

ERASMUS UNIVERSITY ROTTERDAM

Erasmus School of Economics

Bachelor Thesis Strategy Economics

Studying the effect of rule of law on entrepreneurial activity: A cross-country study

Name student: Jelle Kool

Student ID number: 623668

Supervisor: L. M. Uhlaner

Second assessor: H. P. G. Pennings

Date final version: 10-July-2024

The views stated in this thesis are those of the author and not necessarily those of the supervisor, second assessor, Erasmus School of Economics or Erasmus University Rotterdam

## **Abstract**

This thesis examines the relationship between rule of law and entrepreneurial activity through a cross-country analysis of 50 countries from 2010-2015. Using data from Global Entrepreneurship Monitor, World Governance Indicators, World Justice Project, and World Development Indicators, this thesis concludes a negative relationship between rule of law and necessity-driven early-stage entrepreneurship. No significant relationship is found between rule of law and opportunity-driven early-stage entrepreneurship or established business ownership. However, this thesis does identify a U-shaped relationship between perceived opportunities and rule of law, where perceived opportunities only exhibit a positive relationship in countries that already a good baseline score. Results were consistent across different rule of law data sources.

## Table of Contents

Abstract.....	2
Table of Contents.....	3
1. Introduction.....	4
2. Background.....	5
2.1 Entrepreneurship.....	5
2.2 Rule of law.....	6
3. Theory.....	6
3.1 Rationale and Hypotheses.....	7
4. Method.....	11
4.1 Sample and sources.....	11
4.2 Variables.....	14
4.2.1 Dependent variables.....	14
4.2.2 Independent variables.....	15
4.2.3 Control variables.....	15
4.3 Data Analysis.....	17
4.3.1 Variance Inflation Factor (VIF).....	17
4.3.2 Factor analysis.....	18
4.3.3 Planned Regression Analysis.....	21
4. Results.....	22
4.1 Main findings.....	22
4.2 Robustness Checks.....	26
5. Discussion.....	29
5.1 Theoretical contributions.....	29
5.2 Practical implications:.....	29
5.3 Limitations.....	30
6. Conclusion.....	31
References.....	32

## 1. Introduction

This thesis employs an institutional approach to analyse the impact of the rule of law on entrepreneurial activity across countries. By understanding the influence of rule of law on entrepreneurship, governments can gain better insights into how policies and practices can be adjusted to achieve desired outcomes more efficiently. Furthermore, the effect of institutional changes increases over time, because small changes accumulate into larger ones, potentially influencing the likelihood of an individual's preference to become an entrepreneur (Acemoglu et al. 2020).

Building on comparative entrepreneurship research, this thesis focuses on the rule of law within formal institutions to explain cross-country differences in entrepreneurship. Rule of law encompasses various elements, but it can generally be defined as a score that is based on the confidence of agents and the extent to which they abide by the rules of society, particularly the quality of contract enforcement, property rights, police, and the courts. Studying how the rule of law affects entrepreneurship is important, because of the effects of entrepreneurship on economic and sociological development. First of all, the mechanism through which economic growth is achieved might be arguable, but the general effect of entrepreneurship on economic growth is positive (Urbano et al., 2019). Furthermore, entrepreneurship is responsible for continued productivity increases through innovation-driven growth in developed economies (Naudé, 2008).

Additionally, entrepreneurs are crucial for job creation, especially in the context of small and medium-sized enterprises (SMEs). By creating jobs, entrepreneurs help reduce unemployment which in turn decreases poverty. Entrepreneurship is also a way to stimulate upward mobility. This is achieved by providing individuals with opportunities to improve their socio-economic status. This is achieved through higher income possibilities, which enables individuals to improve their living standards (Kritikos, 2004).

In order to analyse the relationship between rule of law and entrepreneurship, the following research question will be answered:

*Does the quality of rule of law influence the level of entrepreneurship across different countries?*

This thesis will examine the different factors of rule of law and examine how each factor influences entrepreneurship. Furthermore, the relationship between rule of law and various stages of entrepreneurship will be studied.

Contradictory findings are found regarding the impact of rule of law on entrepreneurship. Some studies suggest a positive relationship between rule of law and entrepreneurship (Mickiewicz et al., 2021) indicating that a better rule of law encourages entrepreneurial activity, while others find a negative relationship between rule of law and entrepreneurship (Hartog et al. 2010). Regional studies also show different regional results (Agostino et al., 2019). These contradictory findings highlight the importance of additional contributions to understand the relationship between rule of law and entrepreneurship. This thesis aims to provide a cross-sectional analysis of the relationship between rule of law and entrepreneurship.

## **2. Background**

### **2.1 Entrepreneurship**

Throughout this paper, the terms "entrepreneurship" and "entrepreneurial activity" will be used interchangeably. When either is mentioned outside the context of specific studies, it refers to the percentage of entrepreneurs compared to the total population. Additionally, the definition of Global Entrepreneurship Monitor (GEM) on entrepreneurship will be followed. GEM defines entrepreneurship as any attempt at a new business or venture creation, by an individual, team, or an established business. Furthermore, self-employment, new business organizations, and the expansion of existing businesses are seen as forms of entrepreneurship. Entrepreneurial activity can be further categorized into the stages of entrepreneurship. In this thesis, early-stage entrepreneurs are individuals who are either engaging in the start-up of a business or have just started a business. These entrepreneurs are further distinguished by the motivation for being self-employed, which is either opportunity-driven or necessity-driven. Opportunity-driven entrepreneurs are pulled into entrepreneurship because they perceive opportunities within the current market, making them prefer entrepreneurship above the alternative of regular employment. Necessity-driven entrepreneurs are, in contrast to opportunity-driven entrepreneurs, pushed into entrepreneurship. For these individuals, self-employment was not a preference but a necessity, due to a lack of other employment options that provide income. Older more

established businesses will also be studied, exact measurements for all variables used will be elaborated on in the methodology section.

