



Institutions and Macroeconomic Indicators: Entrepreneurial Activities Across the World

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Abstract

Purpose: Entrepreneurial activity is a phenomenon that boosts the economic growth of countries and improves social welfare. The levels of economic development in countries have significant effects on these entrepreneurial activities. This research examines which institutional and macroeconomic variables explain early-stage entrepreneurial activities in developed and developing economies.

Methodology: We conducted panel data analysis on data from the Global Entrepreneurship Monitor and International Monetary Fund surveys covering 2009–2018.

Findings: To begin with, our results reveal that cognitive, normative, and regulatory institutions, as well as macroeconomic factors, have differential effects on early-stage entrepreneurial activity in developed and developing countries. Moreover, our findings indicate a stronger positive impact of cognitive, normative, and regulatory institutions on early-stage entrepreneurship in developed countries compared to developing countries. Finally, our results suggest that macroeconomic factors play a more significant role in early-stage entrepreneurial activity in developing countries than in developed countries. These findings have important implications for institutional theory, macroeconomics, and the entrepreneurship literature.

Originality: This study provides a better understanding of the components that help explain the differences in entrepreneurship between developed and developing countries regarding institutions and macroeconomic factors. In this way, it contributes to developing entrepreneurship literature with the theoretical achievements of combining institutional theory and macroeconomic indicators with entrepreneurship literature.

Keywords: Institutions, Macroeconomic Indicators, Entrepreneurial Activity, Comparison of Developed and Developing Countries, Panel Data Analysis

JEL Classification: L2; L26; M21; E02

1. Introduction

The rapid changes in the global economy significantly impact both developed and developing economies. Entrepreneurial activities are one of the principal driving forces behind this accelerated pace of change. Moreover, there is broad scholarly consensus that institutions (Wales et al., 2021; Medase et al., 2023; Pindado et al., 2023), macroeconomic indicators (Charfeddine and Zaouali, 2022), and the developmental stages of countries (De Mello et al., 2022) act as guiding forces for entrepreneurial activities. Recent studies have emphasized the role of institutions (Bjørnskov and Foss, 2016; Li et al., 2021; De Mello et al., 2022) and macroeconomic indicators (Charfeddine and Zaouali, 2022) in shaping entrepreneurial activities in both developed and developing economies (Stephen et al., 2005; Escandon-Barbosa et al., 2019; Guerrero et al., 2021; Afawubo and Noglo, 2022; De Mello et al., 2022). Despite these insights, our understanding of the multilevel impacts of institutions and macroeconomic indicators on entrepreneurial activities remains incomplete.

Most studies within the entrepreneurship literature have proven to be insufficient in producing results that concurrently evaluate institutions and macroeconomic indicators (Charfeddine and Zaouali, 2022). Recent research focusing on institutions has sought to elucidate their effects on entrepreneurship while also considering the economic development statuses of countries, thereby attempting to address existing gaps in our understanding of these dynamics (Carlos et al., 2013; Aparicio et al., 2016; Chowdhury et al., 2019; Amorós et al., 2019a; Junior et al., 2020; De Mello et al., 2022). Nonetheless, the extant literature reveals positive yet nuanced and inconclusive findings concerning the correlation between institutions and entrepreneurship, which underscores the need for further research (Stenholm et al., 2013; Valdez and Richardson, 2013; Audretsch et al., 2022a). For instance, Stenholm et al. (2013) integrated data from diverse sources to explore how variations in institutional arrangements affect the rate and nature of entrepreneurial activity within countries; however, their analysis was constrained to a limited timeframe (2007–2009). Similarly, Bogatyreva et al. (2022) assessed the relationship between institutions and entrepreneurship for 2013–2015 within a limited temporal scope. In focusing on the role of institutions in latent and emergent entrepreneurship, Audretsch et al. (2022a) confined their analysis to specific variables such as

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3 corruption in informal institutions and property rights and state size in formal institutions. These studies' limitations
4 in terms of time and variables prompt us to scrutinize this relationship over a more extended timeframe and with
5 a broader set of variables. This endeavor is further supported by recent calls for research and existing studies that
6 advocate institutional explanations for variations in entrepreneurial activity between developed and developing
7 economies (Cao and Shi, 2021; Li et al., 2021; Sethuram et al., 2021; De Mello et al., 2022; Bağış et al., 2023a).

8
9 Research evaluating the impact of macroeconomic indicators on entrepreneurial activities in conjunction with
10 institutions is limited and has yielded contradictory results (Guerrero et al., 2022). In a study examining the effects
11 of economic growth, inflation rates, and unemployment on entrepreneurial activity, Charfeddine and Zaouali
12 (2022) found that their impact on early-stage and incumbent firms varied in significance and direction. Radosevic
13 and Yoruk (2013) concluded that gross domestic product positively affects domestic demand while negatively
14 influencing entrepreneurial activity (Carree et al., 2007; Uhlaner and Thurik, 2010). Other research suggests that
15 unemployment rate fluctuations can positively (Charfeddine and Zaouali, 2022) and negatively (Hameed et al.,
16 2022) impact entrepreneurial activity. These studies make significant contributions to the existing body of
17 knowledge by shedding light on the influence of macroeconomic indicators on entrepreneurial activities. However,
18 they largely overlook the impact of key macroeconomic indicators such as gross debt stock, total exports, and
19 imports on entrepreneurial activities. Investigating these factors is pivotal, as a country's gross debt stock can either
20 facilitate or impede early-stage entrepreneurs' access to financial resources (Agyapong and Bedjapeng, 2020).
21 Specifically, total exports can bolster a country's export-driven economic growth and stimulate new entrepreneurial
22 initiatives (Mansion and Bausch, 2020; Donbesuur et al., 2023). Conversely, total imports can support and
23 potentially hinder entrepreneurial activities by fostering an import-dependent economic model that dampens
24 entrepreneurial spirit (Zhakupov et al., 2022). Additionally, prior studies have identified factors such as the current
25 account balance (Liargovas et al., 2022), consumer price index (Fan et al., 2023), gross national savings, domestic
26 investment expenditures (Ribaj and Mexhuani, 2021), and population (Millan et al., 2014) as exerting an influence
27 on entrepreneurial activities.
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29
30 Our study adopts a holistic approach to analyze the macroeconomic indicators previously mentioned and conducts
31 longitudinal tests across multiple variables to evaluate their influence on entrepreneurial activities in both
32 developed and developing countries. Specifically, our research examines the impact of institutions and
33 macroeconomic indicators on Total Early-Stage Entrepreneurial Activity (TEA) in these countries. TEA represents
34 the percentage of the population aged 18–64 who are either nascent entrepreneurs (actively setting up a business)
35 or owner-managers of new enterprises (up to 3.5 years old) (Hessels et al., 2011; Graham and Bonner, 2022;
36 Khurana et al., 2023; Patricio and Ferreira, 2023). We draw on data from the Global Entrepreneurship Monitor
37 (GEM) to evaluate the effects of institutions on TEA and from the International Monetary Fund (IMF) to assess
38 the impact of macroeconomic indicators (Gao et al., 2021; Wales et al., 2021; Bogatyreva et al., 2022). Developed
39 countries typically possess higher-quality institutions and more stable macroeconomic indicators than developing
40 countries, which often operate within uncertain, ambiguous, and volatile institutional and macroeconomic
41 frameworks (Welter and Smallbone, 2011; De Mello et al., 2022; Audretsch et al., 2023a). Given the institutional
42 and macroeconomic heterogeneity between developed and developing countries, these factors will likely influence
43 potential and established entrepreneurs differently (Guerrero et al., 2022). It has been established in developed
44 countries that government programs (Heinonen and Hytti, 2016) and university spin-offs (Hannibal et al., 2016)
45 positively influence entrepreneurial activities. In contrast, developing countries often grapple with ineffective and
46 inefficient regulations—such as tax and legal codes—as well as socio-cultural norms that create a challenging
47 environment for entrepreneurs, particularly women (Mair and Marti, 2007; Guerrero et al., 2022). Given this
48 complex backdrop, the inconsistent findings regarding the impact of institutions and macroeconomic indicators on
49 entrepreneurial activities in developed and developing economies constitute a research gap warranting further
50 exploration.

51
52 The contributions of this research can be categorized under two main headings. First, the study elucidates
53 disparities in entrepreneurial activities between developed and developing countries by comprehensively
54 examining institutional variables. Unlike previous research that has generally focused on select elements of
55 regulatory institutions (Stenholm et al., 2013; Urbano and Alvarez, 2014; De Mello et al., 2022), our study
56 incorporates a more extensive set of variables. These include entrepreneurial finance, R&D transfers, internal
57 market dynamics, entry regulations, and physical infrastructure. Our investigation thus diverges substantively from
58 extant literature in terms of the scope of cognitive-cultural, normative, and regulatory institutional variables
59 considered (Stenholm et al., 2013; Valdez and Richardson, 2013; Urbano and Alvarez, 2014; Castaño et al., 2015;
60 Bosma et al., 2018; Audretsch et al., 2022a; Bogatyreva et al., 2022; Charfeddine and Zaouali, 2022; De Mello et

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3 al., 2022). This comprehensive approach enriches both the entrepreneurship and institutional theory fields by
4 bridging them in a novel way (Bruton et al., 2010; Su et al., 2017; Duran et al., 2019; Eijdenberg et al., 2019; Diez-
5 Martín et al., 2022). Second, our study addresses the limitations of prior research by offering explanations for
6 early-stage entrepreneurial activities in developed and developing countries through a diverse array of
7 macroeconomic indicators. In this regard, we include macroeconomic variables previously overlooked in the
8 literature, such as gross debt stock, total exports, total imports, current account balance, gross national savings,
9 and domestic investment expenditures (Charfeddine and Zaouali, 2022; Junaid et al., 2022; Fan et al., 2023;
10 Ragmoun, 2023). In summary, our research is the first to comprehensively analyze the effects of institutional and
11 macroeconomic indicators on entrepreneurial activities in developed and developing countries.
12

13 The research is structured into four sections, excluding the introduction. The next section presents the literature
14 review and hypothesis development. The research methodology is detailed in the third section, while the fourth
15 section presents the findings. Finally, in the discussion section, we provide theoretical and practical implications,
16 address research limitations, and offer suggestions for future research.
17

18 **2. Literature Review and Hypothesis Development**

19 **2.1. Institutions and Entrepreneurial Activity**

20
21
22 Institutions are humanly devised constraints that shape human interaction and establish the rules of the game in
23 society (North, 1990). There are two classifications of institutions: formal, informal, and semi-formal (North,
24 1990; Batjargal et al., 2013) and regulatory, normative, and cognitive (Scott, 1995). The first of these distinctions
25 is based on new institutional economics (North, 1990), while the second is rooted in institutional theory (Scott,
26 1995). These research branches are also utilized in entrepreneurship research (Gölgeci et al., 2017). However,
27 considering the criticisms that past entrepreneurship research is predominantly grounded in economics and that
28 the sociological basis is often neglected (Bjørnskov and Foss, 2016), this research examines the effects of
29 cognitive–cultural, normative, and regulatory institutions (Scott, 1995) on entrepreneurial activities from a
30 sociological perspective.
31

32 Institutions exhibit heterogeneous features due to societies' unique structures and interactions (North, 1990; 2005;
33 Acemoglu and Robinson, 2012). They facilitate, limit, and shape the preferences of individuals in society,
34 including entrepreneurs in the business world (Aparicio et al., 2021). The impact of institutions on individuals'
35 social behavior suggests that they may also influence the entrepreneurial behavior of entrepreneurs (Scott, 1995;
36 Busenitz et al., 2000; Valdez and Richardson, 2013; Yay et al., 2018). Therefore, we can presume that institutions
37 have a significant influence on entrepreneurs' perception of opportunities and threats in the market, their decision
38 to start a venture, their entrepreneurial preferences, their managerial practices, and the success or failure of an
39 enterprise (De Clercq et al., 2010a; Stenholm et al., 2013; Valdez and Richardson, 2013; Al Mamari et al., 2020).
40 However, institutional factors are associated with firm-level entrepreneurial activity within a specific national
41 culture (Hofstede et al., 2002; Wales et al., 2021), and studies have found cross-country differences in corporate
42 environmental components and entrepreneurial orientations, including risk-taking and proactive behavior
43 dimensions (Kreiser et al., 2002). In this context, based on institutional theory, we can consider cognitive,
44 normative, and regulatory institutions as the precursors of TEA and examine the effects of institutional dimensions
45 on TEA.
46

47 **Cognitive–Cultural Institutions**

48
49 The cognitive–cultural dimension of institutions refers to how culture shapes individuals' interpretations, thoughts,
50 perceptions, and evaluations (Hofstede, 1980; Scott, 1995; Busenitz et al., 2000; Bogatyreva et al., 2022). This
51 influence extends to entrepreneurs, impacting their cognitive structure and processes. Cognitive–cultural
52 institutions are recognized as moderators in the relationship between contextual factors and entrepreneurial
53 behaviors (Hayton et al., 2002). This role highlights that national culture does not solely determine entrepreneurial
54 activities but acts as a catalyst or guide for entrepreneurial behaviors. Research has shown that national cultural
55 differences influence the motivation and performance of entrepreneurs (Hofstede et al., 2002). Moreover, studies
56 suggest that cognitive–cultural institutions affect the cognitive factors of entrepreneurs, including their risk-taking
57 capacity, self-confidence, fear of failure (Tsai et al., 2016), perceived opportunities (Stenholm et al., 2013),
58 perceived capabilities (De Mello et al., 2022), and internal locus of control (Valdez and Richardson, 2013).
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3 Based on these considerations, we can argue that cognitive–cultural institutions vary across countries, contributing
4 to understanding the connection between entrepreneurial activities and national distinctions (Mitchell et al., 2002).
5 In this study, we propose that the influence of cognitive–cultural institutions on early-stage entrepreneurial
6 activities differs depending on the level of economic development in a country. To present a comprehensive
7 perspective on the impact of cognitive–cultural institutions on early entrepreneurship, we have identified variables
8 commonly utilized in previous research. These variables encompass perceived opportunities, perceived
9 capabilities, fear of failure, entrepreneurial intentions, entrepreneurial employee activity, entrepreneurship
10 motivation, and entrepreneurship education.

11 Perceived opportunities refer to the perception of individuals who believe that there is an opportunity to start a
12 business in their region (Bosma et al., 2012). Perceived opportunities lie at the heart of starting and growing a
13 business (Stenholm et al., 2013; Chowdhury et al., 2019; Al Mamari et al., 2020). These cognitive factors are
14 considered precursors in investigating, perceiving, and identifying opportunities and threats in the environment,
15 generating new and creative ideas, and making decisions that direct entrepreneurial behaviors (Baron, 2007; Teece,
16 2007). Research has confirmed a positive relationship between entrepreneurs' perception of opportunities and
17 initiating a new business (Arenius and Minniti, 2005). Entrepreneurs' perceived opportunities vary between
18 countries due to economic development and institutional heterogeneity (Guerrero et al., 2021; De Mello et al.,
19 2022). Therefore, perceived opportunities can generate more entrepreneurial activity and contribute to economic
20 growth in innovation-oriented economies compared to necessity-oriented ones (Ács, 2006; Beynon et al., 2020).

21 Perceived capabilities refer to the belief of entrepreneurial individuals in developed and developing countries that
22 they possess the necessary competencies (skills, knowledge, and experience) to start a business (Bosma et al.,
23 2012). These capabilities positively or negatively affect the success and failure of entrepreneurs (Dutta and Sobel,
24 2011; Chowdhury et al., 2019; Al Mamari et al., 2020). It has been proposed that entrepreneurs' cognitive schemas
25 direct their ability to identify new opportunities (Baron, 2007). Perceived capabilities are also described as
26 entrepreneurs' self-efficacy, affecting their decision-making processes and organizational performance (Wood and
27 Bandura, 1989; Bryant, 2007). Research has found that such capabilities vary between countries (Beynon et al.,
28 2020; De Mello et al., 2022). While a study conducted in India concluded that individuals' capabilities could be
29 improved through education (Gupta et al., 2014), research in post-socialist developing economies revealed that
30 entrepreneurs' capabilities are lower (Manolova et al., 2008).

31 Fear of failure is defined as the initial fear of entrepreneurs (Arenius and Minniti, 2005; Bosma et al., 2012).
32 Entrepreneurs experience fear of failure in the process of starting and developing a business, and various studies
33 support this finding (Urbano and Alvarez, 2014; Arabiyat et al., 2019; Al Mamari et al., 2020). This is related to
34 the uncertainty in starting a business and the resultant risk-avoidance behavior (Arenius and Minniti, 2005; Anwar
35 ul Haq et al., 2014; Turro et al., 2020). Entrepreneurs' fear of failure is likely to vary within a country or between
36 countries due to differences in the institutional context. Indeed, a study conducted in different sub-regions of Spain
37 found that the expression of fear of failure by many individuals in some regions would lead to local differences in
38 national entrepreneurship rates (Vaillant and Lafuente, 2007). A different study conducted in China and Pakistan
39 revealed that entrepreneurial fear could affect entrepreneurial behavior differently in China (Anwar ul Haq et al.,
40 2014). According to the research, while fear of failure was insignificant in China's entrepreneurial activity, it
41 emerged as a substantial factor in Pakistan.

42 Entrepreneurial intention is an individual's expectation of starting a business (Bosma et al., 2012). These intentions
43 are an essential precursor to entrepreneurial behavior (Souitaris et al., 2007). Studies have questioned the
44 relationship between entrepreneurial intentions and behaviors (Liñán et al., 2011; Arabiyat et al., 2019). Research
45 shows that the effects of cognitive–cultural institutions on entrepreneurial intentions differ in developing and
46 transition economies (Bağış et al., 2023a). Similarly, another study conducted in Spain and Taiwan confirmed that
47 culture significantly differentiates entrepreneurial intentions (Liñán and Chen, 2009). A study in Scandinavia and
48 the USA found that different cultural environments will affect entrepreneurial intentions differently (Autio et al.,
49 2001). The results of these studies suggest that the effects of entrepreneurial intentions on early-stage
50 entrepreneurship in developed and developing economies will be different.

51 Entrepreneurial employee activity refers to the activities of employees, such as developing or initiating new
52 products or services or establishing a new business unit, organization, or subsidiary (Stam, 2013; Covin et al.,
53 2015). The literature on this subject is also known through studies on corporate entrepreneurship (Jennings et al.,
54 2013), intrapreneurship (Parker, 2011), and strategic renewal (Teece, 2007). Research has concluded that, in many
55 developed capitalist economies, entrepreneurial employee activity is more common than independent
56 entrepreneurial activity (Stam, 2013). Different studies suggest that developing countries, on average, have poor
57 performance in innovation indicators, high rates of independent entrepreneurship, and low rates of intrapreneurship

(Bosma et al., 2012). These studies increase our expectations that entrepreneurial employee activity will differentiate in developed and developing economies.

Motivation is built on individuals' needs, values, desires, goals, and intentions and also relies on compensation and rewards that influence these mechanisms (Grigore, 2012). Entrepreneurial motivation refers to the reasons or purposes for executing a particular behavior regarding creating a venture (Levie and Autio, 2008). There is a connection between individuals' needs associated with motivation and the behaviors of entrepreneurs. Motivation is a crucial precursor and cognitive factor for entrepreneurial behaviors (Hayton et al., 2002; Shane et al., 2003; Estay et al., 2013). The motivations of entrepreneurs in society are shaped by cultural and social environmental conditions (Arafat et al., 2020; Raza et al., 2020). Studies have confirmed the relationships between motivation and entrepreneurial behavior (Johnson, 1990; Shane et al., 2003; Estay et al., 2013).

Entrepreneurship education programs include university education, mentoring for entrepreneurs, field trips, crowdfunding meetings targeted at startup ecosystems, computer simulation applications, etc., and these trainings are provided both during and after school (Dehghanpour Farashah, 2013). The main goal of this education is to enhance the knowledge and skills of people in a country about establishing and operating a new business and to facilitate the dissemination of entrepreneurship knowledge (Busenitz et al., 2000). Research shows that entrepreneurship education programs are effective in entrepreneurial activities (Liñán et al., 2011; Chowdhury et al., 2019; Urban, 2018). One study found that education activities focusing on entrepreneurship positively affected a high growth orientation among entrepreneurs (Bowen and De Clercq, 2008). Education activities mainly provide the opportunity for entrepreneurs in a country to develop their knowledge and skills, and this situation can boost entrepreneurship activities (Stenholm et al., 2013). The influence of education, especially entrepreneurship education, is likely to be differently affected by the economic development levels of countries.

The variables used in past research indicate that these sets of variables can generally be examined within the context of institutional theory and specifically within the cognitive and cultural dimension of the theory (Bruton et al., 2010; Valdez and Richardson, 2013; Stenholm et al., 2013; Hechavarría and Ingram, 2019; De Mello et al., 2022). Our aim in using these variables is to include more variable sets in the institutional measurement set. In this context, we attempt to explain early-stage entrepreneurial activities with a dataset covering the behaviors and attitudes of entrepreneurs based on international GEM data (Valdez and Richardson, 2013). Taking into account different degrees of influence from cultural values (Hofstede, 1980), we assume that entrepreneurs' perceptions, knowledge, and cognitive scenarios related to these activities will reveal differences between developed and developing countries, and this situation will likely affect entrepreneurial activities (Hofstede et al., 2002; Stenholm et al., 2013; Murimbika and Urban, 2014).

In countries with different levels of development, specific subjects and knowledge sets related to entrepreneurship are institutionalized, and personal knowledge becomes part of shared social knowledge. This situation confirms that the prevalence of entrepreneurial knowledge is heterogeneous in different societies (Hafer and Jones, 2014; Bosma et al., 2018). In this context, we can assume that cognitive institutions in developed and developing countries will affect the knowledge needed when starting a new business as well as the ease of access to this information. Additionally, research shows that entrepreneurial activities are suitable in countries where entrepreneurial knowledge is established and incentives are high; otherwise, these activities remain inadequate (Urbano and Alvarez, 2014; De Mello et al., 2022). Based on these findings, we assume that the effects of cognitive-cultural institutions will have a different impact on early entrepreneurship in developed and developing countries. We also argue that the effects of cognitive-cultural institutions will be more effective in developed countries than in developing countries. In this context, we propose the following hypotheses.

H1: Cognitive institutions' impact on early entrepreneurship differs in developed and developing countries.

H1a: Cognitive institutions are more significant in developing early entrepreneurship in developed countries.

H1b: Cognitive institutions have less impact on early entrepreneurship in developing countries than developed countries.

Normative Institutions

Normative institutions refer to values and norms that play an essential role in shaping the rules and regulations that society imposes on its members (North, 1990; Scott, 1995). This dimension reflects the values and norms associated with moral and ethical systems, grounded in the understanding of what is right and wrong (Busenitz et al., 2000; Orr and Scott, 2008; Bogatyreva et al., 2022). In the context of entrepreneurship, the normative dimension indicates the extent to which a society values entrepreneurial activities and creative innovative thinking (Busenitz et al., 2000). It evaluates how much admiration exists for entrepreneurship and how it is perceived as a

1
2
3 legitimate career choice (Bosma et al., 2018; Wales et al., 2021). These institutions shape people's thoughts about
4 entrepreneurs and influence their perceptions and reactions to individual, legal, and managerial factors (Anokhin
5 and Schulze, 2009). Previous studies in entrepreneurship have explored the impact of a country's norms, values,
6 and beliefs on the entrepreneurial orientation of its residents (Busenitz et al., 2000; De Clercq et al., 2010; Stephan
7 and Uhlaner, 2010; Danis et al., 2011; Wales et al., 2021).

8
9 We have identified variables used in previous research to assess the effects of normative institutions on early
10 entrepreneurial behavior. These variables include the perception of entrepreneurship as a desirable career choice,
11 the attribution of high status to successful entrepreneurs, and cultural and social norms. Upon reviewing previous
12 studies, we suggest that these variables can generally be associated with institutional theory and, specifically, with
13 normative dimensions (Bruton et al., 2010; Stenholm et al., 2013; Valdez and Richardson, 2013; Urbano and
14 Alvarez, 2014; De Mello et al., 2022). Normative institutions determine how societies perceive entrepreneurial
15 actions as legitimate endeavors (De Mello et al., 2022).

16
17 Perceiving entrepreneurship as a desirable career choice refers to the widespread belief that starting a business is
18 an attractive option (Coduras et al., 2016; Díez-Martín et al., 2016). Previous research has shown that the societal
19 perception of entrepreneurship as a desirable career choice influences individuals' preferences for starting a new
20 business (Abu Bakar et al., 2017; Arabiyat et al., 2019). A career perspective in entrepreneurship focuses on the
21 accumulation of human capital before, during, and after engaging in entrepreneurial activities (Burton et al., 2016).
22 It is crucial to examine the contribution of entrepreneurial experience to skills and abilities and its potential
23 consequences for future career opportunities (Parker, 2013; Toft-Kehler et al., 2014). Within normative
24 institutions, the societal view of entrepreneurship as a career choice and its impact on entrepreneurial activities
25 reveals different perspectives of national cultural institutions toward entrepreneurship (Hofstede et al., 2002;
26 Urban, 2018). This situation leads to diversified effects of normative institutions on entrepreneurial activities
27 (Hofstede et al., 2002; Hechavarría and Ingram, 2019; De Mello et al., 2022).

