agricultural value chains. Therefore, we hypothesize that:

H8. Demographic characteristics, including age, gender and household income, significantly influence individuals' engagement in early-stage agricultural entrepreneurship in developing economies.

The literature reviewed above suggests that engagement in agricultural entrepreneurship is shaped by perceptual, sociocultural and demographic influences. Perceptual factors capture individuals' cognitive evaluations of opportunities, risks and capabilities, while sociocultural factors reflect the broader social environments that influence how entrepreneurship is perceived and supported within a society. Moreover, demographic characteristics may shape individuals' access to resources, experience and opportunities that affect their ability to engage in entrepreneurial activity. Despite growing scholarly interest in agricultural entrepreneurship, research examining the behavioural drivers of entrepreneurial engagement in this sector remains comparatively limited (Fitz-Koch *et al.*, 2018; Dias *et al.*, 2019). There remains a need to better understand how perceptual and sociocultural influences shape engagement in early-stage agricultural entrepreneurship in developing economies (Raza *et al.*, 2024). The conceptual model presented in Figure 1 illustrates the relationships examined in this study.

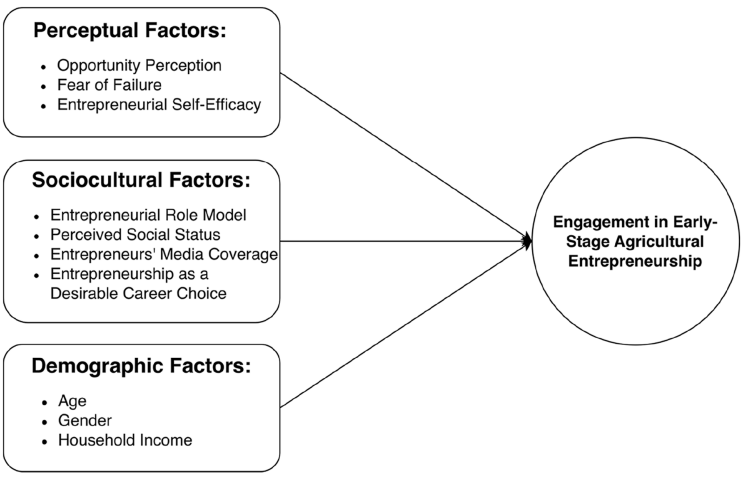

Figure 1. Research framework

3. Research methodology

3.1 Research data and sample

This study utilises data from the GEM, one of the largest international datasets on entrepreneurial activity and entrepreneurial ecosystems (GEM, 2025). GEM data is particularly suitable for this research because it provides harmonised cross-country data on individual entrepreneurial behaviour, perceptions and demographic characteristics through its Adult Population Survey (APS). The APS surveys at least 2,000 individuals in each participating country and collects data on entrepreneurial activities, attitudes and aspirations. This study uses the 2020 APS dataset, which contains 141,403 observations and 469 variables. Data from developing economies were extracted, resulting in 57,323 observations. After applying the study's selection criteria, including restricting respondents to those aged 18–64, the final sample comprised 4,341 observations. The dependent variable identifies respondents engaged in early-stage agricultural entrepreneurship (see Table 1).

Based on a United Nations classification of geographical regions for developing economies (United Nations, 2014) and MSCI Inc (2026), 20 countries (Table 2) were selected from the