## **2.2 Rule of law**

Rule of law is a key concept in understanding a part of the influence of formal institutions. The definitions of rule of law can differ, however, this divergence in definitions does not invalidate the concept of rule of law (Valcke, 2012). Rule of law differs from the law because the law only describes the rules that all entities, including those in power, should follow. Whereas rule of law measures whether all groups mentioned in the law are bound to and comply with the law. The dimensions that define rule of law differ across data sources, which this thesis also encounters with World Justice Project (WJP) and World Governance Index (WGI). WGI defines rule of law as a measure that captures the perceptions of agents regarding their confidence in and adherence to the rules of society. This includes the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of violence. WJP conceptualizes rule of law with the following dimensions constraints on government powers, absence of corruption, open government, fundamental rights, order and security, regulatory enforcement, civil justice, and criminal justice.

A notable difference in measurement is that WGI assesses control of corruption as a distinct indicator measurement for governance, but it is not included in rule of law. However, corruption is the abuse of power, and for this reason, will also be included in the actual analysis.

## **3. Theory**

For this research, the institutional approach has been chosen. For this approach, the definition of North (1990) will be used, in which institutions are defined as having both formal and informal rules that guide and govern decisions and behaviour. North (1990) suggests that factors such as contracts, procedures, political structure, and property rights reduce transaction costs encountered by entrepreneurs. The institutional approach is appropriate for the cross-sectional data because this data is not able to account for individual characteristics. Furthermore, the institutional environment has been shown to have a significant impact on entrepreneurship development in any economy (Bhat & Khan, 2014). This thesis focusses on the rule of law within formal institutions on entrepreneurial activity, because governments can more effectively influence their formal

institutional arrangements than influence informal norms. This is because informal norms are often embedded deeply in society and are more complicated to change (Williamson, 2000). Furthermore, this paper assumes that entrepreneurship is a choice for which the rationale is the perceived payoffs of self-employment compared to their current state (Parker, 2004).

Rule of law measures whether all groups mentioned in the law are bound to and comply with the law which is important for entrepreneurs because when all entities abide by the law, several factors which have been shown to negatively influence entrepreneurship decrease. First of all, a better rule of law constrains governments from taking unlawful actions and making property rights more effective, increasing the likelihood that entrepreneurs can benefit from their investments (Mickiewicz et al., 2021). Furthermore, these unlawful actions, also known as corruption, no matter the quality of the business environment, do not lead to increased entrepreneurial activity (Dutta & Sobel, (2016). Additionally, a worse rule of law increases uncertainty, which discourages potential entrepreneurs, making them less likely to invest in new businesses because of this increased risk. Uncertainty has also been linked to a negative effect on entrepreneurial entry (O'Brien et al., 2003).

### **3.1 Rationale and Hypotheses**

The rationale for this thesis is the crucial role that the institutional environment plays in affecting entrepreneurial activity. Entrepreneurship is a driver of economic growth (Urbano et al., 2019), job creation, and innovation. However, the institutional environment in which entrepreneurs operate can be an important factor in their ability to thrive (Acs et al., 2014).

Although Mickiewicz et al. (2021) studied changes in rule of law, compared to cross-country differences which this thesis focusses on, the findings are still relevant. The findings indicated that improvement in rule of law enhances predictability and reduces uncertainty. On the other hand, the worsening of rule of law discourages entrepreneurship by increasing risk and uncertainty. These findings align with Estrin et al. (2013), who emphasized the importance of institutions in encouraging entrepreneurial intentions. They found that higher levels of corruption, weaker property rights, and larger government activity had a negative influence on entrepreneurial intentions, specifically the intention to grow their business. These factors are included in the definition of rule of law, so it is expected that this relationship is also found in the combined effect of rule of law.

Agostino et al. (2019) looked at the effect of rule of law and regulatory quality on entrepreneurship in one country over multiple years. It was found that local institutional quality positively affects entry rates and that this effect is more pronounced in high-tech industries. Furthermore, regional differences in the importance of rule of law were found. The rule of law was more important in increasing entrepreneurship in less developed regions, whereas regulatory quality was more important in the developed regions. Finally, it was observed that the influence of institutional quality weakened during the financial crisis of 2008, while factors such as innovation capability, human capital, and infrastructure became more influential.

Rodríguez-Gulías et al. (2016) studied which factors of the World Governance Index affected entrepreneurship. In this analysis, they made the distinction between European Union and non-European Union countries. It was concluded that in EU nations, government effectiveness was an important factor in predicting immediate entrepreneurship. In non-EU nations, WGI factors were not significant for immediate effect. The study also demonstrated the importance of rule of law for entrepreneurship, which demonstrated an important effect when it was tested with a delay of 4 years. This result can be explained by the premise that governance and institutions are slow to change (Williamson, 2000; Klapper & Love, 2010).