28
29 High status for successful entrepreneurs refers to the belief that successful entrepreneurs hold a prominent position
30 in a given country (Stenholm et al., 2013). Cultural environments that perceive entrepreneurship as prestigious,
31 understandable, and acceptable legitimize entrepreneurial endeavors (Díez-Martín et al., 2016; Arabiyat et al.,
32 2019). This perception increases the number of individuals who view entrepreneurship as high status and
33 encourages those aspiring to start their businesses. Studies indicate that early-stage entrepreneurship is positively
34 influenced in countries that regard entrepreneurship as high-status and prestigious, while it is negatively affected
35 in countries with an opposing view (Stenholm et al., 2013; Díez-Martín et al., 2016).

36
37 Cultural and social norms refer to the extent to which these values and norms encourage entrepreneurial activities
38 that enhance personal well-being and wealth (Boudreaux, 2019; Meek et al., 2010). Social norms provide insights
39 into how community and group-level values influence individual entrepreneurs' decisions (Meek et al., 2010).
40 Recent studies have emphasized the need to scrutinize individuals as well as cultural elements such as categories,
41 traditions, and discourse (Lounsbury and Crumley, 2007), and findings from previous research have evaluated the
42 influence of cultural and social norms on entrepreneurial activities (Meek et al., 2010; De Mello et al., 2022). The
43 aforementioned variables and studies present a viewpoint that implicitly or explicitly represents normative
44 institutions.

45
46 Research indicates that normative institutions exert different impacts on firms and entrepreneurial activities in
47 developed and developing countries (Krueger et al., 2000; Stenholm et al., 2013; Audretsch et al., 2022a; De Mello
48 et al., 2022). Firms engaging in entrepreneurial activities within normatively and culturally supportive institutional
49 environments have distinct advantages in terms of accessing information, establishing strong supplier
50 relationships, entering diverse partnerships, and obtaining new business ideas and resources (Stam and Elfring,
51 2008; Urbano and Alvarez, 2014; Wales et al., 2021). Moreover, it has been established that levels of
52 entrepreneurial intention are more pronounced in countries with mature social structures (Castaño et al., 2015). It
53 has also been suggested that societal attitudes, beliefs, and expectations (Krueger et al., 2000), as well as close
54 social groups such as family, relatives, and spouses, along with the broader national culture, influence individuals'
55 entrepreneurial intentions (Stenholm et al., 2013). Conversely, in societies lacking supportive cultural, normative,
56 and social structures, entrepreneurial intentions and activities at both the firm and individual levels are likely to be
57 adversely affected.

58
59 In developed and developing countries, institutional heterogeneity may influence the relationship between
60 normative institutions and early entrepreneurship (Audretsch et al., 2022a). In developing economies, various
61 factors such as irregularities in business operations, negative perceptions of profit generation from investments
62 (Busenitz et al., 2000), and insufficient measures to combat corruption (Puffer et al., 2016) contribute to the

uncertainty surrounding the impact of normative institutions on entrepreneurial behaviors (Urban and Hwindingwi, 2016; Urban, 2018). Therefore, the likelihood of normative institutions exerting a positive influence on early-stage entrepreneurship is higher in developed countries characterized by strong institutional quality compared to developing countries (De Mello et al., 2022; Audretsch et al., 2023b; Haini et al., 2023). Based on these research findings, we hypothesize that the effects of normative institutions will have a differential impact on early entrepreneurship in developed and developing countries. Additionally, we suggest that normative institutions in developed countries will have a more positive effect on early-stage entrepreneurial activities than in developing countries. In light of these considerations, we propose the following hypotheses.

H2: Normative institutions' impact on early entrepreneurship differs in developed and developing countries.

H2a: Normative institutions are more significant in developing early entrepreneurship in developed countries.

H2b: Normative institutions have less impact on early entrepreneurship in developing countries than developed countries.

Regulatory Institutions

The regulatory dimension of institutions encompasses legal rules, regulations, and public policies. This dimension includes aspects such as entrepreneurial finance, labor market regulations, property rights, venture capital, corruption, commercial laws, business laws, tax regulations, and the nature of courts (Bjørnskov and Foss, 2016; Bosma et al., 2018; Chowdhury et al., 2019). In the context of entrepreneurship, the regulatory dimension entails laws, regulations, and government policies that support early-stage entrepreneurship, reduce risks for these businesses, and facilitate their access to resources, thereby enhancing their sustainability (Busenitz et al., 2000; Darnihamedani et al., 2018; Wales et al., 2021). In our review of past research, we identified variables used to assess the effects of regulatory institutions on early entrepreneurial behavior. These variables include entrepreneurial finance, government policy support and relevance, government policy taxes and bureaucracy, government entrepreneurial programs, R&D transfers, commercial and legal infrastructure, internal market dynamics, entry regulation, and physical infrastructure.

Entrepreneurial finance refers to the availability of financial resources for SMEs and new ventures (Hechavarría and Ingram, 2019). Research indicates that the ease or difficulty of accessing finance based on region (Herrington and Coduras, 2019) and gender (Hechavarría and Ingram, 2019) has a positive or negative impact on firms and individual entrepreneurs. In developing economies, financial institutions play a crucial role in promoting entrepreneurship through credit policies and prioritizing national industrial development goals (George and Prabhu, 2000; 2002). Unlike in developed countries where financial resources are relatively abundant, the scarcity of resources in developing countries increases their value (Chowdhury et al., 2019). However, the effectiveness of these resources can be hindered by poor government decisions regarding venture capital incentives, or their impact may be diminished due to political interests. Additionally, the support provided to firms receiving venture capital in these economies, such as monitoring, auditing, control, and mentorship programs, can significantly influence the success of early-stage entrepreneurs (Audretsch et al., 2016).

Countries with well-developed corporate ecosystems and strong financial institutions facilitate the interaction between institutions and entrepreneurs, resulting in easier access to resources and greater encouragement for entrepreneurial activities (Henrekson and Sanandaji, 2011; Bjørnskov and Foss, 2016; Su, 2021; Junaid et al., 2022). On the other hand, unstable financial systems and inadequate institutions in some countries create challenges that hinder entrepreneurs and firms from experimenting and scaling new ventures (Bosma et al., 2018; Wales et al., 2021; Patel and Wolfe, 2022). Improving regulatory institutions is considered to have a more significant impact on the quality of entrepreneurship in developing economies compared to developed ones (Chowdhury et al., 2019). However, research suggests that the influence of regulatory institutions is relatively stronger in developed countries than in developing countries (Wennekers et al., 2005; De Mello et al., 2022). This discrepancy can be attributed to the inclusive nature of regulatory institutions in developed countries and their greater support for innovative entrepreneurial activities (Acemoglu and Robinson, 2012).

Government policy support and relevance, government policy taxes and bureaucracy, government entrepreneurial programs, and entry regulation variables are generally defined as the level of support for entrepreneurship by public policies (Bowen and De Clercq, 2008; Arabiyat et al., 2019; Boudreaux et al., 2019; Hechavarría and Ingram, 2019; De Mello et al., 2022). Research reveals that the incentives provided by public policies to new firms facilitate innovation activities (Storey, 2003). Furthermore, state regulations in trade laws, market entry–exit regulations, and tax policies have been found to affect firms' transaction costs and their reaction times to market opportunities (Acs et al., 2008; Chowdhury et al., 2019; Hechavarría and Ingram, 2019; De Mello et al., 2022). In developing economies, startups often face challenges at the initial stages due to high transaction costs, entry

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3 barriers, excessive taxes, and cumbersome bureaucratic processes (Busenitz et al., 2000; Manolova et al., 2008;
4 Puffer et al., 2016; Chowdhury et al., 2019). Furthermore, unfavorable bankruptcy laws complicate the exit process
5 for enterprises in these economies (Peng et al., 2010). Conversely, developed countries have established
6 regulations aimed at protecting and enhancing enterprises. Research highlights the facilitation of venture capital
7 for technology companies by European governments (Cumming et al., 2017) as well as the provision of financial
8 resources by the American government to support the innovation and sustainability of small businesses (Cooper,
9 2003). These government policies in developed countries have fostered a favorable environment for enterprises,
10 addressing the supply-side challenges they face.

11
12 Research and development (R&D) transfer, another regulatory agency institutions, refers to "the extent to which
13 national R&D lead to new commercial opportunities and to what extent it is accessible to SMEs" (Amorós and
14 Bosma, 2014, p.45; Sá and De Pinho, 2019). Research shows that R&D transfer facilitates the entry of new firms
15 into the market by influencing the flow of information (Amorós et al., 2019b). Furthermore, facilitating the
16 innovation processes of R&D transfers positively affects the competitiveness of SMEs and newly established
17 companies (Audretsch and Caiazza, 2016). The transfer of R&D activities has been found to vary based on the
18 economic development level of countries (Sá and de Pinho, 2019). This finding leads us to propose that the impact
19 of R&D transfers on early-stage entrepreneurship will differ depending on the level of economic development.
20 Previous research has indicated that entrepreneurship tends to thrive in economies where the transfer of knowledge
21 from established companies to entrepreneurs is swift and cost-effective, as opposed to countries where this process
22 is slow and expensive (Hechavarría and Ingram, 2019).

23
24 Commercial and legal infrastructure refers to the legal and commercial services and institutions that support SMEs.
25 In contrast, physical infrastructure is defined as SMEs' equal access to physical resources such as communications,
26 utilities, transportation, and land (Hechavarría and Ingram, 2019). Research demonstrates that commercial and
27 legal infrastructure is crucial for startups in organizing and executing relationships with various stakeholders such
28 as subcontractors, suppliers, consultants, and banks (Levie and Autio, 2008). Moreover, access to legal services
29 during the establishment of the firm (Ruef, 2005) and the convenience provided by bankruptcy laws in the exit
30 process (Lee et al., 2011) positively influence the entrepreneurial activity process. Studies indicate that the
31 presence of entrepreneur-friendly and modern bankruptcy laws in developing economies enhances trust in legal
32 regulations when making credit and investment decisions (Peng et al., 2010). Similarly, a study conducted in
33 developed countries found that bankruptcy laws have a statistically and economically significant impact on
34 entrepreneurship rates, even after controlling for factors such as GDP growth, stock returns, and various legal and
35 economic aspects (Armour and Cumming, 2008). Formal institutions, such as the rule of law and control over state
36 corruption, have been shown to influence individuals' motivation to become entrepreneurs (Levie and Autio, 2011;
37 Weng et al., 2021). For instance, Bradley et al. (2021) argued that entrepreneurs and firms can safeguard
38 themselves against potential challenges in countries with well-established legal frameworks. Another study by
39 Junaid et al. (2022) highlights that weak market institutions exert a stronger influence on entrepreneurial intentions,
40 nascent entrepreneurial activities, new business ventures, and startups compared to weak government institutions
41 in developing countries. Based on these findings, we suggest that commercial and legal infrastructure differentiates
42 between developed and developing countries.

43
44 Internal market dynamics focus on the speed of market change. Higher entrepreneurial activities are observed in
45 countries where these dynamics change rapidly (Hechavarría and Ingram, 2019). In particular, regulatory activities
46 that affect the rapid change in market dynamics impact entrepreneurship rates. Studies investigating this subject
47 have found that market dynamics have varying effects on entrepreneurship depending on whether economies are
48 oriented toward factors, productivity, or innovation (Martínez-Fierro et al., 2016). We contend that countries
49 experiencing rapid changes in market dynamics are likely to exhibit higher levels of entrepreneurial activity,
50 whereas those with stagnant market conditions are likely to have lower levels of entrepreneurial activity
51 (Hechavarría and Ingram, 2019). Furthermore, research suggests that barriers to market entry are negatively
52 associated with overall entrepreneurial activity across different economies (Sobel et al., 2007). Considering these
53 findings, we acknowledge that factors related to domestic market dynamics will have distinct impacts on
54 entrepreneurial activities in developed and developing countries.

55
56 In the studies and variables that we have examined, a perspective explicitly or implicitly embodies regulatory
57 institutions. Consequently, this inference provides an opportunity to examine the variables from the GEM (Global
58 Entrepreneurship Monitor) data within the framework of institutional theory, with a specific focus on regulatory
59 institutions. Based on this research, we hypothesize that the effects of regulatory institutions will differ on early
60 entrepreneurship in developed and developing countries. Additionally, we suggest that regulatory institutions in
developed countries will positively influence early-stage entrepreneurial activities compared to those in developing
countries. In this regard, we propose the following hypotheses.

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2
3
4 **H3:** Regulative institutions' impact on early entrepreneurship differs in developed and developing countries.
5 **H3a:** Regulative institutions are more significant in developing early entrepreneurship in developed countries.
6 **H3b:** Regulative institutions have a lesser impact on early entrepreneurship in developing countries than in
7 developed countries.
8

9 2.2. Macroeconomic Indicators and Entrepreneurial Activity

10 Macroeconomic Stability

11
12
13 The emergence of productive entrepreneurial activities within macroeconomic systems is shaped by the ease or
14 difficulty of institutional arrangements and the macroeconomic arrangements created by society for these activities
15 (Burns and Fuller, 2020). Studies examining the effects of macroeconomic variables on TEA have yielded mixed
16 results. Our study divided macroeconomic indicators into two categories: macroeconomic stability and instability.
17 Under macroeconomic stability, we examined the growth rate, gross domestic product per capita, and total exports.
18

19 Economic growth refers to the positive increase in national income and per capita generated in a country from one
20 year to the next (Acs et al., 2012). Some researchers have suggested that economic growth negatively impacts
21 entrepreneurship (Charfeddine and Zaouali, 2022). In contrast to this finding, some studies argue that increased
22 economic activity and growth create positive financial expectations, improving job opportunities for individuals
23 with entrepreneurial intentions (Galindo and Méndez-Picazo, 2013; Castaño et al., 2015). The relationship between
24 economic growth and entrepreneurship varies according to the institutional contexts of developed and developing
25 countries (North, 1990; 2005).
26

27 Gross domestic product per capita refers to the annual income per capita (Erken et al., 2018). While one study
28 suggests that an increase in the gross domestic product will affect the qualitative characteristics of domestic
29 demand (Radosevic and Yoruk, 2013), other authors have concluded that gross domestic product per capita may
30 be negatively related to the overall entrepreneurial activity (Carree et al., 2007; Uhlaner and Thurik, 2010). These
31 results can be attributed to the differences in the developmental stages of countries. For instance, developed
32 economies typically feature stable demand and intense competition, while developing economies are characterized
33 by uncertain demand, dynamic market trends, and rapid growth (Burgess and Steenkamp, 2006; Saeed et al., 2014).
34

35 Export-oriented entrepreneurial activities in a country appear to be positively associated with economic growth
36 (González-Pernía and Peña-Legazkue, 2015). Hessels and Van Stel (2011) examined the role of export-oriented
37 entrepreneurship at the country's aggregate level. Their findings revealed that export-oriented entrepreneurial
38 activity is a relevant driver of economic growth in developed countries but not in emerging economies. Some
39 studies have concluded that the impact of the institutional context on export-oriented entrepreneurship can differ
40 significantly depending on the level of corruption in developed and developing countries (Chowdhury et al., 2015;
41 Audretsch and Chowdhury, 2020). In their studies investigating differences between countries, Manolova et al.
42 (2008) suggested that political, social, and economic conditions determine the relationship between export and
43 entrepreneurship. In separate research, Bahl et al. (2021) found that the stage of development characterizing
44 transition economies affects opportunity-oriented entrepreneurs who must balance between innovation and
45 internationalization. These studies suggest a potential connection between exports and early entrepreneurship in
46 developed and developing countries. Based on these discussions, we propose the following hypotheses.
47

48 **H4:** The impact of macroeconomic indicators on early entrepreneurship differs in developed and developing
49 countries.

50 **H4a:** Macroeconomic indicators are more significant in developing early entrepreneurship in developing
51 countries.

52 **H4b:** Economic stability indicators (growth rate, gross domestic product per capita, and total exports) positively
53 affect early entrepreneurship in both developed and developing countries.
54

55 Macroeconomic Instability

56 Within macroeconomic instability, we assessed eight variables: current account balance, gross debt stock, total
57 imports, unemployment rate, consumer prices, gross national savings, domestic investment expenditures, and
58 population. The current account deficit indicates the balance of payments' current account balance. A current
59 account deficit or surplus can contribute to improving the investment environment (Jaumotte and Sodsriwiboon,
60 2010). Some studies conducted in developed countries suggest that the current deficit balance does not consistently
foster entrepreneurship (Liargovas et al., 2022). However, other studies indicate that the current account balance

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3 positively affects the emergence and development of entrepreneurial activities (Adrangi et al., 2002). An analysis
4 evaluating the state of SMEs, which examines the political, economic, and social conditions in seven developing
5 European economies, concluded that the current account surplus compensates for the low domestic investment
6 rate while increasing current account deficits pose significant challenges for investments and new enterprises
7 (Weiss and Welsh, 2013). These findings raise questions about the relationship between the current account
8 balance and early entrepreneurship as a macroeconomic factor in both developed and developing countries.

9
10 Gross debt stock refers to a country's total debt in dollars. Some studies have found that an increasing debt stock
11 may have a negative impact on economic growth and the borrowing country's development (Akram, 2015;
12 Agyapong and Bedjapeng, 2020). On the other hand, other studies have identified a positive relationship between
13 external debt stock and economic growth (Zaman and Arslan, 2014; Agyapong and Bedjapeng, 2020). Considering
14 the relationship between economic growth and entrepreneurship, it can be inferred that the debt stock may either
15 encourage or hinder early-stage entrepreneurs. Research on this subject has concluded that high debt levels in
16 developed economies negatively affect economic growth (Reinhart and Rogoff, 2010). In many developing
17 economies, low national savings rates lead to reduced investment and entrepreneurship rates. In such cases,
18 countries seek to support the private sector and new ventures through foreign borrowing (Agyapong and
19 Bedjapeng, 2020). In this context, we can suggest that there is a connection between a country's gross debt stock
20 and early entrepreneurship.

21
22 Total imports represent the volume of imports. A study on firm entry and exit in Belgian manufacturing industries
23 found that import competition and foreign direct investment suppress the entry of domestic entrepreneurs and
24 encourage their exit (De Backer and Sleuwaegen, 2003). However, some studies have concluded that importing
25 digitally offered services positively impacts women's entrepreneurship in European countries (Gaweł and Mińska-
26 Struzik, 2023). For instance, Zhakupov et al. (2022) discussed the components that influence the successful
27 development of the entrepreneurial environment in Kazakhstan. The authors concluded that SMEs focus on
28 importing goods into the country for resale rather than producing them, and they suggested encouraging young
29 entrepreneurs and startups. From the results of these studies, it can be observed that imports in a country can have
30 both positive and negative effects. However, in general, the entrepreneurial spirit is seen as lacking, and the rates
31 of new entrepreneurship are insufficient in countries dependent on imports. In this context, we can hypothesize
32 that imports will negatively impact young early-stage entrepreneurs in both developed and developing countries.

33
34 Unemployment refers to the population that wants to work but cannot find a job. While there are studies claiming
35 that increases in the unemployment rate lead to more entrepreneurial activity (Charfeddine and Zaouali, 2022),
36 there are also those claiming that it leads to a decrease in the rate of new business ownership (Hameed et al., 2022).
37 These results demonstrate that the relationship between unemployment and entrepreneurship has both positive and
38 negative consequences (Parker, 2018). The relationship between unemployment and entrepreneurship is
39 characterized by uncertainty, and researchers generally mention a two-way relationship (Thurik, 2003). Studies
40 have confirmed the validity of these two models (Audretsch et al., 2001). Therefore, the nature of the relationship
41 between unemployment and total entrepreneurship cannot be determined theoretically and becomes an empirical
42 question with many nuances (Arin et al., 2015; Rigmoun, 2023). For this article, we focus on the impact of
43 unemployment on entrepreneurship and acknowledge that unemployment will negatively affect entrepreneurship
44 in both developed and developing countries.

45
46 The Consumer price index measures the average changes in the prices of products and services that consumers
47 purchase (Arin et al., 2015). Some studies argue that inflation is a factor that negatively affects entrepreneurs'
48 profits by increasing transaction costs. According to these studies, inflation is both a source and a result of
49 macroeconomic instability (Léon, 2019; Charfeddine and Zaouali, 2022). Inflationary pressures, in particular,
50 make the business environment riskier, negatively impacting the return on investments and making it difficult to
51 form accurate market expectations (Fan et al., 2023). This, in turn, becomes a significant deterrent factor for
52 entrepreneurs (Parker, 2011). A study conducted in the United States found a significant negative correlation
53 between inflation rates and employment percentages in small businesses (Robbins et al., 2000). Another study
54 revealed a negative and significant relationship between inflation and entrepreneurship (Arin et al., 2015). Based
55 on the results of these research studies, we assume that volatility in inflation will adversely affect early-stage
56 entrepreneurship in both developed and developing countries.

57
58 Gross national savings represent domestic savings, while domestic investment expenditures indicate increases in
59 capital stock. Higher gross national savings rates in countries are expected to enhance domestic investment
60 expenditures and stimulate entrepreneurship. Research demonstrates that changes in the personal savings rate over
time in the United States can account for differences in entrepreneurship rates (Shane, 1996). Similarly, a study
comparing Northern European countries (Finland, the Netherlands, Norway, Sweden) with Southern European

countries (Spain, Greece, Italy, and Portugal) revealed that Northern Europe achieved better results in terms of innovation and entrepreneurship. The study also found a direct and positive relationship between gross national savings, per capita R&D expenditures, and these outcomes (Medeiros et al., 2020). As per capita income and savings rates increase, entrepreneurial activity also rises (Van Stel et al., 2005). Exporting entrepreneurs have been found to yield the highest profits and economic savings rates (Tang, 2020). Furthermore, it has been established that gross national savings and domestic investment expenditures exert a significant positive effect on economic growth and entrepreneurship, facilitating investment, production, and employment and, ultimately, contributing to more sustainable economic development (Ribaj and Mexhuani, 2021).

Despite the positive effects of savings rates and domestic investments on entrepreneurial activities, some studies have revealed problems associated with the savings rates of countries. For instance, a study examining the factors influencing the gross domestic savings rates of various countries such as Pakistan, China, Singapore, Japan, Turkey, and Russia suggests that governments should implement policies that promote investment, encourage savings, and enhance production to achieve economic growth targets (Khan et al., 2017). Furthermore, another study found that the age dependency ratio and inflation have a negative impact on gross domestic savings (Khan et al., 2018). Based on these studies, we acknowledge that deficiencies in savings rates and domestic investment expenditures in both developed and developing countries will have a negative impact on early-stage entrepreneurship.

The population represents the total number of individuals in a country. Research investigating the impact of population growth and density on entrepreneurship has yielded conflicting results. Some studies have revealed that, while an increase in population size may lead to future demand for goods and services, entrepreneurial activities can be negatively affected if it creates excessive competition for limited resources (Lévesque and Minniti, 2011). However, other studies have determined that population growth can positively affect entrepreneurship (Florida, 2003; Millan et al., 2014). Additionally, it has been concluded that factors such as the quality of human capital (Arin et al., 2014), the education level of entrepreneurs, and the characteristics of the population in which they reside (Millan et al., 2014) influence entrepreneurial activities and rates. Studies examining the relationship between a country's population and entrepreneurship have not provided a clear picture. In this context, it can be hypothesized that entrepreneurial activities will be negatively affected, particularly in developed countries, due to population aging and in developing countries due to excessive population growth, insufficient quality of human capital, and inadequate education levels (Johansen and Schanke, 2013). Considering the adverse effects of the variables discussed in the reviewed literature on entrepreneurial activities in developed and developing economies, we propose the following hypothesis.

H4c: Economic instability indicators (current account balance, gross debt stock, total imports, unemployment rate, consumer prices, gross national savings, domestic investment expenditures, and population) negatively affect early entrepreneurship in developed and developing countries.

3. Methodology

3.1. Data

The data for the research were obtained from the GEM and IMF databases. First, the GEM is the only globally compatible dataset studying entrepreneurial behavior worldwide (De Mello et al., 2022). This international project dataset examines the breadth of entrepreneurial activities across borders and the impact of countries' activities on entrepreneurship (Reynolds et al., 2005; Ruiz et al., 2016; Raza et al., 2020). The GEM database, which provides rich, reliable, and valid data, is frequently used among entrepreneurship researchers to examine entrepreneurial activities (Acs et al., 2018; Beynon et al., 2020; Audretsch et al., 2022a; 2022b; De Mello et al., 2022). For this reason, GEM APS and GEM NES data were used to examine the impact of institutions on early-stage entrepreneurial activities. GEM APS data consist of variables related to entrepreneurial behavior and attitudes, while GEM NES data consist of variables related to entrepreneurial framework conditions. The relevant data were collected from <https://www.gemconsortium.org/wiki/1154>.

Second, IMF data include variables related to macroeconomic indicators. These data were retrieved from <https://www.imf.org/en/Publications/WEO/weo-database/2022/April/download-entire-database>. This database is frequently used in research on macroeconomic indicators and entrepreneurship, and it provides reliable, rich, and valid data (Easterly, 2005; Charfeddine and Zaouali, 2022).

