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Informal institutions, entrepreneurial intentions, and their association with national income levels

Name: Vibhav Jain

Student Number: 493377

Supervisor: Dr. S.J.A. Hessels

Second Assessor: S. Ramezani

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Table of Contents

1. Introduction

With the growth of entrepreneurship as a multi-disciplinary field, and the integration of socio-psychological theories in entrepreneurial research, an intention-based approach has emerged as a valuable way to study the process of entrepreneurial action (Fayolle & Liñán, 2014). Entrepreneurial intention is commonly defined as the underlying force that drives one to direct their attention towards pursuing their entrepreneurial ideas and goals, which may ultimately lead to the action of creating a new venture (Bird, 1988). It is crucial to understand the behavioural and cognitive factors influencing entrepreneurs, since they are the central element of new ventures, who actively connect different aspects of the business, and evaluate risks and uncertainties to create additional value through their venture (Baron, 2007). In this paper, I aim to investigate the role of one's informal institutional environment in influencing and shaping their entrepreneurial intention, and how that is associated with the macroeconomic conditions in their country.

Past research on the role of informal institutions in entrepreneurship research has generally considered the outcomes for total entrepreneurial activity and macro-level measures of entrepreneurship, instead of individual entrepreneurial intentions (Urbano et al., 2019). Fayolle and Liñán (2014) also suggest more research to be done on how culture changes entrepreneurial attitude and how institutions influence individual perspectives on the feasibility and desirability of entrepreneurship. Valdez and Richardson (2013) highlight the importance of informal institutions in entrepreneurship. They take an explicit institutional approach to studying determinants of entrepreneurial activity by dividing institutions into three pillars: regulative, normative, and cultural-cognitive; an approach first introduced by Scott (1995). The 'regulative' pillar is a formal institution comprising of the rules and laws in one's country of residence. The 'normative' pillar is an informal institution representing the morally governed social rules and obligations one's behaviour is guided by, defining how things should be done. The importance of family or the social acceptance of less traditional careers are examples of normative institutions. Finally, the 'cultural-cognitive' pillar is an informal institution made of common beliefs and a shared understanding that people derive from their cultural environment. Responses to failure or value of religion in decision-making are examples of cultural-cognitive institutions. Valdez and Richardson (2013) find that the informal institutional pillars have a higher descriptive power in explaining entrepreneurial activity than the formal pillar, thereby indicating how crucial informal institutions are in the context of entrepreneurship.

Thus, in this paper, I isolate my focus on informal institutions by studying how individuals' normative and cultural-cognitive perspectives predict their entrepreneurial intention, using the institutional framework proposed by Scott (1995). The results would thereby show the probabilities of an individual having entrepreneurial intention based on how favourable they find certain aspects of the institutions being studied. For example, in case the factors representing normative and cultural-cognitive institutions are perceived to be more favourable towards entrepreneurship, it can be expected that individual's entrepreneurial intentions will be higher. It is especially interesting and important to study informal institutions as they are often rigid aspects of society that are difficult to change, and have a big impact on how people lead their personal and professional lives due to how people internalise them to shape their world-view (Lent et al., 2000). Moreover, the nature and quality of formal institutions is also influenced by informal institutions (Casson et al., 2010). In this paper, I also investigate whether macroeconomic income level indicators of a country influence the relationship between informal institutions and entrepreneurial intentions. Adding the macroeconomic element into the mix provides valuable insights on whether being from a country with a certain economic profile changes the influence of informal institutions around them. For example, the entrepreneurial intentions of a person from a rich-country country might be less influenced by informal institutions, and be more individualistic due to stronger political and economic institutions, that may provide a good foundation to succeed. This brings up the central research question of this paper:

"**How do perceptions of normative and cultural-cognitive informal institutions related to entrepreneurship influence individual entrepreneurial intentions, and how does a country's macroeconomic environment associate with this relationship?**

This paper thereby aims to reinforce previous findings related to informal institutions and entrepreneurial intentions with newer and more varied data. This would help understand how they have developed in recent times with respect to entrepreneurship, especially when compared to past studies. It also attempts to fill the aforementioned knowledge gaps in how perceptions of social and cultural norms affects how one considers entrepreneurship. It adds value to existing research on the role of institutions in entrepreneurship by trying to understand entrepreneurial intention from a sociological perspective ex ante. As mentioned above, entrepreneurial intentions and cultural factors are relatively under-researched areas of entrepreneurship, due to a high amount of research being

done on entrepreneurial activity instead (Fayolle and Liñán, 2014; Urbano et al., 2019). Therefore, I differentiate my approach from past studies by studying the influence of informal institutions through entrepreneurial intentions instead of total entrepreneurial activity. Since there are multiple ways to classify informal institutions, the definitions are often vague and conceptually unclear (Bjørnskov & Foss, 2016). Hence, studying individual entrepreneurial intention using the sociological pillar framework of Scott (1995) at a global scale also adds value to existing literature. Furthermore, I add new knowledge by considering the broader perspective in studying whether national economic conditions, specifically country income levels, change the influence of informal institutions on individual entrepreneurial intentions. Including economic conditions is relevant in this subject as it is unclear whether they shape the influence informal institutions have on entrepreneurial tendencies of people. For example, being from a richer country may change the extent to which one's entrepreneurial intentions are influenced by societal and cultural factors, due to a different economic context. To study these topics, I use data from the 2017 Adult Population Survey (APS) from the Global Entrepreneurship Monitor (GEM) that includes 174,128 observations from 54 countries, and the United Nations country income level classifications, based on GNI per capita. Therefore, this paper compliments past research done using GEM data. This research is also socially relevant as the findings can be used to derive recommendations for governmental programs and campaigns that aim to enhance their entrepreneurial cultures through informal institutions, as it shows the influence of different factors on the probability of having entrepreneurial intentions.

The remainder of this research paper is organised as follows. In chapter 2, I establish the theoretical framework for the paper by reviewing literature on the major concepts covered, and introduce the hypotheses being studied. This is followed by outlining the data in chapter 3, and the methodology used for the empirical analysis in chapter 4. Subsequently, I present and discuss the results in chapter 5. To conclude the paper in chapter 6, I outline potential limitations of the results and avenues for future research, review the study and draw all major conclusions based around answering the central research question, and finally discuss some policy implications of the findings.

2. Theoretical Framework

In order to best answer the research question, I conduct an evaluation of past research through a literature review, and present the hypotheses to be tested accordingly. I take a holistic approach by introducing the general concept of entrepreneurial intentions and the factors that have been found to have an influence on entrepreneurial intention. Next, I discuss research on institutional theory, diving deeper into the normative and cultural-cognitive pillars of informal institutions. Finally, I present literature on how a country's economic situation may associate with the effects of informal institutions on entrepreneurship. Investigating insights into these topics builds a strong academic foundation for this research paper.

2.1 Entrepreneurial Intention Theory

Research on entrepreneurial intentionality started gaining prominence with the growing trend of applying psychological models to theorise the development process for new ventures and understand the preconditions that lead a person to start an entrepreneurial venture. As the construct of intentionality is underpinned by the primary motivations to take action, it is deeply engrained in the act of human decision-making and the single best predictor of any behaviour, thereby also playing a key role in the entrepreneurial process (Krueger, 2017; Krueger et al., 2000). Hence, in this section, I review the most influential theoretical models on entrepreneurial intention.

According to Fayolle and Liñán (2014), the theoretical foundations of the concept of entrepreneurial intentionality have been heavily developed based on three major models. Firstly, Shapero and Sokol's (1982) model of the "entrepreneurial event" first explained that new venture formation could be dependent on social and cultural variables. These environmental factors shape one's perceived desirability and perceived feasibility of company formation. The conversion of intention into action is then moderated by an individual's propensity to act on their thoughts. Secondly, Bird (1988) theorises that intentionality, at its core, stems from two sets of factors: the macro-level social, political, and economic context; and the individual-level personality, ability and life experience. These sets of factors shape one's goal setting and vision-based cognitive functions, a combination of which thereby leads to intentionality, and ultimately implementation of ideas. Finally, with the "theory of planned behaviour", Ajzen (1991) introduces a more internalised model to explain intention and behaviour. Here, intention is based on the interaction between perceived behavioural control, social

norm, and attitude towards the planned behaviour, that forms desirability. Intention then leads to behaviour if it is also perceived as feasible, along with the aforementioned desirability characteristics. Applied to entrepreneurship, this would imply that when there is a positive interaction between the desirability factors, supported by a positive perceived feasibility, entrepreneurial intention is likely to result in the action of starting a new venture.