In contrast, Wennekers et al. (2005) found a U-shaped relationship between entrepreneurial activity and economic growth. This suggests that in less developed countries, higher levels of entrepreneurship may result from necessity rather than opportunity. In more developed countries, this relationship is reversed, where entrepreneurship is primarily driven by opportunity rather than necessity. This distinction is further supported by Van der Zwan et al. (2016) who showed that these different types of entrepreneurs also have very different socioeconomic characteristics, personalities, and perceptions of entrepreneurial support. These differences emphasize the importance of distinguishing between these types of entrepreneurs.

Furthermore, Hartog et al. (2010) discovered, in a cross-country analysis, that countries with a better rule of law have lower rates of entrepreneurship. These findings were explained by arguing that in developed countries, the benefits of rule of law gather into large enterprises.

Based on the previously mentioned literature, it is expected that as the rule of law improves, it corresponds to more opportunity-driven entrepreneurship. This is because countries with a higher rule of law, provide more predictable outcomes by protecting property rights and reducing



uncertainty, which makes investment into business more attractive. This gives the following hypothesis:

*Hypothesis 1: The relationship between rule of law and opportunity-driven early-stage entrepreneurial activity is positive.*

Based on the previously mentioned literature, it is expected that as the rule of law is higher, necessity-driven entrepreneurship is lower. This is because less developed countries are expected to have high rates of necessity-driven entrepreneurship because they lack other options. However, as rule of law is higher, options for other forms of employment are more prevalent, and the necessity of entrepreneurship decreases. This gives the following hypothesis:

*Hypothesis 2: The relationship between rule of law and necessity-driven early-stage entrepreneurial activity is negative.*

In contrast to early-stage entrepreneurs, established business owners are expected to be less vulnerable to rule of law. This can be explained by the liability of smallness and newness for early-stage entrepreneurs. Liability of newness refers to difficulties that new firms encounter in competing against established firms. These new firms need time to develop efficient routines and a business structure. Liability of smallness refers to the lack of sufficient resources that new firms encounter in effectively executing their routine and structure (Gimenez-Fernandez, 2020). These differences are further demonstrated by Mickiewicz et al. (2017) who also showed that different stages of entrepreneurship require different endowments which can explain the differences that might be observed.

Established business owners are still expected to have a positive relationship with rule of law. These business owners are more likely to have property because they have been able to increase in size. This makes protection of property rights even more important to them. The hypothesis which will be tested is as follows:

*Hypothesis 3: The relationship between established business owners and rule of law is positive.*

Finally, perceived opportunities by people not active in entrepreneurship will be studied. Studying this gives an impression of how differences in rule of law are perceived by people who are not active in any phase of entrepreneurship. This is useful for policy makers who want to increase the

amount of entrepreneurs for people not yet active in entrepreneurship. The analysis will not include an examination of the conversion into actual entrepreneurs. However, it is assumed that as perceived opportunities for self-employment increase, more individuals will go into self-employment. Given that a better rule of law has benefits for predictability, reducing uncertainty, and protecting property rights, a positive relationship is expected, leading to the following hypothesis:

Hypothesis 4: *The relationship between perceived opportunities and rule of law is positive.*

The hypotheses are developed based on the fact that rule of law plays a crucial role in shaping entrepreneurial activity. Better rule of law values increase the predictability of outcomes, reduce uncertainty, and thus increase payoffs for entrepreneurs. By testing these hypotheses, this thesis aims to get better insights into the relationship between rule of law and entrepreneurial activity.

## 4. Method

### 4.1 Sample and sources

The data for this thesis was derived from multiple independent sources. These include the Adult Population Survey from Global Entrepreneurship Monitor (GEM), World Governance Indicators (WGI), World Justice Project (WJP), and World Development Indicators (WDI). Using the data for rule of law from WGI leaves this thesis with a sample of 61 countries to test the hypotheses. Of these 61 countries, 11 were factor-driven economies, 28 were efficiency-driven economies and 22 were innovation-driven economies. This data was collected for the period 2010-2016. However, when all stages of economic development were included, the Variance Inflation Factor (VIF) values were above four indicating multicollinearity. To limit this, observations for the factor-driven stage were excluded. The result is a sample of 50 countries, with which the analysis will be conducted. Descriptive statistics for this sample can be found in Table 1. To test for robustness, WJP data will be used to verify the consistency of the results. For this data, factor-driven countries are also excluded, resulting in a sample of 40 countries. Of these countries, 22 were efficiency-driven economies and 18 were innovation-driven economies. Descriptive statistics for this sample can be found in Table 2. Additionally, correlations for the WGI and WJP samples can be found in Tables 3 and 4 respectively.

*Table 1 – Descriptive statistics WGI sample*

Variable	Observations	Mean	Std. dev.	Min	Max
opportunity_tea	50	8.137	4.500	1.945	19.100
necessity_tea	50	3.887	3.301	0.452	16.839
established-buisnessown.	50	7.667	4.387	2.530	28.563
perceived-opportunities	50	40.466	14.796	7.460	68.310
F4Regulatoryquality	50	0.831	0.700	-1.034	1.871
F5Controlcorruption	50	0.738	0.949	-0.608	2.376
F6Ruleoflaw	50	0.718	0.873	-1.104	1.948
Consolidated stage	50	2.440	0.501	2	3
Unemployment	50	9.550	6.452	0.620	32.165
Population	50	5.92e+07	1.94E+08	275841.5	1.35E+09