3.2. Sample and Variables

The data utilized in the analysis span from 2009 to 2018 and encompass four models: Model 1 comprises data from 26 developed and 16 developing countries, examining the impact of cognitive institutions on Total Early-stage Entrepreneurial Activity (TEA); Model 2 includes 19 developed and 16 developing countries, focusing on the effects of normative institutions on TEA; Model 3 investigates the influence of regulatory institutions for entrepreneurs on TEA, with an analysis involving 27 developed and 17 developing countries; Model 4 is designed to assess the effect of macroeconomic indicators on TEA and includes 27 developed and 17 developing countries.

The selection of developed and developing countries as samples aimed to facilitate a comparison of institutions and macroeconomic indicators at two distinct levels of economic development. However, an equal number of countries could not be included for all four models in the analysis due to two constraints on the datasets. First, data availability across all surveys is complicated, resulting in data gaps (Hechavarría and Ingram, 2019; De Mello et al., 2022; Junaid et al., 2022). Second, some countries in the Global Entrepreneurship Monitor (GEM) lack data for specific years (Bjørnskov and Foss, 2016).

The classification of developed and developing countries in this study was based on the data provided by the World Bank; specifically, the World Bank Country and Lending Groups (<https://datahelpdesk.worldbank.org/knowledgebase/articles/906519-world-bank-country-and-lending-groups>). According to this classification, countries with a per capita income of less than \$1,085 are categorized as low-income economies, countries with incomes ranging from \$1,086 to \$4,255 are classified as lower-middle-income economies, countries with incomes ranging from \$4,256 to \$13,205 are considered upper-middle-income economies, and countries with \$13,205 and above fall into the high-income category.

In this study, countries with a per capita income ranging from \$4,256 to \$13,205 were evaluated as developing countries, while countries with a per capita income of \$13,205 and above were classified as developed. The research was conducted on high-income (developed) and upper-middle-income (developing) economies. The GEM dataset's economic development level is based on the stages identified in the World Economic Forum's Global Competitiveness Report. According to this classification, high-income (developed) economies are considered innovation-driven, characterized by advanced innovation, knowledge-intensive businesses, and a service-oriented economy (Wennekers et al., 2005; El Ghak et al., 2021; Smallbone et al., 2022). Upper-middle-income (developing) economies are classified as efficiency-driven, characterized by increasing competitiveness, efficient production processes, and improved product quality (Wennekers et al., 2005; Pinho, 2017; Zhang and Wang, 2019). The grouping of developed and developing countries included in the analysis is presented in Table 1. Additionally, Table 2 provides detailed information on the dependent variable, independent variables, and their definitions used in the study.

Insert Table 1

Insert Table 2

3.3. Analysis

The most commonly used method for estimating the impact of multiple independent variables on a single dependent variable is multiple regression analysis. Multiple regression analysis is well-suited for time series analysis, but it is not suitable for panel data analysis (Wooldridge, 2010). The term "panel data" refers to datasets that contain information about the same decision-making units (cross-sectional information) over multiple periods (Maddala, 2001; Baltagi, 2013). Panel studies offer several advantages: they allow for analyzing both micro and macro issues as they provide a combination of individual-level and aggregate-level data. Panel studies also enable the expansion of the analysis by increasing the dataset size. Additionally, panel data allow for the examination of the causal factors of the phenomena under investigation, the observation of the dynamics of these phenomena, and the control of unobservable individual effects in regression models (Hsiao, 2007; Szwacka, 2020).

A growing body of literature on panel-data analysis indicates that models utilizing panel data are likely to exhibit significant cross-sectional dependence in their error terms (Pesaran, 2004; Baltagi, 2005). One possible explanation for this observation is the increasing economic and financial integration among countries and financial entities, leading to strong interdependencies between cross-sectional units. This finding carries notable implications: if one opts to pool a set of cross-sectional units that are homogeneous concerning slope parameters but fails to account for cross-sectional dependence, the efficiency gains otherwise expected—compared to running

separate ordinary least squares (OLS) regressions for each cross-section—may be substantially reduced. Consequently, testing for cross-sectional dependence is crucial when working with panel data models.

In analyzing panel data, there are three commonly used techniques: Pooled OLS regression, fixed effects model, and random effects model (Baltagi, 2005; Hsiao, 2014). The selection of the appropriate panel model is guided by panel diagnostic tests (Baltagi, 2005; Jaba et al., 2017). The F-test is employed to decide between the pooled OLS and fixed effects models, while the LM test is used to choose between the pooled OLS and random effects models. If the null hypothesis of the F-test and LM test is not rejected, then the pooled OLS model is considered the most suitable. If the F-test is rejected, but the LM test is not, then the fixed effects model (FEM) is preferred. Conversely, if the LM test is rejected while the F-test is not, then the random effects model (REM) is appropriate. However, if both the F-test and LM test are rejected, a Hausman test is conducted to compare the fixed and random effects models. Figure 1 provides a summary of the modeling process.

Insert Figure 1

Standard panel data analysis includes several steps. First, whether the series forming the model contains a unit root is determined. The second step estimates the panel regression model (fixed effects or random effects) using the least squares method (OLS). Whether the fixed effects model or the random effects model is valid is determined by the Hausman test. In the third stage, it is decided whether there is a problem of varying variance and autocorrelation in the model; that is, the reliability of the estimated coefficients is tested. Finally, in case of problems, autocorrelation and variable variance resistant estimators are obtained and interpreted (White's test).

Four models have been established to explain TEA in a multidimensional way. All four models were analyzed using the standard panel data analysis method. The basic model used in panel data analysis is as follows (Baltagi, 2005).

$$Y_{it} = a_i + \beta_i X_{it} + u_{it} \quad i = 1, \dots, N \quad ve \quad t = 1, \dots, T \quad (1)$$

Y_{it} : It expresses the value of the i th unit of the dependent variable at time t and represents the TEA dependent variable in the models. X_{it} : The value of the i th unit of the independent variables in all four models at time t , a_i : constant with unit effects. β_i : refers to the predictive coefficient of the independent variables.

In the panel data method, the stationarity of the series is of great importance in selecting the appropriate model. Therefore, in this study, second-generation Covariate Augmented Dickey–Fuller (CADF) unit root tests, which consider the cross-sectional dependency suggested by Pesaran (2007), were used. The working algorithm of the CADF test is presented in equations (2)–(5) below.

$$Y_{it} = (1 - \phi_i)\mu_i + \phi_i Y_{i,t-1} + \mu_{it} \quad i = 1, \dots, N \quad ve \quad t = 1, \dots, T \quad (2)$$

$$\Delta Y_{it} = a_i + \rho_i * Y_{i,t-1} + d_0 \bar{Y}_{t-1} + d_1 \Delta \bar{Y}_t + \varepsilon_{it} \quad (3)$$

$$H_1: \rho_i < 0 \quad i = 1, 2, \dots, N \quad ve \quad \beta_i = 0 \quad (N_{i+1}, N_{i+2}, \dots, N) \quad (4)$$

$$CADF = \frac{\sum_{i=1}^N CADF_i}{N}; \quad CIPS = t - bar = \frac{1}{N} \sum_{i=1}^N t_i(N, T) \quad CIPS = \frac{1}{N} \sum_{i=1}^N CADF_i \quad (5)$$

Two fundamental approaches are generally employed in estimations made with panel data: the fixed effects model and the random effects model. In the fixed effects model, the constant term changes according to units, time, or both, while the slope coefficients remain the same across all units and time. This allows for the differences in the behavior of the units to be explained by variations in the constant term. In contrast, from point "3.1. Starting," the slope parameters are the same ($\beta_i = \beta$) for each cross-sectional unit. However, as the constant parameter contains the unobservable unit effect, there are differences between units. The modified Wald test can detect variances in the fixed effects model (Baltagi and Wu, 1999; Madala, 2001; Baltagi, 2005).

In contrast to fixed effects models, the random effects model incorporates the unit effects as random variables, similar to the error term. Random effects models are models in which there is no fixed coefficient for each cross-section and time, and these effects are treated as random variables. Since the unit effects are considered a component of the error term, it also includes the effects of the units that are not included in the model. It is also referred to as the Error Component Model in the literature (Olanrewaju et al., 2019). Fixed and random effects models can generally be expressed by the following equations.

$$\beta_{FE} = \left(\sum_{i=1}^N \sum_{t=1}^T (X_{it} - \bar{X}_i)' (X_{it} - \bar{X}_i) \right)^{-1} \left(\sum_{i=1}^N \sum_{t=1}^T (X_{it} - \bar{X}_i)' (Y_{it} - \bar{Y}_i) \right) \quad (6)$$

$$\hat{\beta}_{RE} = \left(\sum_{i=1}^N X'_{i\hat{\Omega}}^{-1} X_i \right)^{-1} \left(\sum_{i=1}^N X'_{i\hat{\Omega}}^{-1} Y_i \right) \quad (7)$$

The Hausman test is used to decide which of the panel data models (Hausman, 1978), the pooled model, fixed effects, and random effects models will be used. The hypotheses of the Hausman test are $H_0: E(u_i | X_{it}) = 0$, and the unit and time effects are random. $H_A: E(u_i | X_{it}) \neq 0$, unit, and time effects are fixed. REM is considered valid if the p-value > 0.05 (Jaba et al., 2017). It is tested with the help of the statistical value suitable for the χ^2 distribution with k degrees of freedom.

$$H = (\hat{\beta}_{FE} - \hat{\beta}_{RE})' [Avar(\hat{\beta}_{FE}) - Avar(\hat{\beta}_{RE})]^{-1} (\hat{\beta}_{FE} - \hat{\beta}_{RE}) \quad (8)$$

In the Hausman (H) test statistic, the FEM subindex estimators of the fixed effects model and the REM random effects model estimators, as well as the $Avar(\hat{\beta}_{FE})$ and $Avar(\hat{\beta}_{RE})$ expressions, represent the asymptotic variance-covariance matrices obtained from the estimation of the fixed and random effects models, respectively (Sheikhi et al., 2022). If one or both of the variance and autocorrelation problems are detected in the fixed and random effects models, the standard errors are corrected without changing the parameter estimates, and robust (robust) values are obtained. In the Wooldridge autocorrelation test, the existence of autocorrelation in the panel dataset is investigated using the errors obtained from the first-order differences model, and the null hypothesis for the test is established as $H_0: \hat{\rho} = 0$ There is no first-order autocorrelation. The F-test statistics for the Wooldridge test are given in equation (3.31).

$$F = \frac{\sum_{i=1}^N \sum_{t=1}^{T-1} \sum_{s=t+1}^T \hat{f}_{it} \hat{f}_{is}}{\sum_{i=1}^N \left(\sum_{t=1}^{T-1} \sum_{s=t+1}^T \hat{f}_{it} \hat{f}_{is} \right)^2} \quad (9)$$

The W test statistic has an asymptotic normal distribution. When the probability value (p-value) obtained as a result of the test is greater than the confidence level (α), the H_0 hypothesis will be accepted, and It will be concluded that there is no autocorrelation. The modified Wald test, developed to investigate the differential spread in fixed-effect models, examines whether the variance changes according to the units under the null hypothesis that the unit variances are equal to the panel mean.

The W test statistic for the Wald test is given in equation (3.32).

$$W = \sum_{i=1}^N \frac{(\hat{\sigma}_i^2 - \sigma^2)^2}{f_{ii}} \quad (10)$$

In equation (3.32), $\hat{\sigma}_i^2$ represents the estimator of the error variance of units, and its representation is in equation (3.33).

$$\hat{\sigma}_i^2 = \frac{1}{T} \sum_{t=1}^{T_i} e_{it}^2 \quad f_{ii} = \frac{1}{TT-1} \sum_{i=1}^T (e_{it}^2 - \hat{\sigma}_i^2)^2 \quad (11)$$

The W test statistic fits the N-degrees-of-freedom distribution χ^2 . Therefore, when the probability value (p-value) obtained as a result of the test is greater than the confidence level (α), the H_0 hypothesis will be accepted, and it will be concluded that the variance does not change according to the units. Using the method developed by Eicker (1967), Huber (1967), and White (1980) for resistive estimators, a model with varying variance in error terms and autocorrelation problem is transformed into a suitable structure.

4. Results

The factors influencing TEA in developed and developing countries were determined through the utilization of four distinct models. First, an examination of cross-section dependence in the models was conducted. The cross-section dependency test assumes that a positive shock occurring in any of the units comprising the panel does not affect the other countries within the panel. Since $N > T$ for cross-section dependence, the Pesaran LM (Lagrangian multiplier) test developed by Pesaran (2007) was used. The H_0 hypothesis was established as no cross-sectional dependence exists between the variables. The analysis results are shown in Table 3.

Insert Table 3

When examining Table 3, cross-section dependency is observed in the first and third models for developed country samples. The second model indicates cross-sectional dependence in both developed and developing countries. However, in the fourth model, no cross-section dependence is identified. For the developing country example, it is evident that there is no cross-sectional dependence in the first, third, and fourth models. To obtain efficient estimators, it was necessary to determine which fixed and random effects models would be valid. As mentioned above, in the fixed effects model, the constant term varies across units or time, while the slope coefficients remain the same across all units and time periods. On the other hand, in the random effects model, there is no fixed coefficient for each cross-section and time; instead, these effects are treated as random variables. The four models used for efficient parameter estimation are established based on equation (1).

Model 1

$$TEA_{it} = \beta_0 + \beta_1 PSO_{it} + \beta_2 PC_{it} + \beta_3 FoF_{it} + \beta_4 EI_{it} + \beta_5 EEA_{it} + \beta_6 EMI_{it} + \beta_7 EES_{it} + \beta_8 EEPS_{it} + \epsilon_{it} \quad (12)$$

Model 2

$$TEA_{it} = \delta_0 + \delta_1 HSSE_{it} + \delta_2 EGCC_{it} + \delta_3 CSN_{it} + \epsilon_{it} \quad (13)$$

Model 3

$$TEA_{it} = \alpha_0 + \alpha_1 EF_{it} + \alpha_2 GPRS_{it} + \alpha_3 GPTB_{it} + \alpha_4 GEP_{it} + \alpha_5 EES_{it} + \alpha_6 EEPS_{it} + \alpha_7 RDT_{it} + \alpha_8 IMD_{it} + \alpha_9 EEBR_{it} + \alpha_{10} FI_{it} + \epsilon_{it} \quad (14)$$

Model 4

$$TEA_{it} = \partial_0 + \partial_1 GR_{it} + \partial_2 GDPPC_{it} + \partial_3 TE_{it} + \partial_4 CAB_{it} + \partial_5 GDS_{it} + \partial_6 TI_{it} + \partial_7 UR_{it} + \partial_8 CPI_{it} + \partial_9 GNS_{it} + \partial_{10} DIE_{it} + POP_{it} + \theta_{it} \quad (15)$$

The results for the selection of fixed and random effects models (Hausman test), variance variability, autocorrelation, descriptive statistics, and unit root test results are presented in Appendices 1–4. We organized the outcomes of the four models according to developed and developing countries. First, we discovered that fixed effects are valid in Model 1, designed to measure the impact of cognitive institutions on TEA, as indicated by the estimation results. Second, in Model 2, we analyzed the influence of normative institutions on TEA. In this model, we discovered that random effects are valid in developed countries, while fixed effects hold in developing countries. Third, we concluded that fixed effects are valid in Model 3, established to determine the impact of regulatory institutions on TEA. Finally, we ascertained that random effects are applicable in Model 4, constructed to evaluate the influence of macroeconomic indicators on TEA. We utilized the Hausman test to choose between fixed and random effects models. We encountered issues of autocorrelation and varying variance in all four models designed for samples from developed and developing countries. Due to inconsistent variance and autocorrelation in the models, we transformed the model into a structure suitable for interpreting the coefficients and obtaining robust estimators. Using the method developed by Eicker (1967), Huber (1967), and White (1980) for robust estimation, we report the results of the analysis below.

Table 4 presents the panel regression analysis results for developed and developing countries. The analysis shows that the coefficients of perceived entrepreneurial opportunities, entrepreneurial intentions, and post-school entrepreneurship education for developed countries are positive and statistically significant in Model 1. According to these results, we determined that, as the percentage of the 18–64 age group who believe there are good opportunities to establish a company in their region increases, the number of early-stage entrepreneurs also increases (t -value = 0.023). Likewise, we concluded that an increase in the percentage of individuals intending to start a business within three years leads to an increase in early-stage entrepreneurs (t -value = 4.51). Furthermore,

we found that an increase in post-school entrepreneurship education positively influences early-stage entrepreneurship ($t\text{-value} = 2.30$). The analysis indicates that the impacts of entrepreneurial intentions and employee activity variables on early-stage entrepreneurs in Model 1 are statistically significant and positive in developing countries. We concluded that an increase in the percentage of individuals intending to start a business within three years leads to an increase in early-stage entrepreneurs ($t\text{-value} = 3.18$). Moreover, we found that, as entrepreneurial employee activity increased, early entrepreneurial activity also increased ($t\text{-value} = 2.17$).

Insert Table 4

In Model 2, cultural and social norms originating from normative institutions in developed countries demonstrate a statistically positive and significant effect on early-stage entrepreneurship ($t\text{-value} = 3.48$). Although we identified a negative relationship between other variables with early-stage entrepreneurship in Model 2, this relationship is not statistically significant. In Model 2, we could not identify a statistically significant impact of normative institutions on early-stage entrepreneurship in developing countries.

The results of Model 3, constructed to ascertain the impact of regulatory institutions on early-stage entrepreneurship, reveal that the variables of entrepreneurial finance, government policy (support and relevance), government policy (taxes and bureaucracy), and R&D transfer are statistically significant in developed countries. Specifically, increased entrepreneurial finance positively affects early-stage entrepreneurship ($t\text{-value} = 2.73$). Furthermore, the variables of government policy (support and relevance) ($t\text{-value} = 2.3$) and taxes and bureaucracy ($t\text{-value} = 2.45$) appear to exert a statistically significant and positive effect on early-stage entrepreneurship. Conversely, we found that increases in R&D transfers negatively affect early-stage entrepreneurship ($t\text{-value} = -2.16$). Model 3 displays the impacts of regulatory institutions on early-stage entrepreneurship in developing countries. Commercial and legal infrastructure significantly influences early-stage entrepreneurship in developing countries. The results show a negative correlation between commercial and legal infrastructure and early-stage entrepreneurship ($t\text{-value} = -2.36$). However, a statistically significant positive relationship exists between entry regulations and early-stage entrepreneurship in developing countries ($t\text{-value} = 2.05$).

The results of Model 4, established to assess the impact of macroeconomic indicators on early-stage entrepreneurship, indicate that the current account balance and consumer price index variables are statistically significant in developed countries. We found that an increase in the current account balance (i.e., a decrease in the current account deficit) positively influences early-stage entrepreneurship ($t\text{-value} = 2.52$). Additionally, we concluded that an increase in the consumer price index positively affects early-stage entrepreneurship ($t\text{-value} = 3.01$). Model 4, constructed to evaluate the impact of macroeconomic indicators on early-stage entrepreneurship in developing countries, revealed the effects of eight variables. Our findings suggest positive and statistically significant impacts of growth rate ($t\text{-value} = 2.19$), gross domestic product per capita ($t\text{-value} = 3.22$), total exports ($t\text{-value} = 2.00$), current account balance ($t\text{-value} = 2.22$), and consumer price index ($t\text{-value} = 1.94$) on early-stage entrepreneurship. Conversely, our findings indicate that variables of gross debt stock ($t\text{-value} = -2.06$), total imports ($t\text{-value} = -2.67$), and unemployment rate ($t\text{-value} = -2.59$) have statistically significant negative effects.

5. Implications and Conclusion

Theoretical Implications

Our research examines the institutions and macroeconomic factors affecting TEA (Total Early-stage Entrepreneurial Activity) in developed and developing countries. The study's results contribute to institutional theory and entrepreneurship literature by linking cognitive, normative, and regulatory institutions to macroeconomic indicators and TEA. Interestingly, many cognitive, normative, and regulatory bodies did not significantly influence early-stage entrepreneurship, which contradicts expectations. This outcome is surprising given the importance attributed to cognitive, normative, and regulatory institutions in promoting entrepreneurial activities in previous studies. This finding aligns with the results of Hechavarría and Ingram (2019). Furthermore, our findings suggest that the impact of institutions on early-stage entrepreneurship is more positive in developed countries than in developing ones. These findings support the argument that a theory cannot be empirically generalized due to spatial and time constraints (Bacharach, 1989). This evidence underscores the need for context-specific assessments of variables related to institutional theory's cognitive-cultural, normative, and regulatory dimensions in both developed and developing countries. We also acknowledge that the greater effectiveness of institutions on TEA in developed countries can be attributed to the quality of the institutions in these countries (Audretsch et al., 2023b; Rasmoun, 2023).

1
2
3 First, in Model 1, where we examined the impact of cognitive-cultural institutions, we found support for three out
4 of eight variables in developed countries and two in developing economies. We determined that perceived startup
5 opportunities, entrepreneurial intentions, and post-school entrepreneurial education variables in Model 1 in
6 developed countries, and entrepreneurial intentions and school-based entrepreneurial education variables in
7 developing countries, affect early entrepreneurship. Entrepreneurial intentions are the common variable affecting
8 early entrepreneurship in both developed and developing economies. We identified variables with differing effects,
9 such as perceived startup opportunities, post-school entrepreneurial education in developed countries, and school-
10 based entrepreneurial education in developing countries. In this respect, our results suggest that the impact of
11 cognitive institutions differs according to the level of economic development. Our H1 hypothesis was partially
12 supported. However, our results confirm that cognitive institutions positively impact early entrepreneurship, and
13 this effect is more pronounced in developed countries than in developing countries. In this respect, our H1a and
14 H1b hypotheses are partially supported. We found that perceived start-up opportunities in Model 1 positively
15 impacted TEA in developed countries but not developing countries. The analysis results are consistent with De
16 Mello's (2022) research. One potential reason for this outcome could be that advanced economies are more prone
17 to opportunity-driven entrepreneurship while emerging economies are more inclined toward necessity-driven
18 ventures (Afi et al., 2022). Considering this, it can be posited that early-stage entrepreneurs in developed countries
19 may better perceive opportunities in their environment. Another factor could be that our data start in 2009,
20 suggesting that the effects of the 2008 economic crisis may have influenced early-stage entrepreneurial activities
21 (Beynon et al., 2020). During this period, early-stage entrepreneurs in developed countries might have better
22 grasped the opportunities during the crisis than those in emerging economies. Differences in countries' responses
23 to crises could also have contributed to this result. The impact of entrepreneurial intentions on early
24 entrepreneurship in both developed and developing economies in Model 1 supports past research findings
25 (Guerrero et al., 2021; De Mello et al., 2022; Junaid et al., 2022). We also corroborate the results of previous
26 research that evaluated the cognitive dimension as an informal institution (Aparicio et al., 2016). Moreover, we
27 concluded that perceived opportunities and school-based entrepreneurial education variables in developed
28 countries influence TEA significantly more than in developing countries. In this regard, our findings align with
29 previous research, which indicated that institutional quality and economic development influence opportunity
30 entrepreneurship (Valdez and Richardson, 2013; Fuentelsaz et al., 2015; Amorós et al., 2019a) and early-stage
31 entrepreneurship (Velilla and Ortega, 2017; Bosma et al., 2018; De Mello et al., 2022).

32
33
34 Second, in Model 1, when evaluating the effect of normative institutions on early-stage entrepreneurship, it is
35 apparent that this impact varies between developed and developing countries. In this respect, H2 is partially
36 supported. The research results reveal that cultural and social norms positively influence early-stage
37 entrepreneurship in developed countries. Consequently, normative institutions seem more effective in early-stage
38 entrepreneurship in developed countries than in developing ones. However, the research results show that
39 normative institutions do not impact developing countries. Contrary to previous research in developed countries
40 (Stenholm et al., 2013; Hechavarría and Ingram, 2019; De Mello et al., 2022), our findings partially support the
41 H2a and H2b hypotheses. We found no impact of the "high status of successful entrepreneurs" variable on early-
42 stage entrepreneurship in developed or developing countries. Our results align with past research (Stenholm et al.,
43 2013; De Mello et al., 2022). However, we found that cultural and social norms influence early-stage
44 entrepreneurship in developed countries. In this respect, our findings diverge from the results of previous research
45 (Stenholm et al., 2013; Hechavarría and Ingram, 2019; De Mello et al., 2022). These results confirm that national
46 cultural differences affect entrepreneurial activities (Maleki et al., 2021; İpek et al., 2023; Kabir et al., 2023). In
47 addition, the results give the impression that there is a social structure in developed countries where cultural and
48 social norms support new entrepreneurs. Considering that the rate of change of cultural and social norms as
49 informal institutions is relatively slow compared to formal institutions, policymakers must produce planned
50 policies to increase the impact of these norms in developing economies.

