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The Influence of Formal and Informal Institutions Quality on Entrepreneurial Activity

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ABSTRACT

This thesis examines the influence of formal and informal institutions' quality on entrepreneurial activity rates. Most researchers suggest that the relationship between formal and informal institutions' quality and entrepreneurship is positively correlated. Besides, empirical evidence shows that informal institutions could positively moderate the relationship between formal institutions and entrepreneurial activity rates. Using data from the Global Entrepreneurship Monitor in 70 countries during 2017, this thesis's empirical results somehow find that the relationship between formal institutions' quality and entrepreneurial activity rates is negatively correlated. This thesis also finds that countries with less individualistic culture will encourage entrepreneurial activity. However, this thesis confirms that informal institutions could positively moderate the relationship between formal institutions and entrepreneurial activity rates, especially in individualistic countries.

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I.   Introduction

Entrepreneurship has been the primary research subject for researchers and policymakers. It has also become the principal analysis in economics and management. The reason is that, for the past few years, entrepreneurship has become an attractive field. In the past, the workplace was identifiable as a rigid place where workers had to wear a formal suit and tie and work for a minimum set of working hours under managers' supervision. Currently, a survey from Cox Business has discovered that almost two-thirds of respondents prefer to start their businesses and become entrepreneurs. The reasons are because entrepreneurs offer flexibility and greater control over their businesses. Besides, the survey also shows that 43% of business owners have never thought about quitting their businesses, even though the rise of technology presents difficulties that they may not have anticipated. In contrast, the survey reveals that new entrepreneurs consider technology to facilitate their businesses and individual outcomes. More than half of business owners in the survey state that new technologies, such as mobile applications and mobile marketing, help small business owners to drive and to make their businesses more productive (Business News Daily, 2020).

Several studies show that the levels of entrepreneurship differ across countries; three factors could explain these differences. The first factor suggests that entrepreneurship levels' differences depend on entrepreneurship categorization based on some driving factors (Baumol, 1990). Wennekers et al. (2005, p. 305) differ entrepreneurship into two categorizations: opportunity and necessity entrepreneurship. Opportunity entrepreneurship discusses entrepreneurs who are aware of business opportunities and decide to go after those opportunities. In contrast, necessity entrepreneurship occurs due to a lack of alternatives in the labor market; thus, engaging in entrepreneurial activity has become an individual's last option. Naudé (2010) shows that entrepreneurship type, such as necessity entrepreneurship, occurs specifically in developing countries where poverty levels are significant and lack formal sector opportunities.

The second factor suggests that entrepreneurship levels' differences depend on each country's economic development level. Wennekers et al. (2005) describe the relationship between entrepreneurial activity rates and economic development as a U-shaped curve. In the U-shaped curve, the entrepreneurial activity rates are on the vertical axis while the economic development, measured by income per capita, is on the horizontal axis. First, the nascent entrepreneurship rates are high in countries with an extremely low capita per

income. Subsequently, the nascent entrepreneurship rates decrease with the rise of per capita income. Afterward, these nascent entrepreneurship rates rise again as the countries' per capita income increases further after a particular phase. Consequently, the new business creation occurs in countries with extremely low capita per income and high capita per income (Vivarelli, 2012).

The third factor explains that the distinctions in entrepreneurship levels are due to differences in institutional settings. North (1990) divides institutional settings into formal and informal institutions. Formal institutions involve written constitutions, regulations, and government size, while informal institutions include social norms, values, beliefs, and cultures. Some studies have started to examine how institutional components determine entrepreneurship levels since institutional components could become vital factors that empower or hamper entrepreneurial activity. For instance, Aidis et al. (2012) provide some theoretical perspectives regarding the positive relationship between institutional components and entrepreneurship. The theoretical perspectives show that an enormous government spending for institutions, funding regulation, and law enforcement practices may improve entrepreneurship. The authors' study confirms this positive relationship as they discover that lower government spending undermines entrepreneurship incentives. Moreover, they discuss that a high level of taxation supports vast expenditure on welfare. Consequently, it reduces the incentive for new business creation or nascent entrepreneurship.

Furthermore, Nyström (2008) demonstrates the legal structure and security of property rights as formal institutions' proxies. They find that countries with better law structures and more secure property rights will encourage their citizens to involve more in entrepreneurial activities. Besides, some previous works also consider dimensions such as cultures and values as proxies of informal institutions. For instance, Dheer (2017) uses individualism as a proxy of informal institutions. The author shows that when a country consists of a more individualist society, it positively moderates the impact of political freedom but negatively moderates the impact of corruption on entrepreneurial activity rates over countries.

Although some previous studies have started to investigate the relationship between institutional components and entrepreneurship levels, several gaps remain. One example of the gap is that previous studies do not explain how formal and informal institutions' interaction is necessary to consider while analyzing entrepreneurial activity. Empirically, several studies may have mentioned this problem. For example, Li and Zahra (2012)

examine the variation of venture capital enterprises depending on various formal institutions and cultural features. However, the empirical evidence does not explain how informal institutions' establishment could moderate formal institutions' effect, whether by strengthening or limiting its effect. Therefore, it is necessary to examine the institutional context as an interdependent system. Li and Zahra (2012) show that the application of formal and informal institutional perspectives results in a better explanation of entrepreneurship quality.

This thesis wants to study and focuses on analyzing the relationship between formal and informal institutions and entrepreneurial activity rates. Besides, this thesis also focuses on analyzing the relationship between formal institutions' establishment and that entrepreneurship is conditional to countries' cultural features. This thesis tries to prove that country's cultural features could moderate the relationship between formal institutions and entrepreneurial activity rates. Thus, to prove that analysis, this thesis will use two cultural features that have a robust relationship with entrepreneurship: individualism and uncertainty avoidance. Gorodnichenko and Roland (2010) suggest these two cultural features, as the authors show that individualist society has more positive support towards formal regulations and norms implementation. Meanwhile, a society with high uncertainty avoidance culture hampers individuals' entrepreneurial activities since they are afraid to take risks due to an uncertain environment (Li & Zahra, 2012). Therefore, this thesis describes the research question as follows:

Does the higher quality of formal and informal institutions significantly increase entrepreneurial activity rates?

Furthermore, the sub-question formulates following the main question.

Does the higher quality of informal institutions result in a significant positive relationship between formal institutions and entrepreneurial activity rates?

This thesis covers 70 countries in the Global Entrepreneurship Monitor (GEM) dataset to answer research questions and provide understandings. The dataset consists of developed and developing countries as the primary sample and uses the latest available data, 2017. This thesis contributes two things to the current study: first, this thesis analyzes formal and informal institutions' collective effects on entrepreneurial activity. Second, this thesis analyzes the influence of informal institutions on the relationship between formal institutions and entrepreneurship. This thesis's structure consists of five sections: the first

one, section 2, discusses relevant literature and their results, and the theoretical framework to construct the hypotheses. Section 3 incorporates a description of the data and methodology and addresses the empirical estimations. Section 4 presents the empirical results and analysis. In section 5, the explanations include discussion and conclusion; finally, in section 6, it discusses possible limitations and suggestions for further research.