While these three models have some overlaps, they differ in their approaches to intentionality; Shapero and Sokol (1982) consider more situational variables along with the propensity to act, Bird (1988) focuses more on how the formation of behavioural factors leads to implementation of ideas, and Ajzen (1991) analyses specific attributes and attitudes that lead to planned behaviour. Besides these traditional approaches of perceived desirability and feasibility, the natural "entrepreneurial orientation" of the individual is also important to consider when discussing entrepreneurial intentions (Liñán et al., 2011). Overall, all models account for at least some level of individual-level characteristics that can be described by psychologically internalising the influence of informal institutions, i.e., unwritten, socially shared rules that are persistent around us (Helmke & Levitsky, 2004). This suggests that entrepreneurial intentions and informal institutions are at least somehow related, which is the foundational assumption for this paper.

2.2 Institutional Theory

Before discussing the literature on specific informal institutions, it is important to understand what institutions are, and the complex nature of the role they play in society.

North (1990) was one of the pioneers of institutional theory and its relationship with economic performance. He defines institutions as a set of rules and norms designed solely to direct behaviour of individuals through constraint. He sees institutions as intangible social structures that create the incentive structure in an economy, and differentiates them from organisations that are created by people to take advantage of said institutional framework. He further studies how institutions undergo changes and how that might explain economic performance over time, using a path dependency framework. Although the work has received some criticism regarding its definitions and conceptualisation of institutions, it laid a strong foundation for future research by being the first to address crucial issues regarding institutions (Hodgson 1993, 2006; Casson et al., 2010). Pande and Udry (2006) use the same definition for their institutional analysis of economic development but

disagree with notion that institutions are “designed” through human agency, as suggested in the definition above. Instead, they suggest the emergence of institutions to be more organic and unplanned. Kay (2005) critiques the use of path dependency in institutional policy literature, highlighting that institutional change may not be best explained by the methodology of historical decision-making that path dependency takes, as it ignores other contextual factors and explains change only using a series of individual decisions.

Hodgson (2006) notes the issues with North (1990), and synthesises various other perspectives to define institutions as “systems of established and prevalent social rules that structure social interactions” (p. 2). Past interpretations of institutions were often based around them being either equilibria, norms, or rules for society. However, Hodgson (2006) bases his definition on the argument that the three aspects are intertwined, each playing its own part in characterising certain features of institutions. In this view, by defining societal expectations, institutions provide stability and structure that resembles an equilibrium for society. Furthermore, norms and rules are not just extrinsic factors for individuals. They are actively internalised by individuals to guide their preferences, decisions, and behaviour. The consequent repetition of behaviour at a societal scale again leads to stabilisation of the institutional equilibrium. This notion is supported by Aoki (2007), who takes a game theory approach and characterises the equilibrium outcome of institutions with repeated strategic plays that take place due to shared behavioural beliefs of the population. Taking this approach further, institutions can also be seen as social structures that play a moderating role in societal games. They act as cognitively mediating tools that help agents find a balance between the extremes of purely interacting strategically and purely practicing their individual beliefs (Aoki, 2011). Therefore, overall, institutions are ever-evolving structures that can act both as enablers and constrainers of behaviour, and actively shape the development of societies and economies (Aoki, 2007; Aoki, 2011; Hodgson, 2006; North, 1990).

In the context of entrepreneurship, entrepreneurial activity, and the knowledge generated by it, can be highly dependent on the incentives provided by the institutional background of the respective society (Sautet, 2005). Williamson (2000) models a hierarchy of institutions, dividing and organising aspects of institutions into levels of a hierarchy based on the years it would take to change them, with the slowest changing institution on top, and the completely constant one at the bottom. Hence, the first level of the hierarchy is informal institutions, followed by the institutional environment,

governance structures, and resource allocation conditions. While this is a comprehensive model, it is much more detailed from the formal institutions perspective, and groups together all informal institutions in the first level of the hierarchy. Since my paper is focused on only studying informal institutions, it is better to use a model that more comprehensively defines and categorises informal institutions. Therefore, I use Scott's (1995) neo-institutional approach of three institutional pillars, as it divides informal institutions more specifically into normative and cultural-cognitive pillars. It also compliments the concepts introduced by North (1990), and fits the definitions and framework provided by Hodgson (2006).

In the following sections, I conduct a literature review of the normative and cultural-cognitive pillars of informal institutions with respect to entrepreneurial activity and intentions.

2.2.1 Normative Pillar of Informal Institutions

The normative pillar guides individual decision-making in social or commercial scenarios by defining the social expectations and what people conform to. These normative systems shape value systems that define expectations, and social norms that define actions consistent with those values (Bruton et al., 2010). In this paper, I study the normative institutions through perceived societal desirability of entrepreneurship as a career within a country and perceived media attention for entrepreneurship within a country. These two factors are chosen due to how well they fit into the normative pillar, as I will describe in the following paragraph, and the readily available data in the GEM dataset.

One's entrepreneurial career intention could be swayed by how socially acceptable and respectable it is to choose self-employment over more traditional forms of employment. Socially supportive cultures could positively influence the supply of entrepreneurs, as it improves entrepreneurial self-efficacy and social desirability to entrepreneurship, thereby having the potential to be a strong stimulant of entrepreneurial rates (Stephan & Uhlaner, 2010). However, Moriano et al. (2012) find social norms to be weak predictors of entrepreneurial intentions amongst students, likely because younger people tend to make career choices motivated more by individualistic personal attitudes rather than collective social norms. A similar conclusion is supported by Guzmán-Alfonso and Guzmán-Cuevas (2012), who find a negative relationship between perception of the social value of being an entrepreneur and entrepreneurial intention in Latin America. The media is also an important part of the normative entrepreneurial institutions, and repeated mass media messages encouraging

entrepreneurship have been found to have a positive influence on entrepreneurial intention (Pillis & Reardon, 2007) . Media attention has a larger effect on entrepreneurial activity for those who perceive themselves as capable than those who do not. This suggests that media attention could play a role in converting intention to action (Urbano & Alvarez, 2014). Finally, Ruth Eikhof et al. (2013) find that more traditional media representations of female entrepreneurship can have real-life consequences by negatively psychologically limiting women's perceptions of the entrepreneurial choices they have, potentially increasing gender imbalances in entrepreneurship. Together, these examples illustrate that favourable social norms towards entrepreneurship can encourage people to develop more entrepreneurial mindsets, and hence may also suggest that more favourable social norms positively influence entrepreneurial intentions. Therefore, the following two hypotheses are formulated to study the influence of normative institutions on entrepreneurial intentions:

H1a: Perceived social desirability of entrepreneurship as a career in a country has a significant and positive relationship with individual entrepreneurial intention.

H1b: Perceived Media attention for entrepreneurship in a country has a significant and positive relationship with individual entrepreneurial intention.

2.2.2 Cultural-Cognitive Pillar of Informal Institutions

The cultural-cognitive pillar focuses on how cultural contexts shape individual beliefs, and hence is often related to personality, or traits-based research in entrepreneurship. Under this pillar, personal attributes related to confidence, uncertainty and perceptions of their environment are included, as they are influenced by one's cultural understanding (Valdez & Richardson, 2013). These deeply embedded cognitive attributes might act subconsciously and influence people's career decisions without their complete awareness, thus being important factors to consider when studying entrepreneurial intentionality (Sahut & Peris-Ortiz, 2014). Mitchel et al. (2002) find that although cognitive factors related to entrepreneurship differ among countries, certain traits are universally shared amongst entrepreneurs, which can be used to define a culture of entrepreneurship. This further highlights the strong relationship of cultural-cognitive factors with entrepreneurship. However, personality-driven entrepreneurship research is still highly debated and the notion of entrepreneurs being inherently different from non-entrepreneurs has also been rejected, on the basis that such relationships only manifest at aggregate levels, and are virtually inconsequential at

an individual level as they do not affect entrepreneurial action (Ramoglou et al., 2020). Besides the traits-based factors, cognitive social capital, consisting of formal and informal social networks one has, is also relevant here. Through this, people are exposed to beliefs and attitudes which determine their perception of feasibility and desirability of self-employment, eventually influencing their entrepreneurial intentions (Liñán & Santos, 2007). In this paper, I study cultural-cognitive institutions through self-perception of entrepreneurial skill, fear of failure when starting a business, and personally knowing at least one entrepreneur (entrepreneurial network). These three factors are chosen due to how well they fit under the cultural-cognitive pillar, as I will describe in the following paragraph, and the readily available data in the GEM dataset.