51
52 Third, in Model 3 for developed countries, where we examined the effects of regulatory institutions, we found that
53 entrepreneurial finance, government policy support and relevance, and government policy taxes and bureaucracy
54 positively affect early entrepreneurship. In this regard, our results contribute to the mixed findings of past research
55 (Hechavarría and Ingram, 2019; Sá and De Pinho, 2019; Cervelló-Royo et al., 2020; Charfeddine and Zaouali,
56 2022; De Mello et al., 2022). Our analysis results partially support the H3a and H3b hypotheses. On the other
57 hand, R&D transfers negatively impact early entrepreneurship. Studies suggest that R&D transfers positively
58 influence TEA (Total Early-stage Entrepreneurial Activity) (Amorós et al., 2019b; Sá and De Pinho, 2019).
59 However, contrary to the prevailing trends in the literature, our results indicate that increases in R&D transfers
60 have a negative impact on TEA. One potential explanation for this result is the issues experienced in

entrepreneurial activity. Research demonstrates that academic startups may face problems in R&D transfer and knowledge diffusion due to a lack of organizational capabilities that influence growth and sustainability (Visintin and Pittino, 2014). Nevertheless, other non-academic startups may possess stronger organizational capabilities but have less access to R&D resources (Sá and De Pinho, 2019). Furthermore, academic and non-academic new firms may not adequately internalize the information accompanying R&D transfer due to their limited internal absorptive capacity (Cohen and Levinthal, 1990). However, the obstacles that new firms face when acquiring new information from outside sources (Wynarczyk, 2013), limited resources (knowledge, social networks, finance, etc.), small size, and newness liability (Bruderl and Schussler, 1990; DeTienne, 2010; Guerrero et al., 2021) are likely to adversely affect entrepreneurial activities. Additionally, policies formulated by policymakers without considering TEA's mindset, behaviors, and skills may have also influenced this process (Williams and Huggins, 2013).

In Model 3 in developing countries, we concluded that commercial and legal infrastructure has a negative impact on TEA out of 11 variables. In this respect, our findings for developing countries support the results of previous studies (Davis and Williamson, 2016; Kuckertz et al., 2016; Guerrero et al., 2021; Hechavarría and Ingram, 2019). A possible explanation for this result is that, despite the positive commercial and legal infrastructure regulations in developing economies, entrepreneurs have difficulties reaching these regulations due to bureaucratic obstacles (Hechavarría and Ingram, 2019). Moreover, in these countries, problems arising from the unstable financial system and insufficient-weak institutions (Junaid et al., 2022; Patel and Wolfe, 2022; Wales et al., 2021), high transaction costs (Audretsch et al., 2022), the complexity of trade-related legal regulations (Weng et al., 2021), unfriendly bankruptcy laws (Lee et al., 2011; Hechavarría and Ingram, 2019) are likely to slow entrepreneurial activity. Commercial regulations, lengthy bureaucratic processes, restrictions on access to credit, and insufficient knowledge of entrepreneurs on legal and commercial infrastructure may have contributed to this negative effect. For this reason, it is important for future research to focus on which factors in the commercial and legal infrastructure have negative effects. Entry regulation positively affects early entrepreneurship in developing countries. In this context, our analysis results support the results of previous studies (Klapper et al., 2006; Bosma et al., 2009; Estrin et al., 2013) and reveal the importance of industry entry regulations for developing economies. An institutional environment with simple administrative procedures, low entry regulations for market entry, tax breaks, exemption of wages and transaction costs, support for staff to be employed, and labor regulations makes it easier for entrepreneurs (Grilli et al., 2023). In this respect, our initial estimations support our results, and we see that different regulatory institutions impact TEA in developed and developing countries. Therefore, according to these results, H3 was partially supported.

Fourth, the results of Model 4, which were constructed to determine the effect of macroeconomic indicators on early entrepreneurship, reveal that the variables of current account balance and consumer price index are statistically significant in developed countries. We found that a one-point increase in the current account deficit variable for developed countries (i.e., a one-point decrease in the ratio of the current account deficit to GDP) positively affects TEA. Our results corroborate the findings of previous studies (Adrangi vd., 2002; Hessels and Van Stel, 2011). However, Liargovas et al. (2022), we reach different results according to the research. One reason may be that Liargovas' (2022) research was limited to countries such as Portugal, Greece, Spain, and Italy. Moreover, even the authors have determined that there are differences between these countries in the relationship between current account balance and entrepreneurship. Therefore, it can be said that sample differences are effective in reaching different analysis results. Although this result seems illogical, invalidating H4c, the relationship between current account balance and TEA can be explained by Rostow's theorem of the stages of economic development. This theory states that developed countries in the fourth stage and, particularly, in the fifth stage allocate their resources to minimum expenditures and include other countries in their economic and political spheres of influence; thus, they can maintain high current account deficits (Rostow, 1960; Hidalgo, 2023; Willis, 2023). It is thought that countries reaching the stage of mass consumption (fifth stage) may have contributed to the development of the early entrepreneurial class, particularly as they gravitate towards advanced technology and R&D-intensive goods. Other macroeconomic indicators did not exhibit a significant effect on developed countries. In these countries, where market breadth is ensured and industrialization has matured, new entrepreneurs are not expected to emerge in every sector. New entrepreneurs must pivot towards more complex technology-intensive products to carve out a market niche in these countries. This process is inherently more challenging and attenuates the direct relationship between new entrepreneurial activities and economic variables. Furthermore, we deduced that an increase in the consumer price index also positively influences early entrepreneurship. Even though rising consumer prices indicate price instability, they signal that the demand for final goods in developed countries is robust. It is plausible that this excess demand incentivizes entrepreneurs to create new products. Moreover, the prospect of high profits fueled by price hikes during inflationary periods supports entrepreneurial activities. In this

respect, we contribute to the mixed results of previous studies (Amorós et al., 2016; Léon, 2019; Charfeddine and Zaouali, 2022).

Model 4, designed to assess the effect of macroeconomic indicators on early entrepreneurship in developing countries, revealed the impact of eight variables. This is substantially more than in developed countries and lends credence to H4a. Our findings show that economic growth (Castaño et al., 2015; Gaies and Maalaoui, 2022), gross domestic product per capita (Carree et al., 2007; Valliere and Peterson, 2009), and total exports (Hessels and Van Stel, 2011; Castaño et al., 2015) exert a positive influence on early entrepreneurship. The positive coefficients of these three variables, which contribute to economic stability, are theoretically expected and support H4b. Moreover, our findings corroborate the results of previous studies (Crudu, 2019; Amorós et al., 2019a; Marques, 2019; Charfeddine and Zaouali, 2022). As the economy develops, the entrepreneurial class evolves in tandem. Conversely, the impact of variables signifying economic instability on early entrepreneurship in developing countries is more intricate. This is because specific economic imbalances may generate new opportunities for entrepreneurial sectors. For instance, an uptick in inflation (as measured by the consumer price index) and the ratio of the current account deficit to GDP positively influenced early-stage entrepreneurship in developing countries. One possible explanation for this seemingly counterintuitive relationship could be the relative price advantage caused by inflation in developing countries, which could be attributed to the increased revenue from export-driven growth and challenges associated with importing products into the country (Dvouletý and Orel, 2019). Robust aggregate demand bolsters entrepreneurial activities in developing countries, mirroring the scenario in developed countries. An increase in the current account deficit as a share of GDP indicates that imported inputs finance the industry in developing countries. While the industrialization process in developing countries occurs at the cost of a widening current account deficit, it also facilitates the growth of early-stage entrepreneurs.

Furthermore, increases in the gross debt stock, total imports, and the unemployment rate negatively impact early-stage entrepreneurship. These variables—debt stock, imports, and the unemployment rate—indicate economic instability (Mahadea and Kabange, 2022). These results suggest that escalations in the debt stock, import rates, and unemployment rate reduce entrepreneurial motivation and create hurdles to the emergence of a new entrepreneurial class. This deviates from the findings of previous studies (Charfeddine and Zaouali, 2022; Rasmoun, 2023). The differences in our results compared to these studies could stem from the time ranges of longitudinal data, differences in the countries included in the sample, and the inclusion of different variables in the analysis. For example, Charfeddine and Zaouali (2022) conducted a panel data analysis for 2001–2018. A similar situation exists in Rasmoun's (2023) research, which involves a panel data analysis for 1996–2019. In this study, Rasmoun (2023) worked on a sample from 24 developed countries and found a significant and positive impact only for four years between unemployment rates and entrepreneurial activities. Therefore, this discrepancy could be due to the changing effects of longitudinal data over the years. The results from Model 4 present a dichotomy, particularly for developing countries. In such nations, economic stability bolsters early entrepreneurship positively (growth, per capita income, and exports). However, these countries' economic instabilities (debt stock, imports, and unemployment rate) appear to negatively influence early entrepreneurship while simultaneously providing an avenue for the entrepreneurial sector to convert crises (inflation and current account deficit) into opportunities. These findings partially corroborate H4c. Nevertheless, a striking result is the lack of an impact of gross national savings rates on TEA in both developed and developing countries, which contradicts previous studies asserting that gross national savings rates promote economic development (Medeiros et al., 2020). One possible explanation for this situation could be related to how countries allocate their savings to different resources and investments. For instance, some emerging economies are still focusing on infrastructure investments. Similarly, in developed countries, the savings rate may have been channeled into credit opportunities for large and innovative firms. Additionally, the inadequacy of countries' savings rates could also have influenced this situation. While this result motivates future research, it also serves as a cautionary note for policymakers.

Policy and Managerial Implications

The results of our study offer some managerial and policy implications. First, the findings related to institutions indicate that the impact of institutions is more significant in developed countries than in developing countries. These results demonstrate that the effects of institutions on early-stage entrepreneurship vary depending on a country's stage of economic development, with a more pronounced impact in advanced "innovation-driven" economies compared to "efficiency-driven" economies (Stenholm et al., 2013; Wales et al., 2021). Policymakers in developing economies can focus on the effects of cognitive cultural institutions to support early-stage entrepreneurial activities and establish a favorable entrepreneurial ecosystem. The analysis results highlight the influence of entrepreneurship education in developed countries. Accordingly, policymakers in developing

1
2
3 economies can develop policies aimed at entrepreneurship education during and after schooling to enhance
4 individuals' entrepreneurial intentions and capabilities and improve the entrepreneurial ecosystem by leveraging
5 perceived opportunities for starting ventures (Nabi et al., 2018; Guerrero et al., 2021).

6
7 Second, another finding is that cultural and social norms in developed countries tend to encourage early-stage
8 entrepreneurship more than in developing countries. Entrepreneurship rates increase when entrepreneurial
9 activities are aligned with the culture, values, and appropriateness norms of society, and these results are supported
10 by previous cross-cultural research (Saeed et al., 2014; Wales et al., 2021; Bağış et al., 2023b). We suggest that
11 policymakers in developing countries create societal norms that promote entrepreneurship. In this regard,
12 policymakers should develop policies to construct a cultural framework that perceives entrepreneurship as a
13 desirable behavior in society. It is a fact that the conversion of these institutional elements into cultural changes
14 affecting entrepreneurial behavior takes a long time (Autio et al., 2013). The capacity of top-down management
15 policies to shape normative and cognitive dimensions is limited, at least in the short term (Acs et al., 2008; De
16 Mello et al., 2022). However, such policies are still necessary for establishing a given entrepreneurial ecosystem.

17
18 Third, our results indicate a stronger relationship between institutional regulations and entrepreneurial activity in
19 developed countries than in developing economies (Stenholm et al., 2013; De Mello et al., 2022). Therefore, we
20 recommend that policymakers, particularly for developing economies, create supportive and quality institutions if
21 they aim to increase the pace of entrepreneurial activity in their countries. Given that the extent of institutional
22 effectiveness varies with different stages of the entrepreneurial process (Junaid et al., 2022), policymakers can
23 create an ecosystem in which early-stage entrepreneurs can enter and exit the market quickly, with low entry and
24 exit costs, and simply. In addition, these entrepreneurs can develop their basic business skills with training and
25 consultancy support. The content of these trainings may be the development of organizational routines and
26 capabilities, the advantages of inter-firm alliances, and the development of internationalization and export
27 activities (Mukherjee et al., 2021). In this way, the problems experienced by new enterprises due to liability
28 newness are eliminated, and they can ensure their sustainability (Evansluong et al., 2023). In this respect, our
29 findings provide arguments for policymakers to design public policies and institutions that support economic
30 development policies.

31
32 Fourth, we have found that entrepreneurial finance significantly impacts early-stage entrepreneurial activities in
33 developed economies, while it has little to no effect in developing economies. In this context, it should be
34 emphasized that financial support targeted at early-stage entrepreneurship plays a crucial role in the growth and
35 sustainability of new ventures in developing economies. For instance, policymakers should implement reforms to
36 remove financial barriers that impede access to credit for new entrepreneurs (Charfeddine and Zaouali, 2022;
37 Rasmoun, 2023). Policymakers could enact regulations to facilitate new ventures' access to financial technologies.
38 Furthermore, financial accessibility is directly linked to macroeconomic indicators such as low-interest rates,
39 monetary policy, gross debt stock, low-interest loans, and savings rates in developing countries. Therefore,
40 policymakers should establish stable and predictable macroeconomic policies to provide suitable financing
41 opportunities for new entrepreneurs.

42
43 Fifth, we have found that government support, policies, tax rates, and bureaucracy are more effective in developed
44 countries. These findings provide essential signals for policymakers in developing economies. We recommend
45 that, in developing countries, government support and policies should be structured in a way that positively affects
46 the competitiveness and profitability of new entrepreneurs (Teixeira et al., 2018). Furthermore, support and
47 policies should not create high tax burdens for new entrepreneurs (Nascimento and Mattos, 2023), and subsidies
48 should be evenly distributed among new entrepreneurs across different industries. Additionally, we advise the
49 establishment of import quotas in developing countries to promote domestic production and recommend increasing
50 customs duties against imported goods (Teixeira et al., 2018; Hechavarría and Ingram, 2019). An intriguing finding
51 was that the effects of R&D transfers on early-stage entrepreneurs in developed countries tend to be negative. This
52 situation could be influenced by factors such as the lack of new organizational capabilities among early-stage
53 entrepreneurs, as well as an absence of skills in internalizing and assimilating new information. Therefore, we
54 recommend that policymakers should formulate a set of guiding principles to enhance the positive impacts of R&D
55 transfers, specifically targeted towards early-stage entrepreneurs.

56
57 Finally, we recommend that governments continuously review the conditions and supportive policies that can be
58 influenced by macroeconomic policies and fluctuations affecting entrepreneurial activities, particularly in
59 developing economies (Castaño et al., 2015; Charfeddine and Zaouali, 2022). Therefore, policymakers should
60 generate policies that promote entrepreneurship and ensure macroeconomic stability. It is well known that

monetary policies, inflation, low-interest rates, and countries' savings rates create a secure macroeconomic environment that fosters growth and provides a safer environment for private sector investment decisions. Studies indicate that good macroeconomic management leads to faster growth for a given investment rate (Bleaney, 1996; Bianchi et al., 2023; Petrini and Teixeira, 2023). Therefore, policymakers in developing economies can contribute to the revitalization of the entrepreneurial ecosystem and the longevity of early-stage entrepreneurs in the economy by creating a predictable, transparent, secure, and rules-based investment environment in terms of macroeconomic indicators.

Limitations and Future Research

The limitations of our research and recommendations for future research can be grouped under several headings. First, there are limitations due to the data we used. Our dataset shows that the number of developed economies is higher than that of developing economies (Bjørnskov and Foss, 2016; Mickiewicz et al., 2021). Although GEM and IMF have provided consistent data on entrepreneurship for many countries and years, future research needs to conduct longitudinal and comparative analyses covering a broader range of years and countries. However, it is important to note that no comprehensive and detailed database covers all countries. Therefore, we recommend that future research combines different databases to identify variables that affect entrepreneurial activity. Second, the distribution of data for some countries in the GEM by year is irregular. As a result, the datasets of countries do not consistently appear across all surveys for various reasons, and we encountered limitations in conducting longitudinal analysis (Junaid et al., 2022). Therefore, future studies can be designed to cover more years and include different variables. Third, we cannot infer which policy decisions in a country affect specific institutions and macroeconomic indicators. This limitation calls for future research to examine the impact of policymakers' decisions on institutions, macroeconomic developments, and their reflections on TEA (Beynon et al., 2020). Finally, our analysis of factors affecting TEA remained at the national level. Therefore, we were unable to examine factors within a country in depth. In this context, we believe that the accuracy of our findings may vary depending on the level of economic prosperity of a country. Future studies may consider conducting in-depth analyses in one or more countries to generate comparative results (Hechavarría and Ingram, 2019).

References

- Abu Bakar, A.R., Ahmad, S.Z., Wright, N.S. and Skoko, H. (2017). The propensity to business startup: Evidence from Global Entrepreneurship Monitor (GEM) data in Saudi Arabia. *Journal of Entrepreneurship in Emerging Economies*, 9(3), 263-285. <https://doi.org/10.1108/JEEE-11-2016-0049>
- Acemoglu, D., and Robinson, J. A. (2012). *Why nations fail*. Crown Business.
- Ács, Z. (2006). How is entrepreneurship good for economic growth. *Innovations*, 1(1), 97–107. <https://doi.org/10.4337/9781035305421.00030>
- Acs, Z. J., Audretsch, D. B., Braunerhjelm, P., and Carlsson, B. (2012). Growth and entrepreneurship. *Small Business Economics*, 39, 289-300. <https://doi.org/10.1007/s11187-010-9307-2>
- Acs, Z. J., Desai, S., and Hessels, J. (2008). Entrepreneurship, economic development, and institutions. *Small Business Economics*, 31(3), 219–234. <https://doi.org/10.1007/s11187-008-9135-9>
- Acs, Z. J., Estrin, S., Mickiewicz, T., and Szerb, L. (2018). Entrepreneurship, institutional economics, and economic growth: an ecosystem perspective. *Small Business Economics*, 51(2), 501-514. <https://doi.org/10.1007/s11187-018-0013-9>
- Adrangi, B., Allender, M. E., and Anderson, R. (2002). Entrepreneurial Activity And Macroeconomic Conditions. In *Allied Academies International Conference*. Academy of Entrepreneurship. *Proceedings* 8(2), 33–35. Jordan Whitney Enterprises, Inc.
- Afawubo, K., and Noglo, Y. A. (2022). ICT and entrepreneurship: A comparative analysis of developing, emerging and developed countries. *Technological Forecasting and Social Change*, 175, 121312. <https://doi.org/10.1016/j.techfore.2021.121312>
- Afi, H., Boubaker, S., and Omri, A. (2022). Do foreign investment and economic freedom matter for behavioral entrepreneurship? Comparing opportunity versus necessity entrepreneurs. *Technological Forecasting and Social Change*, 181, 121761. <https://doi.org/10.1016/j.techfore.2022.121761>
- Agyapong, D., and Bedjabeng, K. A. (2020). External debt stock, foreign direct investment and financial development: Evidence from African economies. *Journal of Asian Business and Economic Studies*, 27(1), 81-98. <https://doi.org/10.1108/JABES-11-2018-0087>

- 1
2
3 Akram, N. (2015). Is public debt hindering economic growth of the Philippines? *International Journal of Social*
4 *Economics*, 42(3), 202–221. <https://doi.org/10.1108/IJSE-02-2013-0047>
- 5 Al Mamari, F., Mondal, S., Al Shukaili, A., and Kassim, N. M. (2022). Effect of self-perceived cognitive factors
6 on entrepreneurship development activities: An empirical study from Oman global entrepreneurship
7 monitor survey. *Journal of Public Affairs*, 22(2), e2363. <https://doi.org/10.1002/pa.2363>
- 8 Amorós, J. E., Borraz, F., and Veiga, L. (2016). Entrepreneurship and socioeconomic indicators in Latin
9 America. *Latin American Research Review*, 51(4), 186–201. <https://doi.org/10.1353/lar.2016.0055>
- 10 Amorós, J. E., Ciravegna, L., Mandakovic, V., and Stenholm, P. (2019a). Necessity or opportunity? The effects
11 of state fragility and economic development on entrepreneurial efforts. *Entrepreneurship Theory and*
12 *Practice*, 43(4), 725–750. <https://doi.org/10.1177/1042258717736857>
- 13 Amorós, J. E., Poblete, C., and Mandakovic, V. (2019b). R&D transfer, policy, and innovative, ambitious
14 entrepreneurship: evidence from Latin American countries. *The Journal of Technology Transfer*, 44(5),
15 1396–1415. <https://doi.org/10.1007/s10961-019-09728-x>
- 16 Amorós, J., and Bosma, N. (2014). Global Entrepreneurship Monitor 2013 Global Report - fifteen years of
17 assessing entrepreneurship across the globe, accessed at:
18 <https://www.gemconsortium.org/docs/3106/gem-2013-global-report>
- 19 Anokhin, S., and Schulze, W. S. (2009). Entrepreneurship, innovation, and corruption. *Journal of business*
20 *venturing*, 24(5), 465–476. <https://doi.org/10.1016/j.jbusvent.2008.06.001>
- 21 Anwar ul Haq, M., Usman, M., Hussain, N. and Anjum, Z.-u. (2014). "Entrepreneurial activity in China and
22 Pakistan: a GEM data evidence," *Journal of Entrepreneurship in Emerging Economies*, Vol. 6 No. 2, pp.
23 179–193. <https://doi.org/10.1108/JEEE-03-2014-0006>
- 24 Aparicio, S., Audretsch, D., and Urbano, D. (2021). Why is export-oriented entrepreneurship more prevalent in
25 some countries than others? Contextual antecedents and economic consequences. *Journal of World*
26 *Business*, 56(3), 101177. <https://doi.org/10.1016/j.jwb.2020.101177>
- 27 Aparicio, S., Urbano, D., and Audretsch, D. (2016). Institutional factors, opportunity entrepreneurship, and
28 economic growth: Panel data evidence. *Technological Forecasting and Social Change*, 102, 45–61.
29 <https://doi.org/10.1016/j.techfore.2015.04.006>
- 30 Arabiyat, T.S., Mdanat, M., Haffar, M., Ghoneim, A., and Arabiyat, O. (2019). The influence of institutional and
31 conducive aspects on entrepreneurial innovation: Evidence from GEM data. *Journal of Enterprise*
32 *Information Management*, 32(3), 366–389. <https://doi.org/10.1108/JEIM-07-2018-0165>
- 33 Arafat, M. Y., Saleem, I., Dwivedi, A. K., and Khan, A. (2020). Determinants of agricultural entrepreneurship: a
34 GEM data based study. *International Entrepreneurship and Management Journal*, 16(1), 345–370.
35 <https://doi.org/10.1007/s11365-018-0536-1>
- 36 Arenius, P., and Minniti, M. (2005). Perceptual variables and nascentship. *Small Business Economics*, 24(3), 233–
37 247. <https://doi.org/10.1007/s11187-005-1984-x>
- 38 Arin, K. P., Huang, V. Z., Minniti, M., Nandialath, A. M., and Reich, O. F. (2015). Revisiting the determinants of
39 entrepreneurship: A Bayesian approach. *Journal of Management*, 41(2), 607–631.
40 <https://doi.org/10.1177/0149206314558488>
- 41 Armour, J., and Cumming, D. (2008). Bankruptcy law and entrepreneurship. *American Law and Economics*
42 *Review*, 10(2), 303–350. <https://doi.org/10.1093/aler/ahn008>
- 43 Audretsch, D. B., Belitski, M., and Guerrero, M. (2023b). Sustainable orientation management and institutional
44 quality: Looking into European entrepreneurial innovation ecosystems. *Technovation*, 124, 102742.
45 <https://doi.org/10.1016/j.technovation.2023.102742>
- 46 Audretsch, D. B., Belitski, M., Caiazza, R., and Desai, S. (2022a). The role of institutions in latent and emergent
47 entrepreneurship. *Technological Forecasting and Social Change*, 174, 121263.
48 <https://doi.org/10.1016/j.techfore.2021.121263>
- 49 Audretsch, D. B., Belitski, M., Caiazza, R., Günther, C., and Menter, M. (2022b). From latent to emergent
50 entrepreneurship: The importance of context. *Technological Forecasting and Social Change*, 175, 121356.
51 <https://doi.org/10.1016/j.techfore.2021.121356>
- 52 Audretsch, D. B., Belitski, M., Eichler, G. M., and Schwarz, E. (2023a). Entrepreneurial ecosystems, institutional
53 quality, and the unexpected role of the sustainability orientation of entrepreneurs. *Small Business*
54 *Economics*, 1–20. <https://doi.org/10.1007/s11187-023-00763-5>
- 55 Audretsch, D. B., Carree, M. A. and Thurik, A. R. (2001). Does entrepreneurship reduce unemployment?
56 Tinbergen Institute discussion paper TI01-074/3. Erasmus University Rotterdam.
- 57 Audretsch, D. B., Lehmann, E. E., Paleari, S., and Vismara, S. (2016). Entrepreneurial finance and technology
58 transfer. *The Journal of Technology Transfer*, 41, 1–9. <https://doi.org/10.1007/s10961-014-9381-8>
- 59 Audretsch, D., and Caiazza, R. (2016). Technology transfer and entrepreneurship: cross-national analysis. *The*
60 *Journal of Technology Transfer*, 41, 1247–1259. <https://doi.org/10.1007/s10961-015-9441-8>

