

Unveiling the Drivers of Entrepreneurial Internationalization: The Role of Human Capital, Digitalization, and Psychological Traits in Moroccan Early-stage Entrepreneurs

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Abstract

This study examines the factors influencing the internationalization of early-stage Moroccan entrepreneurs, focusing on human capital, digitalization, and psychological traits. Drawing on Human Capital Theory, Dynamic Capability Theory, and Psychological Theories of Entrepreneurship, the research aims to explore how education, digitalization, fear of failure, self-efficacy, and opportunity perception impact export intensity. Using data from 524 early-stage entrepreneurs surveyed by the Global Entrepreneurship Monitor (GEM), the study employs multiple regression analysis to evaluate the relationships between these factors and export activity. The findings reveal that opportunity perception significantly and positively influences export intensity, highlighting the critical role of entrepreneurial alertness in fostering internationalization. Conversely, education demonstrates a significant negative effect, suggesting that higher education levels may increase risk aversion, potentially deterring engagement in global markets. Surprisingly, digitalization, fear of failure, and self-efficacy do not show significant direct effects on export intensity, with the non-significant effect of digitalization reflecting context-specific challenges, such as limited strategic use,

infrastructure gaps, and insufficient digital literacy. The study highlights the need for fostering opportunity recognition and aligning education with practical skills. It calls for investments in digital infrastructure, training, and entrepreneurial ecosystems to empower entrepreneurs in emerging economies.

Keywords: Internationalization, Education, Digitalization, Fear of failure, Self-efficacy, opportunity perception

Introduction

In Morocco, the internationalization of entrepreneurial firms has gained increasing attention as the country navigates a rapidly globalizing economy. Moroccan entrepreneurs often face unique challenges, including regulatory constraints, limited infrastructure, and financial difficulties, which can shape their approach to foreign markets. Despite these obstacles, the drive toward internationalization is motivated by the need to access broader growth opportunities, enhance competitiveness, and overcome the limitations of the domestic market. Unlike traditional firms that expand internationally only after establishing a robust domestic presence, "born global" firms or international new ventures are those that actively pursue global markets from inception (Escandon-Barbosa et al., 2019; Oviatt & McDougall, 1994). Internationalization offers substantial benefits, including diversified revenue streams (Margolis & Calderon, 2021), access to advanced technologies (Ahi et al., 2022), and enhanced competitiveness (Sun et al., 2019), which in turn can stimulate economic growth through increased employment and foreign exchange flows (Demir et al., 2020; Hessels & van Stel, 2011; Leković & Berber, 2019).

Various factors, both internal and external to entrepreneurial ventures, shape the landscape of internationalization. Digitalization, for instance, has lowered barriers to entry in foreign markets, making it easier for entrepreneurs to reach international customers and suppliers (Brieger et al., 2022). This is particularly evident after the COVID-19 pandemic, where the shift to digital platforms has accelerated global outreach capabilities for small businesses. Additionally, psychological factors such as fear of failure and opportunity perception significantly influence entrepreneurs' decisions to internationalize. Fear of failure, while often viewed as a barrier, can drive entrepreneurs to diversify their market presence internationally as a risk mitigation strategy (Hunter et al., 2021). Opportunity perception, closely tied to self-efficacy, impacts an entrepreneur's confidence in seizing international market opportunities (Mira-Solves et al., 2021).

Guided by Human Capital Theory, Dynamic Capability Theory, and Psychological Theories of Entrepreneurship, this study aims to investigate the impact of education, digitalization, fear of failure, self-efficacy, and

opportunity perception on the internationalization efforts of early-stage Moroccan entrepreneurs. Human Capital Theory provides insight into the role of education and skills, highlighting how accumulated knowledge and expertise can shape internationalization readiness (Becker, 1964a; Mohammad Shafiee et al., 2024). Dynamic Capability Theory underscores the importance of digitalization in enabling firms to adapt and reconfigure resources for global engagement, especially amid rapidly changing conditions such as those brought about by the pandemic (Massa et al., 2023; Teece et al., 1997). Meanwhile, Psychological Theories of Entrepreneurship offer a framework to understand how individual traits, such as fear of failure and opportunity perception, influence an entrepreneur's decision to venture beyond local markets (N. F. Krueger & Carsrud, 1993; Lattacher & Wdowiak, 2020).

Based on data from 524 early-stage entrepreneurs surveyed by the Global Entrepreneurship Monitor (GEM), this study employs regression analysis to evaluate the influence of these factors on export intensity, a key indicator of internationalization. The results reveal a positive impact of digitalization, fear of failure, and opportunity perception on export intensity, while education demonstrates a negative association. This research marks a pioneering effort to quantify the effects of psychological, technological, and educational factors on the international expansion of early-stage entrepreneurs, contributing to a nuanced understanding of internationalization drivers in emerging markets.

Theoretical background and hypotheses development

Education and Internationalization

Education is widely recognized as a fundamental component of human capital that shapes entrepreneurs' abilities to identify, assess, and pursue opportunities in both domestic and international markets. The role of education in internationalization is complex and can have both positive (Lamotte & Colovic, 2015) and negative (Mattos & Salciuviene, 2019) influences on an entrepreneur's decision to expand abroad.

On the one hand, education enhances cognitive skills, knowledge, and problem-solving abilities, which are essential for navigating the complexities of international markets (Becker, 1964b; Davidsson & Honig, 2003; Silitonga et al., 2024). Higher levels of education often equip entrepreneurs with advanced skills in strategic planning, financial management, and understanding regulatory environments, which are crucial for successful internationalization (Boldureanu et al., 2020; Wright et al., 2007). Research by Zahra. (2005) suggests that educated entrepreneurs are more likely to seek and capitalize on opportunities in foreign markets due to their familiarity with international business practices and ability to leverage global networks.