Table 1. Study variables and their descriptions

Variables	Labels/codes	Description
Dependent variable	Agricultural Entrepreneurship	Individuals aged 18–64 engaged in early-stage entrepreneurial activity in agriculture, forestry or fishing. Respondents engaged in nascent or newly established agricultural ventures were coded 1, while those not engaged in early-stage agricultural entrepreneurship were coded 0
Independent variables	*Perceptual Factors*	
	Opportunity Perception (OPPORT)	Individuals (18–64) who see good entrepreneurial opportunities in their neighbourhoods within the next six months. 1 shows a perception of a good entrepreneurial opportunities, 0 shows otherwise
	Fear of Failure (FRFAIL)	Individuals (18–64) who indicate fear of failure could restrict their entrepreneurial endeavours. 1 shows FOF as a barrier to launch a business, 0 shows otherwise
	Ent. Self-Efficacy (SUSKIL)	Individuals (18–64) who indicate they have necessary knowledge, skills, and experience to start an entrepreneurial venture. 1 shows ability to launch an entrepreneurial venture, 0 shows otherwise
	Social Factors	
	Ent. Role Model (KNOWEN)	Individuals (18–64) who have a personal acquaintance and have established an entrepreneurial venture within the last two years. 1 shows the respondent knows at least one entrepreneur, 0 shows otherwise
	Desirable Career Choice (NBGOOD)	Individuals (18–64) who think that entrepreneurship is a desirable career option for the majority of the people in their country. 1 shows the respondent agrees to this statement, 0 shows otherwise
	Social Status (NBSTAT)	Individuals (18–64) who believe that entrepreneurs have high social status and respect in their country. 1 shows the respondent agrees to this statement, 0 shows otherwise
	Media Coverage (NBMEDI)	Individuals (18–64) who believe that entrepreneurs are frequently featured in media in their country. 1 shows the respondent agrees to this statement, 0 shows otherwise
Control variables	*Demographic Factors*	
	Age	Age of individuals (18–64)
	Gender	1 shows male, 2 shows female
	Household Income (GEMHHINC)	Lowest 33, middle 33 and upper 33 percentile and coded them as 1, 2, 3 respectively

Table 2. List of selected countries (taken from MSCI Index, 2026)

Regions	Countries
Central and East Asia	India, Indonesia, Kazakhstan
Latin America and Caribbean	Brazil, Chili, Cambodia, Guatemala, Panama, Uruguay
Middle East and Africa	Angola, Burkina Faso, Egypt, Iran, Kuwait, Morocco, Oman, Qatar, Saudi Arabia, Togo, United Arab Emirates

GEM, 2025 dataset. While developing economies exhibit considerable institutional and economic heterogeneity, they share structural characteristics that make agricultural entrepreneurship particularly important for rural livelihoods and economic development. In many developing economies, agriculture remains a major source of employment and income, and entrepreneurial activity within the agricultural value chains plays a key role in supporting rural development and livelihood diversification (World Bank, 2023; Manyise and Dentoni, 2021). These contexts are also often characterised by smallholder farming systems and institutional constraints affecting access to finance and markets, which may influence how individuals perceive and pursue entrepreneurial opportunities (Raza *et al.*, 2024). Examining agricultural entrepreneurship across developing economies, therefore provides useful insights into the perceptual, sociocultural and demographic drivers shaping entrepreneurial engagement.

3.2 Empirical model and logistic regression analysis

Logistic regression is a statistical method used to examine the relationship between a categorical dependent variable and a set of predictor variables (Nick and Campbell, 2007). It is widely used in entrepreneurship research to analyse factors influencing entrepreneurial attitudes, motivations, behaviours and engagement (Arafat and Saleem, 2017). Because the dependent variable in this study captures engagement in early-stage agricultural entrepreneurship as a binary outcome, logistic regression provides an appropriate approach for estimating the influence of perceptual, sociocultural and demographic factors (Arafat *et al.*, 2020).

Binary logistic regression was selected because the unit of analysis is the individual and the study seeks to estimate the probability of engagement in early-stage agricultural entrepreneurship from a set of observed individual-level predictors. Unlike linear regression, logistic regression is designed for dichotomous outcomes and produces estimated probabilities bounded between zero and one. The purpose of the analysis is to identify average associations across the pooled developing-economy sample, rather than to estimate latent relationships or make country-specific causal claims. Model significance, fit and explanatory power were assessed using the statistics reported in Section 4.

Logistic regression is also widely used in GEM-based studies of individual entrepreneurial behaviour, whose perceptual and behavioural measures are commonly categorical (Sánchez-Escobedo *et al.*, 2016; Virasa *et al.*, 2022).