Table 2 – Descriptive statistics WJP sample

Variable	Observations	Mean	Std. dev.	Min	Max
opportunity_tea	40	7.583	4.552	1.945	19.100
necessity_tea	40	3.808	2.993	0.452	16.364
established-buisnessown.	40	7.563	4.750	2.983	28.563
perceived-opportunities	40	39.304	15.357	7.460	68.247
F1ConstraintsonGovernm	40	0.674	0.146	0.364	0.928
F2AbsenceofCorruption	40	0.660	0.184	0.366	0.956
F3OpenGovernment	40	0.620	0.148	0.375	0.935
F4FundamentalRights	40	0.718	0.123	0.354	0.928
F5OrderandSecurity	40	0.759	0.132	0.427	0.928
F6RegulatoryEnforcement	40	0.631	0.139	0.406	0.893
F7CivilJustice	40	0.616	0.123	0.401	0.816
8CriminalJustice	40	0.616	0.153	0.249	0.872
Consolidated stage	40	2.450	0.504	2	3
Unemployment	40	9.344	6.775	0.620	32.165
Population	40	7.27e+07	2.15E+08	1322696	1.35E+09

Table 3 – Correlation Table WGI sample

nr.	Variable	1	2	3	4	5	6	7	8	9	10
1	Opportunity_tea	1.000									
2	Necessity_tea	0.610	1.000								
3	established-business ownership	0.429	0.299	1.000							
4	perceivedopportunities	0.650	0.339	0.162	1.000						
5	F4RQ	-0.322	-0.665	-0.301	-0.006	1.000					
6	F5CC	-0.269	-0.565	-0.236	0.051	0.871	1.000				
7	F6ROL	-0.382	-0.641	-0.253	-0.057	0.931	0.952	1.000			
8	Consolidated_stage	-0.485	-0.571	-0.179	-0.212	0.703	0.744	0.779	1.000		
9	Unemployment	-0.373	0.103	-0.220	-0.288	-0.165	-0.185	-0.122	-0.131	1.000	
10	Population	-0.001	0.098	0.071	-0.083	-0.222	-0.189	-0.188	-0.087	-0.144	1.000

*Table 4 – Correlation Table WJP sample*

nr.	Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	Opportunity_tea	1.000														
2	Necessity_tea	0.641	1.000													
3	established- business ownership	0.444	0.382	1.000												
4	perceivedopportunities	0.620	0.272	0.162	1.000											
5	F1CG	-0.340	-0.707	-0.286	0.085	1.000										
6	F2AC	-0.412	-0.676	-0.298	-0.018	0.884	1.000									
7	F3OG	-0.320	-0.654	-0.279	0.151	0.873	0.847	1.000								
8	F4FR	-0.349	-0.574	-0.171	0.013	0.903	0.758	0.781	1.000							
9	F5OS	-0.610	-0.736	-0.308	-0.289	0.674	0.811	0.648	0.596	1.000						
10	F6RE	-0.306	-0.655	-0.248	0.092	0.910	0.916	0.926	0.805	0.717	1.000					
11	F7CvJ	-0.393	-0.684	-0.321	0.013	0.894	0.937	0.877	0.747	0.743	0.936	1.000				
12	F8CrJ	-0.468	-0.651	-0.201	-0.228	0.726	0.726	0.696	0.633	0.724	0.688	0.688	1.000			
13	Consolidated_stage	-0.468	-0.614	-0.245	-0.315	0.099	-0.133	0.096	-0.071	-0.162	-0.130	-0.067	-0.085	1.000		
14	Unemployment	0.040	0.134	0.081	-0.067	-0.318	-0.131	-0.185	-0.481	0.001	-0.248	-0.250	-0.097	-0.143	1.000	
15	Population	1.000	0.641	0.444	0.620	-0.340	-0.412	-0.320	-0.349	-0.610	-0.306	-0.393	-0.468	-0.468	0.040	1.000

## 4.2 Variables

All variables used in the analysis will be elaborated on below. A summary table of all general measures and the corresponding variable names can be found at the conclusion of section 4.2.3.

### 4.2.1 Dependent variables

The dependent variables are calculated by averaging each variable over the period of 2013 to 2015. The reason for this is that countries sometimes lack annual data because of insufficient funding for data collection. By using the mean instead of excluding these observations, underfunded countries are still represented in the analysis.

**Entrepreneurial activity.** Data on entrepreneurial activity from GEM will be used. GEM measures entrepreneurial activity as the percentage of the population aged 18-64 who are active in some stage of entrepreneurship. This thesis utilizes four variables from GEM which measure different stages of entrepreneurship. First of all, Total early-stage Entrepreneurial Activity (TEA) from GEM will be used. TEA indicates the percentage of the population aged 18 to 64 who are either nascent entrepreneur or an owner/manager of a new business. Nascent entrepreneurs individuals who are engaging in starting a business. This variable will be split up into opportunity-driven TEA and necessity-driven TEA. This is done by using the motivational index, which gives the ratio of opportunity-driven entrepreneurs compared to the ratio of necessity-driven entrepreneurs. The calculation used is as follows:

$$\text{Opportunity\_tea} = \text{motivationalindex} / (1 + \text{motivationalindex}) * \text{TEA}$$

$$\text{Necessity\_tea} = 1 / (1 + \text{motivationalindex}) * \text{TEA}$$

Secondly, Established Business Ownership Rate will be examined. The variable *establishedbusinessownership* indicates the percentage of the population aged 18 to 64 who are business owners or managers, and that business has made payments to the owner(s) or more manager(s) for more than 42 months.