II.   Literature Review and Hypotheses Development

Before analyzing the relevant institutions for entrepreneurial activity, it is crucial to describe the institution's term. North (1990) illustrates the institution as the rule of the game. It means that institutions play a role as guidelines of how someone or a party should act or behave in an offered condition. In other words, institutions could shape each person's behavior and give them incentives to do something. Since the context of institution theory is broad, North classifies institutions into two specific groups: formal and informal institutions. In general, formal institutions can capture the rules, regulations, and laws that determine individuals' economic incentives and control individuals' behavior. In contrast, informal institutions consist of social arrangements and norms, such as political ideology and cultures (North, 1990). These informal institutions are usually unwritten and tend to be not lawfully enforced (North, 2005).

Both formal and informal institutions cooperate with both individuals and companies to control decision-making by indicating which norms and behaviors should be socialized in a society (Williams and Vorley, 2015). As mentioned before, formal and informal institutions are known as the rule of the game. It means that both formal and informal institutions could influence someone's behavior, including influencing someone's decision to become entrepreneurs. Furthermore, a combination of formal and informal institutions is also responsible for forming business opportunities and provide incentives for people to participate in entrepreneurial activity (Aidis, 2017). However, it is essential to highlight that not all entrepreneurs type will respond to the same institutional situations. The existing incentive structures that emerge from formal and informal institutions will more influence the nascent entrepreneurship type (Aidis, 2017).

To understand further regarding the correlation between entrepreneurial activity and institutions. Several studies have provided explanations of these correlations. Components like property rights, rule of laws, control of corruption, and financial capital are proxies of formal institutions. These components are relevant in explaining people's motivation to

participate in entrepreneurial activity. Empirical evidence shows a positive correlation in the relationship between formal institutions' quality and entrepreneurial activity. For instance, the evidence from Estrin et al. (2013) shows that property rights and transparent legal structure can alleviate the risks of starting businesses while providing financing for entrepreneurs. Consequently, more people will participate in entrepreneurial activity. The authors also find that secure property rights could increase the growth aspirations of entrepreneurs. Besides property rights, Bowen and De Clercq (2008) use the corruption index as a proxy of formal institutions. The authors argue that corruption presents uncertainty in the business environment. As a result, the business environment changes unexpectedly and hampers the growth of new businesses. The relationship between corruption levels and entrepreneurial activity is negative as high corruption levels discourage entrepreneurial activity. Thus, a country must control its corruption level.

On the other side, informal institutions' features consist of several aspects, such as norms, values, beliefs, and cultures. Among these features, cultures play the most crucial role in shaping individuals' perceptions and an essential factor in predicting entrepreneurial activity rates at the country's level (Hechavarria and Reynolds, 2009). For instance, Li and Zahra (2012, p. 96) imply that cultural aspects determine formal institutions' effect on the investment capital's enterprise. Besides, Kreiser et al. (2010) also suggest that cultures contribute to two entrepreneurship's critical factors: firms' willingness to take risks and enterprising behaviors. Therefore, it is essential to consider cultural aspects as proxies of informal institutions in predicting entrepreneurial activity rates in a country.

Cultural aspects have several measurements, but the most commonly used is suggested by Hofstede (2001) and Hosftede et al. (2010). There are six dimensions of the Hofstede index: power distance, individualism or collectivism, uncertainty avoidance, long-term orientation, masculinity versus femininity, and indulgence versus restriction. However, several previous studies use individualism and uncertainty avoidance as proxies of informal institutions (Mueller and Thomas, 2001; Li and Zahra, 2012). According to Hofstede (2001), individualism refers to the extent to which individuals merged into groups in society, as individualism underlines personal accomplishments, freedoms, and competitiveness. Empirical evidence from Dheer (2017) also shows that individualism moderates the relationship between formal institutions and entrepreneurial activity rates. The author uses political freedom, corruption index, and education level as proxies of formal institutions. The findings show that individualism positively moderates the effect of

political freedom and the impact of education. However, individualism has a negative impact on moderating corruption's impact on entrepreneurial activity rates over nations.

Meanwhile, the second proxy of informal institutions, uncertainty avoidance, refers to how individuals in society can tolerate uncertainty and ambiguity (Hofstede, 2001). The uncertainty is necessary to consider while analyzing entrepreneurship, especially nascent entrepreneurship. The reason is that uncertainty causes entrepreneurs to become incompetent in calculating the new enterprises' profits (Wennekers et al., 2007). Moreover, countries with a high degree of uncertainty avoidance cultures have less tolerance towards ambiguity or uncertainty and have a greater fear of failure (Hofstede, 1980). These high uncertainty avoidance countries also tend to avoid unusual and unfamiliar ideas. Thus, individuals who live in those respective countries want to avoid possible conflicts and support optimal stability with the least risk. Consequently, high uncertainty avoidance countries usually perform strict regulations, rules, and laws to deal with unpredictable situations and control everything. These strict regulations and rules could hamper entrepreneurial activity (Wennekers et al., 2007).

From the previous explanations, formal and informal institutions may have different ideas within each other. Formal institutions include the rules, regulations, and laws, whereas informal institutions include social arrangements and norms. However, empirical evidence shows that the combination of both formal and informal institutions could foster entrepreneurial activity. For instance, Williamson (2000) shows that a constructed formal institution motivates individuals to participate in entrepreneurship, but this motivation also depends on cultural aspects. Furthermore, North (1990) and Baumol (1996) argue that informal institutions should be included in the formal institutions' analysis. Both authors argue that if informal institutions are complementary to formal institutions, social interaction delivery could strengthen formal institutions' efficiency. In contrast, if informal institutions act as substitution of formal institutions, it will undermine formal institutions' quality (Estrin and Prevezer, 2011).

The informal institutions' role as a substitute for formal institutions occurs in developing countries because, in the developing countries, low quality of institutional settings exists. Mair and Marti (2009) describe the low quality of institutional settings in underdeveloped and developing countries as institutional voids. Khanna and Palepu (2000) further explain the term institutional void by referring to a lack of intermediaries, such as corporate market research and credit card arrangements. Due to the absence of

intermediaries, institutional voids could hamper the market to work efficiently and prevent new firms' creation since the institutional deficiencies could raise the transaction cost and lead to other issues such as a complex regulation (Khanna & Palepu, 2004).

2.1.1 Formal Institutions and Entrepreneurial Activity

As previously mentioned before, empirical evidence from Estrin et al. (2013) and Bowen and De Clrecq (2008) reveal that the relationship between formal institutions' quality and entrepreneurial activity is positively correlated. Estrin et al. (2013) find that secure property rights could improve the entrepreneurs' aspirations and motivate them to involve more in entrepreneurial activity. The authors use property rights as proxies of formal institutions. Meanwhile, Bowen and De Clercq (2008) use the corruption index as a proxy of formal institutions. The authors find that high corruption levels in a country indicate a lower quality of formal institutions. This low quality of formal institutions may hamper the growth of new businesses and discourage entrepreneurs.

Previous empirical studies show that regulator quality can also be used as a proxy of formal institutions besides property rights and corruption index. The evidence also indicates a positive relationship between regulatory quality with entrepreneurial activity. Whitley (1999) further explains that regulatory quality refers to the government's ability to compose and implement regulations. One of the examples of regulatory quality is administrative requirements. According to Verheul et al. (2002), the less complicated administrative requirements will result in more individuals participating in entrepreneurial activity and motivating them to develop their small businesses. The reasons are because small businesses are more sensitive to administrative requirements and administrative costs than larger businesses. Small business owners could spend their time and energy to focus more on administrative requirements. Consequently, it distracts the focus of small business owners from the necessary entrepreneurial activities.