However, some studies indicate that higher education can also introduce a more risk-averse approach, potentially hindering internationalization efforts. Educated entrepreneurs may be more aware of the challenges and risks associated with foreign markets, making them cautious about expansion, particularly in unfamiliar or volatile regions (Baggen et al., 2016). Autio et al. (2000) found that entrepreneurs with extensive formal education sometimes over-analyze potential risks and may exhibit less entrepreneurial spontaneity, which can limit their engagement with international markets. This suggests that while education can provide valuable skills, it may dampen an entrepreneur's inclination to take the risks inherent in internationalization.

In emerging economies like Morocco, education may play an even more pivotal role due to limited resources and institutional support for entrepreneurial activities. Educated entrepreneurs in these contexts often compensate for the lack of formal infrastructure by leveraging their acquired skills to overcome challenges in accessing international markets (Naudé, 2008). For example, Arenius & Minniti (2005) found that higher levels of education were associated with a greater likelihood of perceiving international opportunities, particularly in environments where formal support structures were lacking.

Additionally, the relationship between education and internationalization may vary based on the type and focus of educational background. Coviello & Jones (2004) argue that entrepreneurs with international business or technical backgrounds are likelier to pursue global markets than those with general or unrelated educational experiences. Similarly, Musteen et al. (2010) and Szymanski et al. (2021) found that international education or exposure during studies can encourage an entrepreneurial mindset geared toward global expansion.

Human Capital Theory suggests that education enhances an entrepreneur's skills, knowledge, and decision-making abilities, essential for navigating the complexities of international markets (Becker, 1964b; Boldureanu et al., 2020; Davidsson & Honig, 2003). However, prior studies indicate that higher levels of education may lead to increased risk awareness, potentially discouraging high-risk ventures like international expansion (Autio et al., 2000; Bates, 1995; Nawrocki & Jonek-Kowalska, 2022).

In summary, while education generally enhances an entrepreneur's ability to engage with international markets by building critical skills and knowledge, it may also introduce a cautious approach to risk, particularly in uncertain foreign environments. This dual effect of education on internationalization highlights the need to consider both educational attainment's benefits and potential limitations in fostering an entrepreneurial orientation toward global expansion. Thus, we hypothesize:

H1: Education hurts the internationalization of early-stage Moroccan entrepreneurs.

Digitalization and International Market Access

Digitalization has transformed the way businesses operate, especially for SMEs and entrepreneurial ventures that traditionally face resource constraints in accessing international markets. Through digital tools and platforms, firms can engage in global trade with lower costs and fewer barriers, allowing them to reach international customers, suppliers, and partners more effectively (Coviello & Jones, 2004; Meyer et al., 2023; Nambisan, 2017). Adopting digital technologies has been particularly significant in emerging economies, where entrepreneurs may lack access to traditional support structures and resources necessary for internationalization (Dabbous et al., 2023; Egala et al., 2024).

Digitalization enables entrepreneurs to expand their market reach by providing customers with virtual access and facilitating communication and transactions across borders (Ahi et al., 2022; Dabbous et al., 2023). Platforms like e-commerce websites, social media, and digital payment solutions have made it easier for firms to market and sell products internationally, even with limited physical presence (Autio & Zander, 2016; Tolstoy et al., 2021). For instance, Kraus et al. (2021) found that firms utilizing digital platforms experienced a faster and more seamless transition to international markets, as digital tools lowered logistical and operational costs associated with global expansion.

Furthermore, digitalization enhances an entrepreneur's ability to collect and analyze market data, critical for informed decision-making in foreign markets. Kraus et al. (2021) argue that digital tools enable real-time data collection and analysis, allowing firms to monitor trends, track competitors, and respond to changes in consumer preferences across different countries. This agility in adapting to foreign markets is particularly valuable for small firms, as it enables them to compete effectively against larger, established players (Nambisan et al., 2019). Ritter & Pedersen, (2020) highlight that digitalization fosters a learning orientation, empowering entrepreneurs to iteratively test and refine their approaches to internationalization based on digital insights.

The COVID-19 pandemic accelerated the adoption of digital technologies, as restrictions on physical interactions pushed firms to rely on digital channels to maintain operations. Many entrepreneurs turned to digital tools to survive the crisis and explore new international opportunities, with digital platforms allowing them to adapt and expand their reach quickly (Priyono et al., 2020; Seetharaman, 2020). In a study by Chaturvedi & Karri (2022), digitalization was identified as a critical factor in enabling firms to

pivot during the pandemic, with many entrepreneurs reporting increased international sales facilitated through online channels.

Digitalization also supports the development of entrepreneurial networks, which are essential for international market entry and success. Brieger et al., (2022) argue that digital platforms allow entrepreneurs to build relationships with foreign distributors, investors, and customers, providing social capital that is essential for internationalization. Digital networks facilitate knowledge exchange and provide entrepreneurs with insights into foreign markets, helping them overcome informational and cultural barriers (Etemad, 2015; Massa et al., 2023).

Digitalization in emerging economies like Morocco is particularly impactful, as it compensates for the often limited physical infrastructure and institutional support for international business (Abdelkhalek et al., 2021). Digital platforms allow Moroccan entrepreneurs to overcome local infrastructure challenges and reach global audiences, thus leveling the playing field with firms from more developed countries (Abdelkhalek et al., 2021; Brahim, 2024). According to Brieger et al. (2022), digitalization has proven to be a key enabler for internationalization among Moroccan SMEs, allowing them to leverage technology to overcome traditional barriers and access new markets.