Additionally, the perceived opportunities by individuals and their relationship with rule of law is examined. For this analysis, the Perceived Opportunities Rate will be used from GEM. The variable *perceivedopportunities* indicates the percentage of the population aged 18 to 64, who are

currently not active in any stage of entrepreneurial activity, but see good opportunities to start a business in the country where they reside.

#### ***4.2.2 Independent variables***

The independent variables are calculated by averaging each variable over the period from 2010 to 2012. The reason for this is that countries sometimes lack annual data because of insufficient funding for data collection. By using the mean instead of excluding these observations, underfunded countries are still represented in the analysis

***Rule of law.*** Data on rule of law is gathered from both WGI and WJP. These two databases will be used to verify result consistency and to determine how different measurements of rule of law indicate different effects.

The first set of variables used for assessing rule of law comes from the WGI. These variables capture the average perceptions of individuals per country and their confidence and obedience in the different factors of governance. These factors are Control of corruption, Regulatory Quality and, Rule of Law. WGI variables are measured on a scale from -2.5 to +2.5.

The second set of variables used for assessing rule of law comes from the WJP. These variables together measure the rule of law for WJP and differ from WGI. The WJP rule of law is based on eight factors. These factors are constraints on government power, absence of corruption, open government, fundamental rights, order and security, regulatory enforcement, civil justice, and criminal justice. WJP variables are measured on a scale from 0 to 1.

#### ***4.2.3 Control variables***

The utilized control variables are economic development level, unemployment rate, and population.

***Economic development level.*** Data on this variable is collected from the World Development Index from World Bank. The economic development level indicates the stage in which economies are. The first stage, which is also the least developed stage, is factor-driven. Factor-driven economies are dominated by agricultural and extraction businesses. These businesses are labour-intensive and require natural resources. The second stage is efficiency-driven, where economies are more competitive with businesses that are more focussed on

increasing efficiency and improving product quality. The third stage is innovation-driven, in which economies are highly developed with knowledge-intensive businesses. In this stage, there is also an expanding service sector. Although the WEF has data on countries transitioning between stages, these countries will be categorized based on the stage from which they are transitioning. This is indicated by the variable consolidated\_stage.

**Unemployment rate.** Data for the unemployment rate is collected from the World Development Index from World Bank. This variable represents the percentage of the population within a country that is unemployed. Controlling for unemployment is essential because entrepreneurship can be influenced by market conditions. High unemployment rates may lead individuals to engage in entrepreneurship, a distinction that the analysis aims to address to avoid.

**Population.** Data for the total population within a country is collected from the World Development Index from World Bank. Population differences may influence the entrepreneurial activity rates for countries, since these are calculated as a percentage of the population active in entrepreneurship. Controlling for this variable ensures that the differences in entrepreneurial activity are not the result of differences in population.

*Table 5 – List of variables used and data sources*

General name	Variable name	Data source
Opportunity-driven early-stage entrepreneurship	Opportunity_tea	GEM
Necessity-driven early-stage entrepreneurship	Necessity_tea	GEM
Established business ownership	Establishedbusinessownerhsip	GEM
Perceived opportunities (by people not active in entrepreneurship)	Perceivedopportunities	GEM
Regulatory quality	F4RQ	WGI
Control of corruption	F5CC	WGI
Rule of law	F6ROL	WGI
Constraint on government powers	F1CG	WJP
Absence of corruption	F2AC	WJP
Open government	F3OG	WJP
Fundamental rights	F4FR	WJP
Order and security	F5OS	WJP
Regulatory enforcement	F6RE	WJP
Civil justice	F7CvJ	WJP



Criminal justice	F8CrJ	WJP
Economic development level	Consolidated_stage	WDI
Unemployment rate	Unemployment	WDI
Total population number	Population	WDI

### 4.3 Data Analysis

#### 4.3.1 Variance Inflation Factor (VIF)

To ensure the interpretability of the coefficients for rule of law without issues of multicollinearity, variables are assessed for their VIF scores. VIF values for the WGI data are reported in Table 6, and Table 7 for WJP data. Multicollinearity was encountered, to overcome this a factor score was created for each sample. VIF values for the results variables are given in Table 8 for WGI data and Table 9 for WJP data.

*Table 6 – VIF values - WGI data*

Variable	VIF
F6ROL	23.94
F5CC	11.75
F4RQ	8.27
Innovation-driven economy	2.60
Unemployment	1.16
Population	1.11

*Table 7 – VIF values - WJP data*

Variable	VIF
F6RE	16.54
F2AC	14.76
F1CG	13.65
F7CvJ	13.06
F3OG	8.30
F4FR	7.80
F8CrJ	7.33
F5OS	4.60
Innovation-driven economy	2.60
Unemployment	1.16
Population	1.11

*Table 8 – VIF values - WGI data*

Variable	VIF
Factor1	2.69
Factor1_sq	1.18
Unemployment	1.17
Population	1.10
Innovation-driven economy	2.54

*Table 9 – VIF values - WJP data*

Variable	VIF
Factor1	2.57
Factor1_sq	1.25
Unemployment	1.21
Population	1.13
Innovation-driven economy	2.41

### 4.3.2 Factor analysis

To address multicollinearity concerns, a combined indicator was developed to estimate the overall impact of rule of law. A factor analysis was conducted on three dimensions that constitute the rule of law. The variables chosen were Regulatory quality, Control of corruption, and Rule of law. The WGI does not incorporate these variables into their measure of rule of law. However, the definition used in this paper of rule of law states that rule of law measures limitations of power on the government. This includes the control of corruption. Furthermore, if the quality of the laws is insufficient, entities can abide by them, but that would still be an abuse of the power they have.