A well-structured and well-enforced laws and regulations may encourage individuals to participate in entrepreneurship. However, according to Fogel et al. (2015), not all well-enforced laws and regulations support entrepreneurial activity. The authors suggest that well-enforced laws and regulations may result in excessive regulations and laws. These excessive regulations and laws result in a problem as countries with higher regulatory burdens hinder entrepreneurial activity. When governments consist of "invisible hands," they enact and implement rules and laws to establish transactional trust and property rights.

Nevertheless, at the same time, it may fail on the regulatory side of too little. In contrast, when governments intervene or play a role as the regulator—governments "helping hand" or "grabbing hand"—they may force regulations and rules that are not economically inefficient. As a result, these regulations and rules strain new entrants as they preserve incumbents with political power or even extract bribes.

Empirical evidence from Djankov et al. (2002) is consistent with the idea of grabbing hands. The authors show that well-enforced laws and regulations are not necessarily resulting in more participation in entrepreneurial activity. When the government plays a role as "grabbing hand," it can impose an excessive regulatory burden. Moreover, the authors explain the tollbooth theory, as this theory suggests that regulations and rules benefit politicians. These politicians play a role as regulators, and they use the existing regulations and rules to create rents. They also collect bribes from the potential entrants to provide permits (Shleifer and Vishny 1993, p. 601). Besides the regulatory burden, another example of well-enforced laws and regulations is occupational licensing implementation. Occupational licensing is a requirement decided by the government to acquire a license, such as participating in numerous tests for competency and minimum experience and education requirements. According to Slivinsky (2015), occupational licensing may be necessary to preserve the public's security at large. However, at the same time, occupational licensing also serves to keep out new competitors and benefits incumbents. Therefore, it may hinder new business creations.

Furthermore, Slivinski (2015) shows that licensing occupation can raise entry barriers for specific occupations, mostly low-income entrepreneurship, such as hairdressers and street vendors. The licensing program will only discourage low-income entrepreneurs and other low-income individuals from participating in entrepreneurial activity. The author uses the United States as the primary sample and collects occupational licensing data for 50 states. The data includes whether a state licenses the occupation or not, experience and education requirements, and the fees required to have a license. The results show that the states that license half of the low-income occupations have an average entrepreneurial activity rate of 11% lower than the average for all states. In contrast, states that license less than a third of low-income occupations have an average entrepreneurial activity rate of 11% higher. The result indicates that low-income entrepreneurs have already faced many barriers since most low-income entrepreneurs do not have a high school diploma or college degree; thus, the licensing program will only increase their burdens.

Several studies above have explained that the relationship between formal institutions' quality and entrepreneurial activity could be a positive (Estrin et al., 2013; Bowen and De Clercq, 2008; Verheul et al., 2002), but the relationship could also be negative since not all well-enforced regulations are necessary for promoting the entrepreneurial activity (Fogel et al., 2015; Djankov et al., 2002; Silvinski, 2015). Another interesting empirical evidence regarding formal institutions' quality comes from Baumol (1990). The author shows that developed countries have better institutional quality than developing ones. Thus, entrepreneurial activities in developed countries consist of productive entrepreneurship where entrepreneurs generate economic prosperity through innovation in the market, whereas developing countries consist of unproductive entrepreneurship. Unproductive entrepreneurs engage in rent-seeking from the government and even involve criminal activity such as drug cartels.

Although developing countries have low institutional quality, Bosma and Levie (2009) reveal that the level of nascent entrepreneurship activity is usually higher in developing countries than in developed ones. They analyze that the average rate of nascent entrepreneurship among developing economies is 6.1%, whereas it is only 3.4% in developed economies. Simultaneously, necessity entrepreneurship rates in developed countries run only 17% of all new firms than in developing countries where the necessity entrepreneurship rates are 32%. In brief, developing countries have a higher average rate of nascent entrepreneurship and higher necessity entrepreneurship rates than in developed countries. The reasons may because individuals in underdeveloped and developing countries do not have any options to work, but they still need income to survive and live; thus, they end up as entrepreneurs (Naudé, 2010).

The previous studies have explained that even though the relationship between formal institutions' quality and entrepreneurial activity may result in a negative relationship, in general, the relationship between formal institutions' quality and entrepreneurial activity is positively correlated. Based on the arguments above, this thesis will generate a hypothesis as follows:

HYPOTHESIS 1: *The higher quality of formal institutions significantly increases entrepreneurial activity rates.*

2.1.2   Informal Institutions and Entrepreneurial Activity

As previously mentioned before, several previous studies use individualism and uncertainty avoidance as proxies of informal institutions (Mueller and Thomas, 2001; Li and Zahra, 2012). The relationship between individualism and entrepreneurship is positively correlated. For instance, the individualistic cultures could help to boost innovation and risk-taking attitude on entrepreneurs. As a result, it is more favorable for entrepreneurs in the individualistic environment to open new firms and participate in entrepreneurship (Dheer, 2017). The individualistic cultures also inspire the establishment of new firms through rewarding criteria. Thus, these individuals have personal recognition instead of collective achievements (Hayton et al., 2002).

For uncertainty avoidance, countries with high uncertainty avoidance cultures will hamper entrepreneurial activity. The empirical evidence shows that high uncertainty avoidance countries have less tolerance towards ambiguity and have a greater fear of failure (Hofstede, 1980). Consequently, those respective countries usually perform stringent regulations and rules to deal with unpredictable situations. These stringent regulations and rules can discourage individuals from participating in entrepreneurial activity. Moreover, individuals who live in higher uncertainty avoidance countries tend to acquisition existing businesses with existing products, whereas individuals who live in lower uncertainty avoidance countries tend to establish new firms (Block and Walter, 2012; Ozgen, 2012).

Furthermore, Mueller and Thomas (2001) analyze that the environment that consists of individualistic and low uncertainty avoidance cultures will encourage entrepreneurial activity participation. The authors combine two entrepreneurial traits: internal locus of control and innovativeness, as these two traits are vital in promoting entrepreneurial activity. Internal locus of control indicates that people have power over events in their lives, while innovativeness is also essential for entrepreneurs to survive and thrive. The authors discover that internal locus of control and innovation orientation are more likely to exist in individualistic and low uncertainty avoidance environment. Therefore, cultures play a vital role in entrepreneurial behavior.

Although several studies have explained that individualistic culture could foster entrepreneurship, Bosma and Harding (2007) find that developing countries such as Peru and Colombia have a low score of individualism indicators, 16 and 13, respectively. However, these two countries have the highest entrepreneurial activity rates: 40.2% and

22.5%. Moreover, Baum et al. (1993) show that countries with less individualistic culture will encourage entrepreneurial activity. The authors show that individualism results in a less intimate society, whereas less individualistic culture results in an intense need for affiliation. Individuals who live in less individualistic countries satisfy this intense need for affiliation by establishing new firms. Besides, this intense need for affiliation will result in acquiring necessary supports for the new business. The supports include social networks and personal contacts that could help new businesses to grow and succeed (i.e., through personal loans).