In summary, Dynamic Capability Theory emphasizes the importance of adaptability and resource reconfiguration in pursuing new opportunities (Teece et al., 1997). Digitalization is crucial in enhancing international market access for entrepreneurial firms by reducing operational costs, enabling real-time market analysis, and supporting network-building activities. For Moroccan entrepreneurs, digitalization facilitates entry into international markets and empowers them to compete more effectively on a global scale. This study investigates the extent to which digitalization influences the export intensity of early-stage Moroccan entrepreneurs, especially as they adopt digital tools as part of a strategic response to the challenges and opportunities presented by the globalized digital economy. Therefore, we hypothesize:

H2: Digitalization positively affects the internationalization of early-stage Moroccan entrepreneurs.

Fear of Failure and its Influence on Internationalization

Fear of failure is a psychological factor that can significantly shape an entrepreneur's decision-making process, particularly when it comes to engaging in high-risk activities such as internationalization. Defined as the apprehension about the potential negative consequences of business failure, fear of failure has hindered and motivated entrepreneurial behavior (Cacciotti et al., 2016; Morgan & Sisak, 2016). In the context of internationalization, fear

of failure can act as a double-edged sword: it may discourage some entrepreneurs from pursuing foreign markets due to perceived risks, while for others, it may stimulate proactive strategies to diversify and reduce risk exposure.

Fear of failure often manifests as a deterrent to internationalization because entering foreign markets involves substantial uncertainty, including unfamiliar regulatory environments, cultural differences, and fluctuating exchange rates (Hessels et al., 2011). Entrepreneurs with a high fear of failure may perceive these uncertainties as significant obstacles, leading to a more cautious approach or even complete avoidance of international expansion (Gao et al., 2024; J. R. Mitchell & Shepherd, 2010). For example, Kollmann et al. (2017) found that entrepreneurs who exhibit high fear of failure tend to avoid internationalization, preferring instead to concentrate on safer, more predictable domestic markets. This fear-driven conservatism can restrict growth potential, particularly in cases where the domestic market is saturated or highly competitive.

Conversely, fear of failure can also act as a motivating factor for internationalization. Entrepreneurs with a heightened fear of failure may seek to diversify their market presence internationally as a risk mitigation strategy. By expanding into foreign markets, these entrepreneurs can reduce their reliance on a single market, thereby spreading risk across multiple revenue streams (Knight & Liesch, 2016). In a study by Arenius & Minniti. (2005), it was observed that fear of failure motivated some entrepreneurs to engage in international activities as a way to counteract the potential negative impact of domestic market volatility. By leveraging international markets, these entrepreneurs were able to create additional sources of revenue, thereby enhancing the resilience of their businesses.

Research also suggests that the effect of fear of failure on internationalization is moderated by individual and contextual factors, such as self-efficacy and access to resources (Cacciotti et al., 2020; Morgan & Sisak, 2016). Entrepreneurs with high self-efficacy or a strong belief in their ability to succeed may perceive fear of failure as a manageable challenge rather than a prohibitive barrier (Hunter et al., 2021). This confidence can enable them to take calculated risks in international markets, viewing failure not as a catastrophic outcome but as a learning opportunity. Found that entrepreneurs with high self-efficacy were more likely to pursue international opportunities, even if they initially experienced fear of failure, as they viewed the potential rewards as outweighing the risks.

In emerging markets like Morocco, fear of failure may be particularly salient due to the lack of institutional support and the higher volatility of the business environment. Entrepreneurs in these settings often face additional barriers, such as limited access to financing, weak legal frameworks, and

cultural attitudes that stigmatize failure (Mandili & Elabjani, 2023; Naudé et al., 2008). According to Markowska et al., (2019), entrepreneurs in emerging markets tend to have a heightened fear of failure, which can discourage them from taking on the added uncertainty of internationalization. However, those who are able to overcome this fear often adopt proactive strategies to mitigate risk, such as gradually entering foreign markets or establishing partnerships to share the burden of international expansion (Brinkmann et al., 2014; Kollmann et al., 2017; Reuber & Fischer, 1997).

Psychological theories indicate that fear of failure can influence entrepreneurial decision-making, acting either as a barrier or as a motivator (Cacciotti et al., 2016; Morgan & Sisak, 2016). For some entrepreneurs, fear of failure may discourage risk-taking in foreign markets (Kollmann et al., 2017), while for others, it may encourage diversification into international markets as a strategy to mitigate domestic risk (Knight & Liesch, 2016). In the Moroccan context, where domestic market conditions can be volatile, fear of failure may motivate internationalization.

In summary, fear of failure is a complex factor with dual effects on internationalization. While it can discourage some entrepreneurs from venturing into foreign markets due to perceived risks, it can also motivate others to diversify and reduce dependency on a single market. This study explores how fear of failure influences the internationalization behavior of Moroccan entrepreneurs, with a particular focus on whether it acts as a deterrent or a driver of export intensity. Understanding this dynamic can provide valuable insights into the psychological barriers and motivators shaping international expansion in emerging markets. Thus, we hypothesize:

H3: Fear of failure positively affects the internationalization of early-stage Moroccan entrepreneurs.