Ibrahim and Mas'ud (2016) find entrepreneurial skill to have a positive influence on entrepreneurial intentions, perhaps due to higher confidence. On the other hand, Solesvik et al. (2014) counter-intuitively note that students who believe they have the necessary entrepreneurial capabilities have a significantly lower intensity of intention. Tsai et al. (2016) show that people with higher perceived entrepreneurial capabilities are better able to identify opportunities, and hence are likely to have higher entrepreneurial intentions. Next, due to the risk involved in new business creation, fear of failure is an also an important consideration. In a qualitative analysis, Chua and Bedford (2016) find fear of failure to be an extremely important psychological barrier that hinders entrepreneurial intent. They also hint that fear of failure could vary according to cultural differences in how failure is looked at by society. Wennberg et al. (2013) find similar results quantitively, showing that fear of failure has a statistically significant negative effect on an individual's entrepreneurial activity. This relationship is moderated by the extent to which society is collective, as opposed to individualistic, and how open to uncertainty the individuals is. Moving on, Ivy and Perényi (2020) highlight the importance of entrepreneurial networks as an informal institution, especially in transitional economies with ineffective formal institutions. People who effectively use their network are able to enhance their business interests and opportunities in an environment that is naturally void of business support, which in turn may also enhance their entrepreneurial intentions. On a more individual level, Nowiński and Haddoud (2019) study the possibility of students' entrepreneurial intentions being inspired through personal encounters with entrepreneurs (such as in university, family or other scenarios), and find it to play an important role in strengthening entrepreneurial intentions, especially for students who already have positive attitudes towards entrepreneurship and high perceived self-efficacy. Altinay et al. (2012) show that having an entrepreneur in one's family positively influences

their entrepreneurial intentions and increases risk and ambiguity tolerance with regards to entrepreneurship. Together, these examples illustrate that cultural and cognitive factors have a strong relationship with entrepreneurship, and favourable factors can encourage development of entrepreneurial intentions. Therefore, the following three hypotheses are formulated to study the influence of cultural-cognitive institutions on entrepreneurial intentions:

H2a: Self-perception of entrepreneurial skill has a significant and positive relationship with individual entrepreneurial intention.

H2b: Personally knowing at least one entrepreneur has a significant and positive relationship with individual entrepreneurial intention.

H2c: Fear of failure has a significant and negative relationship with individual entrepreneurial intention.

2.3 Association with Macroeconomic Environment

In the preceding sub-sections, I have extensively discussed literature on the relationship between informal institutions and entrepreneurship. In this section, I first review literature on how informal institutions matter for the state of the economy, and then on how the state of the economy matters for entrepreneurial intentions. Based on these two aspects, I aim to establish how national macroeconomic characteristics could potentially associate with the relationship between informal institutions and entrepreneurship. Doing this, I derive two sub-hypotheses, one relating to each aspect stated above.

Due to the large extent to which informal institutions are embedded in their local contexts, they tend to have a strong relationship with the economic characteristics of a country. Hence, they are an extremely important determinant for economic development, due to their personal nature and how they may enable the efficient functioning of formal institutions (Casson et al., 2010; Williamson, 2009). Knowles and Weatherston (2006) reach a similar conclusion, suggesting that cross-country differences in income levels are strongly determined by informal institutions, even after controlling for formal institutions and geographic characteristics. An extreme example to illustrate this conclusion could be that countries where society values hard-work and earning money more than

spending time with family or taking vacations is intuitively more likely to have higher income levels, all else being equal. Aparicio et al. (2016) portray opportunity entrepreneurship as a mechanism through which informal institutions lead to economic growth. They suggest that informal institutions are more important than formal institutions for opportunity entrepreneurship, due to the innovativeness and agency required for it, which makes strong informal institutions important for economic growth. Tabellini (2010) finds that culture, an important informal institution, has a causal effect on economic development in Europe, particularly specifying two cultural aspects of informal institutions that affect economic development, i.e., social capital, and the feeling of being in control of your own life as opposed to appreciating obedience. Culture could thereby affect things such as work ethic and the types of jobs people aspire to have, which ultimately could influences entrepreneurial culture and economic well-being. All in all, the literature overwhelmingly suggests that better informal institutions, and presumably more positive perceptions of them, are associated with higher economic performance. Therefore, the first part of the third hypothesis is:

H3a: Perceptions of informal institutions related to entrepreneurship have a positive influence on national income levels, such that more positive perceptions of informal institutions are associated with higher national income levels.

The state of the economy also matters for formation of entrepreneurial intentions. One of the most influential models on this is proposed by Wennekers et al. (2005). They hypothesise a U-shaped relationship between national per capita income and national nascent entrepreneurship rate. The study shows that low-income and high-income countries have relatively high nascent entrepreneurship rates, whereas the countries with incomes in between the two extremes have relatively low nascent entrepreneurship rates. This could be due to high necessity-driven entrepreneurship in low-income countries, and high opportunity-driven entrepreneurship in high-income countries. This relationship could suggest a similar result for entrepreneurial intentions, instead of nascent entrepreneurship, as the entrepreneurial intention creation stage directly precedes and leads to the nascent entrepreneurship stage. Hence, the individuals in both stages are likely to be somewhat closely related and share some characteristics, making the relationship likely to be valid for them as well. Therefore, national income levels may influence entrepreneurial intentionality. Nakara et al. (2020) support this notion, showing a U-shaped relationship between GDP per capita and individual entrepreneurial intention. Acs et al. (2008) show that features of

entrepreneurial activity in an economy differs according to the stage of the country's economic development, thereby highlighting the complex interrelationship between the two concepts. They study the relationship of GDP per capita with the Complex Entrepreneurship Context Index (CEC), an index representing entrepreneurial activity, strategy, and attitudes in several countries, and find the relationship to be S-shaped, rather than the U-shaped one suggested in the previous papers. This implies that in economies on the more extreme lower or higher stages of development (the so-called "factor-driven" and "innovation-driven" stages of development respectively), the function for entrepreneurial activity is increasing. On the other hand, in economies towards the middle (the "efficiency-driven" stage of development), the function for entrepreneurial activity is relatively flat or mildly increasing. Iakovevla et al. (2011) find a slightly different conclusion, suggesting that entrepreneurial intentions are higher in students from developing countries, compared to those from developed countries. Overall, the literature shows that economic development has at least some influence on entrepreneurial intentions and activity. Although the exact relationship is unclear, by analysing the literature, I hypothesise that entrepreneurial intentions have a U-shaped relationship with economic development. In this paper, I use country income levels to represent economic development as it has strong relationships with other economic indicators, such as consumption, and GDP (Deacon & Maha, 2015). Therefore, the second part of the third hypothesis is:

H3b: Individual entrepreneurial intentions have a U-shaped relationship with national income levels, such that as national income levels increase, individual entrepreneurial intentions form a U-shaped curve as national income levels increase.

Together both hypotheses being accepted would investigate whether economic development, as indicated by national income levels, is associated with the relationship between perceptions of informal institutions and entrepreneurial intentions.

3. Data and Variables

This chapter discusses the different aspects of the data that will be used in the analysis. I describe the sample, the relevant variables, and conclude with the important descriptive statistics.

3.1 Sample

Informal institutions are based on a shared understanding of social rules and culture, and are thereby directly shaped by the individuals living in the society being studied. Hence, to study the relationship between informal institutions and entrepreneurial intention, I need data that is individual-level and describes people's perceptions of the normative and cultural-cognitive institutional environment. To study the association of national income levels for the third hypothesis, and improve the internal and external validity of the results, I also need this data of individuals to be from multiple countries. Therefore, I use the latest 2017 APS Global Individual Level data collected by the GEM (Global Entrepreneurship Monitor, 2017). GEM is a popular and reliable data source for comparative entrepreneurial research due to its wide individual-level data sets, and robust surveying techniques that take local nuances, such as culture and language, into account (Levie et al., 2014). Furthermore, participants are surveyed on their perceptions of normative and cultural-cognitive pillars, as well as their entrepreneurial intention. In this case, the independent variables are normative and cultural-cognitive factors, and the dependent variable is entrepreneurial intention. The age range, education level, sex, and country fixed effects are controlled for to improve accuracy of estimations. All dependent and independent variables are binary variables where respondents answer either 'yes' or 'no' to the questions asked. The exact GEM descriptions for each variable surveyed can be found in Appendix A.

The original dataset comprises of a sample of 174,128 observations from 54 countries, of individuals aged 18 or older. However, to reduce endogeneity concerns, the entrepreneurial intention indicator I use removes observations for individuals who are actively pursuing their intentions (nascent entrepreneurs) from the dataset. This ensures that the focus of the research is solely on people who are still not involved in the "Total Entrepreneurial Activity" (TEA) measure, and thereby are likely still considering their (career) options. Studying the influence of informal institutions on this particular group makes the results more relevant as their inactive involvement implies that their perceptions, and thereby responses, on the factors being studied are not positively biased by any tangible entrepreneurial commitments. Furthermore, some more observations with missing values for different variables are removed to ensure consistency in analysis. These changes reduce the sample size to 103,919 observations from 52 countries. Removal of incomplete data led to all observations from Brazil and Lebanon being dropped, thereby reducing the number of countries from 54 to 52.