Some previous studies have explained that even though less individualistic countries may encourage entrepreneurial activity, in general, countries with higher levels of individualism could increase entrepreneurial activity rates. Therefore, based on the arguments above, this thesis proposes the following hypotheses:

HYPOTHESIS 2a: *The higher levels of individualism significantly increase entrepreneurial activity rates.*

HYPOTHESIS 2b: *The lower levels of uncertainty avoidance significantly increase the entrepreneurial activity rates.*

2.1.3 The Moderate Effects of Informal Institutions on Formal Institutions and Entrepreneurial Activity

Williams and Vorley (2015) show that a better quality of formal institutions positively impacts entrepreneurial activity if it observes with informal institutions variable. The authors analyze the case of Greece when an economic crisis occurs and how institutional reforms affect entrepreneurship. Before the economic crisis, Greece is a country with a poor environment for starting a business, as inefficient institutional settings exist and have threatened the country's entrepreneurial activity. When an economic crisis occurs, the government tries to reform the formal institutions. The authors find that formal institutions' reforms positively affect entrepreneurship participation, only if it corresponds with informal institutions. Meanwhile, if the analysis does not involve informal institutions, then the results will be different.

Similarly, Li and Zahra (2012) find that formal and informal institutions' effect should be studied together. The authors find that countries that consist of less individualistic and high uncertainty avoidance cultures result in a negative relationship between formal institutions and entrepreneurial activity. The authors use cultural aspects, such as

individualism and uncertainty avoidance, as informal institutions' proxies to explain the result. They indicate that venture capitalists react differently to formal institutions' incentives, depending on various cultural aspects. The negative relationship occurs because less individualistic and high uncertainty avoidance societies could prevent people from participating in entrepreneurial activity. These people may be afraid to take risks and prefer to focus on businesses with specific outcomes. Therefore, the third hypothesis is:

HYPOTHESIS 3a: *The more individualism will result in a stronger positive relationship between formal institutional and entrepreneurial activity rates.*

HYPOTHESIS 3b: *The lower uncertainty avoidance will result in a stronger positive relationship between formal institutional and entrepreneurial activity rates.*

Here is the table that shows the hypothesis of the relationship between each variable in the models:

Table 1. Descriptions of the relationship between the dependent and independent variables used in the research

Dependent Variable	Independent Variable	The Effect
Entrepreneurial activity	Formal Institutions	Positively correlated.
Entrepreneurial activity	Individualism	Positively correlated.
Entrepreneurial activity	Uncertainty Avoidance	Negatively correlated.
Entrepreneurial activity	Interaction between formal institutions and individualism	More individualism environment will result in a positive relationship between formal institutions and TEA.
Entrepreneurial activity	Interaction between formal institutions and uncertainty avoidance	More uncertainty avoidance environment will result in a negative relationship between formal institutions and TEA.

III. Data and Methodology

3.1 Data

The data in this thesis comes from the Global Entrepreneurship Monitor (GEM) dataset. GEM is an international research project that aims to evaluate individuals' entrepreneurial activities, aspirations, and attitudes throughout the country (GEM, n.d). The project initially started with ten participants, but over time, many countries joined the project. This study only includes data sets based on complete information about all the variables involved in the analysis due to incomplete data on state entrepreneurial activity level in the GEM data source. This paper uses a dataset from 70 countries in 2017, the most recent data available. In the appendix (Table 8), there is a full list of countries and their classification.

3.1.1 Dependent Variable

1. Entrepreneurial Activity

The entrepreneurial activity will play a role as a dependent variable (Y). The variable that this study use is Total early-stage Entrepreneurial Activity (TEA) by Global Entrepreneurship Monitor (GEM). The TEA has already proven to be the most critical variable and the most often used to recognize the result of opening new firms and new ventures across nations (Reynolds et al., 2005). TEA describes the percentage of individuals aged 18-64 years old who are actively involved in business start-ups. These individuals are either in the form of starting new businesses recently (nascent entrepreneurs) or in the form of spanning 42 months after establishing the business (owner-manager of new firms) (Dheer, 2017).

3.1.2 Independent Variables

1. Formal Institutions

This thesis uses six government indicators as proxies of formal institutions. Here are the descriptions of the variables:

Table 2. Description of the formal institutions' variables used in the research

Variable	Description	Source

Voice and Accountability	It portrays the citizens' capability to engage in the government election and participate in the freedom of expression, association, and press freedom.	WGI
Political Stability	It portrays the probability of the government coup through violent means such as terrorism.	WGI
Government Effectiveness	It portrays the excellence of public and civil services to which extent it unconstrained on any political pressure, the quality of policy designing and execution, and the government's integrity to pledge.	WGI
Regulatory Quality	It portrays the government's capability to compose and perform well-built regulations and policies that allow the private sector to expand and grow.	WGI
Rule of Law	It portrays the extent to which agents have trust and stick to rules, specifically rules such as quality of contract enforcement, property rights, the police and courts, and the possibility of committing crime and violence.	WGI
Control of Corruption	It portrays the extent to which personal gain, including small (petty) and extensive forms of corruption, exercise public power and the "capture" by elites and private interests.	WGI

Kaufmann et al. (2009) develop these six governance variables for the World Bank and name it the Worldwide Governance Indicators (WGI). The WGI project is widely used in previous literature and proven reliable (Thomas, 2010). Moreover, this project reports the sum and individual governance indicators across 200 countries and regions over 1996–2018. Besides, the sum indicators also combine the prospects of populations, enterprises, and expert survey respondents in developed and developing economies. These governance indicators aim to measure the government's quality and ability to compose and execute well-built policies. The variables have a value of -2.5 to 2.5. The closer the score to the

maximum value, 2.5, indicates better institutions' quality. In contrast, lower scores indicate weak institutions' quality (Kauffman et al., 2010).

However, the six indicators display a high correlation, with values of the correlation are span from 0.662 to 0.958. This high correlation is a problem in regression analysis because regression analysis aims to separate the correlation between independent and dependent variables. If independent variables are correlated, it will change the relationship. As a result, the interpretation of the results will be incorrect. Wooldridge (2016) addresses this issue as a multicollinearity problem. One of the tests to detect multicollinearity in the regression model is using the variance inflation factor (VIF). The VIF recognizes the correlation and the strength of that correlation between independent variables. This paper uses Stata to estimate a VIF for each independent variable. The VIFs value starts at value one and has no limited number of values. Moreover, the VIFs value implies the correlation within independent variables: a value of 1 means there is no correlation between independent variables, the value between 1 and 5 implies a moderate correlation, but it is not severe enough to justify the corrective measure. The multicollinearity problem occurs where VIFs value is larger than 5, as the coefficients are estimated poorly and uncertain p-values (Frost, n.d).

The result shows that the mean of VIF of these six variables of formal institutions is 10.20 (Table 9, see Appendix). It indicates a severe problem of multicollinearity. Thus, to resolve this problem, this thesis uses principal component analysis (PCA). The PCA aims to display formal institutions into a single variable and prevent multicollinearity (Garrido et al., 2014; Fuentelsaz et al., 2018). The PCA process is a method of reducing a broad set of correlated variables to less correlated sets. In this thesis, PCA is used to reduce six governance indicators of WGI (Table 2) that highly correlated with each other to a single variable of formal institutions.

Although PCA reduces the six governance indicators of WGI to become a single variable of formal institutions, it does not create a significant loss of information; it still captures the information from six governance indicators. This analysis is in line with Johnson and Winchen (2002). The authors reveal that the PCA process could increase the variables' interpretability while minimizing a significant loss of information by creating a new variable. The new variable in this thesis is the formal institutions variable, and the new mean of VIF after implementing the PCA is 1.0 (Table 10, see Appendix). The result of the

new mean implies that there is no correlation between the variables. In other words, there is no multicollinearity issue.