4. Results

4.1 Descriptive statistics

Descriptive statistics (Table 3) indicate that 6% of respondents are engaged in early-stage agricultural entrepreneurship. Opportunity perception (73%) and entrepreneurial self-efficacy (90%) are relatively high among respondents, while 36% report fear of failure as a barrier. Sociocultural factors are also strong, with most respondents reporting exposure to entrepreneurial role models (79%), perceiving entrepreneurship as a desirable career (79%),

Table 3. Descriptive statistics

	N	Min	Max	Mean	Std. Deviation
Agri-entrepreneurship	4,341	0	1	0.06	0.236
Opportunity perception	4,341	0	1	0.73	0.443
Self-efficacy	4,341	0	1	0.90	0.294
Fear of failure	4,341	0	1	0.36	0.479
Ent. role model	4,341	0	1	0.79	0.406
Desirable career choice	4,341	0	1	0.79	0.409
Social status	4,341	0	1	0.80	0.398
Media coverage	4,341	0	1	0.77	0.420
Age	4,341	18	64	34.65	11.136
Gender	4,341	1	2	1.44	0.496
Household income	4,341	1	3	2.09	0.852
Valid *N* (listwise)	4,341				

and recognising entrepreneurs as socially respected and visible in the media. The average age of the respondents is approximately 34.65 years, with an age range spanning from 18 to 64. A slightly higher proportion of males than females. The average household income level is in the medium range. Table 4 presents the correlation matrix for the variables included in the analysis. Figure 2 shows the region-wise classification of the male and female respondents.

4.2 Regression analysis

The regression analysis was conducted for two different models to investigate the factors influencing agricultural entrepreneurship. Model 1 examines the individual effects of the perceptual and sociocultural variables identified in the conceptual framework, while Model 2 tests the combined influence of these variables by aggregating the perceptual factors (opportunity perception, fear of failure and entrepreneurial self-efficacy) and sociocultural factors (entrepreneurial role models, social status, media coverage and desirable career choice) into composite constructs. The omnibus tests (Table 5) for Model 1 were highly significant, indicating a chi-square of 55.262 ($p < 0.001$), suggesting that the model significantly improves the prediction of participation in agricultural entrepreneurial activities compared with a null model.

As shown in Table 6, a Nagelkerke R^2 value of 0.035 indicates that the individual-level factors included in the model explain a modest proportion of the variance in agricultural entrepreneurship. Modest pseudo-R^2 values are common in studies examining entrepreneurial behaviour using individual-level survey data, reflecting the complex and multi-dimensional nature of entrepreneurial engagement shaped by numerous individual, contextual and institutional influences (Ács *et al.*, 2014). Similar levels of explanatory power are reported in other studies analysing determinants of entrepreneurial activity using GEM data and logistic regression models (Arenius and Minniti, 2005; Langowitz and Minniti, 2007). Additionally, the Hosmer–Lemeshow test (Table 7) ($p = 0.894$) confirmed that the model fits the data well, indicating that the observed and predicted values are consistent.

4.2.1 Model 1. The findings of the binary logistic regression (Table 8) show that among the perceptual factors, entrepreneurial self-efficacy is the only significant predictor of entrepreneurship engagement in agriculture (B = 0.755, $p = 0.013$). The odds ratio indicates that individuals who believe they possess the skills and capabilities required to start a business are approximately twice as likely to engage in agricultural entrepreneurship (Exp(B) = 2.128).

Opportunity perception shows a positive coefficient (Exp(B) = 1.236), but the relationship is not statistically significant ($p = 0.192$). Similarly, fear of failure does not demonstrate a statistically significant effect (Exp(B) = 1.192, $p = 0.186$).

None of the sociocultural variables, including entrepreneurial role models, entrepreneurship as a desirable career choice, social status of entrepreneurs, and media

Table 4. Correlation matrix of study variables

	1	2	3	4	5	6	7	8	9	10	11
1. Agri-entrepreneurship	–										
2. Opportunity perception	0.034*	–									
3. Self-efficacy	0.043**	0.137**	–								
4. Fear of failure	0.020	−0.015	−0.063**	–							
5. Ent. role model	0.007	0.030*	0.061**	−0.016	–						
6. Desirable career choice	0.027	0.127**	0.038*	0.063**	−0.030*	–					
7. Social status	0.037*	0.142**	0.002	0.073**	−0.029	0.243**	–				
8. Media coverage	0.034*	0.195**	0.061**	0.054**	0.000	0.148**	0.199**	–			
9. Age	0.029	−0.042**	0.000	0.013	−0.053**	0.013	−0.009	0.029	–		
10. Gender	−0.076**	−0.018	−0.032*	0.044**	−0.026	0.015	−0.029	0.025	−0.021	–	
11. Household income	−0.017	−0.013	0.040**	−0.042**	0.078**	−0.039*	−0.072**	−0.048**	0.075**	−0.127**	–