- 1
2
3 Audretsch, D., and Chowdhury, F. (2020). Export Regulations, Credit Markets, and Corruption: Implications for
4 Internationalization. In *Academy of Management Proceedings* (Vol. 2020, No. 1, p. 10229). Briarcliff
5 Manor, NY 10510: Academy of Management.
- 6 Autio, E., H. Keeley, R., Klofsten, M., GC Parker, G., and Hay, M. (2001). Entrepreneurial intent among students
7 in Scandinavia and in the USA. *Enterprise and Innovation Management Studies*, 2(2), 145–160.
8 <https://doi.org/10.1080/14632440110094632>
- 9 Bacharach, S. B. (1989). Organizational theories: Some criteria for evaluation. *Academy of Management*
10 *Review*, 14(4), 496-515. <https://doi.org/10.5465/amr.1989.4308374>
- 11 Bağış, M., Altınay, L., Kryeziu, L., Kurutkan, M. N., and Karaca, V. (2023a). Institutional and individual
12 determinants of entrepreneurial intentions: evidence from developing and transition economies. *Review*
13 *of Managerial Science*, 1-30. <https://doi.org/10.1007/s11846-023-00626-z>
- 14 Bağış, M., Kryeziu, L., Kurutkan, M. N., Krasniqi, B. A., Hernik, J., Karagüzel, E. S., ... and Ateş, Ç. (2023b).
15 Youth entrepreneurial intentions: a cross-cultural comparison. *Journal of Enterprising Communities:*
16 *People and Places in the Global Economy*, 17(4), 769-792. <https://doi.org/10.1108/JEC-01-2022-0005>
- 17 Bahl, M., Lahiri, S., and Mukherjee, D. (2021). Managing internationalization and innovation tradeoffs in
18 entrepreneurial firms: Evidence from transition economies. *Journal of World Business*, 56(1), 101150.
19 <https://doi.org/10.1016/j.jwb.2020.101150>
- 20 Baltagi, B. H. (2013). *Econometric Analysis of Panel Data* (Fifth Edition). Chichester: John Wiley and Sons, Ltd.
- 21 Baltagi, B. H., and Wu, P. X. (1999). Unequally spaced panel data regressions with AR (1)
22 disturbances. *Econometric Theory*, 15(6), 814-823. <https://doi.org/10.1017/S0266466699156020>
- 23 Baltagi, B.H. (2005). *Econometric analysis of panel data*. Chichester, West Sussex: JW and Sons, England.
- 24 Baron, R. A. (2007). Behavioral and cognitive factors in entrepreneurship: Entrepreneurs as the active element in
25 new venture creation. *Strategic Entrepreneurship Journal*, 1(1-2), 167–182. <https://doi.org/10.1002/sej.12>
- 26 Batjargal, B. A. T., Hitt, M. A., Tsui, A. S., Arregle, J. L., Webb, J. W., and Miller, T. L. (2013). Institutional
27 polycentrism, entrepreneurs' social networks, and new venture growth. *Academy of Management Journal*,
28 56(4), 1024-1049. <https://doi.org/10.5465/amj.2010.0095>
- 29 Beynon, M. J., Jones, P., and Pickernell, D. (2020). Country-level entrepreneurial attitudes and activity through
30 the years: A panel data analysis using fsQCA. *Journal of Business Research*, 115, 443–455.
31 <https://doi.org/10.1016/j.jbusres.2019.11.021>
- 32 Bianchi, F., Kung, H., and Tirskikh, M. (2023). The origins and effects of macroeconomic uncertainty.
33 *Quantitative Economics*, 14(3), 855-896. <https://doi.org/10.3982/QE1979>
- 34 Bjørnskov, C., and Foss, N. (2013). How strategic entrepreneurship and the institutional context drive economic
35 growth. *Strategic Entrepreneurship Journal*, 7(1), 50-69. <https://doi.org/10.1002/sej.1148>
- 36 Bjørnskov, C., and Foss, N. J. (2016). Institutions, entrepreneurship, and economic growth: what do we know and
37 what do we still need to know? *Academy of Management Perspectives*, 30(3), 292-315.
38 <https://doi.org/10.5465/amp.2015.0135>
- 39 Bleaney, M. F. (1996). Macroeconomic stability, investment and growth in developing countries. *Journal of*
40 *Development Economics*, 48(2), 461–477. [https://doi.org/10.1016/0304-3878\(95\)00049-6](https://doi.org/10.1016/0304-3878(95)00049-6)
- 41 Bogatyreva, K., Laskovaia, A., and Osiyevskyy, O. (2022). Entrepreneurial activity, intrapreneurship, and
42 conducive institutions: Is there a connection? *Journal of Business Research*, 146, 45-56.
43 <https://doi.org/10.1016/j.jbusres.2022.03.062>
- 44 Bosma, N., Sanders, M., and Stam, E. (2018). Institutions, entrepreneurship, and economic growth in Europe.
45 *Small Business Economics*, 51(2), 483-499. <https://doi.org/10.1007/s11187-018-0012-x>
- 46 Bosma, N., Stam, E., and Wennekers, S. (2012). Entrepreneurial employee activity: A large scale international
47 study. Tjalling Koopmans Institute working paper 12–12. Utrecht: Utrecht University School of
48 Economics. Bosma, N., Wennekers, S., and Amorós, J.E. (2012). *Global Entrepreneurship Monitor, 2011*
49 *Extended Report: Entrepreneurs and Entrepreneurial Employees across the Globe*. Global
50 Entrepreneurship Research Association (Retrieved from Global Entrepreneurship Monitor website:
51 <http://gemconsortium.org/report>).
- 52 Boudreaux, C. J., Nikolaev, B. N., and Klein, P. (2019). Socio-cognitive traits and entrepreneurship: The
53 moderating role of economic institutions. *Journal of Business Venturing*, 34(1), 178-196.
54 <https://doi.org/10.1016/j.jbusvent.2018.08.003>
- 55 Bowen, H. P., and De Clercq, D. (2008). Institutional context and the allocation of entrepreneurial effort. *Journal*
56 *of International Business Studies*, 39, 747-767. <https://doi.org/10.1057/palgrave.jibs.8400343>
- 57 Bradley, S. W., Kim, P. H., Klein, P. G., McMullen, J. S., and Wennberg, K. (2021). Policy for innovative
58 entrepreneurship: Institutions, interventions, and societal challenges. *Strategic Entrepreneurship*
59 *Journal*, 15(2), 167-184. <https://doi.org/10.1002/sej.1395>
- 60 Bruderl, J., and Schussler, R. (1990). Organizational mortality: The liabilities of newness and
adolescence. *Administrative Science Quarterly*, 35(3), 530-547. <https://doi.org/10.2307/2393316>

- 1
2
3 Bruton, G. D., Ahlstrom, D., and Li, H. L. (2010). Institutional theory and entrepreneurship: where are we now
4 and where do we need to move in the future? *Entrepreneurship Theory and Practice*, 34(3), 421-440.
5 <https://doi.org/10.1111/j.1540-6520.2010.00390.x>
- 6 Bryant, P. (2007). Self-regulation and decision heuristics in entrepreneurial opportunity evaluation and
7 exploitation. *Management Decision*, 45(4), 732-748. <https://doi.org/10.1108/00251740710746006>
- 8 Burgess, S. M., and Steenkamp, J. B. E. (2006). Marketing Renaissance: How research in emerging markets
9 advances marketing science and practice. *International Journal of Research in Marketing*, 23(4), 337-356.
10 <https://doi.org/10.1016/j.ijresmar.2006.08.001>
- 11 Burns, S., and Fuller, C. S. (2020). Institutions and entrepreneurship: Pushing the boundaries. *Quarterly Journal*
12 *of Austrian Economics*, 23(3-4), 568-612. <https://doi.org/10.35297/qjae.010080>
- 13 Burton, M. D., Sørensen, J. B., and Dobrev, S. D. (2016). A careers perspective on entrepreneurship.
14 *Entrepreneurship Theory and Practice*, 40(2), 237-247. <https://doi.org/10.1111/etap.12230>
- 15 Busenitz, L. W., Gomez, C., and Spencer, J. W. (2000). Country institutional profiles: Unlocking entrepreneurial
16 phenomena. *Academy of Management Journal*, 43(5), 994-1003. <https://doi.org/10.5465/1556423>
- 17 Cao, Z., and Shi, X. (2021). A systematic literature review of entrepreneurial ecosystems in advanced and
18 emerging economies. *Small Business Economics*, 57(1), 75-110. <https://doi.org/10.1007/s11187-020-00326-y>
- 19 Carlos Díaz Casero, J., Almodóvar González, M., de la Cruz Sánchez Escobedo, M., Coduras Martínez, A., and
20 Hernández Mogollón, R. (2013). Institutional variables, entrepreneurial activity, and economic
21 development. *Management Decision*, 51(2), 281-305. <https://doi.org/10.1108/00251741311301821>
- 22 Carree, M., Van Stel, A., Thurik, R., and Wennekers, S. (2007). The relationship between economic development
23 and business ownership revisited. *Entrepreneurship and Regional Development*, 19(3), 281-291.
24 <https://doi.org/10.1080/08985620701296318>
- 25 Castaño, M. S., Méndez, M. T., and Galindo, M. Á. (2015). The effect of social, cultural, and economic factors on
26 entrepreneurship. *Journal of Business Research*, 68(7), 1496-1500.
27 <https://doi.org/10.1016/j.jbusres.2015.01.040>
- 28 Cervelló-Royo, R., Moya-Clemente, I., Perelló-Marín, M. R., and Ribes-Giner, G. (2020). Sustainable
29 development, economic and financial factors that influence the opportunity-driven entrepreneurship. An
30 fsQCA approach. *Journal of Business Research*, 115, 393-402.
31 <https://doi.org/10.1016/j.jbusres.2019.10.031>
- 32 Charfeddine, L., and Zaouali, S. (2022). The effects of financial inclusion and the business environment in spurring
33 the creation of early-stage firms and supporting established firms. *Journal of Business Research*, 143, 1-
34 15. <https://doi.org/10.1016/j.jbusres.2022.01.014>
- 35 Chowdhury, F., Audretsch, D. B., and Belitski, M. (2015). Does corruption matter for international
36 entrepreneurship? *International Entrepreneurship and Management Journal*, 11, 959-980.
37 <https://doi.org/10.1007/s11365-015-0372-5>
- 38 Chowdhury, F., Audretsch, D. B., and Belitski, M. (2019). Institutions and entrepreneurship quality.
39 *Entrepreneurship Theory and Practice*, 43(1), 51-81. <https://doi.org/10.1177/104225871878043>
- 40 Coduras, A., Clemente, J. A., and Ruiz, J. (2016). A novel application of fuzzy-set qualitative comparative analysis
41 to GEM data. *Journal of Business Research*, 69(4), 1265-1270.
42 <https://doi.org/10.1016/j.jbusres.2015.10.090>
- 43 Cohen, W. M., and Levinthal, D. A. (1990). Absorptive capacity: A new perspective on learning and innovation.
44 *Administrative Science Quarterly*, 35(1), 128-152. <https://doi.org/10.2307/2393553>
- 45 Cooper, R. S. (2003). Purpose and performance of the Small Business Innovation Research (SBIR) program. *Small*
46 *Business Economics*, pp. 137-151. <https://www.jstor.org/stable/40229255>
- 47 Covin, J. G., Garrett, R. P., Kuratko, D. F., and Shepherd, D. A. (2015). Value proposition evolution and the
48 performance of internal corporate ventures. *Journal of Business Venturing*, 30(5), 749-774.
49 <https://doi.org/10.1016/j.jbusvent.2014.11.002>
- 50 Crudu, R. (2019). The role of innovative entrepreneurship in the economic development of EU member countries.
51 *Journal of Entrepreneurship, Management and Innovation*, 15(1), 35-60.
52 <https://doi.org/10.7341/20191512>
- 53 Cumming, D., and Li, D. (2013). Public policy, entrepreneurship, and venture capital in the United States. *Journal*
54 *of Corporate Finance*, 23, 345-367. <https://doi.org/10.1016/j.jcorpfin.2013.09.005>
- 55 Danis, W. M., De Clercq, D., and Petricevic, O. (2011). Are social networks more important for new business
56 activity in emerging than developed economies? An empirical extension. *International Business Review*,
57 20(4), 394-408. <https://doi.org/10.1016/j.ibusrev.2010.08.005>
- 58 Darnihamedani, P., Block, J. H., Hessels, J., and Simonyan, A. (2018). Taxes, start-up costs, and innovative
59 entrepreneurship. *Small Business Economics*, 51(2), 355-369. <https://doi.org/10.1007/s11187-018-0005-9>
- 60

- 1
2
3 Davis, L. S., and Williamson, C. R. (2016). Culture and the regulation of entry. *Journal of Comparative Economics*,
4 44(4), 1055–1083. <https://doi.org/10.1016/j.jce.2016.09.007>
- 5 De Backer, K., and Sleuwaegen, L. (2003). Does foreign direct investment crowd out domestic entrepreneurship?
6 *Review of Industrial Organization*, 22, 67-84. <https://doi.org/10.1023/A:1022180317898>
- 7 De Clercq, D., Danis, W.M. and Dakhli, M. (2010b). The moderating effect of institutional context on the
8 relationship between associational activity and new business activity in emerging economies.
9 *International Business Review*, 19(1), 85-101. <https://doi.org/10.1016/j.ibusrev.2009.09.002>.
- 10 De Clercq, D., Dimov, D., and Thongpapanl, N. T. (2010a). The moderating impact of internal social exchange
11 processes on the entrepreneurial orientation–performance relationship. *Journal of Business Venturing*,
12 25(1), 87-103. <https://doi.org/10.1016/j.ibusrev.2009.09.002>
- 13 De Mello, L. P., de Moraes, G. H. S. M., and Fischer, B. B. (2022). The impact of the institutional environment
14 on entrepreneurial activity: an analysis of developing and developed countries. *Journal of*
15 *Entrepreneurship and Public Policy*. 11(2), 1-22. <https://doi.org/10.1108/JEPP-09-2021-0113>
- 16 Dehghanpour Farashah, A. (2013). The process of impact of entrepreneurship education and training on
17 entrepreneurship perception and intention: Study of educational system of Iran. *Education + Training*,
18 55(8/9), 868–885. <https://doi.org/10.1108/ET-04-2013-0053>
- 19 DeTienne, D. R. (2010). Entrepreneurial exit as a critical component of the entrepreneurial process: theoretical
20 development. *Journal of Business Venturing*, 25(2), 203–215.
21 <https://doi.org/10.1016/j.jbusvent.2008.05.004>
- 22 Díez-Martín, F., Blanco-González, A., and Miotto, G. (2022). The impact of state legitimacy on entrepreneurial
23 activity. *International Entrepreneurship and Management Journal*, 18(2), 935-955.
24 <https://doi.org/10.1007/s11365-020-00724-4>
- 25 Díez-Martín, F., Blanco-González, A., and Prado-Román, C. (2016). Explaining nation-wide differences in
26 entrepreneurial activity: A legitimacy perspective. *International Entrepreneurship and Management*
27 *Journal*, 12, 1079-1102. <https://doi.org/10.1007/s11365-015-0381-4>
- 28 Donbesuur, F., Owusu-Yirenkyi, D., Ampong, G. O. A., and Hultman, M. (2023). Enhancing export intensity of
29 entrepreneurial firms through bricolage and international opportunity recognition: The differential roles
30 of explorative and exploitative learning. *Journal of Business Research*, 156, 113467.
31 <https://doi.org/10.1016/j.jbusres.2022.113467>
- 32 Duran, P., Van Essen, M., Heugens, P. P., Kostova, T., and Peng, M. W. (2019). The impact of institutions on the
33 competitive advantage of publicly listed family firms in emerging markets. *Global Strategy Journal*, 9(2),
34 243–274. <https://doi.org/10.1002/gsj.1312>
- 35 Dutta, N., and Sobel, R. S. (2021). Entrepreneurship, fear of failure, and economic policy. *European Journal of*
36 *Political Economy*, 66, 101954. <https://doi.org/10.1016/j.ejpoleco.2020.101954>
- 37 Dvouletý, O., and Orel, M. (2019). Entrepreneurial Activity and Its Determinants: Findings from African
38 Developing Countries. In V. Ratten, P. Jones, V. Braga, and C. Marques (Eds.), *Sustainable*
39 *Entrepreneurship* (pp. 9-24). Springer, Cham. https://doi.org/10.1007/978-3-030-12342-0_2
- 40 Easterly, W. (2005). What did structural adjustment adjust?: The association of policies and growth with repeated
41 IMF and World Bank adjustment loans. *Journal of Development Economics*, 76(1), 1–22.
42 <https://doi.org/10.1016/j.jdevco.2003.11.005>
- 43 Eicker, F. (1967). Limit Theorems for Regression With Unequal and Dependent Errors. In *Proceedings of the Fifth*
44 *Berkeley Symposium on Mathematical Statistics and Probability* (Vol. 1, pp. 59–82). University of
45 California Press.
- 46 Eijdenberg, E.L., Thompson, N.A., Verduijn, K., and Essers, C. (2019). Entrepreneurial activities in a developing
47 country: an institutional theory perspective. *International Journal of Entrepreneurial Behavior and*
48 *Research*, 25(3), 414-432. <https://doi.org/10.1108/IJEER-12-2016-0418>
- 49 El Ghak, T., Gdairia, A., and Abassi, B. (2021). High-tech entrepreneurship and total factor productivity: The case
50 of innovation-driven economies. *Journal of the Knowledge Economy*, 12, 1152–1186.
51 <https://doi.org/10.1007/s13132-020-00659-9>
- 52 Erken, H., Donselaar, P., and Thurik, R. (2018). Total factor productivity and the role of entrepreneurship. *The*
53 *Journal of Technology Transfer*, 43, 1493-1521. <https://doi.org/10.1007/s10961-016-9504-5>
- 54 Escandon-Barbosa, D., Urbano-Pulido, D., and Hurtado-Ayala, A. (2019). Exploring the relationship between
55 formal and informal institutions, social capital, and entrepreneurial activity in developing and developed
56 countries. *Sustainability*, 11(2), 550. <https://doi.org/10.3390/su11020550>
- 57 Estay, C., Durrieu, F., and Akhter, M. (2013). Entrepreneurship: From motivation to start-up. *Journal of*
58 *International Entrepreneurship*, 11, 243-267. <https://doi.org/10.1007/s10843-013-0109-x>
- 59 Estrin, S., Mickiewicz, T., and Stephan, U. (2013). Entrepreneurship, Social Capital, and Institutions: Social and
60 Commercial Entrepreneurship across Nations. *Entrepreneurship Theory and Practice*.
<https://doi.org/10.1111/etap.12019>

- 1
2
3 Evansluong, Q., Grip, L. and Karayianni, E. (2023), "Digital ethnicity affordances: from a liability to an asset in
4 immigrant entrepreneurship", *International Journal of Entrepreneurial Behavior and Research*, Vol.
5 ahead-of-print No. ahead-of-print. <https://doi.org/10.1108/IJEBR-02-2022-0207>
- 6 Florida, R. (2003). *Entrepreneurship, creativity, and regional economic growth*. In M. Hart (Ed.), *The emergence*
7 *of entrepreneurship policy* (pp. 39–58). Cambridge, UK: Cambridge University Press.
- 8 Fuentelsaz, L., González, C., Maicas, J. P., and Montero, J. (2015). How different formal institutions affect
9 opportunity and necessity entrepreneurship. *Business Research Quarterly*, 18(4), 246-258.
10 <https://doi.org/10.1016/j.brq.2015.02.001>
- 11 Gaies, B., and Maalaoui, A. (2022). Macro-Level Determinants of Entrepreneurship and Endogeneity Bias-A
12 Methodological Contribution. *M@n@gement*, 25(3), 22-28. <http://dx.doi.org/10.37725/mgmt.v25.5541>
- 13 Galindo, M. and Méndez-Picazo, M. (2013). Innovation, entrepreneurship and economic growth, *Management*
14 *Decision*, 51(3), 501-514. <https://doi.org/10.1108/00251741311309625>
- 15 Gao, J., Cheng, Y., He, H., and Gu, F. (2021). The Mechanism of Entrepreneurs' Social Networks on Innovative
16 Start-ups' Innovation Performance Considering the Moderating Effect of the Entrepreneurial Competence
17 and Motivation. *Entrepreneurship Research Journal*. <https://doi.org/10.1515/erj-2020-0541>
- 18 Garrido, I., Vasconcellos, S., Faccin, K., Monticelli, J. M., and Carpenedo, C. (2021). The moderating role of
19 polycentric institutions in the relationship between effectuation/causation logics and corporate
20 entrepreneur's decision-making processes. *Global Strategy Journal*, 11(4), 740-766.
21 <https://doi.org/10.1002/gsj.1419>
- 22 Gawel, A., and Mińska-Struzik, E. (2023). The digitalisation as gender equaliser? The import and export of
23 digitally delivered services in shaping female entrepreneurship in European countries. *International*
24 *Journal of Gender and Entrepreneurship*, Vol. ahead-of-print No. ahead-of-print.
25 <https://doi.org/10.1108/IJGE-08-2022-0141>
- 26 George, G., and Prabhu, G. N. (2000). Developmental financial institutions as catalysts of entrepreneurship in
27 emerging economies. *Academy of Management Review*, 25(3), 620–629.
28 <https://doi.org/10.5465/amr.2000.3363529>
- 29 George, G., and Prabhu, G. N. (2003). Developmental financial institutions as technology policy instruments:
30 Implications for innovation and entrepreneurship in emerging economies. *Research Policy*, 32(1), 89–
31 108. [https://doi.org/10.1016/S0048-7333\(02\)00002-1](https://doi.org/10.1016/S0048-7333(02)00002-1)
- 32 González-Pernía, J. L., and Peña-Legazkue, I. (2015). Export-oriented entrepreneurship and regional economic
33 growth. *Small Business Economics*, 45(3), 505-522. <https://doi.org/10.1007/s11187-015-9657-x>
- 34 Gölgeci, I., Larimo, J., and Arslan, A. (2017). Institutions and dynamic capabilities: Theoretical insights and
35 research agenda for strategic entrepreneurship. *Scandinavian Journal of Management*, 33(4), 243-252.
36 <https://doi.org/10.1016/j.scaman.2017.08.003>
- 37 Graham, B., and Bonner, K. (2022). One size fits all? Using machine learning to study heterogeneity and
38 dominance in the determinants of early-stage entrepreneurship. *Journal of Business Research*, 152, 42-
39 59. <https://doi.org/10.1016/j.jbusres.2022.07.043>
- 40 Grilli, L., Mrkajic, B., and Giraudo, E. (2023). Industrial policy, innovative entrepreneurship, and the human
41 capital of founders. *Small Business Economics*, 60(2), 707-728. <https://doi.org/10.1007/s11187-022-00611-y>
- 42 Guerrero, M., Liñán, F., and Cáceres-Carrasco, F. R. (2021). The influence of ecosystems on the entrepreneurship
43 process: a comparison across developed and developing economies. *Small Business Economics*, 57(4),
44 1733-1759. <https://doi.org/10.1007/s11187-020-00392-2>
- 45 Gupta, V. K., Guo, C., Canever, M., Yim, H. R., Sraw, G. K., and Liu, M. (2014). Institutional environment for
46 entrepreneurship in rapidly emerging major economies: the case of Brazil, China, India, and Korea.
47 *International Entrepreneurship and Management Journal*, 10, 367–384. <https://doi.org/10.1007/s11365-012-0221-8>
- 48 Hafer, R. W., and Jones, G. (2014). Are entrepreneurship and cognitive skills related? Some international evidence.
49 *Small Business Economics*, 44(2), 283–298. <https://doi.org/10.1007/s11187-014-9596-y>
- 50 Haini, H., Abdullahi Abubakar, Y. and Wei Loon, P. (2023), "Does institutional quality affect the relationship
51 between income inequality and entrepreneurial activity?", *International Journal of Sociology and Social*
52 *Policy*, Vol. 43 No. 9/10, pp. 870-892. <https://doi.org/10.1108/IJSSP-10-2022-0254>
- 53 Hameed, K., Arshed, N., Grant, K. A., Munir, M., and Aziz, O. (2022). Forces of dynamic capability and incidence
54 of entrepreneurship: A macroeconomic policy intervention approach. *Journal of the Knowledge*
55 *Economy*, 1–25. <https://doi.org/10.1007/s13132-022-00905-2>
- 56 Hannibal, M., Evers, N., and Servais, P. (2016). Opportunity recognition and international new venture creation
57 in university spin-offs—cases from Denmark and Ireland. *Journal of International Entrepreneurship*,
58 14(3), 345–372. <https://doi.org/10.1007/s10843-016-0181-0>
- 59 Hausman, J. A. (1978). Specification tests in econometrics. *Econometrica: Journal of the Econometric Society*.
60 46(6), 1251-1271. <https://doi.org/10.2307/1913827>