Self-Efficacy and Entrepreneurial Internationalization

Self-efficacy, or an individual's belief in their ability to execute tasks and achieve specific goals, is a key psychological factor influencing entrepreneurial behavior (Bandura, 1997; Tantawy et al., 2021). In the context of entrepreneurship, self-efficacy reflects an entrepreneur's confidence in their skills to identify, pursue, and manage new business opportunities, including those in foreign markets (N. Krueger & Dickson, 2007). Entrepreneurs with high self-efficacy tend to be more persistent, resilient, and willing to take risks, making them more likely to engage in internationalization activities.

Research has shown that self-efficacy is a strong predictor of entrepreneurial intentions and behaviors, particularly in high-stakes and uncertain environments such as international markets (Barbosa et al., 2007; Chen et al., 1998; Newman et al., 2019). Entrepreneurs with high self-efficacy

are more likely to perceive internationalization as an achievable and rewarding goal, rather than as an overwhelming challenge (Wilson et al., 2007; Wu et al., 2022). For instance, (Zahra, 2005b) found that entrepreneurs with higher self-efficacy were more inclined to pursue international markets, as they felt confident in their ability to navigate unfamiliar environments and overcome obstacles associated with foreign expansion.

Self-efficacy also influences how entrepreneurs perceive and manage risks, which is crucial for internationalization. Those with high self-efficacy are more likely to see potential setbacks as surmountable challenges rather than deterrents, enabling them to adopt a proactive approach to international market entry (R. K. Mitchell et al., 2002). De Clercq et al. (2012) suggest that self-efficacious entrepreneurs are more willing to venture into foreign markets because they believe in their capacity to adapt and succeed, even in uncertain and volatile contexts. This confidence allows them to take calculated risks and pursue growth opportunities beyond their domestic borders.

In emerging markets, such as Morocco, self-efficacy may be even more critical for entrepreneurs who face a range of institutional and infrastructural barriers. Entrepreneurs in these environments often rely on their self-belief and resilience to counteract limited support and navigate complex market dynamics (Bruton et al., 2008; Naguib, 2024). Baum & Locke (2004) found that self-efficacy was particularly important for entrepreneurs in resource-constrained settings, as it helped them to remain motivated and persist in pursuing ambitious goals, including international expansion. For Moroccan entrepreneurs, self-efficacy could play a pivotal role in enabling them to view foreign markets as viable options for growth, despite the challenges they may face at home.

Self-efficacy also affects the ability of entrepreneurs to build and leverage networks, which are essential for successful internationalization. Entrepreneurs with high self-efficacy tend to be more proactive in developing relationships with foreign partners, suppliers, and distributors, thus expanding their social capital and enhancing their internationalization prospects (Naz et al., 2020; Newman et al., 2019). According to Coviello & Munro (1995), entrepreneurs with strong self-belief are more likely to seek and utilize international connections, which facilitate entry into foreign markets and help them overcome informational and cultural barriers.

Psychological theories suggest that self-efficacy empowers entrepreneurs to take on challenging tasks and believe in their ability to succeed, making them more likely to engage in internationalization (Bandura, 1997; Wilson et al., 2007). Entrepreneurs with high self-efficacy are likely to approach foreign markets confidently, perceiving fewer barriers and higher rewards (Chen et al., 1998).

In summary, self-efficacy is a critical psychological trait that enhances an entrepreneur's likelihood of pursuing internationalization. Entrepreneurs with high self-efficacy are more confident in their ability to succeed in foreign markets, more willing to take risks, and more proactive in building networks that support international expansion. This study will investigate the influence of self-efficacy on the internationalization of early-stage Moroccan entrepreneurs, examining whether a strong sense of self-efficacy drives increased export intensity and engagement in foreign markets. Therefore, we hypothesize:

H4: Self-efficacy positively affects the internationalization of early-stage Moroccan entrepreneurs.

Opportunity Perception and Entrepreneurial Internationalization

Opportunity perception, the ability of an entrepreneur to identify and evaluate potential market opportunities, is a crucial factor influencing the decision to internationalize. Entrepreneurs with a high perception of opportunity are more likely to identify foreign markets as viable spaces for expansion and growth, which drives proactive efforts to internationalize their businesses (Chaubaud & Messeghem, 2010; Eckhardt & Shane, 2003; Shane & Venkataraman, 2000). Opportunity perception is closely tied to an entrepreneur's alertness to changes in the external environment and their ability to interpret these changes as avenues for profit (Kirzner, 1997; Roundy et al., 2018). In internationalization, opportunity perception enables entrepreneurs to recognize unfilled needs in foreign markets, anticipate consumer demands, and identify advantageous entry points.

Entrepreneurs who perceive high levels of opportunity tend to adopt a growth-oriented mindset, which often includes expanding beyond their domestic borders. (McDougall et al. (2003) found that opportunity perception was a key factor driving internationalization among small firms, as entrepreneurs more attuned to market opportunities were quicker to capitalize on cross-border business prospects. In addition, Chandra et al. (2009) emphasize that entrepreneurs with strong opportunity perception are more likely to view internationalization as a means of gaining a competitive advantage and achieving long-term growth. These entrepreneurs are not only skilled at spotting opportunities but are also motivated to act on them, resulting in a proactive approach to international expansion.

Opportunity perception is often associated with entrepreneurial self-efficacy or the confidence an entrepreneur has in their ability to succeed in new ventures (Krueger Jr. & Dickson, 1994; Newman et al., 2019). Entrepreneurs with high self-efficacy are more likely to view foreign markets as accessible and manageable, perceiving fewer obstacles to entry (Zahra,

2005b). This positive outlook enhances their ability to recognize opportunities abroad and to act decisively, even in unfamiliar environments. R. K. Mitchell et al. (2002) and Wu et al. (2022) found that entrepreneurs with higher self-efficacy are more likely to pursue international opportunities, as they tend to perceive potential challenges in foreign markets as surmountable rather than prohibitive.