Note(s): * Correlation is significant at the 0.05 level (2-tailed)
** Correlation is significant at the 0.01 level (2-tailed)

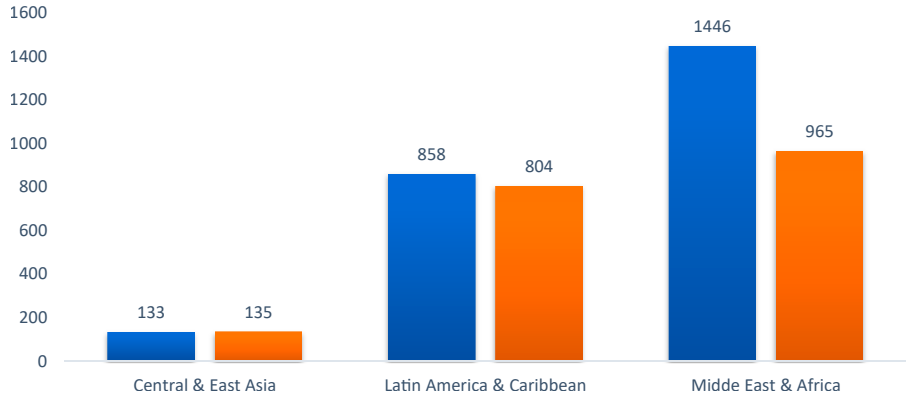

Figure 2. Region-wise classification of male and female respondents

Table 5. Omnibus tests of model coefficients

		Chi-square	Df	Sig
Step 1	Step	55.262	10	<0.001
	Block	55.262	10	<0.001
	Model	55.262	10	<0.001

Table 6. Model summary

Step	−2 log likelihood	Cox and snell *R* square	Nagelkerke *R* square
1	1912.738[a]	0.013	0.035

Note(s): [a]Estimation terminated at iteration number 6 because parameter estimates changed by less than 0.001

Table 7. Hosmer and Lemeshow test

Step	Chi-square	df	Sig
1	3.571	8	0.894

coverage of entrepreneurship—show statistically significant relationships with engagement in agricultural entrepreneurship ($p > 0.05$ in all cases).

Among the demographic variables, gender is a statistically significant predictor (Exp (B) = 0.488, $p < 0.001$), indicating that females are less likely than males to engage in agricultural entrepreneurship. Age does not exhibit a statistically significant relationship (Exp (B) = 1.011, $p = 0.052$), and household income also shows a non-significant effect (Exp (B) = 0.873, $p = 0.075$).

Model 2 aggregates the perceptual variables and the sociocultural variables into two composite constructs and examines their respective associations with agricultural entrepreneurship. The omnibus tests (Table 9) for Model 2 also indicate a highly significant result, with a chi-square of 51.101 ($p < 0.001$), underscoring the importance of both perceptual

Table 8. Binary logistic regression

		B	S.E	Wald	df	Sig	Exp (B)
Step 1[a]	Opportunity Perception	0.212	0.163	1.699	1	0.192	1.236
	Self-Efficacy	0.755	0.304	6.190	1	0.013	2.128
	Fear of Failure	0.176	0.133	1.746	1	0.186	1.192
	Ent. Role Model	0.083	0.163	0.261	1	0.609	1.087
	Desirable Career Choice	0.148	0.177	0.703	1	0.402	1.160
	Social Status	0.284	0.192	2.169	1	0.141	1.328
	Media Coverage	0.218	0.175	1.548	1	0.213	1.244
	Age	0.011	0.006	3.792	1	0.052	1.011
	Gender	−0.718	0.142	25.546	1	<0.001	0.488
	Household Income	−0.136	0.076	3.160	1	0.075	0.873
	Constant	−3.410	0.504	45.752	1	<0.001	0.033

Note(s): [a]Variable(s) entered on step 1: Opportunity Perception, Self-efficacy, Fear of Failure, Ent. Role Model, Desirable Career Choice, Social Status, Media Coverage, Age, Gender, Household Income