- 1
2
3 Hechavarría, D. M., and Ingram, A. E. (2019). Entrepreneurial ecosystem conditions and gendered national-level
4 entrepreneurial activity: A 14-year panel study of GEM. *Small Business Economics*, 53(2), 431-458.
5 <https://doi.org/10.1007/s11187-018-9994-7>
- 6 Heinonen, J., and Hytti, U. (2016). Entrepreneurship mission and content in Finnish policy programmes. *Journal*
7 *of Small Business and Enterprise Development*, 23(1), 149–162. [https://doi.org/10.1108/JSBED-10-](https://doi.org/10.1108/JSBED-10-2014-0170)
8 [2014-0170](https://doi.org/10.1108/JSBED-10-2014-0170)
- 9 Henrekson, M., and Sanandaji, T. (2011). The interaction of entrepreneurship and institutions. *Journal of*
10 *Institutional Economics*, 7(1), 47-75. <https://doi.org/10.1017/S1744137410000342>
- 11 Herrington, M., and Coduras, A. (2019). The national entrepreneurship framework conditions in sub-Saharan
12 Africa: a comparative study of GEM data/National Expert Surveys for South Africa, Angola,
13 Mozambique and Madagascar. *Journal of Global Entrepreneurship Research*, 9, 1–24.
14 <https://doi.org/10.1186/s40497-019-0183-1>
- 15 Hessels, J., and Van Stel, A. (2011). Entrepreneurship, export orientation, and economic growth. *Small Business*
16 *Economics*, 37(2), 255-268. <https://doi.org/10.1007/s11187-009-9233-3>
- 17 Hessels, J., Grilo, I., Thurik, R., and van der Zwan, P. (2011). Entrepreneurial exit and entrepreneurial engagement.
18 *Journal of Evolutionary Economics*, 21(3), 447-471. <https://doi.org/10.1007/s00191-010-0190-4>
- 19 Hidalgo, C. A. (2023). The policy implications of economic complexity. *Research Policy*, 52(9), 104863.
20 <https://doi.org/10.1016/j.respol.2023.104863>
- 21 Hofstede, G. (1980). *Culture's Consequences: International Differences in Work-Related Values*. Sage.
- 22 Hofstede, G., Noorderhaven, N.G., Thurik, A.R., Uhlaner, W.L., and Wildeman, R.E. (2002). Culture's role in
23 entrepreneurship: Self-employment out of dissatisfaction. In J. Ulijn and T. Brown (Eds.), *Innovation in*
24 *entrepreneurship and culture: The interaction between, technology, progress and economic growth* (pp.
25 162–203). Edward Elgar.
- 26 Hsiao, C. (2007). Panel data analysis—advantages and challenges. *Test*, 16(1), 1–22. doi: 10.1007/s11749-007-
27 0046-x.
- 28 Hsiao, C. (2014). *Analysis of panel data*. Cambridge: Cambridge University Press.
- 29 Huber, P. J. (1967). The behavior of maximum likelihood estimates under nonstandard conditions. *Proceedings of*
30 *the Fifth Berkeley Symposium on Mathematical Statistics and Probability* (1), 221–233.
- 31 İpek, İ., Bıçakcıoğlu-Peynirci, N., and Hizarcı, A. K. (2023). A meta-analytic synthesis of how market and
32 entrepreneurial orientation contribute to export performance: Do home country institutions matter?
33 *Industrial Marketing Management*, 108, 1-22. <https://doi.org/10.1016/j.indmarman.2022.11.001>
- 34 Jaba, E., Robu, I. B., and Balan, C. B. (2017). Panel data analysis applied in financial performance assessment.
35 *Romanian Statistical Review*, 65(2), 3–20.
- 36 Jaumotte, F., and Sodsriwiboon, P. (2010). Current account imbalances in the Southern Euro Area (IMF Working
37 Paper WP/10/139). International Monetary Fund.
- 38 Jennings, P. D., Greenwood, R., Lounsbury, M. D., and Suddaby, R. (2013). Institutions, entrepreneurs, and
39 communities: A special issue on entrepreneurship. *Journal of Business Venturing*, 28(1), 1–9.
40 <https://doi.org/10.1016/j.jbusvent.2012.07.001>
- 41 Johansen, V., and Schanke, T. (2013). Entrepreneurship education in secondary education and
42 training. *Scandinavian Journal of Educational Research*, 57(4), 357-368.
43 <https://doi.org/10.1080/00313831.2012.656280>
- 44 Johnson, B. R. (1990). Toward a Multidimensional Model of Entrepreneurship: The Case of Achievement
45 Motivation and the Entrepreneur. *Entrepreneurship Theory and Practice*.
46 <https://doi.org/10.1177/104225879001400306>
- 47 Jonathan, M. (2014). Business start-up regulations and the complementarity between foreign and domestic
48 investment. *Review of World Economics*, 150(4), 745–761. <https://doi.org/10.1007/s10290-014-0189-2>
- 49 Junaid, D., He, Z., and Afzal, F. (2022). The impact of weak formal institutions on the different phases of the
50 entrepreneurial process. *Journal of Business Research*, 144, 236-249.
51 <https://doi.org/10.1016/j.jbusres.2022.01.040>
- 52 Junior, E. I., Dionisio, E. A., Fischer, B. B., Li, Y., and Meissner, D. (2020). The global entrepreneurship index as
53 a benchmarking tool? Criticisms from an efficiency perspective. *Journal of Intellectual Capital*, 22(1),
54 190-212. <https://doi.org/10.1108/JIC-09-2019-0218>
- 55 Kabir, I., Naqshbandi, M.M., Abubakar, Y.A. and Said, T.F. (2023), "National culture and entrepreneurial
56 orientation in an emerging economy: the moderating role of informal enterprises' survival intent", *Journal*
57 *of Entrepreneurship in Emerging Economies*, Vol. ahead-of-print No. ahead-of-print.
58 <https://doi.org/10.1108/JEEE-04-2022-0128>
- 59 Khan, M. I., Khan, M. K., Rehan, M., and Abasimi, I. (2018). Determinants of Gross Domestic Saving: An
60 Evidence from Asian Countries. *Economic Research*, 2(10), 1-14. DOI: 10.29226/TR1001.2018.66
- Khan, M. I., Teng, J. Z., Khan, M. K., Jadoon, A. U., and Rehan, M. (2017). Factors affecting the rate of gross
domestic saving in different countries. *European Academic Research*, 5(8), 42-62.

- 1
2
3 Khurana, I., Habiyaremye, A., Avsar, V., and Terjesen, S. (2023). The impact of policy uncertainty on
4 entrepreneurial activity: a cross-country analysis. *Entrepreneurship and Regional Development*, 1-24.
5 <https://doi.org/10.1080/08985626.2023.2211978>
- 6 Klapper, L., Laeven, L., and Rajan, R. (2006). Entry regulation as a barrier to entrepreneurship. *Journal of*
7 *Financial Economics*, 82(3), 591-629. <https://doi.org/10.1016/j.jfineco.2005.09.006>
- 8 Kreiser, P. M., Marino, L. D., and Weaver, K. M. (2002). Assessing the Psychometric Properties of the
9 Entrepreneurial Orientation Scale: A Multi-Country Analysis. *Entrepreneurship Theory and Practice*.
10 <https://doi.org/10.1177/104225870202600405>
- 11 Krueger Jr, N. F., Reilly, M. D., and Carsrud, A. L. (2000). Competing models of entrepreneurial intentions.
12 *Journal of business venturing*, 15(5-6), 411-432. [https://doi.org/10.1016/S0883-9026\(98\)00033-0](https://doi.org/10.1016/S0883-9026(98)00033-0)
- 13 Kuckertz, A., Berger, E. S., and Mpeqa, A. (2016). The more the merrier? Economic freedom and entrepreneurial
14 activity. *Journal of Business Research*, 69(4), 1288-1293. <https://doi.org/10.1016/j.jbusres.2015.10.094>
- 15 Lee, S.-H., Yamakawa, Y., Peng, M. W., and Barney, J. B. (2011). How do bankruptcy laws affect
16 entrepreneurship development around the world? *Journal of Business Venturing*, 26(5), 505-520.
17 <https://doi.org/10.1016/j.jbusvent.2010.05.001>
- 18 Léon, F. (2019). Long-term finance and entrepreneurship. *Economic Systems*, 43(2), 100690.
19 <https://doi.org/10.1016/j.ecosys.2018.10.004>
- 20 Lévesque, M., and Minniti, M. (2011). Demographic structure and entrepreneurial activity. *Strategic*
21 *Entrepreneurship Journal*, 5(3), 269-284. <https://doi.org/10.1002/sej.117>
- 22 Levie, J., and Autio, E. (2008). A theoretical grounding and test of the GEM model. *Small Business Economics*,
23 31(3), 235-263. <https://doi.org/10.1007/s11187-008-9136-8>
- 24 Levie, J., and Autio, E. (2011). Regulatory burden, rule of law, and entry of strategic entrepreneurs: An
25 international panel study. *Journal of Management Studies*, 48(6), 1392-1419.
26 <https://doi.org/10.1111/j.1467-6486.2010.01006.x>
- 27 Li, D., Hitt, M. A., Batjargal, B., Ireland, R. D., Miller, T. L., and Cuervo-Cazurra, A. (2021). Institutions and
28 entrepreneurship in a non-ergodic world. *Global Strategy Journal*, 11(4), 523-547.
29 <https://doi.org/10.1002/gsj.1425>
- 30 Liargovas, P., Psychalis, M., and Apostolopoulos, N. (2022). Fiscal policy, growth and entrepreneurship in the
31 EMU. *European Politics and Society*, 23(4), 468-489. <https://doi.org/10.1080/23745118.2021.1895553>
- 32 Liñán, F., and Chen, Y. W. (2009). Development and cross-cultural application of a specific instrument to measure
33 entrepreneurial intentions. *Entrepreneurship Theory and Practice*, 33(3), 593-617.
34 <https://doi.org/10.1111/j.1540-6520.2009.00318.x>
- 35 Liñán, F., Urbano, D., and Guerrero, M. (2011). Regional variations in entrepreneurial cognitions: Start-up
36 intentions of university students in Spain. *Entrepreneurship and Regional Development*, 23(3-4), 187-
37 215. <https://doi.org/10.1080/08985620903233929>
- 38 Maddala, G. S. (2001). *Introduction to Econometrics*. Saddle River.
- 39 Mahadea, D., and Kabange, M. (2022). Examining the relationship between economic freedom, income and
40 entrepreneurship in South Africa: A VECM approach. *Journal of Developmental Entrepreneurship*,
41 27(01), 2250004. <https://doi.org/10.1142/S1084946722500042>
- 42 Mair, J., and Marti, I. (2007). Entrepreneurship for social impact: encouraging market access in rural Bangladesh.
43 *Corporate Governance*, 7(4), 493-501. <https://doi.org/10.1108/14720700710820579>
- 44 Maleki, A., Moghaddam, K., Cloninger, P., and Cullen, J. (2021). A cross-national study of youth
45 entrepreneurship: The effect of family support. *The International Journal of Entrepreneurship and*
46 *Innovation*. <https://doi.org/10.1177/14657503211054284>
- 47 Manolova, T. S., Eunni, R. V., and Gyoshev, B. S. (2008). Institutional environments for entrepreneurship:
48 Evidence from emerging economies in Eastern Europe. *Entrepreneurship Theory and Practice*, 32(1),
49 203-218. <https://doi.org/10.1111/j.1540-6520.2007.00222.x>
- 50 Mansion, S. E., and Bausch, A. (2020). Intangible assets and SMEs' export behavior: a meta-analytical
51 perspective. *Small Business Economics*, 55, 727-760. <https://doi.org/10.1007/s11187-019-00182-5>
- 52 Marques, H. (2019). Export activity, innovation and institutions in Southern European nascent entrepreneurship.
53 *Economics*, 13(53), 1-48. <http://dx.doi.org/10.5018/economics-ejournal.ja.2019-53>
- 54 Medase, S. K., Ahali, A. Y., and Belitski, M. (2023). Natural resources, quality of institutions and entrepreneurship
55 activity. *Resources Policy*, 83, 103592. <https://doi.org/10.1016/j.resourpol.2023.103592>
- 56 Medeiros, V., Marques, C., Galvão, A.R., and Braga, V. (2020). Innovation and entrepreneurship as drivers of
57 economic development: Differences in European economies based on quadruple helix model.
58 *Competitiveness Review*, 30(5), 681-704. <https://doi.org/10.1108/CR-08-2019-0076>
- 59 Meek, W. R., Pacheco, D. F., and York, J. G. (2010). The impact of social norms on entrepreneurial action:
60 Evidence from the environmental entrepreneurship context. *Journal of Business Venturing*, 25(5), 493-
509. <https://doi.org/10.1016/j.jbusvent.2009.09.007>

- 1
2
3 Mickiewicz, T., Stephan, U., and Shami, M. (2021). The consequences of short-term institutional change in the
4 rule of law for entrepreneurship. *Global Strategy Journal*, 11(4), 709-739.
5 <https://doi.org/10.1002/gsj.1413>
- 6 Millan, J. M., Congregado, E., Roman, C., Van Praag, M., and Van Stel, A. (2014). The value of an educated
7 population for an individual's entrepreneurship success. *Journal of Business Venturing*, 29(5), 612-632.
8 <https://doi.org/10.1016/j.jbusvent.2013.09.003>
- 9 Mitchell, R. K., Smith, J. B., Morse, E. A., Seawright, K. W., Peredo, A. M., and McKenzie, B. (2002). Are
10 entrepreneurial cognitions universal? Assessing entrepreneurial cognitions across cultures.
11 *Entrepreneurship Theory and Practice*, 26(4), 9-32. <https://doi.org/10.1177/104225870202600402>
- 12 Mukherjee, D., Makarius, E. E., and Stevens, C. E. (2021). A reputation transfer perspective on the
13 internationalization of emerging market firms. *Journal of Business Research*, 123, 568-579.
14 <https://doi.org/10.1016/j.jwb.2020.101150>
- 15 Murimbika, M., and Urban, B. (2014). Strategic innovation at the firm level: The impact of strategic management
16 practices on entrepreneurial orientation. *International Journal of Innovation Management*, 18(02),
17 1450016. <https://doi.org/10.1142/S1363919614500169>
- 18 Nabi, G., Walmsley, A., Liñán, F., Akhtar, I., & Neame, C. (2018). Does entrepreneurship education in the first year
19 of higher education develop entrepreneurial intentions? The role of learning and inspiration. *Studies in*
20 *Higher Education*, 43(3), 452-467. <https://doi.org/10.1080/03075079.2016.1177716>
- 21 Nascimento, M., and Mattos, E. (2023). Do lower taxes reduce the size of the firms? Evidence from micro-
22 entrepreneurs in Brazil. *Economics Letters*, 226, 111068. <https://doi.org/10.1016/j.econlet.2023.111068>
- 23 North, D. C. (1990). *Institutions, institutional change and economic performance*. Cambridge University Press.
- 24 Olanrewaju, B. T., Olubusoye, O. E., Adenikinju, A., and Akintande, O. J. (2019). A panel data analysis of
25 renewable energy consumption in Africa. *Renewable Energy*, 140, 668-679.
26 <https://doi.org/10.1016/j.renene.2019.02.061>
- 27 Orr, R. J., and Scott, W. R. (2008). Institutional exceptions on global projects: A process model. *Journal of*
28 *International Business Studies*, 39, 562-588. <https://doi.org/10.1057/palgrave.jibs.8400370>
- 29 Park, H. M. (2011). *Practical guides to panel data modeling: a step-by-step analysis using stata*. Public
30 Management and Policy Analysis Program, Graduate School of International Relations, International
31 University of Japan, 12, 1-52.
- 32 Parker, S. C. (2011). Intrapreneurship or entrepreneurship? *Journal of Business Venturing*, 26(1), 19-34.
33 <https://doi.org/10.1016/j.jbusvent.2009.07.003>
- 34 Parker, S. C. (2013). Do serial entrepreneurs run successively better-performing businesses? *Journal of Business*
35 *Venturing*, 28(5), 652-666. <https://doi.org/10.1016/j.jbusvent.2012.08.001>
- 36 Parker, S. C. (2018). *The economics of entrepreneurship*. Cambridge University Press.
- 37 Patel, P. C., and Wolfe, M. (2022). Public administration and new venture start-ups: The association between
38 economic development and the role of bureaucracy in start-up activity. *Journal of Small Business*
39 *Management*, 1-29. <https://doi.org/10.1080/00472778.2021.2014509>
- 40 Patrício, L. D., and Ferreira, J. J. (2023). Unlocking the connection between education, entrepreneurial mindset,
41 and social values in entrepreneurial activity development. *Review of Managerial Science*, 1-23.
42 <https://doi.org/10.1007/s11846-023-00629-w>
- 43 Peng, M. W., Yamakawa, Y., and Lee, S. H. (2010). Bankruptcy laws and entrepreneur-friendliness.
44 *Entrepreneurship Theory and Practice*, 34(3), 517-530. <https://doi.org/10.1111/j.1540-6520.2009.00350.x>
- 45 Pesaran, M. H. (2007). A simple panel unit root test in the presence of cross-section dependence. *Journal of*
46 *Applied Econometrics*, 22(2), 265-312. <https://doi.org/10.1002/jae.951>
- 47 Petrini, G., and Teixeira, L. (2023). Determinants of residential investment growth rate in the us economy (1992-
48 2019). *Review of Political Economy*, 35(3), 702-719. <https://doi.org/10.1080/09538259.2022.2149923>
- 49 Pindado, E., Alarcón, S., Sánchez, M., and García Martínez, M. (2023). International entrepreneurship in Africa:
50 The roles of institutional voids, entrepreneurial networks and gender. *Journal of Business Research*, 166,
51 114109. <https://doi.org/10.1016/j.jbusres.2023.114109>
- 52 Pinho, J. C. (2017). Institutional theory and global entrepreneurship: exploring differences between factor-versus
53 innovation-driven countries. *Journal of International Entrepreneurship*, 15, 56-84.
54 <https://doi.org/10.1007/s10843-016-0193-9>
- 55 Puffer, S. M., and McCarthy, D. J. (2007). Can Russia's state-managed, network capitalism be competitive?:
56 Institutional pull versus institutional push. *Journal of World Business*, 42(1), 1-13.
57 <https://doi.org/10.1016/j.jwb.2006.08.008>
- 58 Puffer, S. M., McCarthy, D. J., and Jaeger, A. M. (2016). Institution building and institutional voids: Can Poland's
59 experience inform Russia and Brazil? *International Journal of Emerging Markets*, 11(1), 18-41.
60 <https://doi.org/10.1108/IJoEM-02-2015-0027>

- 1
2
3 Radosevic, S., and Yoruk, E. (2013). Entrepreneurial propensity of innovation systems: Theory, methodology and
4 evidence. *Research Policy*, 42(5), 1015-1038. <https://doi.org/10.1016/j.respol.2013.01.011>
- 5 Rasmoun, W. (2023), "Institutional quality, unemployment, economic growth and entrepreneurial activity in
6 developed countries: a dynamic and sustainable approach", *Review of International Business and*
7 *Strategy*, Vol. 33 No. 3, pp. 345-370. <https://doi.org/10.1108/RIBS-10-2021-0136>
- 8 Raza, A., Muffatto, M., and Saeed, S. (2020). Cross-country differences in innovative entrepreneurial activity: An
9 entrepreneurial cognitive view. *Management Decision*, 58(7), 1301-1329. <https://doi.org/10.1108/MD-11-2017-1167>
- 10 Reinhart, C. M., and Rogoff, K. S. (2010). Growth in a time of debt. *American Economic Review*, 100(2), 573–
11 578. DOI: 10.1257/aer.100.2.573
- 12 Reynolds, P., Bosma, N., Autio, E., Hunt, S., De Bono, N., Servais, I., Lopez-Garcia, P., and Chin, N. (2005).
13 Global entrepreneurship monitor: Data collection design and implementation 1998–2003. *Small Business*
14 *Economics*, 24(3), 205–231. <https://doi.org/10.1007/s11187-005-1980-1>
- 15 Ribaj, A., and Mexhuani, F. (2021). The impact of savings on economic growth in a developing country (the case
16 of Kosovo). *Journal of Innovation and Entrepreneurship*, 10, 1-13. <https://doi.org/10.1186/s13731-020-00140-6>
- 17
18 Robbins, D. K., Pantuosco, L. J., Parker, D. F., and Fuller, B. K. (2000). An empirical assessment of the
19 contribution of small business employment to US State economic performance. *Small Business*
20 *Economics*, 15, 293–302. <https://doi.org/10.1023/A:1011129728483>
- 21 Rostow, W. W. (1960). *The process of economic growth* (2nd ed.). Oxford University Press.
- 22 Ruef, M. (2005). Origins of organizations: The entrepreneurial process (review). *Research in the Sociology of*
23 *Work*, 15, 63–100. [https://doi.org/10.1016/S0277-2833\(05\)15004-3](https://doi.org/10.1016/S0277-2833(05)15004-3)
- 24 Ruiz, J., Soriano, D. R., and Coduras, A. (2016). Challenges in measuring readiness for entrepreneurship.
25 *Management Decision*, 54(5), 1022-1046. <https://doi.org/10.1108/MD-07-2014-0493>
- 26 Sá, E. S., and De Pinho, J. C. M. (2019). Effect of entrepreneurial framework conditions on R&D transfer to new
27 and growing firms: The case of European Union innovation-driven countries. *Technological Forecasting*
28 *and Social Change*, 141, 47-58. <https://doi.org/10.1016/j.techfore.2019.01.017>
- 29 Sá, E. S., and Pinho, J. C. M. D. (2019). Effect of entrepreneurial framework conditions on R&D transfer to new
30 and growing firms: The case of European Union innovation-driven countries. *Technological Forecasting*
31 *and Social Change*, 141, 47-58. <https://doi.org/10.1016/j.techfore.2019.01.017>
- 32 Saeed, S., Yousafzai, S. Y., and Engelen, A. (2014). On cultural and macroeconomic contingencies of the
33 entrepreneurial orientation–performance relationship. *Entrepreneurship Theory and Practice*, 38(2), 255-
34 290. <https://doi.org/10.1111/etap.12097>
- 35 Scott, P. (1995). *The meanings of mass higher education*. The Society for Research into Higher Education.
- 36 Sethuram, S., Taussig, M., and Gaur, A. (2021). A multiple agency view of venture capital investment duration:
37 The roles of institutions, foreignness, and alliances. *Global Strategy Journal*, 11(4), 578-619.
38 <https://doi.org/10.1002/gsj.1402>
- 39 Shakhovskaya, L. S., and Akimova, O. E. (2013). Motivation vector of business development in contemporary
40 Russia. *World Applied Sciences Journal*, 22 (5), 738–746. DOI: 10.5829/idosi.wasj.2013.22.05.279
- 41 Shane, S. (1996). Explaining variation in rates of entrepreneurship in the United States: 1899–1988. *Journal of*
42 *Management*, 22(5), 747–781. [https://doi.org/10.1016/S0149-2063\(96\)90021-5](https://doi.org/10.1016/S0149-2063(96)90021-5)
- 43 Shane, S., Locke, E. A., and Collins, C. J. (2003). Entrepreneurial motivation. *Human Resource Management*
44 *Review*, 13, 257–279. [https://doi.org/10.1016/S1053-4822\(03\)00017-2](https://doi.org/10.1016/S1053-4822(03)00017-2)
- 45 Sheikhi, A., Bahador, F., and Arashi, M. (2022). On a generalization of the test of endogeneity in a two stage least
46 squares estimation. *Journal of Applied Statistics*, 49(3), 709–721.
47 <https://doi.org/10.1080/02664763.2020.1837084>
- 48 Smallbone, D., Saridakis, G., and Abubakar, Y. A. (2022). Internationalisation as a stimulus for SME innovation
49 in developing economies: Comparing SMEs in factor-driven and efficiency-driven economies. *Journal of*
50 *Business Research*, 144, 1305-1319. <https://doi.org/10.1016/j.jbusres.2022.01.045>
- 51 Sobel, R. S., Clark, J. R., and Lee, D. R. (2007). Freedom, barriers to entry, entrepreneurship, and economic
52 progress. *The Review of Austrian Economics*, 20, 221-236. <https://doi.org/10.1007/s11138-007-0023-3>
- 53 Souitaris, V., Zerbini, S., and Al-Laham, A. (2007). Do entrepreneurship programmes raise entrepreneurial
54 intention of science and engineering students? The effect of learning, inspiration and resources. *Journal*
55 *of Business Venturing*, 22(4), 566-591. <https://doi.org/10.1016/j.jbusvent.2006.05.002>
- 56 Stam, E. (2013). Knowledge and entrepreneurial employees: A country-level analysis. *Small Business Economics*,
57 41(4), 887–898. <https://doi.org/10.1007/s11187-013-9511-y>
- 58 Stam, W., and Elfring, T. (2008). Entrepreneurial orientation and new venture performance: The moderating role
59 of intra-and extra industry social capital. *Academy of Management Journal*, 51(1), 97-111.
60 <https://doi.org/10.5465/amj.2008.30744031>