3.2 Variables

3.2.1 Entrepreneurial Intention (Dependent)

Entrepreneurial intention is measured by determining whether the individual is a latent entrepreneur, i.e., they intend to start a business within three years but are not currently actively involved in any entrepreneurial activity. For the purpose of this paper, entrepreneurial intention is a better measure than total entrepreneurial activity as by excluding nascent entrepreneurs who may have biased intentions (as explained in section 3.1), the results will be able to better suggest how informal institutions play a role in convincing current non-entrepreneurs to consider entrepreneurship as a career. This also helps reduce endogeneity concerns, as explained above.

3.2.2 Normative Components (Independent)

The normative components should describe one's perception of social values and norms in the context of entrepreneurship. Therefore, I use two variables from the dataset: individual's perception of whether new business creation is seen as a desirable career choice in their country of residence, and whether successful new businesses and entrepreneurs get frequent attention in the media. The former reflects their perception on the social acceptance of entrepreneurship as a career, and the latter highlights the social desirability of the career, as frequent mass media attention could imply that people in society are interested in such stories, indicating desirability.

3.2.3 Cultural-Cognitive Components (Independent)

The cultural-cognitive components are related to one's traits and cognitive social capital. Therefore, I use three variables from the dataset: whether they think they have the skills and knowledge to start a business, whether the fear of failure prevents them from starting a business, and whether the individual personally knows someone who started a business in the last two years. The first variable shows a person's self-confidence in dealing with uncertainty in their new business environment. The second variable outlines their level of risk aversion and perception of failure. The final variable considers their network, indicating how proximal the idea of entrepreneurship as a career might be for them. The first two variables are trait-based, and the third variable is based on cognitive social capital. Here, due to its implications on the interpretation of data analysis and results, it is important to note that fear of failure is the only variable out of all variables with a negated question, i.e., the answer "Yes" is preventing the person from starting a new business. For all other variables, the answer "Yes" to the question always encourages business creation.

3.2.4 Country Income-Level Classifications (Independent)

Countries in the dataset are grouped according to country income level classifications as of June 2017, based on the following GNI per capita thresholds shown in Table 1 (United Nations, 2018).

Table 1: 2017 World Bank Country Income-Level Classifications

Income Group	GNI per Capita Threshold (2018 US$)
Low-income	< $1,005
Lower-middle income	$1,006 - $3,955
Upper-middle income	$3,956 - $12,235
High-income	> $12,235

Here, the classifications and thresholds from 2017 are used instead of the latest 2021 classifications to ensure consistency with the economic environment of the GEM survey respondents in 2017. As explained in section 2.3, due to the strong relationships income has with other economic indicators, and to avoid collinearity amongst economic indicators, country income level by itself can act as a good proxy to represent general economic characteristics of a country (Deacon & Maha, 2015). The distribution of countries according to these classifications can be found in Appendix B.

3.2.5 Control Variables

The control variables age range, educational level and sex are also taken from the GEM dataset. The exact categories for each control variable can be seen in the descriptive statistics shown in Table 2.

3.3 Descriptive Statistics

Looking at the descriptive statistics helps us better understand the dimensions and characteristics of the data. Table 2 shows the descriptive statistics, i.e., the mean, standard deviation, minimum value, and maximum value, for each variable. As described above, all independent and dependent variables are binary, with 0 representing the answer “No” and 1 representing the answer “Yes” for the respective questions. Entrepreneurial intention has the lowest overall mean of 0.190, implying that 19% of all respondents reported that they have entrepreneurial intentions. Interestingly, the mean values for the two normative variables are quite similar, around 0.600. For cultural-cognitive variables, self-perception of entrepreneurial skill and fear of failure have a similar mean, whereas entrepreneurial network has the lowest mean out of all independent variables. Finally, it is important to note that more than 87% respondents are from upper-middle income or high-income countries,

which could potentially be a limitation by having an impact on the external validity of the results for the third hypothesis.

Table 2: Descriptive Statistics

Variable	Mean	Std. Dev.	Min	Max
Dependent Variable				
Entrepreneurial Intentions	0.190	0.392	0	1
Normative Institutions				
Good Career Choice	0.607	0.488	0	1
Media Attention	0.593	0.491	0	1
Cultural-Cognitive Institutions				
Entrepreneurial Skill	0.425	0.494	0	1
Fear of Failure	0.441	0.496	0	1
Entrepreneurial Network	0.336	0.472	0	1
Control Variables				
- Age Group -				
18-24	0.166	.372	0	1
25-34	0.224	.417	0	1
35-44	0.204	.403	0	1
45-54	0.188	.391	0	1
55-64	0.159	.366	0	1
65-120	0.059	.236	0	1
- Education -				
Pre-primary education	0.024	.152	0	1
Primary education or first stage of basic education	0.092	.289	0	1
Lower secondary or second stage of basic education	0.165	.371	0	1
(Upper) Secondary education	0.315	.464	0	1
Post-secondary non-tertiary education	0.142	.349	0	1
First stage of tertiary education	0.239	.426	0	1
Second stage of tertiary education	0.023	.15	0	1
- Gender -				
Female	0.510		0	1
- Country Income-Level -				
Low-Income	0.007	.084	0	1
Lower-Middle Income	0.114	.318	0	1
Upper-Middle Income	0.204	.403	0	1
High-Income	0.674	.469	0	1

Due to the potentially high interdependent nature of traits that influence entrepreneurial perspectives and similar means of the variables, multicollinearity could potentially become a concern. To check this, Table 3 shows the correlations between all variables.

Table 3: Matrix of Pearson correlations

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
(1) Ent. Intention	1.000									
(2) Good Career Choice	0.100	1.000								
(3) Media Attention	0.081	0.163	1.000							
(4) Ent. Skill	0.221	0.051	0.071	1.000						
(5) Fear of Failure	-0.038	0.029	0.025	-0.097	1.000					
(6) Ent. Network	0.152	0.046	0.061	0.215	0.002	1.000				
(7) Age Group	-0.172	-0.033	0.013	-0.021	-0.031	-0.096	1.000			
(8) Education	0.069	-0.058	0.032	0.081	-0.006	0.106	-0.118	1.000		
(9) Gender	-0.047	-0.005	-0.003	-0.091	0.044	-0.052	0.039	-0.029	1.000	
(10) Country Income-Level	-0.132	-0.068	-0.015	-0.027	0.012	-0.033	0.171	0.166	-0.013	1.000

As can be seen, generally, the Pearson correlations between the variables are relatively low. Most variables have an absolute correlation value of less than 0.100. The highest correlation between two independent variables is of 0.215, between entrepreneurial network and self-perception of having entrepreneurial skill. The highest overall correlation is between entrepreneurial intention and self-perception of having entrepreneurial skill, of 0.221. This already preliminarily hints that this variable might be a strong predictor of entrepreneurial intention, but may also suggest potential reverse causality, as having intentions may affect self-perception of skills. As for collinearity concerns, Dormann et al. (2013), after testing multiple approaches of addressing collinearity, conclude correlations under an absolute value 0.700 are too weak to severely distort estimations and predictions. Even with a more conservative approximation, all correlations in this dataset are well under the threshold. Therefore, collinearity is likely to not be a concern for this paper.

4. Methodology

Before testing the hypothesis, I outline and justify the methods used to analyse the data and test the hypotheses. In the process, I also specify the three mathematical models used.

4.1 Methodology for Hypotheses 1 & 2

Firstly, as mentioned in Section 3.3, the Pearson correlations shown in Table 2 suggest that collinearity is unlikely. Nonetheless, I conduct a more formal test for multicollinearity by calculating the Variance Inflation Factor (VIF). VIF is a technique that uses the reciprocal of the "tolerance" of variables to detect any multicollinearity. Although VIF is generally used for continuous variables, it can also be applied to test collinearity for covariates in binary models (Midi et al., 2010). Calculating the individual and mean VIFs will therefore highlight the existence of any possible multicollinearity.