Table 9. Omnibus tests of model coefficients

		Chi-square	Df	Sig
Step 1	Step	51.101	5	<0.001
	Block	51.101	5	<0.001
	Model	51.101	5	<0.001

and social factors in shaping entrepreneurial decisions. The Nagelkerke R^2 value of 0.032 (Table 10) suggests that the model's explanatory power is modest. The findings from the Hosmer-Lemeshow test (Table 11) ($p = 0.669$ indicate that the model provides a good fit for the data, suggesting that it effectively captures the underlying relationships in the dataset.

4.2.2 Model 2. The findings of Model 2 in the regression analysis (Table 12) indicate that both perceptual and social factors significantly influence the likelihood of engaging in agricultural entrepreneurship, although the strength of these relationships vary. Perceptual factors, comprising opportunity perception, self-efficacy and fear of failure, show a B value of 0.809 ($p = 0.004$) with an odds ratio of Exp(B) = 2.246, indicating that individuals with

Table 10. Model summary

Step	−2 log likelihood	Cox and snell *R* square	Nagelkerke *R* square
1	1916.998[a]	0.012	0.032

Note(s): [a]Estimation terminated at iteration number 6 because parameter estimates changed by less than 0.001

Table 11. Hosmer and Lemeshow test

Step	Chi-square	df	Sig
1	5.806	8	0.669

Table 12. Binary logistic regression

		B	S.E	Wald	df	Sig	Exp(B)
Step 1[a]	Perceptual factors	0.809	0.284	8.135	1	0.004	2.246
	Social factors	0.740	0.313	5.592	1	0.018	2.096
	Age	0.011	0.006	3.912	1	0.048	1.011
	Gender	−0.725	0.142	26.126	1	<0.001	0.484
	Household Income	−0.135	0.076	3.207	1	0.073	0.873
	Constant	−3.033	0.440	47.406	1	<0.001	0.048

Note(s): [a]Variable(s) entered on step 1: Perceptual factors, Social factors, Age, Gender, Household Income

stronger perceptual beliefs are approximately 2.2 times more likely to engage in agricultural entrepreneurship. Similarly, social factors—including entrepreneurial role models, desirable career choice, social status and respect, and media coverage of entrepreneurs—are significant ($B = 0.740$, $p = 0.018$; $Exp(B) = 2.096$), suggesting that individuals experiencing stronger social influences are about 2.1 times more likely to pursue agricultural entrepreneurship.

Among the demographic variables, gender remains a highly significant predictor ($B = -0.725$, $p < 0.001$), indicating that females are significantly less likely than males to engage in this sector ($Exp(B) = 0.484$). Age also showed a small positive association with engagement in Model 2 ($B = 0.011$, $p = 0.048$; $Exp(B) = 1.011$), equivalent to an approximately 1.1% increase in the odds of engagement for each additional year of age. Household income showed a negative but statistically non-significant association with engagement in agricultural entrepreneurship ($B = -0.135$, $p = 0.073$; $Exp(B) = 0.873$).

The primary difference between the two models lies in the predictive strength of perceptual and social factors. Model 1 examines these variables individually, with only self-efficacy emerging as a significant predictor. In contrast, Model 2 aggregates these variables into computed factors, resulting in both perceptual and social influences becoming significant predictors. This difference indicates that, although most individual variables were not significant in Model 1, the aggregated perceptual and sociocultural constructs were significant in Model 2. Model 2 therefore shows that each broader construct is associated with entrepreneurial engagement when included in the same model.

Age was significant only in Model 2 and not in Model 1, indicating that this association was not consistent across the two models. In contrast, gender remained a consistently significant predictor in both models, highlighting the persistent gender gap in agricultural entrepreneurship. These findings suggest the need for integrated interventions that strengthen both perceptual and social support structures, particularly for women, to promote greater entrepreneurial engagement in the agricultural sector. Table 13 summarises the results of the hypothesis testing based on the findings of Model 1.

Table 14 summarises the composite-factor and demographic findings of Model 2.

While H8 was partially supported in Model 1 because only gender was significant, Model 2 identified significant associations for both age and gender, while household income remained non-significant.