2. Informal Institutions

For informal institutions, this thesis uses culture variables based on the study by Hofstede (2001). Initially, Hofstede's indicators have six dimensions, but this thesis will merely use two aspects most related to entrepreneurial activity: individualism and uncertainty confidence (Fuentelsaz et al., 2018; Mueller and Thomas, 2001).

Table 3. Description of the informal institutions' variables used in the research

Variable	Description	Source
Individualism	It indicates to what extent individuals favor to act and feel recognized as individuals instead of being a part of a group.	Hofstede's indicators
Uncertainty Avoidance	It indicates to what extent society tolerates ambiguity and uncertainty.	Hofstede's indicators

The Hofstede model of the cultural dimensions indicates independent preferences for one state over another. This Hofstede model differentiates countries (rather than individuals) from each other. The cultural indicators collect 117,000 surveys from around 88,000 multinational corporations' employees in 72 countries. At first, Hofstede managed 40 countries that consist of many respondents and later continued the examination to 50 countries. The individualism index expresses the extent to which societies prioritize individuals' goals over groups' goals. The uncertainty avoidance index captures the degree to which societies feel uncomfortable with ambiguity. The ranges of individualism and uncertainty avoidance index are from 1 to 100, where higher scores, closer to 100, represent higher levels of individualism and uncertainty avoidance. In contrast, lower scores, closer to 1, represent lower levels of individualism and uncertainty avoidance.

3.1.3 Control Variables

This thesis will include several control variables taken from previous literature, as these controls affect entrepreneurial activity at the country and individual levels. Here is the description of the variable:

Table 4. Description of the control variables used in the research

Variable	Description	Source
GDP per Capita	It measures the gross value added by all producers in the economy plus any product taxes and minus any subsidies not included in its value. The databased on constant 2010 US dollars.	World Bank
Unemployment	It measures the share of the labor force that has no job but available for and seeking work.	World Bank
Population	It measures the total population in a country. As population also indicates the country's size.	World Bank
Female Population Rate (% of Total Population)	It measures the population of females as the percentage of the population that is female. Population captures all citizens, nonetheless of official status or citizenship.	World Bank

These control variables consist of economic growth, unemployment, population, and the female population rate. The source of the following variables is from the World Bank World Development Indicators database. Economic growth represents the country's macroeconomics indicator, as this analysis uses *GDP per capita* as the proxy of economic growth. Desai et al. (2003) examine a positive relationship between GDP per capita and entrepreneurial activity rates. Wennekers et al. (2005) describe the correlation between nascent entrepreneurs and income per capita as a U-shaped relationship. The U-shaped curve implies that underdeveloped and developing countries have a high rate of nascent entrepreneurs. The rates decrease as a nation has become more developed. Nevertheless, at a certain point in economic growth, the nascent entrepreneurship rate increases again, as the countries' per capita income grows.

Unemployment becomes one of the critical factors for someone to end up as an entrepreneur. The unemployment index is similar to the GDP growth rate; both are macroeconomics indicators. In developing countries, the level of unemployment tends to be high; hence it will force individuals to embrace the entrepreneurial activity

(Noorderhaven et al. 2004). The *population* is included because Anokhin and Schulze (2009) show a positive relationship between the total population and entrepreneurial activity. Finally, this analysis also considers the *female rate of the population* as a control variable. The previous finding reveals that men are more engaging in entrepreneurial activity than women, resulting in preferable outcomes and opening more opportunities to find jobs in society (Bosma et al., 2004).

3.2 Methodology

This research will use a cross-section methodology and OLS regression incorporating the country to empirically evaluate the impact of the institutions' quality on entrepreneurial activity rates within countries. It follows the base specification below to test H1, H2, and H3:

$$TEA_i = \alpha + \beta_1 FormalInsti_i + \beta_2 Individualism_i + \beta_3 UncAvoid_i + \beta_4 FormalInsti_i \times Individualism_i + \beta_5 FormalInsti_i \times UncAvoid_i + \Sigma_k \beta_k X_{ik} + e_i \ (1)$$

Where *i* denotes each country

TEA	= A country's entrepreneurial activity rate
FormalInsti	= A country's formal institution quality
Individualism	= A country's individualism index
UncAvoid	= A country's uncertainty avoidance index
Xik	= Set of control variables
ei	= The error term

Individualism and *Uncertainty* are cultural dimensions developed by Hofstede (2001), as these two variables are proxies of informal institutions. The first interaction is *FormalInsti × Individualism.* This first interaction represents the interaction between the formal and informal institutions (appointed by individualism). The second interaction is *FormalInsti × UncAvoid.* This second interaction represents the interaction between the formal and informal institutions (appointed by uncertainty avoidance).

IV.   Results

4.1 Descriptive Statistics and Correlation

This thesis first will explain the descriptive statistics and the correlation between all the variables used before explaining the regression results. Table 5 summarizes descriptive statistics between all the variables used in this paper's regressions. Table 5 shows that the average value of Total early-stage Entrepreneurial Activity (TEA) is 12.396, whereas formal institutions' indicator average value is -1.00E-08 (-0.00000001). Table 5 also shows the range of formal institutions between -2.178 and 1.736, while the standard deviation is 1. These wide ranges and high standard deviation denote that the sample in this research comprises of 70 countries with diverse institutional settings. Although the institutional settings are varied, the sample from this study is dominated by underdeveloped and developing countries. Underdeveloped and developing countries have poor quality formal institutions; thus, the indicator scores are close to 0 and even have negative values. This argument is in line with the results of descriptive statistics, which shows that the average value of formal institutions' indicator in this paper is negative (-1.00E-08).

In contrast, the average and variances of informal institutions in this paper are more dispensed. This paper use individualism and uncertainty avoidance as proxies of informal institutions. Table 5 shows the descriptive statistics of informal institutions; it shows the average values and the ranges of individualism and uncertainty avoidance in the third and fourth rows. The average value of the individualism sample is 42.329 and a standard deviation of 22.939. Meanwhile, uncertainty avoidance values are more skewed, with an average of 69.129 and a standard deviation of 20.965. Table 5 also shows the ranges of both variables, the individualism range is between 6 and 91, and the uncertainty avoidance range is between 13 and 100. Table 6 shows the correlation between the dependent and independent variables in this research. It can be seen from table 6 that TEA's level has a negative relationship with formal institutions, individualism, uncertainty avoidance, GDP per capita, unemployment, and population. In contrast, the correlation between TEA and the female rate of the population is positive. Table 8 (see appendix) completes the information offered by the table 6.

There are two critical factors on how table 8 in the Appendix helps explain the correlation of variables. First, it confirms that the institutional indicators are diversified, shown by a wide range in formal and informal institutions' variables. Second, it provides a

specific ranking based on the levels of TEA. Table 8 shows that countries with the top 10 positions of higher TEA levels are from developing countries such as Burkina Faso, Angola, Ecuador, Guatemala, Peru, Lebanon, Chile, Vietnam, and Thailand. These developing nations have values of the formal institutions' indicator below 1, even a negative value. Besides, Graph 1 (See Appendix) also shows that countries with good formal institutions' quality, which formal institutions' indicators from 1 to 2, have a moderate level of TEA rates. This evidence is relevant to the findings by Wennekers et al. (2005) and Naudé (2010) that individuals in developing countries do not have any options to work in the formal sectors; thus, they end-up as entrepreneurship of informal sectors. The evidence also is in line with Bosma and Levie's (2009) findings that developing countries result in high TEA rates. The authors also show that necessity entrepreneurship rates in developing countries are higher than in developed countries.