In order to develop this combined indicator, standardized variables were first created for each included dimension to ensure uniform measurement of all WGI variables. The initial factor analysis was conducted for which the results are presented in Table 10.

*Table 10 – Factor analysis WGI sample*

Country	Eigenvalue	Difference	Proportion	Cumulative
Factor 1	2.837	2.706	0.946	0.9446
Factor 2	0.130	0.097	0.044	0.989
Factor 3	0.033	.	0.011	1.000

The results indicate that only one factor had an eigenvalue above 1, thus only 1 factor was retained, encompassing all three dimensions. Factor loading and uniqueness variances for each variable are shown in Table 11.

*Table 11 – Factor loadings WGI sample*

Country	Factor 1	Uniqueness
F4RQ	0.960	0.077
F5CC	0.9679	0.063
F6ROL	0.989	0.023

Very low uniqueness scores are observed indicating that combining these factors was a beneficial decision because they collectively capture the variance in the data sufficiently. Varimax rotation was applied, but factor loadings and uniqueness variances remained the same

as Table 11. Finally, factor scores for the combined indicator were predicted using regression scoring. Scoring coefficients for each variable can be found in Table 12.

*Table 12 – Scoring coefficient WGI sample*

Country	Factor 1
F4RQ	0.339
F5CC	0.341
F6ROL	0.349

Finally, a reliability analysis was conducted using Cronbach’s alpha. The results in Table 13 indicate a high level of internal consistency among all included dimensions since all Alpha values are above 0.9. Based on these supporting results for the factor analysis, this factor score will be utilized for all subsequent data-analyses using WGI data.

*Table 13 – Factor loadings WGI sample*

Item	Observations	Sign	Item-test correlation	Item-rest correlation	Average interitem correlation	Alpha
F4RQ	50	+	0.961	0.912	0.952	0.975
F5CC	50	+	0.967	0.928	0.931	0.964
F6ROL	50	+	0.988	0.974	0.871	0.931
Test Scale					0.918	0.971

The same factor analysis procedures were taken with the WJP data, which included additional dimensions. The results are reported in tables 14-17 below.

*Table 14 – Factor analysis WJP sample*

Country	Eigenvalue	Difference	Proportion	Cumulative
Factor 1	6.756	6.209	0.844	0.844
Factor 2	0.548	0.259	0.068	0.913
Factor 3	0.288	0.153	0.036	0.949
Factor 4	0.135	0.018	0.017	0.966
Factor 5	0.118	0.058	0.015	0.981
Factor 6	0.060	0.011	0.008	0.988
Factor 7	0.049	0.003	0.006	0.994
Factor 8	0.046	.	0.006	1.000

These results indicate that only one factor has an eigenvalue above 1, so only one factor will be included in the robustness analyses.

*Table 15 – Factor loadings WJP sample*

Country	Factor 1	Uniqueness
F1CG	0.950	0.097
F2AC	0.959	0.081
F3OG	0.918	0.158
F4FR	0.869	0.245
F5OS	0.818	0.331
F6RE	0.959	0.081
F7CvJ	0.956	0.087
F8CrJ	0.914	0.164

Compared to WGI factor analysis, higher uniqueness scores are observed for subfactors of rule of law. This is the case for open government (OG), fundamental rights (FR), order and security (OS) and Criminal Justice (CJ). Table 16 reports the scoring coefficients for this analysis.

*Table 16 – Scoring coefficient WJP sample*

Country	Factor 1
F1CG	0.141
F2AC	0.142
F3OG	0.136
F4FR	0.129
F5OS	0.121
F6RE	0.142
F7CvJ	0.141
F8CrJ	0.135

Results for reliability analysis are reported in Table 17. Although Table 16 showed more uniqueness compared to WGI data, Cronbach’s Alpha Values show that if the dimension is removed, results stay internally consistent.

Table 17 – Factor loadings WJP sample

Item	Observations	Sign	Item-test correlation	Item-rest correlation	Average interitem correlation	Alpha
F1CG	40	+	0.949	0.932	0.899	0.967
F2AC	40	+	0.958	0.944	0.806	0.967
F3OG	40	+	0.916	0.889	0.821	0.970
F4FR	40	+	0.869	0.829	0.837	0.973
F5OS	40	+	0.823	0.771	0.853	0.976
F6RE	40	+	0.957	0.943	0.806	0.967
F7CvJ	40	+	0.954	0.939	0.807	0.967
F8CrJ	40	+	0.916	0.890	0.820	0.970
Test Scale					0.820	0.973

Based on these results, the robustness analyses with WJP data will also utilize a factor score.

#### 4.3.3 Planned Regression Analysis

With this combined indicator, a cross-section ordinary least squares (OLS) regression is conducted to estimate the relationship between rule of law for period 2010-2012 and entrepreneurship for the period 2013-2015. For each hypothesis 3 models will be ran with the dependent variable of interest. The regression will be conducted stepwise. In model 1, only the control variables are included. Model 2 will be expanded by including the factor score. Model 3 will be expanded by including a squared term of the factor score. The full regression used in model 3 for each hypothesis is structured as follows:

$$Y_i = \beta_0 + \beta_1 F_{1i} + \beta_2 F_{1i}^2 + \beta_3 \text{Innovation-driven economy} + \beta_4 \text{Unemployment} + \beta_5 \text{Population} + e_i$$

For this equation:

$Y$  denotes one of the variables for either entrepreneurial activity, or perceived opportunities.