5. Conclusion and discussion

This study examines how perceptual and sociocultural factors, together with key demographic characteristics, influence individuals' engagement in early-stage agricultural entrepreneurship in developing economies. We found that engagement in agricultural entrepreneurship is associated with both personal perceptions and broader sociocultural factors when these are represented as aggregated constructs. Accordingly, considering both individual and social influences is valuable for understanding agricultural entrepreneurial behaviour.

Table 13. Summary of hypotheses testing (based on model 1)

No	Hypotheses	Results
H1	Opportunity perception positively influences individuals' engagement in early-stage agricultural entrepreneurship in developing economies	Rejected
H2	Fear of failure negatively influences individuals' engagement in early-stage agricultural entrepreneurship in developing economies	Rejected
H3	Entrepreneurial self-efficacy positively influences individuals' engagement in early-stage agricultural entrepreneurship in developing economies	Accepted
H4	Exposure to entrepreneurial role models positively influences individuals' engagement in early-stage agricultural entrepreneurship in developing economies	Rejected
H5	The perceived social status of entrepreneurs positively influences individuals' engagement in early-stage agricultural entrepreneurship in developing economies	Rejected
H6	Positive media coverage of entrepreneurship positively influences individuals' engagement in early-stage agricultural entrepreneurship in developing economies	Rejected
H7	The perception of entrepreneurship as a desirable career choice positively influences individuals' engagement in early-stage agricultural entrepreneurship in developing economies	Rejected
H8	Demographic characteristics, including age, gender and household income, significantly influence individuals' engagement in early-stage agricultural entrepreneurship in developing economies	Partially Supported

Table 14. Summary of model 2 composite-factor and demographic findings

Construct or variables	Model 2 finding	Result
Perceptual composite	The aggregated perceptual construct was positively associated with engagement in agricultural entrepreneurship	Significant, $p = 0.004$
Sociocultural composite	The aggregated sociocultural construct was positively associated with engagement in agricultural entrepreneurship	Significant, $p = 0.018$
Demographic variables	Age and gender were significant predictors, while household income was not significant	Mixed findings

Entrepreneurial self-efficacy emerged as the only significant individual perceptual predictor, reinforcing earlier research that identifies confidence in one's entrepreneurial capabilities as an important influence on entrepreneurial engagement (Krueger *et al.*, 2000; Shinnar *et al.*, 2014; Arafat *et al.*, 2020). By contrast, the non-significant effect of opportunity perception differs from studies that identify it as an important driver of entrepreneurial activity, including Arafat *et al.* (2020) and Hussain *et al.* (2022). The non-significant effect of fear of failure also contrasts with broader entrepreneurship research that presents it as a barrier to entrepreneurial participation (Arenius and Minniti, 2005; Stuetzer *et al.*, 2014; Al Halbusi *et al.*, 2024), although it is more consistent with Arafat *et al.* (2020), who did not find that fear of failure prevented engagement in agricultural entrepreneurship. These differences may reflect variation in the samples, periods, variables and entrepreneurial outcomes examined across studies. The present study focuses specifically on early-stage agricultural entrepreneurial engagement across 20 developing economies, where climatic uncertainty, seasonal production cycles, market volatility and constraints affecting access to finance, markets and institutional support may shape entrepreneurial decision-making (Dias *et al.*, 2019; Fitz-Koch *et al.*, 2018; Raza *et al.*, 2024). Under these conditions, recognising an opportunity may be insufficient unless individuals also believe that they possess the capabilities required to mobilise resources and act upon it. This interpretation is consistent with research suggesting that entrepreneurial self-efficacy supports not only the recognition of

opportunities but also the mobilisation of resources and management of the challenges involved in pursuing them (Bell, 2019). This may help explain why entrepreneurial self-efficacy was significant in the present analysis, while opportunity perception was not.