Moreover, opportunity perception is influenced by prior knowledge and experience, which can shape how entrepreneurs assess and respond to international market opportunities. Oviatt & McDougall. (2005) argues that entrepreneurs with prior exposure to international markets are better positioned to identify and exploit opportunities abroad, as they possess insights into market trends, consumer preferences, and competitive dynamics. This exposure enhances their perception of opportunity and enables them to evaluate internationalization more confidently. Similarly, Mainela et al. (2018) found that entrepreneurs with experience in international settings had higher opportunity perception, making them more inclined to engage in international business activities.

For entrepreneurs in emerging markets like Morocco, opportunity perception is particularly significant. Limited domestic opportunities often push entrepreneurs to seek growth prospects abroad, where they may perceive fewer constraints on innovation and profitability (Bruton et al., 2013). Jafari Sadeghi et al. (2019) highlight that entrepreneurs in emerging economies, who often face institutional voids at home, are highly motivated to identify and act upon international opportunities as a way to bypass domestic limitations. This outward-looking approach can be an effective strategy for Moroccan entrepreneurs seeking to overcome local market constraints by capitalizing on favorable conditions in foreign markets.

Opportunity perception is critical to entrepreneurial behavior, reflecting an entrepreneur's ability to identify and pursue new market possibilities (Shane & Venkataraman, 2000). Entrepreneurs with a high perception of opportunity are more likely to recognize foreign markets as viable options for growth and competitive advantage (Anwar et al., 2022; Chandra et al., 2009; McDougall et al., 2003). In emerging markets like Morocco, limited domestic opportunities may enhance entrepreneurs' motivation to identify international opportunities as avenues for expansion.

In summary, opportunity perception is pivotal in entrepreneurial internationalization by driving a proactive orientation toward foreign markets. Entrepreneurs who can effectively perceive opportunities are more likely to pursue international expansion as a growth strategy, particularly in restrictive domestic market conditions. This study examines the influence of opportunity perception on the internationalization of Moroccan entrepreneurs, focusing on

its impact on export intensity and the decision to enter foreign markets. Therefore, we hypothesize:

H5: Opportunity perception has a positive effect on the internationalization of early-stage Moroccan entrepreneurs.

Methodology

This section describes the data collection process, sample characteristics, measurement of key variables, and the analytical approach used to investigate the factors influencing the internationalization of early-stage Moroccan entrepreneurs.

Data Collection and Sample

The data for this study were obtained from the Global Entrepreneurship Monitor (GEM), an international research project that collects comprehensive data on entrepreneurship from multiple countries annually. GEM's Adult Population Survey (APS) is one of the most extensive data sources on individual-level entrepreneurial activity, capturing various factors such as demographic characteristics, perceptions, and entrepreneurial intentions. This study utilizes GEM data for Morocco, focusing on early-stage entrepreneurs during the period 2021 and 2023.

The sample includes 524 early-stage entrepreneurs from Morocco. Early-stage entrepreneurs are defined as individuals who are in the process of setting up a business or have recently started one. This sample is particularly relevant for examining internationalization drivers because it focuses on new ventures in the initial stages of growth and decision-making regarding international expansion. The data include a range of demographic, psychological, and business-related variables that align with the theoretical framework of this study.

Measurement of Variables

This study examines several key variables, operationalized based on previous research and the GEM data structure:

Dependent Variable

The dependent variable is Based on the studies of Chowdhury & Audretsch (2021) and Yang et al. (2020); we used TEA export intensity (turnover %), which measures the proportion of revenue generated from foreign markets, as the primary indicator of internationalization. GEM's categorization of export intensity allows us to assess the degree of international engagement among early-stage Moroccan entrepreneurs.

Responses are recorded on a scale indicating whether the firm derives a small, moderate, or large portion of turnover from international sales.

Independent Variables

Education is measured using the GEM harmonized educational attainment categories, which reflect the highest level of formal education completed by the respondent. This variable is categorized to distinguish between different levels of education, ranging from no formal education to postgraduate degrees. By coding education as an ordinal variable, the analysis can capture the incremental effects of higher education on entrepreneurial internationalization. The inclusion of education as a variable draws from Human Capital Theory, which posits that individuals with higher educational attainment are more likely to acquire the skills and competencies necessary for navigating complex international markets. This operationalization allows the study to assess whether increased education correlates with greater export intensity or, conversely, whether higher education may contribute to risk aversion, limiting international engagement.

Digitalization measures the extent to which entrepreneurs incorporate digital tools and technologies into their business operations, focusing on activities that facilitate market expansion and product sales. This variable is derived from a GEM survey question: *“Are you using digital technologies (e.g., online platforms or e-commerce) to sell your products or services?”* The responses are coded as a binary variable, with 1 indicating the use of digital tools and 0 indicating no digital adoption. This operationalization aligns with the Dynamic Capability Theory, which emphasizes the role of technology in enhancing firms' adaptability and international competitiveness. By analyzing digital adoption, the study explores whether leveraging digital platforms lowers market entry barriers and boosts export intensity or whether contextual factors (e.g., limited digital infrastructure) moderate this relationship.

Fear of failure reflects a psychological constraint that may inhibit entrepreneurial action by amplifying perceived risks associated with business ventures. This variable is measured through a Likert-scale question in the GEM survey: *“To what extent does the fear of failure prevent you from starting a business?”* Responses range from low values (indicating minimal fear of failure) to higher values, signifying greater apprehension. This construct stems from the Psychological Theories of Entrepreneurship, suggesting that fear of failure can deter entrepreneurs from exploring international opportunities. Operationalizing fear of failure allows the study to investigate its role as a potential barrier to export activities, shedding light on how psychological traits intersect with strategic business decisions.