$F_1$  denotes the factor score for rule of law, derived from either the WGI or WJP dataset .

*Innovation-driven economy* is a dummy-variable which is 1 when the country is an innovation-driven economy and 0 when it has an efficiency-driven economy.

*Unemployment* denotes the rate of unemployment per country per year.

*Population* denotes the total number of population per country per year.

$e_i$  denotes the error term.

## 4. Results

The results for the data-analysis are reported in Table 18-21. Where Table 18 shows the stepwise results for Hypothesis 1, Table 19 shows the stepwise results for Hypothesis 2, Table 20 shows the stepwise results for Hypothesis 3 and Table 21 shows the stepwise results for Hypothesis 4.

### 4.1 Main findings

Hypothesis 1 states that the relationship between rule of law and opportunity-driven early-stage entrepreneurial activity is positive. The results from Table 18 show that there is no significant evidence for the relationship between opportunity-driven early-stage entrepreneurship and rule of law for the linear relationship in model 2. No significant proof ( $p=0.09$ ) is found for the existence of a quadratic relationship either. Furthermore the relationship for population is also insignificant. However, the significant coefficient ( $p<0.01$ ) of  $-0.324$  for unemployment indicates that as the rate of unemployment increases, the percentage of opportunity-driven TEA decreases with 0.324 percent. Moreover, the significant coefficient ( $p<0.05$ ) for innovation-driven economies indicates that these economies have 4.856 percent less opportunity-driven TEA compared to efficiency-driven economies.

*Table 18 – Stepwise regression rule of law on Opportunity-driven TEA – WGI sample*

Opportunity_TEA	Model 1	Model 2	Model 3
Factor 1		-0.097 (1.025)	-0.352 (0.991)
Factor 1 Sq			1.076# (0.620)
Unemployment	-0.323** (0.066)	-0.324** (0.069)	-0.0287** (0.077)
Population	2.69e-09# (1.34e-09)	-2.75e-09# (1.48e-09)	-3.09e-09# (1.55e-09)
Innovation-driven economy	-4.985** (0.988)	-4.856* (1.264)	-5.330** (1.743)
Constant	13.572** (1.222)	9.715** (1.912)	12.587** (1.475)
R-squared	0.442	0.442	0.468
Observations	50	50	50
F-test change in R-squared			0.090

Note: Standard errors are reported in the brackets. Significance levels are indicated as follows: \*\*:  $p<0.01$ , \*:  $p<0.05$ , #:  $p<0.10$

Hypothesis 2 states that the relationship between rule of law and necessity-driven early-stage entrepreneurial activity is negative. When testing for the second hypothesis, model 2 reveals a significant ( $p < 0.05$ ) negative linear relationship of -1.831 between rule of law and necessity-driven entrepreneurship. This indicates that for every 1-point increase in the factor score, countries, on average, have 1.831% less necessity-driven TEA. No significant evidence ( $p = 0.08$ ) is found for the existence of a quadratic relationship. Furthermore, unemployment and population do not explain variance in necessity-driven TEA across countries. However, the innovation-driven economy dummy does show significant evidence ( $p < 0.05$ ) for a relationship with necessity-driven TEA, indicating that these economies have 1.274 percent less necessity-driven TEA as opposed to efficiency-driven economies.

*Table 19 – Stepwise regression rule of law on Necessity-driven TEA – WGI sample*

Necessity_TEA	Model 1	Model 2	Model 3
Factor 1		-1.831* (0.906)	-2.123* (0.822)
Factor 1 Sq			1.231# (0.688)
Unemployment	0.019 (0.065)	-0.003 (0.067)	0.038 (0.060)
Population	9.28e-10 (7.76e-09)	-3.63e-10 (1.16e-09)	-7.51e-10 (1.07e-09)
Innovation-driven economy	-3.694** (0.754)	-1.274* (1.088)	-1.816* (0.793)
Constant	5.728** (1.054)	4.955** (0.826)	3.848** (0.760)
R-squared	0.329	0.436	0.488
Observations	50	50	50
F-test change in R-squared			0.080

Note: Standard errors are reported in the brackets. Significance levels are indicated as follows: \*\*:  $p < 0.01$ , \*:  $p < 0.05$ , #:  $p < 0.10$

Hypothesis 3 states that The relationship between established business owners and rule of law is positive. The results presented in Table 20 show no significant evidence for either a linear or quadratic relationship ( $p = 0.058$ ) between established business ownership and rule of law. The control variables in model 2 did not show any significant relationship with established business ownership either.

Table 20 – Stepwise regression rule of law on established business ownership – WGI sample

Established business ownership	Model 1	Model 2	Model 3
Factor 1		-1.842 (1.146)	-2.123# (1.064)
Factor 1 Sq			1.197# (0.615)
Unemployment	-0.166 (0.122)	-0.189 (0.121)	-0.148 (0.615)
Population	3.93e-10 (1.44e-09)	-9.05e-10 (1.71e-09)	-1.28e-09 (1.73e-09)
Innovation-driven economy	-1.837 (1.323)	-0.597 (1.623)	-0.070 (1.598)
Constant	10.050** (2.129)	9.715** (1.912)	8.638** (2.069)
R-squared	0.093	0.148	0.182
Observations	50	50	50
F-test change in R-squared			0.058

Note: Standard errors are reported in the brackets. Significance levels are indicated as follows: \*\*:  $p < 0.01$ , \*:  $p < 0.05$ , #:  $p < 0.10$