- 1
2
3 Stenholm, P., Acs, Z. J., and Wuebker, R. (2013). Exploring country-level institutional arrangements on the rate
4 and type of entrepreneurial activity. *Journal of Business Venturing*, 28(1), 176-193.
5 <https://doi.org/10.1016/j.jbusvent.2011.11.002>
- 6 Stephan, U., and Uhlaner, L. M. (2010). Performance-based vs socially supportive culture: A cross-national study
7 of descriptive norms and entrepreneurship. *Journal of International Business Studies*, 41, 1347-1364.
8 <https://doi.org/10.1057/jibs.2010.14>
- 9 Stephen, F. H., Urbano, D., and Van Hemmen, S. (2005). The impact of institutions on entrepreneurial activity.
10 *Managerial and Decision Economics*, 26(7), 413–419. <https://doi.org/10.1002/mde.1254>
- 11 Storey, D. J. (2003). Entrepreneurship, small and medium-sized enterprises and public policies. In D. B. Audretsch,
12 and Z. J. Acs (Eds.), *Handbook of entrepreneurship research* (pp. 476–511). Boston/Dordrecht: Kluwer
13 Academic Publishers.
- 14 Su, J., Zhai, Q., and Karlsson, T. (2017). Beyond red tape and fools: Institutional theory in entrepreneurship
15 research, 1992–2014. *Entrepreneurship Theory and Practice*, 41(4), 505-531.
16 <https://doi.org/10.1111/etp.12218>
- 17 Su, Z. (2021). The co-evolution of institutions and entrepreneurship. *Asia Pacific Journal of Management*, 38(4),
18 1327–1350. <https://doi.org/10.1007/s10490-019-09703-y>
- 19 Szwacka-Mokrzycka, J. (2020). The panel data regression concept in consumption modelling. *Економічний*
20 *часопис-XXI*, 185(9-10), 61-69
- 21 Tang, L. (2020). Entrepreneur income inequality, aggregate saving and the gains from trade. *Review of Economic*
22 *Dynamics*, 38, 273–295. <https://doi.org/10.1016/j.red.2020.05.001>
- 23 Teece, D. J. (2007). Explicating dynamic capabilities: The nature and microfoundations of (sustainable) enterprise
24 performance. *Strategic Management Journal*, 28(13), 1319–1350. <https://doi.org/10.1002/smj.640>
- 25 Teixeira, S.J., Casteleiro, C.M.L., Rodrigues, R.G. and Guerra, M.D. (2018), "Entrepreneurial intentions and
26 entrepreneurship in European countries", *International Journal of Innovation Science*, Vol. 10 No. 1, pp.
27 22-42. <https://doi.org/10.1108/IJIS-07-2017-0062>
- 28 Thurik, R. (2003). Entrepreneurship and unemployment in the UK. *Scottish Journal of Political Economy*, 50(3),
29 264–290. <https://doi.org/10.1111/1467-9485.5003001>
- 30 Toft-Kehler, R., Wennberg, K., and Kim, P. H. (2014). Practice makes perfect: Entrepreneurial-experience curves
31 and venture performance. *Journal of Business Venturing*, 29(4), 453-470.
32 <https://doi.org/10.1016/j.jbusvent.2013.07.001>
- 33 Tsai, K. H., Chang, H. C., and Peng, C. Y. (2016). Extending the link between entrepreneurial self-efficacy and
34 intention: a moderated mediation model. *International Entrepreneurship and Management Journal*, 12,
35 445-463. <https://doi.org/10.1007/s11365-014-0351-2>
- 36 Turro, A., Noguera, M. and Urbano, D. (2020). "Antecedents of entrepreneurial employee activity: does gender
37 play a role?", *International Journal of Entrepreneurial Behavior and Research*, Vol. 26 No. 8, pp. 1685-
38 1706. <https://doi.org/10.1108/IJEBr-09-2019-0529>
- 39 Turro, A., Noguera, M. and Urbano, D. (2020). "Antecedents of entrepreneurial employee activity: does gender
40 play a role?", *International Journal of Entrepreneurial Behavior and Research*, 26(8), 1685-1706.
41 <https://doi.org/10.1108/IJEBr-09-2019-0529>
- 42 Uhlaner, L., and Thurik, R. (2010). Postmaterialism influencing total entrepreneurial activity across nations.
43 In *Entrepreneurship and culture* (pp. 301-328). Springer, Berlin, Heidelberg.
- 44 Urban, B. (2018). The influence of the regulatory, normative and cognitive institutions on entrepreneurial
45 orientation in South Africa. *The International Journal of Entrepreneurship and Innovation*.
46 <https://doi.org/10.1177/1465750318796721>
- 47 Urban, B., and Hwindingwi, R. (2016). The influence of institutional factors on MNC's triple bottom-line
48 reporting: A focus on African emerging markets (AEMs). *International Journal of Emerging Markets*,
49 11(4), 497-513. <https://doi.org/10.1108/IJoEM-08-2015-0164>
- 50 Urbano, D., and Alvarez, C. (2014). Institutional dimensions and entrepreneurial activity: an international study.
51 *Small Business Economics*, 42(4), 703-716. <https://doi.org/10.1007/s11187-013-9523-7>
- 52 Vaillant, Y., and Lafuente, E. (2007). Do different institutional frameworks condition the influence of local fear
53 of failure and entrepreneurial examples over entrepreneurial activity? *Entrepreneurship and Regional*
54 *Development*, 19(4), 313-337. <https://doi.org/10.1080/08985620701440007>
- 55 Valdez, M. E., and Richardson, J. (2013). Institutional determinants of macro-level entrepreneurship.
56 *Entrepreneurship Theory and Practice*, 37(5), 1149–1175. <https://doi.org/10.1111/etap.12000>
- 57 Valliere, D., and Peterson, R. (2009). Entrepreneurship and economic growth: Evidence from emerging and
58 developed countries. *Entrepreneurship and Regional Development*, 21(5-6), 459-480.
59 <https://doi.org/10.1080/08985620802332723>
- 60 Van Stel, A., Carree, M., and Thurik, R. (2005). The effect of entrepreneurial activity on national economic growth.
61 *Small Business Economics*, 24, 311-321. <https://doi.org/10.1007/s11187-005-1996-6>

- 1
2
3 Velilla, J., and Ortega, R. (2017). Determinants of entrepreneurship using fuzzy set methods: Europe vs. non-
4 Europe. *Applied Economics Letters*, 24(18), 1320-1326.
5 <https://doi.org/10.1080/13504851.2016.1276262>
- 6 Visintin, F., and Pittino, D. (2014). Founding team composition and early performance of university-based spin-
7 off companies. *Technovation*, 34, 31–43. <https://doi.org/10.1016/j.technovation.2013.09.004>
- 8 Wales, W., Shirokova, G., Beliaeva, T., Micelotta, E., and Marino, L. (2021). The impact of institutions on the
9 entrepreneurial orientation-performance relationship. *Global Strategy Journal*, 11(4), 656-685.
10 <https://doi.org/10.1002/gsj.1418>
- 11 Weiss, B. M., and Welsh, D. H. B. (2013). Entrepreneurship and small business in Eastern Europe: Overcoming
12 challenges, sustaining growth. *International Journal of Globalisation and Small Business*, 5(3), 148–169.
13 <https://doi.org/10.1504/IJGSB.2013.054890>
- 14 Welter, F., and Smallbone, D. (2011). Institutional perspectives on entrepreneurial behavior in challenging
15 environments. *Journal of Small Business Management*, 49(1), 107-125. <https://doi.org/10.1111/j.1540-627X.2010.00317.x>
- 16 Weng, D. H., Lee, S. H., and Yamakawa, Y. (2021). Time to change lanes: How pro-market reforms affect informal
17 ventures' formalization speed. *Global Strategy Journal*, 11(4), 767-795. <https://doi.org/10.1002/gsj.1421>
- 18 Weng, Z., Fan, F., Yang, B., and Zhang, H. (2023). Regional differences and drivers of patent transfer-in between
19 Chinese cities: a city absorptive capacity perspective. *Technology Analysis and Strategic Management*,
20 1-15. <https://doi.org/10.1080/09537325.2023.2242509>
- 21 Wennekers, S., Van Wennekers, A., Thurik, R., and Reynolds, P. (2005). Nascent entrepreneurship and the level
22 of economic development. *Small Business Economics*, 24, 293-309. <https://doi.org/10.1007/s11187-005-1994-8>
- 23 White, H. (1980). A heteroskedasticity-consistent covariance matrix estimator and a direct test for
24 heteroskedasticity. *Econometrica: Journal of the Econometric Society*, 48(4), 817–838.
25 <https://www.jstor.org/stable/1912934>
- 26 Williams, N., and Huggins, R. (2013). Supporting entrepreneurship in deprived communities: A vision too far?
27 *Journal of Small Business and Enterprise Development*, 20(1), 165–180.
28 <https://doi.org/10.1108/14626001311298466>
- 29 Willis, K. (2023). Development as modernisation: Rostow's The Stages of Economic Growth. *Geography*, 108(1),
30 33-37. <https://doi.org/10.1080/00167487.2023.2170073>
- 31 Wood, R., and Bandura, A. (1989). Social cognitive theory of organizational management. *Academy of*
32 *Management Review*, 14(3), 361-384. <https://doi.org/10.5465/amr.1989.4279067>
- 33 Wooldridge, Jeffrey M. (2010). *Econometric Analysis of Cross Section and Panel Data*. 2nd ed. Cambridge, MA:
34 MIT Press.
- 35 Wynarczyk, P. (2013). Open innovation in SMEs: A dynamic approach to modern entrepreneurship in the
36 twenty-first century. *Journal of Small Business and Enterprise Development*, 20(2), 258-278.
37 <https://doi.org/10.1108/14626001311326725>
- 38 Yay, T., Yay, G. G., and Aksoy, T. (2018). Impact of institutions on entrepreneurship: A panel data analysis.
39 *Eurasian Economic Review*, 8(1), 131-160. <https://doi.org/10.1007/s40822-017-0082-0>
- 40 Zaman, R. C., and Arslan, M. (2014). The role of external debt on economic growth: Evidence from Pakistan
41 economy. *Journal of Economics and Sustainable Development*, 5(24), 140-148.
42 <https://doi.org/10.1108/JABES-11-2018-0087>
- 43 Zhakupov, Y. K., Berzhanova, A. M., Mukhanova, G. K., Baimbetova, A. B., and Mamutova, K. K. (2022). The
44 impact of entrepreneurship on the socio-economic development of regions. *Business Strategy and*
45 *Development*, 1–7. <https://doi.org/10.1002/bsd2.219>
- 46 Zhang, C., and Wang, X. (2019). The influence of ICT-driven innovation: a comparative study on national
47 innovation efficiency between developed and emerging countries. *Behaviour and Information*
48 *Technology*, 38(9), 876–886. <https://doi.org/10.1080/0144929X.2019.1584645>
- 49
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Appendix 1: Fixed and Random Effect Model Selection (Developed Country Results)

Developed Country Results													
Model 1 Fixed Effects (Valid Model)							Model 1 Random Effects						
Variables	Coef.	Std. Err.	t	P>t	[95% Conf. Interval]		Coef.	Std. Err.	t	P>t	[95% Conf. Interval]		
PSO	0.03547	0.010913	3.25	0.001	0.013967	0.056974	0.035051	0.01061	3.3	0.001	0.014256	0.055846	
PC	-0.01186	0.025898	0.46	0.648	-0.06289	0.039178	0.028192	0.022678	1.24	0.214	-0.01626	0.07264	
FoF	0.039156	0.021208	1.85	0.066	-0.00263	0.080947	0.03792	0.020434	1.86	0.063	-0.00213	0.07797	
EI	0.247946	0.026594	9.32	0	0.195542	0.30035	0.268827	0.024017	11.19	0.000	0.221756	0.315899	
EEA	0.132408	0.058842	2.25	0.025	0.016459	0.248357	0.096062	0.057227	1.68	0.093	-0.0161	0.208225	
EMI	0.003492	0.044002	0.08	0.937	-0.08321	0.090198	-0.00517	0.04398	-0.12	0.906	-0.09137	0.081025	
EES	0.059213	0.4563	0.13	0.897	-0.83993	0.95836	0.034293	0.434459	0.08	0.937	-0.81723	0.885818	
EEPS	1.110672	0.477248	2.33	0.021	0.170247	2.051098	1.125523	0.463662	2.43	0.015	0.216762	2.034283	
cons	-1.19834	1.993128	0.6	0.548	-5.12583	2.729151	-2.92795	1.922673	-1.52	0.128	-6.69632	0.84042	
F(8,226)		21.19 (0.000)					Wald chi2(8)		228.31 (0.0000)				
R2		0.4286					R2		0.4193				
rho		0.78805585					rho		0.68146424				
Hausman chi2(8)		60.31 (0.0000)											
Modified Wald test (heteroskedasticity)		2840.39 (0.0000)											
Serial Correlation Test F(25,200)		10.08 (0.0000)											
Model 2 Fixed Effects (Valid Model)							Model 2 Random Effects						
Variables	Coef.	Std. Err.	t	P>t	[95% Conf. Interval]		Coef.	Std. Err.	t	P>t	[95% Conf. Interval]		
HSSE	0.015681	0.071199	0.22	0.827	-0.13067	0.162033	-0.01078	0.061313	0.18	0.86	-0.13095	0.109392	
EGCC	-0.08626	0.045781	1.88	0.071	-0.18036	0.007845	-0.05756	0.033868	1.7	0.089	-0.12394	0.008818	
CSN	1.043101	0.326132	3.2	0.004	0.372727	1.713475	1.08464	0.311323	3.48	0	0.474458	1.694821	
cons	7.641556	4.689877	1.63	0.115	-1.99862	17.28174	7.542172	4.531173	1.66	0.096	-1.33876	16.42311	
R2		0.1149					R2		0.1102				
F(3,26)		4,62 (0.0102)					Wald chi2(11)		14.23 (0.0026)				
rho		0.87122					rho		0.8375				
Hausman chi2(8)		3.22 (0.3582)											
Lovene Brown df(26,243) (heteroskedasticity)		Pr>F = 0.00000000											
Serial Correlation Test Baltagi-Wu LBI		1.3175158											
Model 3 Fixed Effects (Valid Model)							Model 3 Random Effects						
Variables	Coef.	Std. Err.	t	P>t	[95% Conf. Interval]		Coef.	Std. Err.	t	P>t	[95% Conf. Interval]		
EF	2.010409	0.461008	4.36	0	1.102152	2.918666	1.901635	0.471527	4.03	0	0.977459	2.825812	
GPRS	0.518457	0.297251	1.74	0.082	-0.06717	1.104086	0.507787	0.303144	1.68	0.094	-0.08636	1.101938	
GPTB	1.341001	0.339641	3.95	0	0.671856	2.010146	1.406884	0.340005	4.14	0	0.740487	2.073282	
GEP	1.045008	0.680493	1.54	0.126	-0.29567	2.385685	0.940767	0.664833	1.42	0.157	-0.36228	2.243816	
RDT	-2.00559	0.775786	-2.59	0.01	-3.53401	-0.47717	-2.46872	0.772678	-3.2	0.001	-3.98315	-0.9543	
CLI	1.671274	0.682121	2.45	0.015	0.327391	3.015157	1.464715	0.676798	2.16	0.03	0.138215	2.791214	
IMD	0.240835	0.439746	0.55	0.584	-0.62553	1.107201	-0.06901	0.434353	-0.16	0.874	-0.92033	0.782305	
EEBR	-1.03409	0.731506	-1.41	0.159	-2.47527	0.40709	-0.86	0.730182	-1.18	0.239	-2.29113	0.571129	
FI	-0.22245	0.453982	-0.49	0.625	-1.11687	0.671963	-0.05633	0.458598	-0.12	0.902	-0.95517	0.842506	
_cons	-1.55017	2.847897	-0.54	0.587	-7.16096	4.060627	0.511329	2.892224	0.18	0.86	-5.15733	6.179984	

R2						0.1813		R2				0.1762	
F(9,234)						5.76 (0.0000)		Wald chi2(11)				48.46 (0.0000)	
rho						0.8457		rho				0.7494	
Hausman chi2(8)						49.36 (0.0000)							
Modified Wald test (heteroskedasticity)						2517.71 (0.000)							
Serial Correlation Test F(26,207)						13.76 (0.0000)							
Model 4 Fixed Effects							Model 4 Random Effects (Valid Model)						
Variables	Coef.	Std. Err.	t	P>t	[95% Conf.Interval)		Coef.	Std. Err.	t	P>t	[95% Conf.Interval)		
GR	0.067669	0.050089	1.35	0.178	-0.03111	0.166452	0.064835	0.050576	1.28	0.200	-0.03429	0.163962	
GDPPC	3.09E-06	7.48E-07	4.14	0.000	1.62E-06	4.57E-06	1.55E-06	3.51E-07	4.43	0.000	8.67E-07	2.24E-06	
TE	-0.00366	0.026015	-0.14	0.888	-0.05496	0.047646	-0.00404	0.026137	-0.15	0.877	-0.05527	0.047185	
CAB	0.003781	0.003583	1.06	0.293	-0.00329	0.010847	0.005996	0.003129	1.92	0.055	-0.00014	0.012128	
GDS	3.28E-06	4.01E-06	0.82	0.415	-4.63E-06	1.12E-05	-1.78E-06	2.86E-06	-0.62	0.535	-7.39E-06	3.84E-06	
TI	0.022968	0.023186	0.99	0.323	-0.02276	0.068695	0.022355	0.02331	0.96	0.338	-0.02333	0.068042	
UR	-0.06977	0.053567	-1.3	0.194	-0.17541	0.035875	-0.09493	0.051808	-1.83	0.067	-0.19647	0.006612	
CPI	0.035462	0.025518	1.39	0.166	-0.01486	0.085788	0.090915	0.018078	5.03	0.000	0.055482	0.126348	
GNS	-0.04141	0.049397	-0.84	0.403	-0.13883	0.056011	-0.05759	0.047647	-1.21	0.227	-0.15098	0.035791	
DIE	-0.03886	0.056543	-0.69	0.493	-0.15037	0.07265	-0.00959	0.055488	-0.17	0.863	-0.11835	0.099162	
POP	0.22506	0.085144	2.64	0.009	0.057145	0.392976	-0.01585	0.014738	-1.08	0.282	-0.04473	0.013037	
cons	-5.8364	3.370315	-1.73	0.085	-12.4831	0.810337	-0.3092	2.505381	-0.12	0.902	-5.21966	4.601254	
R2						0.3404		R2				0.2986	
F(11,196)						9.19 (0.0000)		Wald chi2(11)				92.65 (0.0000)	
rho						0.9936		rho				0.8857	
Hausman chi2(8)						11.93 (0.2174)							
Lovene Brown df(22,207) (heteroskedasticity)						Pr>F = 0.00000001							
Serial Corelation Test Baltagi-Wu LBI						1.3293556							

Appendix 2: Fixed and Random Effect Model Selection (Developing Country Results)

Developed Country Results												
Model 1 Fixed Effects (Valid Model)							Model 1 Random Effects					
Variables	Coef.	Std. Err.	t	P>t	[95% Conf. Interval]		Coef.	Std. Err.	t	P>t	[95% Conf. Interval]	
PSO	0.03547	0.010913	3.25	0.001	0.013967	0.056974	0.035051	0.01061	3.3	0.001	0.014256	0.055846
PC	-0.01186	0.025898	0.46	0.648	-0.06289	0.039178	0.028192	0.022678	1.24	0.214	-0.01626	0.07264
FoF	0.039156	0.021208	1.85	0.066	-0.00263	0.080947	0.03792	0.020434	1.86	0.063	-0.00213	0.07797
EI	0.247946	0.026594	9.32	0	0.195542	0.30035	0.268827	0.024017	11.19	0.000	0.221756	0.315899
EEA	0.132408	0.058842	2.25	0.025	0.016459	0.248357	0.096062	0.057227	1.68	0.093	-0.0161	0.208225
EMI	0.003492	0.044002	0.08	0.937	-0.08321	0.090198	-0.00517	0.04398	-0.12	0.906	-0.09137	0.081025
EES	0.059213	0.4563	0.13	0.897	-0.83993	0.95836	0.034293	0.434459	0.08	0.937	-0.81723	0.885818
EEPS	1.110672	0.477248	2.33	0.021	0.170247	2.051098	1.125523	0.463662	2.43	0.015	0.216762	2.034283
cons	-1.19834	1.993128	0.6	0.548	-5.12583	2.729151	-2.92795	1.922673	-1.52	0.128	-6.69632	0.84042
F(8,226)	21.19 (0.000)						Wald chi2(8)	228.31 (0.0000)				
R2	0.4286						R2	0.4193				
rho	0.78805585						rho	0.68146424				
Hausman chi2(8)	60.31 (0.0000)											
Modified Wald test (heteroskedasticity)	2840.39 (0.0000)											
Serial Correlation Test F(25,200)	10.08 (0.0000)											
Model 2 Fixed Effects (Valid Model)							Model 2 Random Effects					
Variables	Coef.	Std. Err.	t	P>t	[95% Conf. Interval]		Coef.	Std. Err.	t	P>t	[95% Conf. Interval]	
HSSE	0.04742	0.072036	0.66	0.512	-0.09509	0.189935	0.025545	0.067437	0.38	0.705	-0.10663	0.157719
EGCC	0.092965	0.055572	1.67	0.097	-0.01698	0.202908	0.09966	0.051622	1.93	0.054	-0.00152	0.200837
CSN	0.437387	0.877946	0.5	0.619	-1.29952	2.174299	1.061885	0.804696	1.32	0.187	-0.51529	2.63906
cons	1.192331	5.919772	0.2	0.841	-10.5192	12.90389	1.606676	5.613132	0.29	0.775	-9.39486	12.60821
R2	0.1149						R2	0.1102				
F(3,26)	1.86 (0.0445)						Wald chi2(11)	9.63 (0.022)				
rho	0.70407						rho	0.8375				
Hausman chi2(3)	23.71 (0.0000)											
Lovene Brown df(26,243) (heteroskedasticity)	Pr>F = 0.00000000											
Serial Correlation Test Baltagi-Wu LBI	1.41097											
Model 3 Fixed Effects (Valid Model)							Model 3 Random Effects					
Variables	Coef.	Std. Err.	t	P>t	[95% Conf. Interval]		Coef.	Std. Err.	t	P>t	[95% Conf. Interval]	
EF	-1.79977	1.673529	-1.08	0.284	-5.10763	1.508085	-2.01849	1.607056	-1.26	0.209	-5.16826	1.131281
GPRS	-2.47283	1.370184	-1.8	0.073	-5.1811	0.235442	-2.41898	1.334082	-1.81	0.07	-5.03373	0.195776
GPTB	-1.00162	1.810065	-0.55	0.581	-4.57935	2.57611	-1.05466	1.661595	-0.63	0.526	-4.31132	2.202009
GEF	-0.60304	2.182063	-0.28	0.783	-4.91605	3.709973	-0.32464	2.059569	-0.16	0.875	-4.36132	3.712044
RDT	1.339462	2.608991	0.51	0.608	-3.81741	6.49633	1.124083	2.462293	0.46	0.648	-3.70192	5.950088
CLI	-3.72767	1.771643	-2.1	0.037	-7.22946	-0.22589	-3.95393	1.677161	-2.36	0.018	-7.24111	-0.66676
IMD	0.267943	1.309837	0.2	0.838	-2.32105	2.856933	-0.2809	1.243659	-0.23	0.821	-2.71843	2.156626
EEBR	3.564322	2.040022	1.75	0.083	-0.46793	7.596579	4.083348	1.992142	2.05	0.04	0.178821	7.987874
FI	1.389653	1.398127	0.99	0.322	-1.37385	4.153156	1.72591	1.343125	1.28	0.199	-0.90657	4.358388
cons	22.15161	7.298486	3.04	0.003	7.725608	36.57762	22.33185	6.828933	3.27	0.001	8.947385	35.71631
R2	0.1245						R2	0.1218				
F(9,144)	2.30 (0.0126)						Wald chi2(9)	23.93 (0.0044)				

rho		0.70556					rho		0.69645				
Hausman chi2(8)		5.01 (0.9308)											
Lovene Brown df(16,42) (heteroskedasticity)		Pr>F = 0.00036											
Serial Corelation Test Baltagi-Wu LBI		1.5606022											
Model 4 Fixed Effects							Model 4 Random Effects (Valid Model)						
Variables	Coef.	Std. Err.	t	P>t	[95% Conf.Interval)		Coef.	Std. Err.	t	P>t	[95% Conf.Interval)		
GR	0.067669	0.050089	1.35	0.178	-0.03111	0.166452	0.064835	0.050576	1.28	0.200	-0.03429	0.163962	
GDPPC	3.09E-06	7.48E-07	4.14	0.000	1.62E-06	4.57E-06	1.55E-06	3.51E-07	4.43	0.000	8.67E-07	2.24E-06	
TE	-0.00366	0.026015	-0.14	0.888	-0.05496	0.047646	-0.00404	0.026137	-0.15	0.877	-0.05527	0.047185	
CAB	0.003781	0.003583	1.06	0.293	-0.00329	0.010847	0.005996	0.003129	1.92	0.055	-0.00014	0.012128	
GDS	3.28E-06	4.01E-06	0.82	0.415	-4.63E-06	1.12E-05	-1.78E-06	2.86E-06	-0.62	0.535	-7.39E-06	3.84E-06	
TI	0.022968	0.023186	0.99	0.323	-0.02276	0.068695	0.022355	0.02331	0.96	0.338	-0.02333	0.068042	
UR	-0.06977	0.053567	-1.3	0.194	-0.17541	0.035875	-0.09493	0.051808	-1.83	0.067	-0.19647	0.006612	
CPI	0.035462	0.025518	1.39	0.166	-0.01486	0.085788	0.090915	0.018078	5.03	0.000	0.055482	0.126348	
GNS	-0.04141	0.049397	-0.84	0.403	-0.13883	0.056011	-0.05759	0.047647	-1.21	0.227	-0.15098	0.035791	
DIE	-0.03886	0.056543	-0.69	0.493	-0.15037	0.07265	-0.00959	0.055488	-0.17	0.863	-0.11835	0.099162	
POP	0.22506	0.085144	2.64	0.009	0.057145	0.392976	-0.01585	0.014738	-1.08	0.282	-0.04473	0.013037	
cons	-5.8364	3.370315	-1.73	0.085	-12.4831	0.810337	-0.3092	2.505381	-0.12	0.902	-5.21966	4.601254	
R2		0.3404					R2		0.2986				
F(11,196)		9.19 (0.0000)											
rho		0.9936					rho		0.8857				
Hausman chi2(8)		11.93 (0.2174)											
Lovene Brown df(22,207) (heteroskedasticity)		Pr>F = 0.00000001											
Serial Corelation Test Baltagi-Wu LBI		1.3293556											