The absence of significant independent effects for entrepreneurial role models, social status, media coverage and entrepreneurship as a desirable career choice contrasts with studies that identify these factors as influences on entrepreneurial attitudes and behaviour (Bosma *et al.*, 2012; Liñán *et al.*, 2011; Schlaegel and Koenig, 2014; Pinkovetskaia *et al.*, 2020). However, the significance of the aggregated sociocultural construct, despite the non-significance of its individual indicators, suggests that sociocultural influence may be better understood as a broader enabling environment than as a set of isolated effects. This interpretation is consistent with contextual perspectives that view entrepreneurship as embedded within social and institutional environments (Welter, 2011) and with research highlighting the importance of family, community and institutional relationships within agricultural entrepreneurship (Fitz-Koch *et al.*, 2018).

Among the demographic characteristics, gender was a significant predictor in both models, with women less likely than men to engage in early-stage agricultural entrepreneurship. Age showed a small positive association in Model 2, although it was not significant in Model 1, while household income was not significant in either model. The consistent gender finding aligns with research identifying resource, institutional and sociocultural barriers to women's entrepreneurial participation (Markussen and Røed, 2017; Hechavarría and Ingram, 2019; Raza *et al.*, 2025). Overall, the demographic effects beyond gender were limited in the present analysis.

5.1 Theoretical contribution

This study advances understanding of agricultural entrepreneurship by examining the behavioural drivers shaping engagement in early-stage agricultural entrepreneurial activity in developing economies. Prior research has largely focused on structural themes such as farm diversification, agribusiness development and rural innovation, while comparatively less attention has been given to the behavioural processes underlying entrepreneurial engagement in agricultural systems (Dias *et al.*, 2019; Fitz-Koch *et al.*, 2018). Extant research has called for greater understanding of the drivers influencing entrepreneurial behaviour and venture creation within agriculture (Pindado and Sánchez, 2017), particularly in developing economies where institutional conditions, resource constraints and rural livelihood structures shape entrepreneurial activity (Raza *et al.*, 2024). Responding to these calls, the current study examines how perceptual, sociocultural and demographic factors influence engagement in early-stage agricultural entrepreneurship across developing countries.

The findings provide new insights into the perceptual drivers of agricultural entrepreneurship. Among the perceptual factors examined, entrepreneurial self-efficacy emerged as the only significant individual perceptual predictor of engagement in agricultural entrepreneurship. This finding indicates that individuals' confidence in their entrepreneurial capabilities plays a particularly important role in shaping engagement in agricultural entrepreneurship. In contexts characterised by environmental uncertainty, seasonal production cycles and constrained institutional support, beliefs about the ability to initiate and manage entrepreneurial activities may therefore be more influential than opportunity perception alone.

Moreover, the current study provides insight into the role of sociocultural influences. While individual sociocultural variables were not significant predictors when examined independently, the aggregated sociocultural construct was significant when included alongside the perceptual construct and demographic variables. This finding suggests that sociocultural influence may be better captured at the level of the broader sociocultural environment than through the individual indicators examined separately. In agricultural contexts where production, knowledge exchange and entrepreneurial activity are embedded within local networks, the findings indicate that both individual perceptions and social environments are relevant to entrepreneurial engagement.

Furthermore, the current study contributes to the contextualised entrepreneurship literature by examining agricultural entrepreneurship across developing economies. Previous GEM-based studies have examined agricultural entrepreneurship using different country samples, and survey periods (Arafat *et al.*, 2020; Hussain *et al.*, 2022). By focusing specifically on 20 developing economies and examining both individual indicators and aggregated constructs, this research provides further insight into the factors shaping engagement in agricultural entrepreneurship in environments characterised by institutional constraints, resource limitations and strong reliance on agriculture for rural livelihoods.

In summary, the current study makes three important contributions to research on agricultural entrepreneurship. First, it provides empirical evidence on the behavioural drivers shaping engagement in agricultural entrepreneurship, addressing calls for greater understanding of entrepreneurial processes within agricultural systems (Fitz-Koch *et al.*, 2018; Pindado and Sánchez, 2017). Second, the findings identify entrepreneurial self-efficacy as the only significant individual perceptual driver, while demonstrating that aggregated perceptual and sociocultural factors are associated with entrepreneurial engagement even though most individual indicators were not significant when examined separately. This suggests that some perceptual and sociocultural influences may be more context-sensitive and may become more apparent when represented as broader constructs.