Table 5. Descriptive statistics between the variables in the research

Variables	Mean	Standard Deviation	Min.	Max.
TEA	12.396	7.246	3.700	37.310
Formal Institutions	-1.00E-08	1	-2.178	1.736
Individualism	42.329	22.939	6	91
Uncertainty Avoidance	69.129	20.965	13	100
GDP Per Capita	35123.460	94642.160	771.252	791005.300
Unemployment	7.451	5.127	0.140	27.071
Population	7.94×10^7	2.30×10^8	596336	1.39×109
Female Rate	50.039	4.220	24.333	54.068

Table 6. Correlation matrix between the variables in the research

Variables	TEA	Formal Institutions	Individualism	Uncertainty Avoidance	GDP per Capita	Unemployment Rate	Population	Female Rate
TEA	1.000							
Formal Institutions	-0.376*	1.000						
Individualism	-0.393*	0.658*	1.000					
Uncertainty Avoidance	- 0.127	-0.125	-0.287*	1.000				
GDP Per Capita	-0.1522	0.297*	0.023	-0.038	1.000			
Unemployment	-0.232	-0.175	0.054	0.125	-0.139	1.000		
Population	-0.059	-0.202	-0.047	-0.302*	0.068	-0.109	1.000	
Female Rate	0.050	0.047	0.176	0.013	-0.033	0.226	0.049	1.000

$p < 0.05$

After examining the descriptive statistics of all of the variables and their correlation, the subsequent analysis examines the regression results. Table 7 describes the Ordinary Least Squares (OLS) regression of formal and informal institutions' effect on entrepreneurial activity. Besides, this analysis also uses a robust in the regression process. The purpose is to remedy heteroskedasticity and autocorrelation issues. The regression model in this thesis has already solved the multicollinearity issue. This thesis has computed the variance inflation factors (VIFs) analysis (Table 11, see Appendix). As a result, none of the variables exceed the limit value >5, as the mean of all variables is 1.5 (Ringle et al., 2015).

Table 7 displays the estimations' results—this thesis estimates six models to test the hypotheses as the six models are divided into six different columns. The first column illustrates the influence of the control variables to our estimation results. The second column represents the direct effect of formal institutions on the entrepreneurial activity rates as this second column will test hypothesis 1. Moreover, the third column denotes the direct effect of informal institutions, represented by individualism and uncertainty avoidance, on the entrepreneurial activity rates as this third column will prove the hypothesis 2. Subsequently, the fourth and fifth columns describe the interaction between formal institutions and individualism, and between formal institutions and uncertainty avoidance. These fourth and fifth columns try to explain the hypothesis 3. Finally, the last column, or the sixth column, is the full model that includes all variables and interactions.

Table 7. The total early-stage entrepreneurial activity, formal institutions, and informal institutions

	(1) TEA	(2) TEA	(3) TEA	(4) TEA	(5) TEA	(6) TEA
Formal Institutions		-3.378**		-7.351**	-5.851	-12.82**
		(1.035)		(2.469)	(3.325)	(4.345)
Individualism			-0.160***	-0.122*		-0.131**
			(0.041)	(0.046)		(0.043)
Uncertainty Avoidance			-0.109*		-0.080	-0.061
			(0.051)		(0.048)	(0.046)
Formal Institutions × Individualism				0.127**		0.138**
				(0.043)		(0.045)
Formal Institutions × Uncertainty Avoidance					0.035	0.078
					(0.049)	(0.044)
GDP per Capita	-0.0000150	-0.00000570*	-0.0000151***	-0.00000435	-0.00000590*	-0.00000468
	(0.00000793)	(0.00000255)	(0.00000319)	(0.00000447)	(0.00000266)	(0.00000433)
Unemployment Rate	-0.416**	-0.535***	-0.364**	-0.317	-0.513***	-0.281
	(0.133)	(0.141)	(0.132)	(0.174)	(0.125)	(0.143)
Population	-3.13e-09*	-6.06e-09***	-6.64e-09*	-4.57e-09*	-9.20e-09**	-7.91e-09*
	(1.21e-09)	(1.66e-09)	(2.56e-09)	(2.16e-09)	(2.98e-09)	(3.27e-09)
Female Rate	0.182	0.251*	0.318***	0.246*	0.254**	0.258**
	(0.100)	(0.114)	(0.077)	(0.102)	(0.092)	(0.077)
_cons	7.188	4.514	14.53**	6.250	10.06	10.29*
	(4.557)	(5.022)	(4.997)	(4.157)	(5.586)	(4.719)
N	70	70	70	70	70	70
R^2	0.109	0.293	0.351	0.415	0.346	0.475

*standard error in parentheses. *p-value <0.1, **p-value<0.05, ***p-value<0.01.*

4.2 Hypothesis 1

The first hypothesis is to analyze whether the higher quality of formal institutions leads to an increase in entrepreneurial activity rates. The regression result shows that the relationship between formal institutions' quality and entrepreneurship rates is negative and statistically significant. The second and sixth columns in table 7 show the results. As mentioned before, the second column illustrates the result of an OLS regression between formal institutions and entrepreneurial activity with a set of control variables. It shows that the relationship is negatively correlated and significant at the 5% significance level, with a coefficient of -3.378, ceteris paribus. A similar result shown in the sixth column illustrates the full model that comprises all of the interactions as the relationship also negative and significant under a 5% significance level, with a coefficient of -12.82, ceteris paribus.

The result of the first hypothesis shows a significant result. It denotes that there is an effect between formal institutions' quality and entrepreneurial activity rates. In other words, the quality of formal institutions in a country could determine the entrepreneurial activity rates. This thesis may contrast with the literature that reports a positive relationship between formal institutions' quality and entrepreneurship (Estrin et al., 2013; Bowen and De Clercq, 2008; Verheul et al., 2002). However, the result is consistent with earlier findings (Fogel et al., 2015; Djankov et al., 2002; Silvinski, 2015) that show a negative relationship between formal institutions' quality and entrepreneurial activity. It implies that the better formal institutions' quality, the lower entrepreneurial activity rates are. Not all laws and regulations that are well-enforced support entrepreneurial activity. In some cases, well-enforced laws and regulations result in forcing an excessive regulatory burden. Consequently, well-enforced laws and regulations could strain new entrants and have a purpose to protect incumbents with political power (Fogel et al., 2015; Shleifer and Vishny, 1993, p. 601).

Another empirical evidence shows that well-enforced laws and regulations result in implementing occupational licensing. At first, occupational licensing is crucial to protect the public's security, but occupational licensing could also keep out new competitors and benefit incumbents, thus discouraging new business creation. Furthermore, occupational licensing may hinder low-income entrepreneurs, such as street vendors, hairdressers, or construction workers. The reason is that occupational licensing forces entrepreneurs to have the minimum required experience and education and fees to obtaining a license. Low-income entrepreneurs may not have adequate sources to satisfy the minimum required

experience and education or fees. Therefore, occupational licensing will only discourage them and other low-income entrepreneurs from establishing new businesses (Slivinski, 2015).