For hypotheses 1 and 2, I will use two at-means marginal effects probit regression models with robust standard errors as it is the most appropriate technique to study the relationship between informal institutions and entrepreneurial intentions, given the characteristics of the GEM data and the hypotheses. Probit models allow for binary dependent variables and a mix of binary and categorical independent and control variables, which is the case here (Langowitz & Minniti, 2007). Therefore, in the results, the coefficients of the independent variables show the marginal probability of having entrepreneurial intentions if the question concerning that variable is answered with a 'yes'. This helps answer the respective hypotheses as it allows us to predict the likelihood of having entrepreneurial intentions based on their responses to the questions, ceteris paribus. Hence, probit is a very useful technique to use for this study. For a holistic analysis of the first two hypotheses, I use two probit models: a baseline model, and an extended model. The first model regresses entrepreneurial intention on all the independent and control variables. The second model extends the baseline model by adding country dummies for country fixed effects. This is done to make the predictions more accurate, as it additionally controls for the impact of being in a certain country. It may also at least partially account for the formal institutional environment in a country, making the model more complete. Therefore, the mathematical models are as follows:

(1) Baseline Model:

$$P(Y_i) = \beta_1 * X_{1,i} + \cdots + \beta_n * X_{n,i} \qquad (1)$$

Here, $P(Y_i)$ is the probability of entrepreneurial intention, $X_{1,i}$ to $X_{n,i}$ are all the independent and control variables, β_1 to β_n are the respective variable coefficients showing marginal effects. Note that marginal effects probit models do not have constant terms and error terms by design.

(2) Extended Model:

$$P(Y_i) = \beta_1 * X_{1,i} + \cdots + \beta_n * X_{n,i} + C_i \quad (2)$$

The Extended Model is the same as the Baseline Model, except with an additional variable, C_i, that represents the country fixed effects for the individual's country of residence.

4.2 Methodology for Hypothesis 3

To test hypothesis 3, I use two logit models: a multinomial logit regression model to test hypothesis 3a, and a binary logit regression model to test hypothesis 3b. Characteristics of logit models are similar to probit models, with the only difference being that probit models use cumulative normal distribution functions, whereas logit models use cumulative logistic distribution functions. This implies that the tails of the distribution in logit models are flatter compared to those in probit models (Breen et al., 2018; Horowitz & Savin, 2001). In context of hypotheses 3a and 3b, this makes the use of logit models more appropriate, as distribution of the sample of countries according to national-income levels does not seem to be normally distributed, and seems biased towards upper-middle and higher income countries, as can be seen in Appendix B and pointed out in the descriptive statistics in section 3.3. Nonetheless, the difference is likely to be negligible between the results of conditional probability in the two models (Breen et al., 2018; Horowitz & Savin, 2001). For hypothesis 3a, I use a multinomial logit model that allows for the non-binary categorical dependent variable of national income levels. The independent variables will include the five variables indicating perceptions of informal institutions, and the control variables will be the same as the Baseline Model (1). Even though income levels could be seen as an ordinal variable (from low-income to high-income), using an ordered logit regression may reduce accuracy as it would assume that moving from one category to the next would have the same effect on the odds. This assumption is unlikely to hold empirically for the income level categories, as the effects on the odds may differ due to reasons related to the complexity of economic development, such as but not limited to possible diminishing marginal returns (of increasing national income), or unequal changes in other contextual factors of the economy. For hypothesis 3b, a simpler binary logit model is sufficient as the dependent variable, entrepreneurial intention, is binary (either "yes" or "no"). Here, the independent variables will include the national income level categories, and the control variables will be the same as Baseline Model (1). While the marginal effects probit regressions used for the previous hypotheses 1 and 2 show marginal effects on probability, the coefficients in the logit models will show the log-odds of

the occurrence of an event. Here, “odds” refers to the probability of an event occurring divided by the probability of the event not occurring. The “probability of the event occurring” means the probability of a person answering “yes” to the respective question (per income level for hypothesis 3a) or belonging to a country in a certain income level (for hypothesis 3b). The coefficient itself in hypothesis 3a will show the log-odds for each informal institutional variable per income level, compared to being in a low-income. Breen et al. (2018), after reviewing problems in literature on nonlinear probability models spanning 30 years, recommend that magnitudes of coefficients within the same models can be compared, due to all variables being affected by the same covariates. On the other hand, only the signs and statistical significance of coefficients can be compared between different models. In the results, a positive coefficient would mean that the event is more likely to occur than not occur, and a negative coefficient would mean that the event is more likely to not occur than occur. Table 4 shows the selected log-odds with their corresponding odds and probability values, which will be helpful while interpreting the coefficients.

Table 4: Selected log-odds with corresponding odds and probabilities

Log-odds	odds	Probability of event occurring (p)
-1.386	0.250	0.200
-1.098	0.333	0.250
-0.847	0.429	0.300
-0.619	0.538	0.350
-0.405	0.667	0.400
-0.201	0.818	0.450
0.000	1.000	0.500
0.201	1.222	0.550
0.405	1.500	0.600
0.619	1.857	0.650
0.847	2.333	0.700
1.098	3.000	0.750

It is important to note that this will not indicate anything related to causality, and is not a moderation or mediation analysis. Instead, it will only investigate association, i.e., the possibility of whether the

macroeconomic characteristics of a country change the way individuals interact with its informal institutions, with regards to forming their entrepreneurial intentions. It is more appropriate to do this instead of attempting to find causality due to large reverse causality concerns as hinted above in the Theoretical Framework, i.e., informal institutions and entrepreneurial intentions can shape economic characteristics, but economic characteristics can also shape informal institutions and entrepreneurial intentions. Nonetheless, finding such an association, or lack thereof, can still bring forward suggestions on the interrelationships between the variables. Through the two hypotheses, it may also be possible to comment on the direction of the association.

5. Results & Discussion

In this section, I portray the results of the analysis. First, I address multicollinearity concerns by calculating the mean VIF. Then, I test hypotheses 1 and 2 using the Baseline and Extended Models to find predictors of entrepreneurial intention. Lastly, I test both parts of hypothesis 3 using a multinomial and a binary logit model respectively. As I do this, I also discuss the results by interpreting them, and analyse whether the hypotheses can be accepted.

5.1 VIF

Table 5 presents the VIFs for all variables in descending order.

Table 5: Variance Inflation Factors (VIFs)

	VIF	1/VIF
Entrepreneurial Skill	1.076	.93
Country Income-Level	1.075	.93
Education	1.073	.932
Entrepreneurial Network	1.070	.935
Age Range	1.065	.939
Good Career Choice	1.040	.962
Media Attention	1.036	.965
Fear of Failure	1.015	.986
Gender	1.013	.987
Mean VIF	1.051	

Midi et al. (2010) suggest that, generally, VIF values larger than 10 can be problematic in terms of multicollinearity. They also highlight that for "weaker" models, the VIF values should not be larger than 2.500. As can be seen in Table 5, all VIF values are relatively well below the suggested conservative threshold of 2.500, with the highest VIF value being self-perception of skill, at 1.076. This variable also had two of the highest Pearson correlations in Table 3. The mean VIF is 1.051, which is also not close to 2.500. Hence, overall, these VIF values, in addition to the Pearson correlations in Table 2, present strong evidence that multicollinearity is likely to not be a concern for this study.

5.2 Hypothesis 1 & 2 Testing

In section 2.2, I hypothesized that [1a] societal perception of entrepreneurship as a career, [1b] perceived media attention for entrepreneurship, [2a] self-perception of entrepreneurial skill, and [2c] personally knowing an entrepreneur have significant positive relationships with individual entrepreneurial intention, and [2b] fear of failure has a significant negative relationship with individual entrepreneurial intention. Table 6 shows the probit regression results for both the Baseline and Extended Models that help test these hypotheses. The column for "Extended Model (2)" does not show the coefficients for country dummies as the exact country fixed effects are not the variables of interest. However, they were included in the model to make the estimates more accurate for the variables of interest, i.e., the normative and cultural-cognitive variables. The full results of the Extended Model, including the exact country fixed effects, can be found in Appendix C.

As seen in Table 6, all variables of interest, i.e., the five variables for normative and cultural-cognitive institutions, have a highly statistically significant relationship with entrepreneurial intention, at more than a 99% confidence level. This implies that the probability of these relationships occurring by random chance is less than 1%, suggesting that the variables are strong predictors of entrepreneurial intention. To reiterate the interpretation, the coefficients in marginal effects probit models show the marginal change in probability of having entrepreneurial intention. In the following paragraphs, I will closely analyse the Baseline and Extended Models by comparing and contrasting them to answer the first and second hypotheses.