Third, by examining these relationships across developing economies using GEM data, the current study provides new insights into the individual-level drivers shaping agricultural entrepreneurship in contexts where agriculture remains central to rural livelihoods and economic development (Raza *et al.*, 2024). The study therefore refines existing explanations by indicating that established determinants of entrepreneurial engagement may not operate uniformly across sectoral and economic contexts.

5.2 Implications for policymaking and practice

Besides making several important theoretical contributions, the current study offers three important implications for policymakers and practitioners seeking to promote agricultural entrepreneurship in developing economies.

First, the results highlight the importance of strengthening entrepreneurial self-efficacy among individuals engaged in agriculture. Since self-efficacy emerged as the only perceptual factor with an independent effect on agricultural entrepreneurship, policies aimed at encouraging agriculture business development should prioritise capacity building and capability development among farmers and rural actors. This may involve expanding entrepreneurship education and training programmes that focus on opportunity identification, business planning, financial management and market development within agricultural value chains. Strengthening these competencies may increase individuals' confidence in their ability to initiate and manage entrepreneurial ventures.

Second, the findings indicate that both perceptual and sociocultural influences are relevant to entrepreneurial engagement in agriculture. This suggests that policy interventions should not focus solely on individual capability development but should also address the broader social environments in which entrepreneurial decision-making takes place. Initiatives that increase the visibility of successful agricultural entrepreneurs, strengthen farmer networks and support peer learning and mentorship within rural communities may therefore help foster entrepreneurial engagement.

Third, the persistent gender gap observed in both models highlights the need for more inclusive policies aimed at supporting women's participation in agricultural entrepreneurship. Women were significantly less likely than men to engage in agricultural entrepreneurial activity, reflecting structural and sociocultural barriers that continue to limit women's participation in entrepreneurship in many developing economies (Muhammad *et al.*, 2017; Raza *et al.*, 2025). Addressing these barriers may require targeted interventions such as

improved access to finance, mentorship programmes, gender-sensitive training initiatives and policies aimed at strengthening women's participation in agricultural value chains.

Overall, the current study suggests that policies aimed at promoting agricultural entrepreneurship should adopt integrated approaches that combine capability development, supportive social environments and institutional support mechanisms. Strengthening both individual entrepreneurial capabilities and the broader sociocultural context may therefore be important for fostering sustainable entrepreneurial activity within agricultural contexts in developing economies.

5.3 Limitations and future research directions

This study has three limitations. First, while the GEM dataset provides a rich and widely used source of entrepreneurship data, it has some limitations. For example, the dichotomous nature of many variables (e.g. yes/no or agree/disagree responses) restricts the use of more advanced statistical techniques such as exploratory factor analysis (EFA) or structural equation modelling (SEM), which could allow a more refined examination of relationships between variables. Moreover, data collected using Likert-type scales could provide richer measurement and enable more sophisticated modelling approaches such as EFA, confirmatory factor analysis (CFA) and SEM. Furthermore, since GEM collects data across a wide range of countries, the results may be influenced by economic, cultural and policy differences between contexts, which could mean that findings may not apply uniformly across all countries.

Second, in many developing countries a substantial share of agricultural activity occurs in the informal sector, where entrepreneurs may not register their businesses or participate in formal surveys. As GEM primarily captures formal entrepreneurial activity, informal agribusiness owners, subsistence farmers and rural entrepreneurs operating outside regulatory frameworks may be underrepresented. Future research could therefore explore informal agricultural entrepreneurship, examine pathways for transitioning from informal to formal agribusiness, and investigate the role of informal networks and rural cooperatives in entrepreneurship development.

Third, this study examines agricultural entrepreneurship across a range of developing countries. As the study uses a pooled individual-level analysis, it does not estimate country-specific effects or test whether the relationships examined vary between national contexts. While this approach enables the identification of overall behavioural patterns across developing-economy contexts, it treats the countries as a single analytical group despite important institutional, economic and cultural differences. Future research could therefore conduct country-specific analyses or cluster countries based on institutional, economic or agricultural system characteristics. In addition, incorporating qualitative approaches such as interviews or case studies could also provide deeper insights into how entrepreneurial engagement emerges within specific agricultural contexts. Such research could further advance understanding of how behavioural drivers of agricultural entrepreneurship operate across different institutional and rural development contexts.

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