Therefore, even though the result is consistent with several findings that show the negative relationship between formal institutions' quality and entrepreneurial activity, this thesis rejects the Hypothesis 1: the higher quality of formal institutions significantly increases entrepreneurial activity rates.

4.3 Hypothesis 2

The second hypothesis is to analyze whether the higher quality of informal institutions leads to an increase in entrepreneurial activity rates. This thesis uses individualism and uncertainty avoidance as proxies of informal institutions. The regression results show that significant results occur in the relationship between individualism and entrepreneurial activity, as well as the relationship between uncertainty avoidance and entrepreneurial activity rates. The third and sixth columns in table 7 show these significant results. The third column illustrates the result of an OLS regression between informal institutions on entrepreneurial activity with the addition of a set of control variables. It shows that the relationship between individualism and entrepreneurial activity is negatively correlated and significant at the 1% significance level, with a coefficient of -0.160, ceteris paribus. The relationship between uncertainty avoidance and entrepreneurial activity is also negatively correlated and significant at the 10% significance level, with a coefficient of -0.109, ceteris paribus. The sixth column also shows a similar result as the sixth column illustrates the full model that comprises all interactions. The relationship between individualism and entrepreneurial activity is negative and significant under a 5% significance level, with a coefficient of -0.131, ceteris paribus. However, table 7 shows no correlation between uncertainty avoidance and entrepreneurial activity as the regression result is not significant in the sixth column.

The results of the second hypothesis show a significant result for the variable of individualism and uncertainty avoidance. It denotes an effect between individualism and entrepreneurial activity rates, and between uncertainty avoidance and entrepreneurial activity rates. In other words, the individualistic and uncertainty avoidance cultures in a country could determine the entrepreneurial activity rates. First, this thesis finds that countries with low uncertainty avoidance cultures will encourage entrepreneurial activity,

consistent with earlier findings (Block and Walter, 2012; Ozgen, 2012; Mueller and Thomas, 2001). However, this thesis finds a contrast result with the literature that reports a positive relationship between individualism and entrepreneurship (Mueller and Thomas, 2001; Li and Zahra, 2012; Dheer, 2017). This thesis finds a robust negative relationship between informal institutions' quality and entrepreneurial activity. It implies that countries with less individualistic cultures will have higher entrepreneurial activity rates.

Although the thesis's result regarding the relationship between the levels of individualism and entrepreneurial activity contrasts with the existing literature (Mueller and Thomas, 2001; Li and Zahra, 2012; Dheer, 2017), the result is consistent with the earlier findings (Baum et al., 1993; Hui and Triandis, 1986). Baum et al. (1993) show that countries with less individualistic culture will encourage entrepreneurial activity. The reason is that less individualistic culture creates an intense need for affiliation. Individuals who live in less individualistic countries satisfy this intense need for affiliation by establishing new firms. Besides, this intense need for affiliation will acquire necessary supports, such as social networks and personal contacts, for the new businesses. Furthermore, Hui and Triandis (1986) suggest that individuals who live in countries with less individualistic culture will commit more to find business opportunities that allow these individuals to develop while providing the demand for their affiliation.

Therefore, based on this thesis's result, this thesis rejects the Hypothesis 2a: The higher levels of individualism significantly increase entrepreneurial activity rates. However, this thesis accepts the Hypothesis 2b: The lower levels of uncertainty avoidance significantly increase the entrepreneurial activity rates.

4.4 Hypothesis 3

The third hypothesis contains the interaction term between formal institution and individualism, as well as the interaction term between the formal institution and uncertainty avoidance. The third hypothesis is to analyze whether individualism and uncertainty avoidance influence the relationship between formal institutions and entrepreneurial activity rates. The regression result shows that a significant result only occurs in the interaction between formal institutions and individualism. The fourth and sixth columns in table 7 provide these significant results.

The fourth column illustrates the interaction between formal institutions and individualism with the addition of a set of control variables. It shows that the relationship

between individualism and entrepreneurial activity is positively correlated and significant at the 5% significance level, with a coefficient of 0.127, ceteris paribus. A similar result is shown in the sixth column, as it illustrates the full model that comprises all interactions. The relationship is also positive and significant under a 5% significance level, with a coefficient of 0.138, ceteris paribus.

The positive correlation implies that a more individualistic culture results in a stronger positive relationship between formal institutional and entrepreneurial activity rates. This argument is in line with previous empirical evidence that reports informal institutional cultures moderate the relationship between formal institutions and entrepreneurial activity (Williams and Vorley, 2015; Li and Zahra, 2012). Therefore, based on this thesis's result, this thesis accepts the Hypothesis 3a: The more individualism will result in a stronger positive relationship between formal institutional and entrepreneurial activity rates. However, this thesis rejects the Hypothesis 3b: The lower uncertainty avoidance will result in a stronger positive relationship between formal institutional and entrepreneurial activity rates.

V.   Discussion and Conclusion

This study focuses on analyzing how institutional arrangements affect entrepreneurial activity in a country. Specifically, this study distinguishes institutions into formal and informal institutions and examines how each institution can influence entrepreneurial activity in a country. Thus, the research question proposed: ***Does the higher quality of formal and informal institutions significantly increase entrepreneurial activity rates?***

To answer this research question, this thesis uses regression analysis and finds two essential points. First, regarding the relationship between formal institutions' quality and entrepreneurial activity rates, this thesis confirms that the relationship is negative. It means, higher quality of formal institutions decreases the entrepreneurial activity rates. The outcome contrasts with the previous findings, which analyze the positive relationship between formal institutions' quality and entrepreneurial activity rates (Estrin et al., 2013; Bowen and De Clercq, 2008; Verheul et al., 2002). The reason is that this study observes different samples, such as a different amount of countries with different types of economic development in those countries.

Even though this thesis has a different result regarding the positive relationship between formal institutions' quality and entrepreneurship and rejects the first hypothesis, the result

is in line with the earlier findings (Fogel et al., 2015; Djankov et al., 2002; Silvinski, 2015) that show a negative relationship between formal institutions' quality and entrepreneurial activity rates. It implies that the better formal institutions' quality, the lower entrepreneurial activity rates are. Well-enforced laws and regulations, in some cases, result in forcing an excessive regulatory burden. Consequently, these well-enforced laws and regulations could strain new entrants and have a purpose to protect incumbents with political power (Fogel et al., 2015; Shleifer and Vishny, 1993, p. 601).

One of the examples of well-enforced laws and regulations is occupational licensing implementation. At first, occupational licensing is crucial to protect the public's security. However, occupational licensing could also keep out new competitors and benefit incumbents, thus discouraging entrepreneurs, especially low-income entrepreneurs. Occupational licensing forces entrepreneurs to have the minimum required experience and education and fees to obtaining a license. Low-income entrepreneurs may not have adequate sources to satisfy the minimum required experience and education or fees. Therefore, occupational licensing discourages low-income entrepreneurs from establishing new businesses (Slivinski, 2015).

The second essential point is regarding the relationship between informal institutions' quality and entrepreneurial activity rates. This thesis uses individualism and uncertainty avoidance as proxies of informal institutions. The result indicates that the relationship between individualism and entrepreneurial activity rates is negative, and the relationship between uncertainty avoidance and entrepreneurial activity rates is also negative. The relationship between uncertainty avoidance and entrepreneurial activity rates is consistent with earlier findings: the lower levels of uncertainty avoidance significantly increase entrepreneurial activity rates (Block and Walter, 2012; Ozgen, 2012; Mueller and Thomas, 2001). However, this thesis shows that the relationship between individualism and entrepreneurial activity rates is negative. The result contrasts with previous studies that show that the relationship between individualism and entrepreneurial activity rates is positively correlated, and the result rejects the hypothesis of 2a (Mueller and Thomas, 2001; Li and Zahra, 2012; Dheer, 2017).