Opportunity perception gauges the entrepreneur's ability to identify favorable market conditions and assess potential growth opportunities. This

variable is measured using the GEM question: “Do you see good business opportunities in the next six months?” and is coded as a binary variable (1 = perceives opportunities, 0 = does not perceive opportunities). Opportunity perception reflects the entrepreneur’s alertness and proactive stance, which are critical elements in entrepreneurial internationalization. This operationalization aligns with the theory of entrepreneurial alertness, emphasizing that individuals who recognize market opportunities are more likely to engage in export-oriented activities. By including this variable, the study evaluates how opportunity perception drives international expansion and influences export intensity.

Self-efficacy is operationalized through the GEM question: “Do you have the knowledge, skills, and experience necessary to start a new business?” Responses are recorded on a Likert scale, where higher values indicate greater self-confidence in entrepreneurial abilities. This variable reflects the entrepreneur’s belief in their capacity to overcome challenges and successfully manage new ventures. Drawing from Psychological Theories of Entrepreneurship, self-efficacy is considered a critical predictor of entrepreneurial success and risk-taking behavior. By analyzing self-efficacy, the study investigates whether entrepreneurs with higher confidence levels are more inclined to pursue international opportunities and engage in export activities.

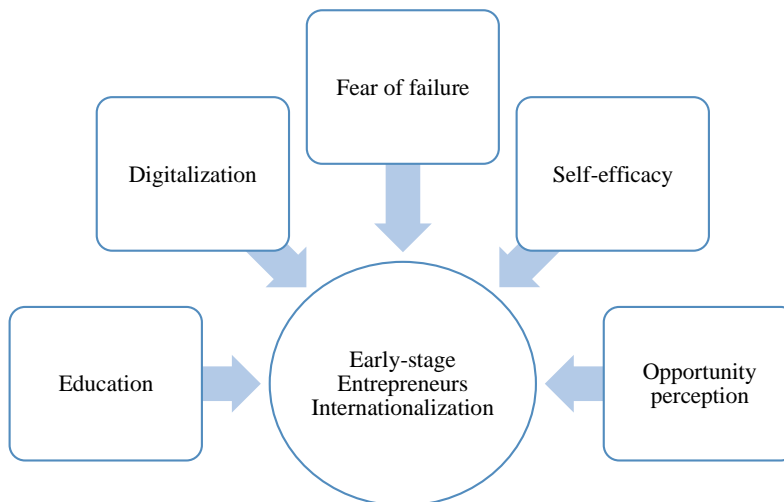


Figure 1: Theoretical framework

Results

Table 1: Descriptive Statistics and Correlations

Variable	Mean	SD	1	2	3	4	5	6
1. TEA Export Intensity	6.85	0.942	1					
2. Education	4.09	1.712	-0.112*	1				
3. Digitalization	0.66	0.475	-0.070	0.237**	1			
4. Fear of Failure	2.43	1.394	-0.025	0.116**	-0.008	1		
5. Opportunity Perception	0.69	0.463	0.124**	0.020	-0.046	0.009	1	
6. Self-Efficacy	0.90	0.307	0.044	-0.010	0.068	0.015	0.081	1

Significance Levels:

$p < 0.05$ (*): Significant at the 5% level.

$p < 0.01$ (**): Significant at the 1% level.

$N = 524$ for all variables.

Table 1 provides the descriptive statistics and correlations for the dependent variable (TEA Export Intensity) and the independent variables, including Education, Digitalization, Fear of Failure, Opportunity Perception, and Self-Efficacy. The descriptive statistics include variable, each variable's mean and standard deviation, providing an overview of the central tendency and variability within the sample. TEA Export Intensity, the dependent variable, has a mean of 6.85 (SD = 0.942), indicating that the majority of respondents report low export activity. The independent variables exhibit diverse means and distributions, reflecting variations in education levels, digital tool adoption, psychological factors, and entrepreneurial perceptions among respondents.

The correlation matrix highlights the relationships between the study variables. Significant correlations are noted at the 0.05 and 0.01 levels. Education is negatively correlated with TEA Export Intensity ($r = -0.112$, $p < 0.05$), suggesting that higher education levels are associated with lower export intensity. In addition, Opportunity Perception positively correlates with TEA Export Intensity ($r = 0.124$, $p < 0.01$), indicating that entrepreneurs who perceive good opportunities are more likely to engage in export activities.

Other variables, such as Digitalization, Fear of Failure, and Self-Efficacy, show weak or non-significant correlations with export intensity. These results provide initial insights into the drivers of internationalization among entrepreneurs and set the stage for further analysis using regression techniques.

This table offers a foundational understanding of the dataset, illustrating key trends and relationships among the variables, and provides a basis for testing the proposed hypotheses.

Multiple regression analysis

Our analytical approach involves multiple regression analysis to assess the relationships between the independent variables and export intensity.

Multiple regression is chosen for its ability to evaluate the impact of each independent variable on the dependent variable.

Table 2: Regression Analysis Results

Variable	Unstandardized Coefficients (B)	Std. Error	Standardized Coefficients (Beta)	t	p-value
Constant	6.888	0.179	-	38.377	0.000
Education	-0.056	0.025	-0.102	-2.280	0.023*
Digitalization	-0.084	0.089	-0.043	-0.950	0.342
Fear of Failure	-0.010	0.029	-0.015	-0.338	0.735
Opportunity Perception	0.247	0.088	0.121	2.791	0.005**
Self-Efficacy	0.110	0.134	0.036	0.826	0.409

Notes:

Dependent Variable: TEA Export Intensity (measured on a scale from 1 to 7, where 1 = "Export over 90%" and 7 = "No export").