Table 6: Probit regression Marginal Effects for the Baseline and Extended Models

Variable	Baseline Model (1)	Extended Model (2)	Difference
Normative Institutions			
Good career choice	0.062***	0.028***	-0.034
	(0.002)	(0.002)	
Media attention	0.043***	0.022***	-0.021
	(0.002)	(0.002)	
Cultural-Cognitive Institutions			
Entrepreneurial skill	0.140***	0.120***	-0.020
	(0.002)	(0.002)	
Fear of failure	-0.022***	-0.018***	0.004
	(0.002)	(0.002)	
Entrepreneurial network	0.065***	0.058***	-0.007
	(0.002)	(0.002)	
Control Variables			
- Age group -			
25-34	-0.042***	-0.023***	0.019
	(0.004)	(0.004)	
35-44	-0.084***	-0.051***	0.033
	(0.004)	(0.004)	
45-54	-0.121***	-0.077***	0.044
	(0.004)	(0.004)	
55-64	-0.174***	-0.124***	0.050
	(0.004)	(0.004)	
65-120	-0.220***	-0.176***	0.044
	(0.004)	(0.004)	
- Education -			
Primary education or first stage of basic education	-0.109***	0.009	0.118
	(0.010)	(0.008)	
Lower secondary or second stage of basic education	-0.114***	0.006	0.020
	(0.010)	(0.007)	
(Upper) Secondary education	-0.105***	0.002	0.107
	(0.010)	(0.007)	
Post-secondary non-tertiary education	-0.080***	0.011	0.091
	(0.010)	(0.007)	
First stage of tertiary education	-0.073***	0.022***	0.095
	(0.010)	(0.007)	
Second stage of tertiary education	-0.009	0.025**	0.034
	(0.013)	(0.010)	
- Gender -			
Female	-0.016***	-0.018***	0.002
	(0.002)	(0.022)	

Note. Robust Standard Error in parenthesis; ***p≤0.01, **p≤0.05, *p≤0.10; Qatar was omitted from calculations in the Extended Model due to collinearity; Country fixed effects for the Extended Model are not included in Table 4, but are shown in Appendix C; There are no constant terms in marginal effects probit models. Age group reference: 18-24; Education Reference: Pre-Primary Education; Gender Reference: Male.

In both models, it can be seen that self-perception of skill is the most influential variable of interest, increasing the probability by 0.140 and 0.120 respectively. Fear of failure is the least influential variable, only decreasing the probability by 0.022 and 0.018 respectively. As mentioned in section 3.2.2, fear of failure is the only negated question, and hence it is the only variable of interest for which a negative coefficient would encourage entrepreneurial intention. That being said, there are still some differences between the two models, and analysing how coefficients change from the inclusion of country dummies brings up some interesting insights. Logically, due to more variables being included, almost all coefficients decrease. However, the normative variables change by a much higher magnitude compared to the cultural-cognitive variables. In fact, the coefficients for fear of failure and entrepreneurial network are relatively unaffected. On the other hand, the variable for societal perception of entrepreneurship as a good career reduces the most. This makes sense, as the perception of different career choices might be strongly tied to national culture. These results might suggest that the influence of normative institutions is more localised than that of cultural-cognitive institutions, as the country dummies take away from the potential effects of normative institutions. This would be a logical proposition, as by design, normative institutions are based on societal perception of things, which are closely tied with national culture, whereas cultural-cognitive institutions are more about individualistic characteristics shaped by culture. Overall, the results presented in Table 6 are in line with expectations and past research, as discussed in the theoretical framework (Section 2). Thus, all 5 hypotheses [1a, 1b, 2a, 2b, 2c] can be accepted.

5.3 Hypothesis 3 Testing

In section 2.3, I hypothesised that [3a] perceptions of informal institutions related to entrepreneurship have a positive influence on national income levels, and that [3b] entrepreneurial intentions have a U-shaped relationship with national income levels. In this section, I first test and discuss hypothesis 3a using the results of the multinomial logit model presented in Table 7, and then discuss and test hypothesis 3b using the results of the binary logit model presented in Table 8.

Table 7: Logit results testing H3a

Variable	Coefficients
Lower-middle income	
- Normative Institutions -	
Good career choice	-1.000***
	(0.107)
Media attention	0.423***
	(0.077)
- Cultural-Cognitive Institutions -	
Entrepreneurial skill	-0.484***
	(0.080)
Fear of failure	0.184***
	(0.077)
Entrepreneurial network	-0.180***
	(0.082)
Upper-middle income	
- Normative Institutions -	
Good career choice	-1.337***
	(0.106)
Media attention	0.342***
	(0.078)
- Cultural-Cognitive Institutions -	
Entrepreneurial skill	-0.584***
	(0.079)
Fear of failure	-0.177**
	(0.077)
Entrepreneurial network	-0.136*
	(0.081)
High-income	
- Normative Institutions -	
Good career choice	-1.330***
	(0.105)
Media attention	0.302***
	(0.075)
- Cultural-Cognitive Institutions -	
Entrepreneurial skill	-0.637***
	(0.078)
Fear of failure	0.145*
	(0.076)
Entrepreneurial network	-0.306***
	(0.081)

Note. Robust Standard Error in parenthesis; ***p≤0.01, **p≤0.05, *p≤0.10; Reference category: Low-income; Full table (including control variables) in Appendix D

Table 8: Logit results testing H3b

Variable	Coefficients
Country Income-Level	
Low-income	0.136***
	(0.085)
Upper-middle income	-0.301***
	(0.085)
High-income	-0.758***
	(0.084)
Control Variables	
- Age group -	
25-34	-0.078***
	(0.023)
35-44	-0.298***
	(0.025)
45-54	-0.573***
	(0.027)
55-64	-1.106***
	(0.032)
65-120	-1.778***
	(0.063)
- Education -	
Primary education or first stage of basic education	-0.418***
	(0.060)
Lower secondary or second stage of basic education	-0.426***
	(0.057)
(Upper) Secondary education	-0.284***
	(0.055)
Post-secondary non-tertiary education	-0.135**
	(0.056)
First stage of tertiary education	0.089
	(0.055)
Second stage of tertiary education	0.432***
	(0.071)
- Gender -	
Female	-0.230***
	(0.016)
Constant	-0.956***
	(0.098)

Note. Robust Standard Error in parenthesis; ***p≤0.01, **p≤0.05, *p≤0.10; Country Income Level Reference: Lower-middle income; Age group reference: 18-24; Education Reference: Pre-Primary Education; Gender Reference: Male.

Table 7 shows the results of the multinomial logit model, regressing national income levels on perceptions of informal institutions. It can be seen that in general, the log-odds seem to decrease as income level increases, with statistical significance, showing that the perception of informal institutions related to entrepreneurship is likely to be more negative in more developed countries. The variable representing frequent media attention for entrepreneurs is the only variable that remains positive in countries of all income levels, although it is still reducing as income levels increase. This shows that the media in low-income countries may be the least interested in showcasing successful entrepreneurs frequently, perhaps due to greater focus on other, more dominant problems that may characterise low-income countries, such as poverty or hunger. Fear of failure also stands out as an exception, as the function seems to be U-shaped, as national income levels increase. The positive coefficients imply that fear of failure is higher in lower-middle income and high-income countries, as compared to low-income and upper-middle income countries. This could be the case as in low-income countries, people might not psychologically consider failure to be an option due to necessity and the lack of alternatives. Upper-middle income countries, on the other hand, are on the higher end of economic development, and therefore likely to be characterised by relatively high levels of education, infrastructure, technology, and institutional stability. This may provide a safety net for latent entrepreneurs, thereby reducing fear of failure. High-income countries, however, still have a higher fear of failure, possibly due to higher competition and more mature markets, especially in innovative entrepreneurship, which may not exist yet in upper-middle income countries. Hypothesis 3a implies that more positive perceptions of informal institutions in a country are associated with higher national income levels. All in all, even though the results seem to be a bit mixed, it would be safe to reject the hypothesis. The results seem to suggest the contrary, i.e., a negative relationship between perceptions of informal institutions and economic development. A possible explanation for why the results deviate from the literature could be that here, the measure of informal institutions is individual-level perception (as compared to macro-level measures in past research) and the perceptions are related to entrepreneurship, which may change the way informal institutions interact with economic development.

Table 8 shows the results of the binary logit model, regressing entrepreneurial intentions on national income levels. Here, the category of low-middle income countries is used as the reference, to test for the U-shaped relationship. It can be seen that there is a very clear negative and highly significant relationship between country income levels and entrepreneurial intentions, showing that as

countries get richer, their residents are less likely to have entrepreneurial intentions. This notion could be explained by high necessity-driven entrepreneurial behaviour in poorer countries, or because choosing entrepreneurship as a career in higher income countries may have a higher opportunity cost, due to less risky alternatives for employment, and the higher resources required to pursue opportunity-driven entrepreneurship, which is more prevalent in more developed countries. The results again deviate from past literature discussed, perhaps due to aggregation of countries in groups, instead of individual consideration. Hypothesis 3b implies that as national income levels increase, individual entrepreneurial intentions form a U-shaped curve. The results, instead, show a negative relationship between the two variables. Therefore, the hypothesis can be rejected.