Although this thesis has a different result regarding the positive relationship between individualism and entrepreneurial activity rates, the result aligns with the earlier findings (Baum et al., 1993; Hui and Triandis, 1986). These earlier findings state that countries with less individualistic culture will encourage entrepreneurial activity. The reason is that less

individualistic culture creates an intense need for affiliation. Individuals who live in less individualistic countries satisfy this intense need for affiliation by establishing new firms (Baum et al., 1993). Furthermore, Hui and Triandis (1986) suggest that individuals who live in countries with less individualistic culture will more engage in finding business opportunities that allow them to develop while providing the demand for their affiliation.

This thesis also considers the combined effect of the two types of institutions on entrepreneurial activity. The interaction of formal and informal institutions is essential since both of them are existing together. Furthermore, empirical evidence shows that informal institutions could moderate the relationship between formal institutions and entrepreneurial activity (Williams and Vorley, 2015; Li and Zahra, 2012). Thus, to justify this argument, this thesis formulates the sub-question: ***Does the higher quality of informal institutions result in a significant positive relationship between formal institutions and entrepreneurial activity rates?***
This thesis confirms a positive correlation between the interaction of formal institutions and individualism on entrepreneurial activity. This argument is in line with previous literature that reports informal institutions, proxied by individualism, moderate the relationship between formal institutions and entrepreneurial activity (Williams and Vorley, 2015; Li and Zahra, 2012).

Although the significant results support the hypotheses and earlier findings, this research has some critical limitations. First, the primary source of the sample is GEM. The GEM database offers an enormous cross-country dataset regarding the total early-stage entrepreneurial activity. However, the data that is available for the latest year mostly involves in developing countries. Thus, formal institutions' mean value is negative, as a negative value indicates a lower development of formal institutions. To manage this limitation, further research with the same analysis can expand various countries to include more developed countries. Another recommendation is to change the sample from the countries' level to the individuals' level analysis. Second, the problem of the omitted variable(s) is also essential to be considered. This thesis uses multiple linear regression analysis. However, multiple linear regression analysis has less ability to capture endogeneity concerns; thus, it becomes a potential problem. Therefore, further research could use other methods and tools to address possible endogeneity concerns.

VI.   References

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VII. Appendix

Table 8. List of Countries used as sample in the research, total early-stage entrepreneurial activity, and, institutional features by country in this research

Country	TEA	Formal Institution	Individualism	Uncertainty Avoidance
Burkina Faso	37.31	-1.268	15	55
Angola	36.005	-1.992	18	60
Ecuador	29.62	-1.941	8	67
Guatemala	24.75	-1.041	6	98
Peru	24.6	-0.228	16	87
Lebanon	24.13	-1.103	40	50
Chile	23.8	0.877	23	86
Vietnam	23.27	-1.213	20	30
Thailand	21.62	-0.563	20	64
Malaysia	21.6	0.091	26	36
Brazil	20.3	-0.871	38	76
Estonia	19.38	1.247	60	60
Canada	18.75	1.542	80	48
Colombia	18.68	-0.322	13	80
Panama	16.18	-0.266	11	86
Turkey	15.19	-0.690	37	85
Uruguay	14.74	0.060	36	98
Philippines	14.72	-0.710	32	44
Latvia	14.15	0.659	70	63
Mexico	14.14	-0.496	30	82
Tunisia	13.7	-1.229	40	75
United States	13.64	1.231	91	46
Iran	13.32	-2.178	41	59
Egypt	13.25	-1.772	25	80
South Korea	12.98	0.600	18	85
Israel	12.78	0.801	54	81
Australia	12.21	1.595	90	51
Slovakia	11.8	0.261	52	51

El Salvador	11.65	-0.917	19	94
Saudi Arabia	11.45	-0.734	25	80
Kazakhstan	11.32	-0.527	20	88
South Africa	10.96	-0.452	65	49
Puerto Rico	10.63	0.316	27	38
Austria	10.265	1.001	55	70
Netherlands	9.92	1.736	80	53
China	9.87	-0.911	20	30
Romania	9.79	-0.144	30	90
Portugal	9.73	0.363	27	99
India	9.28	-1.039	48	40
Georgia	9.26	0.537	41	85
Luxembourg	9.05	1.307	60	70
United Arab Emirates	8.97	0.489	25	80
Ireland	8.93	1.179	70	35
Croatia	8.91	-0.221	33	80
Poland	8.85	0.330	60	93
Morocco	8.76	-1.008	46	68
Taiwan	8.56	0.919	17	69
Lithuania	8.5	0.661	60	65
Switzerland	8.47	1.539	68	58
United Kingdom	8.4	1.335	89	35
Hungary	7.96	0.051	80	82
Belgium	7.92	0.768	75	94
Indonesia	7.47	-0.861	14	48
Qatar	7.43	-0.228	25	80
Sweden	7.29	1.436	71	29
Norway	7.01	1.454	69	50
North Macedonia	6.95	-0.124	22	87
Slovenia	6.85	-0.036	27	88
Finland	6.83	1.462	63	59
Spain	6.19	0.404	51	86
Argentina	5.97	-1.084	46	86

Russia	5.91	-1.306	39	95
Germany	5.28	1.417	67	65
Jamaica	5.14	-0.558	39	13
Greece	4.82	-0.446	35	100
Japan	4.68	0.924	46	92
Italy	4.28	0.116	76	75
Bosnia and Herzegovina	3.95	-0.913	22	87
France	3.92	0.662	71	86
Bulgaria	3.7	0.022	30	85
Mean	12.340	-10^{-8}	42.329	69.129
Standard Deviation	7.246	1.000	22.940	20.965

Table 9. VIF of all of six indicators of WGI in the research

Variables	VIF	1/VIF
Rule of Law	21.09	0.047
Control of Corruption	13.15	0.076
Government Effectiveness	12.39	0.081
Regulatory Quality	9.05	0.111
Voice and Accountability	2.89	0.347
Political Stability	2.62	0.381
Mean VIF	10.20	

Notes: 1 means there is no correlation between independent variables. Values between 1 and 5 imply a moderate correlation, but it is not severe enough to justify corrective measures. Values larger than 5 shows severe correlation.

Table 10. VIF of formal institutions indicator after conducting PCA

Variables	VIF	1/VIF
Formal Institutions	1.00	1.000
Mean VIF	1.00	

Notes: 1 means there is no correlation between independent variables. Values between 1 and 5 imply a moderate correlation, but it is not severe enough to justify corrective measures. Values larger than 5 shows severe correlation.

Table 11. VIF of all of variables in the research

Variables	VIF	1/VIF
Formal Institutions	2.36	0.425
Individualism	2.23	0.448
Uncertainty Avoidance	1.25	0.799
Population	1.20	0.835
Unemployment	1.19	0.841
GDP per Capita	1.17	0.854
Female Rate	1.09	0.919
Mean VIF	1.50	

Graph 1. The Scatter Plot between TEA (Total early-stage Entrepreneurial Activity) and Formal Institutions' Quality