Significance Levels:

$p < 0.05$ (*): Statistically significant at the 5% level.

$p < 0.01$ (): Statistically significant at the 1% level.

Model Summary

Statistic	Value
R	0.177
R ²	0.031
Adjusted R ²	0.022
Std. Error of the Estimate	0.931

ANOVA Results

Source	Sum of Squares	df	Mean Square	F	p-value
Regression	14.578	5	2.916	3.362	0.005**
Residual	449.208	518	0.867		
Total	463.786	523			

The regression results are summarized in Table 2, which includes unstandardized coefficients (B), standardized coefficients (Beta), t-values, and significance levels for each predictor. The model explains a small but significant portion of the variance in export intensity ($R^2 = 0.031$, Adjusted $R^2 = 0.022$), with an overall model significance of $F(5, 518) = 3.362$, $p = 0.005$.

Through the analysis of the table of regression, we observed that Education has a significant negative effect on TEA Export Intensity ($B = -0.056$, $p = 0.023$). Each one-unit increase in education level reduces the export intensity by 0.056 units, supporting the hypothesis that higher education may make entrepreneurs more risk-averse in engaging with international markets.

This finding may appear counterintuitive but aligns with prior research suggesting that higher education levels can make entrepreneurs more cautious

or risk-averse in their decision-making (Bates, 1995). Educated entrepreneurs may be more aware of the challenges and risks associated with international markets, such as fluctuating exchange rates, trade regulations, or cultural barriers, leading to a preference for focusing on domestic markets.

Digitalization, it shows a non-significant negative effect on export intensity ($B = -0.084$, $p = 0.342$), indicating that adopting digital tools does not directly influence entrepreneurs' level of export turnover. This non-significant effect could reflect context-specific barriers, such as limited infrastructure, digital literacy, or entrepreneurs' lack of strategic use of digital tools to expand into international markets.

Fear of failure has also shown no significant impact on TEA Export Intensity ($B = -0.010$, $p = 0.735$), suggesting that this psychological factor does not shape export behaviors. This suggests that fear of failure does not directly influence the level of export activity among entrepreneurs. While fear of failure might impact the decision to start a business, it has less relevance once the business is operational and pursuing international markets.

Opportunity perception has a significant positive effect on TEA Export Intensity ($B = 0.247$, $p = 0.005$). Entrepreneurs who perceive good opportunities experience a 0.247-unit increase in export intensity, emphasizing the importance of opportunity recognition in driving internationalization. In other words, entrepreneurs who perceive opportunities for growth are more likely to pursue international markets because they view export activities as a means to capitalize on unexploited demand or enhance their competitive advantage. This finding aligns with previous studies highlighting the importance of entrepreneurial alertness and opportunity recognition in driving internationalization (Shane & Venkataraman, 2000).

Finally, Self-efficacy shows a non-significant positive effect ($B = 0.110$, $p = 0.409$), indicating that while confident entrepreneurs might engage in export activities, this factor alone does not significantly influence export intensity. This means that although confidence in entrepreneurial skills is an essential trait for business success, it does not directly translate into higher export activity. Entrepreneurs with high self-efficacy might still face external barriers, such as limited market access or insufficient financial resources, that prevent them from expanding internationally.

Table 3: Hypothesis Testing Summary

Hypothesis	Relationship	Coefficient (B)	p-value	Supported
H1: Education has a negative effect on internationalization.	Negative	-0.056	0.023	Yes
H2: Digitalization has a positive effect on internationalization.	Positive	-0.084	0.342	No
H3: Fear of failure has a positive effect on internationalization.	Positive	-0.010	0.735	No
H4: Self-efficacy has a positive effect on internationalization.	Positive	0.110	0.409	No
H5: Opportunity perception has a positive effect on internationalization.	Positive	0.247	0.005	Yes

The overall regression model demonstrates statistical significance ($p = 0.005$) but explains a modest amount of variance in TEA Export Intensity ($R^2 = 0.031$, Adjusted $R^2 = 0.022$). These results suggest that while the predictors contribute to explaining export intensity, other factors not included in the model may also play a significant role.

Discussion

The findings of this study offer valuable insights into the drivers and barriers of internationalization among Moroccan entrepreneurs, particularly in the context of human capital, digital capabilities, and psychological traits. This research highlights the nuanced and multifaceted nature of entrepreneurial internationalization in an emerging economy by testing five hypotheses derived from the theoretical framework.

The significant negative relationship between education and export intensity (H1 supported) underscores the complexity of human capital's impact on internationalization. While education is often linked to enhanced skills and competencies, the results suggest that it may also increase entrepreneurs' awareness of risks and challenges, potentially deterring international engagement. This finding aligns with prior studies suggesting that higher education can lead to greater risk aversion (Bates, 1995). However, it also reveals a need for more targeted training programs that complement formal education by emphasizing practical international business skills, such as market entry strategies and cross-border operations as noted by (Nawrocki & Jonek-Kowalska, 2022).

Contrary to expectations, we found that digitalization does not significantly influence export intensity (H2 not supported). While digital tools are widely recognized as enablers of internationalization, their limited impact in this context may stem from challenges such as insufficient digital literacy, inadequate infrastructure, or a lack of strategic use. Entrepreneurs may adopt

digital tools for local operations rather than leveraging them to penetrate international markets. This result emphasizes the importance of enhancing digital infrastructure and providing training to help entrepreneurs maximize the potential of digital technologies for global engagement as suggested by (Massa et al., 2023).