Appendix 3: Descriptive Statistics

Variables	Developed Country Sample					Developing Country Sample					
	Obs	Mean	Std. Dev.	Min	Max	Variable	Obs	Mean	Std. Dev.	Min	Max
TEA	260	8.368737	4.203251	2.35	26.83	TEA	160	15.304	6.917539	2.93	35.97
PSO	260	35.49767	16.95061	2.85	81.56	PSO	160	43.18425	12.05149	13.8	73.06
PC	260	42.76042	11.43358	9	73.3	PC	160	51.64235	14.01182	22.69	76.79
FoF	260	37.85967	7.913868	22.12	64.83	FoF	160	33.89756	8.775737	14	65.32
EI	260	13.83844	9.161118	2.49	50.14	EI	160	25.21377	14.0212	2.12	59.65
EEA	260	4.742968	2.553689	.76	16.18	EEA	160	1.360314	1.153596	.15	5.05
EMI	260	3.396622	2.87551	-.33	20.72	EMI	160	2.045208	1.467329	.54	9.22
EES	260	2.017503	.3889211	1.28	3.43	EES	160	1.917792	.2998434	1.3	2.56
EEPS	260	2.828865	.3383427	2.05	3.9	EEPS	160	2.881562	.3481136	1.83	3.75
HSSE	189	67.23719	9.958937	2.35	88.32	HSSE	160	69.84919	9.304221	44.98	86.33
EGCC	189	58.85048	11.43771	22.8	87.41	EGCC	160	69.40515	11.82359	39.26	95.62
CSN	189	4.563685	0.952562	2.7	7.33	CSN	160	4.749438	0.627784	3.13	6.03
EF	270	2.643654	.3855484	1.65	4.21	EF	170	2.36698	.4285051	1.553333	3.58
GPRS	270	2.666722	.6320857	1.5	7.98	GPRS	170	2.445451	.4419257	1.48	3.79
GPTB	270	2.430426	.5891087	-1.73	3.7	GPTB	170	2.155539	.4346863	1.28	3.32
GEP	270	2.791327	.4381972	1.72	3.793333	GEP	170	2.39048	.424542	1.34	3.41
RDT	270	2.542352	.3519334	1.828333	3.73	RDT	170	2.198873	.3023271	1.57	3.11
CLI	270	3.100321	.3600306	2.12	3.89	CLI	170	2.827667	.3137833	1.26	3.48
IMD	270	2.963772	.5447183	1.78	4.446667	IMD	170	3.067853	.5284619	1.84	4.35
EEBR	270	2.667185	.3372573	1.71	3.73	EEBR	170	2.382961	.3022159	1.29	3.13
FI	270	3.956179	.3961394	2.1	4.84	fa	170	3.613088	.3708023	2.676667	4.44
GR	230	1.241	3.402231	-14.26	25.305	GR	170	3.365676	3.588003	-7.821	12.111
GDPPC	230	998533.2	2101312	9702.43	8034643	GDPPC	170	988117.7	3633155	3701.72	1.69e+07
TE	230	2.938813	6.858182	-23.383	38.212	TE	170	3.495135	6.913819	-17.024	28.461
CAB	230	-1.669278	115.8257	-696.523	295.118	CAB	170	9.613306	65.13922	-101.431	420.569
GDS	230	52975.34	232498.4	4.392	1279900	GDS	170	20020.21	71871.71	7.716	455046.9
TI	230	2.559861	7.913437	-30.894	32.303	TI	170	4.366129	11.22069	-32.649	39.414
UR	230	8.787678	4.889743	2.41	27.475	UR	170	8.728012	6.960416	.655	28
CPI	230	106.2855	30.54003	67.149	245.136	CPI	170	1.44e+12	5.89e+12	49.872	3.19e+13
GNS	230	22.3244	6.816312	3.882	41.582	GNS	170	22.96892	9.025929	6.106	51.613
DIE	230	21.59043	3.79385	11.903	37.461	DIE	170	24.76339	7.635742	13.529	47.029
POP	230	40.07898	66.71631	1.969	325.143	POP	170	130.8528	312.2384	2.677	1390.08

Appendix 4: Unit Root Test Results

	Model 1 (Developed Countries)		Model 1 (Developing Countries)	
	Level Z[t-bar]	First Difference Z [t-bar]	Level Z[t-bar]	First Difference Z[t-bar]
TEA	-1.382 (0.083)	-1.591 (0.056)	-0.224 (0.412)	-2.591 (0.005)
POS	-2.871 (0.002)	-1.584 (0.057)	-2.869 (0.002)	-2.424 (0.008)
PC	-1.127 (0.130)	-3.696 (0.000)	-1.009 (0.157)	-0.313 (0.377)
FoF	-1.900 (0.029)	-4.797 (0.000)	-1.471 (0.071)	0.157 (0.562)
EI	-3.432 (0.000)	-4.307 (0.000)	-2.890 (0.002)	-2.982 (0.001)
EEA	1.171 (0.879)	-1.539 (0.062)	0.127 (0.551)	1.604 (0.946)
EMI	0.113 (0.545)	-2.595 (0.005)	-0.437 (0.331)	-2.077 (0.019)
EES	-1.299 (0.097)	-3.055 (0.001)	0.0641 (0.524)	-1.061 (0.144)
EEPS	1.675 (0.950)	-0.877 (0.190)	-1.627 (0.052)	-2.481 (0.007)
	Model 2 (Developed Countries)		Model 2 (Developing Countries)	
	Level Z[t-bar]	First Difference Z [t-bar]	Level Z[t-bar]	First Difference Z[t-bar]
TEA	-1.882 (0.030)	-0.773 (0.220)	-0.851 (0.197)	-3.244 (0.001)
HSSE	-1.358 (0.087)	--1.370 (0.085)	1.035 (0.850)	-2.464 (0.007)
EGCC	-1.170 (0.121)	-1.311 (0.095)	-1.022 (0.153)	-0.382 (0.351)
CSN	-0.505 (0.693)	-5.488 (0.000)	0.411 (0.659)	-1.970 (0.024)
	Model 3 (Developed Countries)		Model 3 (Developing Countries)	
	Level Z[t-bar]	First Difference Z [t-bar]	Level Z[t-bar]	First Difference Z[t-bar]
TEA	-0.487 (0.313)	-3.921 (0.000)	-0.249 (0.402)	-0.950 (0.171)
EF	0.328 (0.628)	0.473 (0.662)	2.251 (0.988)	-0.179 (0.429)
GPRS	-2.199 (0.014)	-0.719 (0.236)	-0.831 (0.203)	-0.951 (0.171)
GPTB	-0.305 (0.380)	2.495 (0.944)	-0.322 (0.374)	-1.306 (0.096)
GEP	1.376 (0.916)	-2.029 (0.021)	0.488 (0.687)	-1.936 (0.026)
RDT	-2.510 (0.006)	-3.828 (0.000)	-1.029 (0.152)	-2.710 (0.003)
CLI	1.034 (0.845)	-6.433 (0.000)	-1.746 (0.040)	-2.783 (0.003)
IMD	-0.581 (0.281)	-3.865 (0.000)	-0.155 (0.483)	-0.524 (0.300)
EEBR	-0.662 (0.254)	-4.459 (0.000)	0.040 (0.516)	-1.970 (0.024)
FI	-1.190 (0.117)	-1.286 (0.099)	-2.591 (0.005)	-4.368 (0.000)
	Model 4 (Developed Countries)		Model 4 (Developing Countries)	
	Level Z[t-bar]	First Difference Z [t-bar]	Level Z[t-bar]	First Difference Z[t-bar]
TEA	-1.358 (0.087)	-4.093 (0.000)	-0.331 (0.370)	-4.052 (0.000)
GR	-3.978 (0.000)	-3.692 (0.000)	1.259 (0.896)	-2.232 (0.013)
GDPPC	-1.673 (0.047)	-6.715 (0.000)	1.227 (0.890)	-1.542 (0.062)
TE	-0.225 (0.411)	-3.697 (0.000)	-1.805 (0.036)	-3.015 (0.001)
CAB	0.364 (0.642)	2.028 (0.979)	0.699 (0.758)	-5.090 (0.000)
GDS	-0.095 (0.185)	-5.164 (0.000)	1.528 (0.937)	-1.157 (0.124)
TI	0.028 (0.511)	0.697 (0.757)	-0.632 (0.264)	-0.176 (0.430)
UR	-2.242 (0.012)	-4.982 (0.000)	-1.288 (0.099)	-2.904 (0.002)
CPI	-6.627 (0.000)	-6.006 (0.000)	3.900 (1.000)	-4.807 (0.000)
GNS	-4.722 (0.000)	-2.989 (0.001)	0.662 (0.746)	-0.738 (0.230)
DIE	-2.912 (0.002)	-2.454 (0.007)	0.500 (0.691)	-3.947 (0.000)
POP	-1.997 (0.023)	-2.434 (0.007)	0.120 (0.548)	-2.166 (0.015)

CADF critical values: -2.440, -2.220 and -2.100 for developed countries at 1%, 5%, and 10% significance level, respectively, while for developing countries they are -2.560, -2.290, and -2.150, respectively.

Table 1: Developed and Developing Country Classification

Classification	Countries
Developed Countries	Australia, Belgium, Chile, Finland, France, Germany, Greece, Hungary, Ireland, Israel, Italy, Japan, Latvia, Netherlands, Norway, Poland, Portugal, SKorea, Slovakia, Slovenia, Spain, Sweden, Switzerland, Taiwan, United Kingdom, United States, Uruguay
Developing Countries	Argentina, Bosnia Herzegovina, Brazil, China, Colombia, Ecuador, Guatemala, Iran, Malaysia, Mexico, Panama, Peru, Russia, SAfrica, Thailand, Turkey

Table 2: Definitions of Variables

Dependent Variables		Source
Total Early-Stage Entrepreneurial Activity (TEA) D*	Percentage of the 18–64 population who are either a nascent entrepreneur (involved in setting up a business) or the owner–manager of a new business (up to 3.5 years old).	GEM APS
Independent Variables	Cognitive Institutions (Model 1)	Source
Perceived Start-up Opportunities (PSO)	Percentage of the 18–64 population (individuals involved in any stage of entrepreneurial activity excluded) who see good opportunities to start a firm in the area where they live.	GEM APS
Perceived Capabilities (PC)	Percentage of the 18–64 population (individuals involved in any stage of entrepreneurial activity excluded) who believe that they have the required skills and knowledge to start a business.	GEM APS
Fear of Failure (FoF)	Percentage of the 18–64 population (individuals involved in any stage of entrepreneurial activity excluded) who indicate that fear of failure would prevent them from setting up a business.	GEM APS
Entrepreneurial Intentions (EI)	Percentage of the 18–64 population (individuals involved in any stage of entrepreneurial activity excluded) who are latent entrepreneurs and who intend to start a business within three years.	GEM APS
Entrepreneurial Employee Activity (EEA)	Rate of involvement of employees in entrepreneurial activities, such as developing or launching new goods or services or setting up a new business unit, a new establishment, or a subsidiary.	GEM APS
Entrepreneurship Motivation Index (EMI)	Percentage of those involved in TEA that is improvement-driven opportunity-motivated, divided by the percentage of TEA that is necessity-motivated.	GEM APS
Entrepreneurial Education at School (EES)	The extent to which training in creating or managing SMEs is incorporated within the education and training system at primary and secondary levels. The measurement of this variable is given by the country-level average of experts' perceptions following a nine-point Likert-type scale.	GEM NES
Entrepreneurial Education Post-School (EEPS)	The extent to which training in creating or managing SMEs is incorporated within the education and training system in higher education such as vocational, college, business schools, etc.	GEM NES
Independent Variables	Normative Institutions (Model 2)	Source
Entrepreneurship as a Good Career Choice (EGCC)	Percentage of the 18–64 population who agree with the statement that, in their country, most people consider starting a business as a desirable career choice.	GEM APS
High Status to Successful Entrepreneurs (HSSE)	Percentage of the 18–64 population who agree with the statement that, in their country, successful entrepreneurs receive high status.	GEM APS
Cultural and Social Norms (CSN)	The extent to which social and cultural norms encourage or allow actions leading to new business methods or activities that can potentially increase personal wealth and income.	GEM APS
Independent Variables	Regulative Institutions (Model 3)	Source
Entrepreneurial Finance (EF)	The availability of financial resources—equity and debt—for small and medium enterprises (SMEs) (including grants and subsidies). Are there sufficient funds for new start-ups?	GEM NES
Government Policy: Support and Relevance (GPRS)	The extent to which public policies support entrepreneurship—entrepreneurship as a relevant economic issue. The measurement of this variable is given by the country-level average of experts' perceptions following a nine-point Likert-type scale.	GEM NES
Government Policy: Taxes and Bureaucracy (GPTB)	The extent to which public policies support entrepreneurship—taxes or regulations are either size-neutral or encourage new SMEs. The measurement of this variable is given by the country-level average of experts' perceptions following a nine-point Likert-type scale.	GEM NES
Government Entrepreneurial Programs (GEP)	The presence and quality of programs directly assist SMEs at all levels of government (national, regional, and municipal). The measurement of this variable is given by the country-level average of experts' perceptions following a nine-point Likert-type scale.	GEM NES
Research and Development Transfers (RDT)	The extent to which national research and development will lead to new commercial opportunities is available to SMEs. The measurement of this variable is given by the country-level average of experts' perceptions following a nine-point Likert-type scale.	GEM NES
Commercial and Legal Infrastructure (CLI)	The presence of property rights, commercial, accounting, and other legal and assessment services and institutions that support or promote SMEs. The measurement of this variable is given by the country-level average of experts' perceptions following a nine-point Likert-type scale.	GEM NES
Internal Market Dynamics (IMD)	The level of change in markets from year to year.	GEM NES
Entry Regulation (ER)	The extent to which new firms are free to enter existing markets.	GEM NES
Physical Infrastructure (FI)	Ease of access to physical resources—communication, utilities, transportation, land, or space—at a price that does not discriminate against SMEs.	GEM NES

Independent Variables	Macroeconomic Indicators (Model 4)	Source
Growth Rate (GR)	It is the economic growth rate and shows the percentage change in real gross domestic product.	IMF
Gross domestic product per capita (GDPPC)	It is the level of gross domestic product per capita and is expressed in US dollars.	IMF
Total Exports (TE)	Per cent change of volume of export.	IMF
Current Account Balance (CAB)	It shows the current account balance in the balance of payments.	IMF
Gross Debt Stock (GDS)	It expresses the gross debt stock of countries in dollars.	IMF
Total Imports (TI)	Per cent change of volume of imports.	IMF
Unemployment Rate (UR)	It shows the unemployment rate.	IMF
Consumer Price Index (CPI)	It measures the average changes in the prices of a particular set of products and services purchased by a consumer.	IMF
Gross National Savings (GNS)	Represents domestic savings.	IMF
Domestic Investment Expenditures (DIE)	It is domestic investment expenditures and shows the increases in the capital stock.	IMF
Population (P)	Shows the country's population.	IMF

Methodological notes: The GEM APS (Adult Population Survey) consists of data collected with at least 2,000 adults in each country, ensuring the national representativeness of data. The GEM NES (National Expert Survey) gathers information on framework conditions for entrepreneurial activity with carefully chosen experts. NES data are based on average scores given to Likert-scale statements based on levels of agreement.

Source: GEM-APS: Global Entrepreneurship Monitor, Adult Population Survey: <https://www.gemconsortium.org/report>

GEM-NES: Global Entrepreneurship Monitor, National Expert Survey Report: <https://www.gemconsortium.org/report>

IMF: Macroeconomic Indicators: <https://www.imf.org/en/Publications/WEO/weo-database/2022/April/download-entire-database>

Definitions of Entrepreneurial Behavior, Attitudes, and Entrepreneurial Framework Taken from <https://www.gemconsortium.org/wiki/1154>

Table 3: Cross-section Section Dependency Test

Test	Model 1 (Developed Countries)		Model 1 (Developing Countries)	
	Statistics	Probability	Statistics	Probability
Pesaran Scaled LM	3.446	0.0006	-0.905	0.3656
Test	Model 2 (Developed Countries)		Model 2 (Developing Countries)	
	Statistics	Probability	Statistics	Probability
Pesaran Scaled LM	6.429	0.0000	3.618	0.0003
Test	Model 3 (Developed Countries)		Model 3 (Developing Countries)	
	Statistics	Probability	Statistics	Probability
Pesaran Scaled LM	6.713	0.000	0.103	0.9182
Test	Model 4 (Developed Countries)		Model 4 (Developing Countries)	
	Statistics	Probability	Statistics	Probability
Pesaran Scaled LM	0.648	0.51172	05.46	0.5854

Table 4: Results of Panel Regression Analysis

Cognitive Institutions (Model 1)									
V	Resistant Estimators (Developed Countries)				Resistant Estimators (Developing Countries)				
	C	t	CI	C	t	CI	C	t	CI
PSO	0.03547	2.43	0.005375	0.065565	0.074022	1.41	-0.03818	0.186227	
PC	-0.01186	0.31	-0.09076	0.067049	0.127545	1.07	-0.1263	0.381391	
FoF	0.039156	1.44	-0.01687	0.095183	-0.04499	-0.66	-0.19007	0.100093	
EI	0.247946	4.51	0.134717	0.361175	0.104526	3.18	0.034399	0.174653	
EEA	0.132408	1.02	-0.13466	0.399478	1.145448	2.17	0.019424	2.271471	
EMI	0.003492	0.11	-0.06124	0.068222	0.653575	1.20	-0.50703	1.814182	
EES	0.059213	0.12	-0.95464	1.073063	-1.81721	-1.16	-5.17011	1.535682	
EEPS	1.110672	2.30	0.116805	2.104539	2.189185	1.19	-1.74526	6.123633	
cons	-119834	0.43	-6.87533	4.478646	-1.26231	-0.14	-20.9904	18.46579	
	R2	0.42			R2	0.309			
	F(8,25)	8.51			F(8,15)	6.04			
	Fprob>F	0.0000			Fprob>F	0.0014			
	rho	0.78805585			rho	0.5136			
Normative Institutions (Model 2)									
V	Resistant Estimators (Developed Countries)				Resistant Estimators (Developing Countries)				
	C	t	CI	C	t	CI	C	t	CI

HSSE	-0.01078	0.18	-0.13095	-0.01078	0.0172	0.25	-0.12966	0.164056
EGCC	-0.05756	1.7	-0.12394	-0.05756	0.062159	0.55	-0.17747	0.301793
CSN	1.08464	3.48	0.474458	1.08464	0.812436	0.62	-1.97897	3.603844
cons	7.542172	1.66	-1.33876	7.542172	6.010592	0.86	-8.87659	20.89777
	R2	0.1102			R2	0.252		
	Wald chi2(3)	14.23			F(3,15)	16.15		
	Fprob>chi2	0.0026			Fprob>F	0.6116		
	rho	0.8375			rho	0.6967		

Regulative Institutions (Model 3)

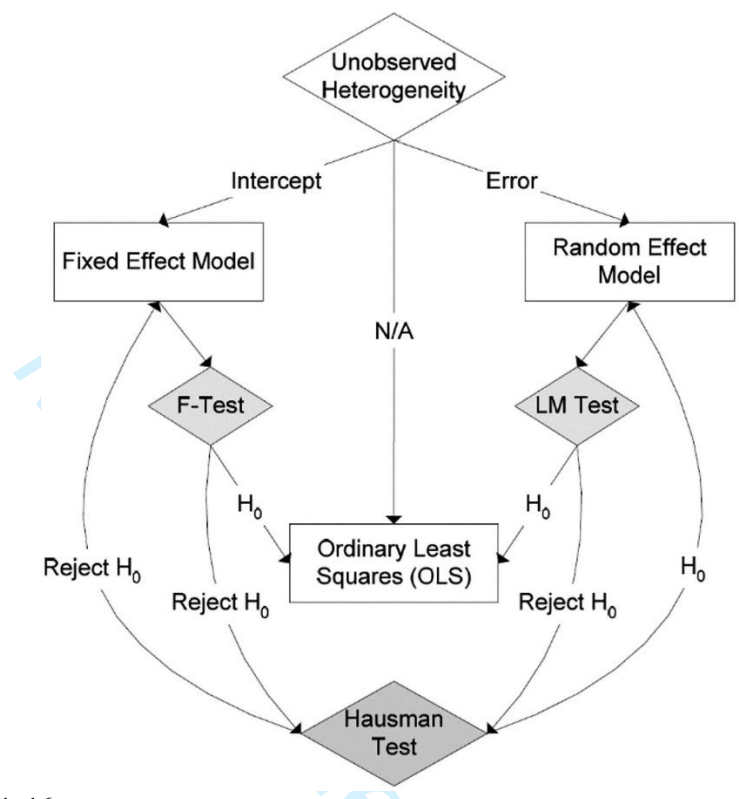
V	Resistant Estimators (Developed Countries)				Resistant Estimators (Developing Countries)			
	C	t	CI	C	t	CI	CI	
EF	2.010409	2.73	0.49772	3.523098	-2.01849	-1.26	-5.16826	1.131281
GPSR	0.518457	2.3	0.055631	0.981283	-2.41898	-1.81	-5.03373	0.195776
GPTB	1.341001	2.45	0.214074	2.467928	-1.05466	-0.63	-4.31132	2.202009
GEP	1.045008	0.84	-1.50638	3.5964	-0.32464	-0.16	-4.36132	3.712044
RDT	-2.0059	-2.16	-3.91023	-0.10095	1.124083	0.46	-3.70192	5.950088
CLI	1.671274	1.49	-0.6292	3.971744	-3.95393	-2.36	-7.24111	-0.66676
IMD	0.240835	0.69	-0.4729	0.954567	-0.2809	-0.23	-2.71843	2.156626
ER	-1.03409	-1.07	-3.01799	0.949817	4.083348	2.05	0.178821	7.987874
FI	-0.22245	-0.47	-1.19267	0.747763	1.72591	1.28	-0.90657	4.358388
cons	-1.55017	-0.37	-10.071	6.970619	22.33185	3.27	8.947385	35.71631
	R2	0.1813			R2	0.1514		
	F(9,26)	13.51			F(11,16)	16.15		
	Fprob>F	0.0000			Fprob>F	0.0000		
	rho	0.84573			rho	0.68111		

Macroeconomic Indicators (Model 4)

V	Resistant Estimators (Developed Countries)				Resistant Estimators (Developing Countries)			
	C	t	CI	C	t	CI	CI	
GR	0.064835	1.48	-0.02095	0.150617	0.313755	2.19	0.032941	0.594569
GDPPC	1.55E-06	1.68	-2.55E-07	3.36E-06	7.28E-07	3.22	2.85E-07	1.17E-06
TE	-0.00404	-0.18	-0.04741	0.03932	0.141967	2.00	0.002562	0.281371
CAB	0.005996	2.52	0.001338	0.010654	0.021075	2.22	0.002495	0.039655
GDS	-1.78E-06	-0.80	-6.14E-06	2.59E-06	-1.41E-05	-2.06	-2.76E-05	-6.67E-07
TI	0.022355	1.16	-0.01556	0.060267	-0.10972	-2.67	-0.19029	-0.02914
UR	-0.09493	-1.13	-0.26006	0.070198	-0.25225	-2.59	-0.44304	-0.06146
CPI	0.090915	3.01	0.031703	0.150127	1.42E-13	1.94	-1.50E-15	2.86E-13
GNS	-0.05759	-0.91	-0.18192	0.066735	-0.3554	-1.40	-0.85194	0.141134
DIE	-0.00959	-0.14	-0.14862	0.129429	0.024338	0.11	-0.41127	0.459942
POP	-0.01585	-0.94	-0.04872	0.017025	-0.00023	-0.05	-0.00924	0.00878
cons	-0.3092	-0.09	-6.90407	6.285663	22.58747	4.46	12.65472	32.52023
	R2	0.12986			R2	0.1116		
	Wald chi2(11)	151.13			LR chi2(10)	1.94		
	Fprob>chi2	0.0000			Prob>chi2	0.014		
	rho	0.88575			rho	0.6470		

V: Variables, C: Coefficient, t: t value, CI: 95% Confidence Interval

Figure 1: Panel Data Modeling Process



Sources: Park, 2011: 16

Management Decision

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