Considering both sub-hypotheses together suggests that economic development is likely to have a negative association with the relationship between perceptions of informal institutions and entrepreneurial intentions. Therefore, a country's macroeconomic context is likely to matter in how its informal institutions shape the entrepreneurial intentions of its residents, such that residing in richer countries is likely to reduce the influence of informal institutions on entrepreneurial intentions.

6. Conclusion

6.1 Limitations & Future Research

This study has some limitations that should be noted. Firstly, due to the cross-sectional nature of the data, the results of this paper may not account for the possibility of reverse causality problems, caused by the lack of time lag between the dependent and independent variable. It may also not consider potential endogeneity problems, as individual fixed effects are not accounted for. Secondly, all variables used are either binary or categorical. This could potentially be a limitation as the magnitude or intensity of beliefs is unknown. For example, consider the variable indicating that fear of failure was preventing the individual from starting a new business. Here, an individual who has an extremely high fear of failure and an individual who has a relatively lower fear of failure are both treated as the same, even though fear of failure is preventing both individuals from starting a business. This may make the results less accurate. Finally, although there was a relatively high number of respondents from a diverse set of countries, the external validity of the study can still be improved in future studies. For the third hypothesis specifically, countries in this paper were

unevenly distributed amongst the four income level groups, as most countries fell into the “upper-middle income” or “high-income” classifications, which could skew results.

Several research suggestions and extensions can be derived from the results of this study and the limitations mentioned above. Firstly, utilisation of time-series data in future studies would reduce the concerns with cross-sectional data and also help study how the influence of informal institutions evolves as people go through different stages in life. As intentions may not always translate into actions, possibly due to weak intentionality, changing personal and professional circumstances, lack of self-efficacy, or a general low propensity to act (Kautonen et al., 2015), using time-series data in future studies can not only improve our understanding of informal institutions, but also potentially show how perspectives change when people convert their entrepreneurial intentions into actions. Secondly, this paper is based on the GEM methodology and data collection techniques. For future studies, aspects of the research design can also be changed, such as using an alternate questionnaire, like the one built by Liñán and Chen (2009). Using their questionnaire would have two additional benefits: First, since the questionnaire is purpose-built to study entrepreneurial intentions, the questions are more in-depth and centre primarily around intentionality, as compared to the GEM questions, which are more general entrepreneurship related questions; Second, the responses to questions are not “yes” or “no” like the GEM questionnaire, but rather on a scale of 1 (total disagreement/disapproval) to 7 (total agreement/approval), which may overcome the magnitude concerns with binary variables, as stated in the limitations above. Hence, using this questionnaire may provide deeper insights on how (perceptions of) informal institutions influence entrepreneurial intentions. Next, future research could also be conducted with a clear differentiation between opportunity-driven and necessity-driven entrepreneurial intentions, as the two types of individuals vary greatly in terms of their socioeconomic characteristics, personality traits, and perceptions of entrepreneurial support (van der Zwan et al., 2016). Making this distinction would at least partially account for such inherent differences, making the results more holistic and in-depth, especially when national income levels are considered. Finally, to extend on the third hypothesis, a more formal moderation or mediation analysis can be done with either national income levels, or other measures of economic development. Doing this may give a deeper and more accurate picture of the association of economic development with the relationship between informal institutions and entrepreneurial intentions.

6.2 Conclusion

The aim of this paper was to study the influence of informal institutions on individual entrepreneurial intention, and investigate this relationship's association with the economic characteristics of a country. This was done by deriving the following central research question, based on the institutional framework introduced by Scott (1995):

"**How do perceptions of normative and cultural-cognitive informal institutions related to entrepreneurship influence individual entrepreneurial intentions, and how does a country's macroeconomic environment associate with this relationship?**

This question was explored using variables from the 2017 APS Global Individual Level data collected by the GEM, which indicate individual perceptions of normative and cultural-cognitive institutions. To group countries by income levels, I used the United Nations classifications, based on GNI per capita. I used this data to first focus on studying the influence of these institutions on entrepreneurial intentions [H1,2], and then moving on to whether the income level of an individual's country of residence changes how informal institutions influence their entrepreneurial intentions [H3]. For normative institutions, I considered two aspects, i.e., individual's perception of the societal perception of entrepreneurship as a good career choice, and the media's attention for entrepreneurship in their country. For cultural-cognitive institutions, I considered three aspects, i.e., self-perception of entrepreneurial skill, personally knowing an entrepreneur, and fear of failure. Using two marginal effects probit models, a Baseline model and an Extended Model that additionally controlled for countries fixed effects, I predicted each variable's influence on the probability of an individual having entrepreneurial intention. The results, in line with the hypotheses, showed that entrepreneurial intention has significant negative relationships with [H1a] societal perception of entrepreneurship as a career, [H1b] perceived media attention for entrepreneurship, [H2a] self-perception of entrepreneurial skill, and [H2c] knowing an entrepreneur have significant positive relationships with individual entrepreneurial intention, and, a significant negative relationship with [H2b] fear of failure. Next, I added national income levels to the analysis, attempting to find their association with the relationship between informal institutions and entrepreneurial intentions. To do this, I used a multinomial and a binary logit model to test [H3a] the influence of perceptions of informal institutions on national income levels, and [H3b] the influence of national income levels on entrepreneurial intentions, respectively. Both sets of results contradict the hypotheses, as both

relationships were found to be negative. Therefore, economic development is likely to have a negative association with how perceptions of informal institutions shape entrepreneurial intentions.

On a higher level, this research has generated some relevant insights in the field of entrepreneurship. The results from the first two hypotheses reinforces past GEM research with newer data, that may make the results more relevant to present times. Through the results, the relative importance of the two types of informal institutions can also be compared, allowing for more fine-tuning in policy-making. The results from the third hypothesis have created new additional value by studying the association of national macroeconomic characteristics with informal institutions and entrepreneurial intentions, thereby showing that the income level of a country is likely to change the influence of informal institutions. The primary new finding from this is that people from richer countries are likely to have more negative opinions on informal institutions related to entrepreneurship, which may be surprising as informal institutions and economic development tend to have a strong positive relationship, as discussed in section 2.3. The notion that relating informal institutions to entrepreneurship is strong enough to alter the relationship between informal institutions and economic development reflects the relative importance of entrepreneurship, which had not been shown in this way before. The relationship may have also changed since individual perceptions were considered rather than macro-level indicators, highlighting the potential stark differences in how individuals perceive informal institutions, and how economists study macro-level indicators. This is also an important implication for research moving forward, as it recommends that more individual-level indicators (and their interaction with macro-level indicators) should be considered in such studies. This also opens doors for future research into the role of economic development levels in such relationships.

6.3 Policy Implications

The findings of this paper bring forward some very applicable short- and long-term policy implications. The results showed that the largest predictors of entrepreneurial intentions were related to self-perception of entrepreneurial skill and personally knowing another entrepreneur. It could be argued that these particular aspects of informal institutions are likely to take a shorter amount of time to change. Therefore, to encourage entrepreneurial intentions, governments could potentially invest in building entrepreneurial ecosystems and hubs, so that people become more

skilful and confident in their abilities, as well as network with other entrepreneurs to enhance knowledge spillovers and other positive externalities. On the other hand, the influence of normative informal institutions may take a longer time to alter, due to how rigid societal norms tend to be. Nonetheless, they can still undergo change by devising longer term strategies focused on increasing the social acceptance of entrepreneurship as a career or in the media. This can be done by explicitly and actively magnifying entrepreneurial successes, not only in the media, but also in socio-political discourse and campaigns. A potentially encouraging conclusion from all this, especially for less developed countries, is that the income level of a country is likely to be negatively associated with the influence of informal institutions on entrepreneurial intentions. Hence, countries with lower levels of income are likely to have more positive entrepreneurial attitudes, which may help create new value in the economy. Developing their informal institutional environment in directions that support entrepreneurship, through the policy suggestions above or otherwise, could potentially be more beneficial for countries with lower levels of income, due to larger marginal returns. Therefore, all in all, informal institutions have high potential to influence the entrepreneurial attitudes of individuals, and taking active measures to maximise this potential can be a great way to create a more entrepreneurial culture in society.