The non-significant relationship between digitalization and export intensity in this study contrasts with prevailing literature that often positions digital tools as key enablers of internationalization (A. Gawel et al., 2022). This finding suggests that contextual barriers specific to Morocco may moderate the effectiveness of digital adoption in driving export activities. One potential explanation lies in the limited strategic use of digital technologies (MY. Haddoud., 2023). While many entrepreneurs may adopt digital tools for basic operational purposes (e.g., social media engagement or local transactions), these tools may not be fully leveraged to facilitate international market entry, supply chain integration, or global customer acquisition.

Moreover, infrastructure challenges such as inconsistent internet access, limited digital literacy, and underdeveloped e-commerce ecosystems could constrain the capacity of entrepreneurs to effectively use digital platforms for international expansion. Entrepreneurs in emerging economies often face logistical and regulatory hurdles that diminish the advantages offered by digitalization, thereby limiting its direct contribution to export performance (C.kreiterling, 2023). Additionally, the findings may reflect industry-specific variations in the impact of digital tools. For example, while service-based firms may benefit more directly from digital platforms, traditional sectors such as agriculture or manufacturing may rely more heavily on physical distribution channels and face structural barriers that digitalization alone cannot overcome. To address these barriers, policymakers should consider investing in digital capacity-building programs, e-commerce infrastructure, and export facilitation initiatives. Such efforts could help bridge the gap between digital adoption and effective internationalization, ensuring that Moroccan entrepreneurs can harness the full potential of digitalization to access global markets.

The psychological traits examined in this study reveal varied effects. Fear of Failure, The non-significant relationship with export intensity (H3 not supported) suggests that fear of failure does not directly influence internationalization decisions. While fear of failure may act as a barrier in the initial stages of entrepreneurship, its impact on operational decisions like exporting appears to be minimal in this context (Kollmann et al., 2017). Similarly, self-efficacy does not directly affect export intensity (H4 not supported).

This finding implies that while confidence in entrepreneurial skills is essential, it may not translate directly into higher levels of export activity

without additional enabling conditions, such as financial resources or market access.

Opportunity perception emerges as a significant positive predictor of export intensity (H5 supported). Entrepreneurs who perceive international opportunities are more likely to engage in export activities, supporting the notion that entrepreneurial alertness and opportunity recognition are critical for internationalization. This result reinforces the importance of fostering an ecosystem that enhances entrepreneurs' ability to identify and capitalize on foreign market opportunities through trade fairs, networking events, and access to market intelligence.

This study contributes to the theoretical understanding of entrepreneurial internationalization by integrating human capital, digital capabilities, and psychological traits within a unified framework. It highlights the dual role of education, where higher education can enhance entrepreneurial capabilities while increasing risk aversion. It challenges assumptions about the universal benefits of digitalization, emphasizing the need for strategic implementation. It underscores also the centrality of opportunity perception as a driver of internationalization, aligning with Psychological Theories of Entrepreneurship.

Conclusions

This study provides valuable insights into the factors influencing the internationalization of early-stage Moroccan entrepreneurs, offering critical implications for policymakers, educators, and practitioners. The findings highlight the pivotal role of opportunity perception while revealing the nuanced impacts of education, digitalization, and psychological traits on export intensity. To foster entrepreneurial internationalization, policymakers should focus on building human capital through targeted training programs that bridge the gap between theoretical education and practical skills. This can be achieved by redesigning curricula to include experiential learning, entrepreneurial boot camps, and public-private partnerships that reflect real-world market demands. Additionally, international exposure programs, mentorship networks, and access to market intelligence can enhance opportunity recognition and encourage engagement in global markets. Expanding digital literacy initiatives and creating export-focused incubators will further enable entrepreneurs to leverage digital tools for international growth. These combined efforts aim to cultivate a more dynamic entrepreneurial ecosystem, equipping Moroccan entrepreneurs with the skills, confidence, and resources needed to pursue global opportunities.

Digitalization efforts should go beyond adoption, focusing on leveraging technologies to facilitate global engagement. Finally, fostering opportunity recognition is critical. Entrepreneurs must-have tools and

platforms to identify and capitalize on international opportunities. Government initiatives, such as export support platforms, trade fairs, and market intelligence services, can play a vital role in enhancing entrepreneurial alertness and facilitating global market access.

Despite its contributions, this study has several limitations. The modest explanatory power of the regression model ($R^2 = 3.1\%$) suggests that additional factors, such as firm size, industry characteristics, and market conditions, may also influence export intensity. The cross-sectional nature of the data restricts the ability to capture dynamic or causal relationships, and the study's focus on Moroccan entrepreneurs may limit the generalizability of the findings to other cultural and economic contexts.

To address these limitations, future research should incorporate additional variables, such as firm-level characteristics and external factors like institutional support and trade policies. Longitudinal designs would be valuable to explore how the relationships between education, digitalization, and psychological traits evolve. Comparative studies across different geographic regions could further identify context-specific drivers of entrepreneurial internationalization.

In conclusion, this study highlights the critical importance of opportunity perception while challenging assumptions about the roles of education and digitalization in entrepreneurial internationalization. By addressing the identified barriers and fostering an enabling ecosystem, entrepreneurial ecosystems in emerging economies can unlock their full potential for global engagement and economic growth. These findings provide a foundation for further exploration and actionable insights to support the internationalization journey of entrepreneurs in emerging markets.

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