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Appendices

Appendix A: Survey Response Definitions

Societal Perception of Entrepreneurship as a career (*nbgoodc*):

"People consider starting a business a desirable career choice"

Perception of media attention for entrepreneurship (*nbmedia*):

"You will often see stories in the public media about successful new businesses"

Self-Perception of entrepreneurial skill (*suskill*):

"Perceives to have the required knowledge and skills to start a business"

Fear of failure (*fearfail*):

"Fear of failure would prevent you from starting a business"

Knowing another entrepreneur personally (*knowent*):

"Personally knows someone who started a firm in the past two years"

Entrepreneurial Intention:

"Entrepreneurial intentions - expecting to start a new business in the next three years (in 18-64 year old sample that is not involved in entrepreneurial activity)"

Source: Global Entrepreneurship Monitor (2017)

Appendix B: Classification of Countries according to National Income Levels

Table 9: Classification of countries according to national income levels

Income Category (GNI per capita range)	Countries
Low-income *(< $1,005)*	Madagascar
Lower- middle Income *($1,006 - $3,955)*	Egypt, Guatemala, Morocco, India, Indonesia, Thailand, Vietnam
Upper-middle income *($3,956 - $12,235)*	Argentina, Bosnia and Herzegovina, Bulgaria, China, Colombia, Ecuador, Iran, Kazakhstan, Malaysia, Mexico, Panama, Peru, South Africa
High-income *(> $12,235)*	Australia, Canada, Chile, Croatia, Cyprus, Estonia, France, Germany, Greece, Ireland, Israel, Italy, Japan, Latvia, Luxemburg, Netherlands, Poland, Puerto Rico, Qatar, Saudi Arabia, Slovakia, Slovenia, Spain, South Korea, Sweden, Switzerland, Taiwan, United Arab Emirates, United Kingdom, United States, Uruguay

Note. GNI per capita measured in 2018 US Dollars.

Appendix C: Full Extended Model Probit Results

Table 10: Extended Model Marginal Effects Probit Results including country dummies

	Coef.	Robust Std.Err.	P-Value
Normative Institutions			
Good career choice	0.029	0.002	0.000
Media attention	0.022	0.002	0.000
Cultural-Cognitive Institutions	0.120	0.002	0.000
Entrepreneurial skill			
Fear of failure	-0.018	0.002	0.000
Entrepreneurial network	0.058	0.002	0.000
Control Variables			
- Age Group -			
25-34	-0.024	0.004	0.000
35-44	-0.051	0.004	0.000
45-54	-0.078	0.004	0.000
55-64	-0.125	0.004	0.000
65-120	-0.176	0.004	0.000
- Education -			
Primary education or first stage of basic education	0.009	0.008	0.284
Lower secondary or second stage of basic education	0.007	0.007	0.378
(Upper) Secondary education	0.002	0.007	0.756
Post-secondary non-tertiary education	0.011	0.007	0.138
First stage of tertiary education	0.023	0.007	0.002
Second stage of tertiary education	0.025	0.010	0.015
- Gender -			
Female	-0.018	0.002	0.000
Country Dummies			
United States of America	0.006	0.013	0.616
Egypt	0.288	0.011	0.000
South Africa	-0.025	0.012	0.035
Greece	-0.063	0.014	0.000
Netherlands	-0.045	0.013	0.001
France	0.058	0.012	0.000
Spain	-0.101	0.009	0.000
Italy	-0.006	0.013	0.652
Switzerland	-0.045	0.014	0.001
United Kingdom	-0.091	0.010	0.000
Sweden	-0.027	0.013	0.042
Poland	-0.087	0.012	0.000
Germany	-0.057	0.011	0.000
Peru	0.177	0.012	0.000
Mexico	0.002	0.010	0.847
Argentina	0.005	0.013	0.713
Chile	0.218	0.009	0.000
Colombia	0.232	0.012	0.000
Malaysia	0.035	0.012	0.004
Australia	-0.008	0.014	0.537
Indonesia	0.059	0.011	0.000
Thailand	0.185	0.012	0.000
Japan	-0.080	0.018	0.000
South Korea	0.093	0.012	0.000
Vietnam	0.079	0.013	0.000
China	0.065	0.011	0.000
India	-0.055	0.011	0.000
Iran	0.182	0.011	0.000

Canada	0.030	0.014	0.028
Morocco	0.101	0.011	0.000
Madagascar	0.111	0.014	0.000
Luxemburg	0.010	0.014	0.498
Ireland	-0.010	0.013	0.438
Cyprus	0.033	0.012	0.008
Bulgaria	-0.101	0.017	0.000
Latvia	0.057	0.013	0.000
Estonia	0.070	0.014	0.000
Croatia	0.053	0.012	0.000
Slovenia	0.003	0.013	0.824
Bosnia and Herzegovina	-0.120	0.016	0.000
Slovakia	-0.019	0.015	0.214
Guatemala	0.199	0.011	0.000
Panama	0.043	0.012	0.000
Ecuador	0.199	0.012	0.000
Uruguay	0.112	0.012	0.000
Kazakhstan	0.277	0.015	0.000
Puerto Rico	0.060	0.012	0.000
Taiwan	0.134	0.011	0.000
Saudi Arabia	0.067	0.010	0.000
United Arab Emirates	0.232	0.010	0.000
Israel	0.096	0.013	0.000
Qatar		(Omitted)	

Note. Age group reference: 18-24; Education Reference: Pre-Primary Education; Gender Reference: Male.

Appendix D: Full Multinomial Logit Results (Testing Hypothesis 3a)

Table 11: Multinomial Logit Results, testing hypothesis 3a

income	Coef.	Robust Std.Err.	P-value
Lower-middle income			
Normative Institutions			
Good career choice	-1.000	0.107	0.000
Media attention	0.423	0.077	0.000
Cultural-Cognitive Institutions			
Entrepreneurial skill	-0.484	0.080	0.000
Fear of failure	0.184	0.078	0.018
Entrepreneurial network	-0.180	0.083	0.030
Control Variables			
- Age Group -			
25-34	0.209	0.102	0.040
35-44	0.551	0.117	0.000
45-54	0.399	0.125	0.001
55-64	1.344	0.199	0.000
65-120	-17.628	0.209	0.000
- Education -			
Primary education or first stage of basic education	-1.992	0.210	0.000
Lower secondary or second stage of basic education	-1.308	0.213	0.000
(Upper) Secondary education	-0.437	0.214	0.041
Post-secondary non-tertiary education	3.477	0.733	0.000
First stage of tertiary education	-0.309	0.230	0.180
Second stage of tertiary education	-2.500	0.287	0.000
- Gender -			
Female	-0.077	0.077	0.318
Constant	4.051	0.255	0.000
Upper-middle income			
Normative Institutions			
Good career choice	-1.337	0.106	0.000
Media attention	0.342	0.076	0.000
Cultural-Cognitive Institutions			
Entrepreneurial skill	-0.584	0.079	0.000
Fear of failure	-0.177	0.077	0.021
Entrepreneurial network	-0.136	0.082	0.096
Control Variables			
- Age Group -			
25-34	0.508	0.101	0.000
35-44	0.991	0.116	0.000
45-54	0.991	0.123	0.000
55-64	2.228	0.197	0.000
65-120	1.146	0.211	0.000
- Education -			
Primary education or first stage of basic education	0.082	0.213	0.701
Lower secondary or second stage of basic education	1.120	0.217	0.000
(Upper) Secondary education	1.899	0.218	0.000
Post-secondary non-tertiary education	4.917	0.735	0.000
First stage of tertiary education	1.557	0.235	0.000
Second stage of tertiary education	0.490	0.275	0.075
- Gender -			
Female	0.024	0.076	0.749
Constant	2.551	0.258	0.000

High-income			
Normative Institutions			
Good career choice	-1.331	0.106	0.000
Media attention	0.302	0.075	0.000
Cultural-Cognitive Institutions			
Entrepreneurial skill	-0.637	0.078	0.000
Fear of failure	0.145	0.076	0.056
Entrepreneurial network	-0.306	0.081	0.000
Control Variables			
- Age Group -			
25-34	0.648	0.100	0.000
35-44	1.307	0.115	0.000
45-54	1.505	0.122	0.000
55-64	2.809	0.197	0.000
65-120	2.073	0.208	0.000
- Education -			
Primary education or first stage of basic education	-0.030	0.208	0.886
Lower secondary or second stage of basic education	0.779	0.213	0.000
(Upper) Secondary education	1.809	0.214	0.000
Post-secondary non-tertiary education	5.660	0.733	0.000
First stage of tertiary education	2.581	0.230	0.000
Second stage of tertiary education	0.948	0.269	0.000
- Gender -			
Female	-0.135	0.075	0.072
Constant	3.251	0.254	0.000

Note. Reference category: Low-income, Age group reference: 18-24; Education Reference: Pre-Primary Education; Gender Reference: Male.