Hypothesis 4 states that the relationship between perceived opportunities and rule of law is positive. In analysing for this hypothesis, significant evidence was found for a quadratic relationship between perceived opportunities and rule of law. The coefficient for factor 1 squared of 8.476 ( $p < 0.01$ ) reveals that the relationship is U-shaped. Figure 1 shows a turning point of the relationship between rule of law and perceived opportunities. This indicates that individuals not engaging in entrepreneurship, perceive better opportunities for starting a business in countries with a bad rule of law score as opposed to those with a mediocre score. Beyond a certain rule of law score, this relationship reverses, indicating that individuals not engaged in entrepreneurship perceive better opportunities for starting a business in countries with higher rule of law scores compared to those in countries with mediocre scores. Furthermore, this model also illustrates a significant negative relationship between the population of a country and the perceived opportunities. However, the coefficient for this relationship is very small, indicating that a country with a population of 1 million more is only expected to have 0.01% fewer perceived opportunities. The significant coefficient ( $p < 0.01$ ) for innovation-driven economy is -18.722, indicating that individuals not engaged in entrepreneurship perceive less opportunity for starting a business in these countries compared to individuals in efficiency-driven economies.



Table 21 – Stepwise regression Rule of Law on Perceived opportunities – WGI sample

Perceived opportunities	Model 1	Model 2	Model 3
Factor 1		4.900 (3.118)	2.889 (2.411)
Factor 1 Sq			8.476** (2.529)
Unemployment	-0.794** (0.249)	-0.735** (0.248)	-0.450# (0.257)
Population	-1.20e-08** (3.72e-09)	-8.53e-09* (4.10e-09)	-1.12e-08* (4.73e-09)
Innovation-driven economy	-8.014# (3.999)	-14.491* (5.401)	-18.222** (4.763)
Constant	52.283** (3.219)	53.149** (3.406)	46.891** (3.857)
R-squared	0.170	0.205	0.353
Observations	50	50	50
F-test change in R-squared			0.002

Note: Standard errors are reported in the brackets. Significance levels are indicated as follows: \*\*:  $p < 0.01$ , \*:  $p < 0.05$ , #:  $p < 0.10$

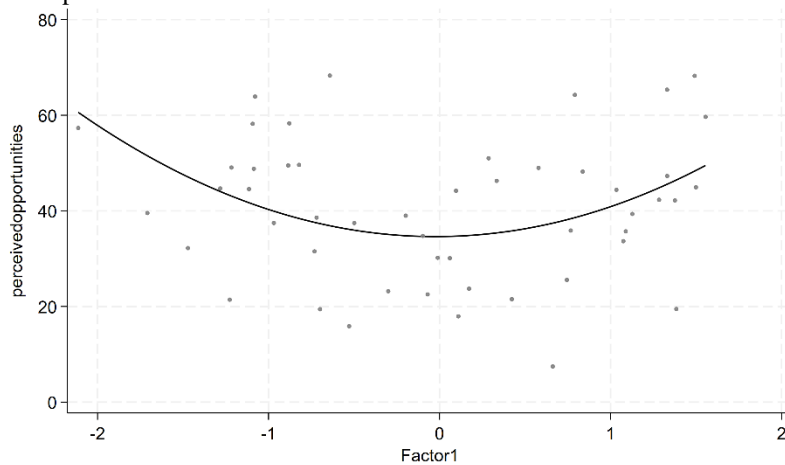


Figure 1: U-shaped relation perceived opportunities - WGI data

## 4. 2 Robustness Checks

The models shown above have also been executed using the WJP data and a different sample of countries from the same time periods. The findings from these regression analyses are presented in tables 22-25.

When testing for H1 with the WJP sample, consistent findings are observed compared to the WGI sample. The new results indicate no significant linear or quadratic relationship ( $p=0.260$ ) between opportunity-driven TEA and rule of law. The significant ( $p<0.01$ ) negative relationship with unemployment is consistent as well. However, the relationship between lower opportunity-driven TEA for innovation-driven economies is not-consistent as the results in model 2 in Table 22 are not significant.

*Table 22 – Stepwise regression Rule of Law on Opportunity-driven TEA – WJP sample*

Opportunity_TEA	Model 1	Model 2	Model 3
Factor 1		-1.252 (0.827)	-1.358 (0.869)
Factor 1 Sq			0.809 (0.706)
Unemployment	-0.356** (0.061)	-0.367** (0.057)	-0.329** (0.071)
Population	-1.97e-09 (1.61e-09)	-2.91e-09# (1.57e-09)	-3.42e-09# (1.82e-09)
Innovation-driven economy	-4.731** (1.114)	-2.897 (1.856)	-2.921 (1.874)
Constant	13.181** (1.418)	12.532** (1.07)	11.427** (2.231)
R-squared	0.491	0.521	0.541
Observations	40	40	40
F-test change in R-squared			0.260

Note: Standard errors are reported in the brackets. Significance levels are indicated as follows: \*\*:  $p<0.01$ , \*:  $p<0.05$ , #:  $p<0.10$

The main findings in testing for H2 was a significant linear negative relationship between rule of law and necessity-driven entrepreneurship. The WJP sample supports this finding with a negative and significant coefficient for Factor 1 in model 2 ( $p<0.05$ ), confirming consistency across samples. No other significant relationship were found, which is consistent with the WGI sample.

*Table 23 – Stepwise regression Rule of Law on Necessity-driven TEA – WJP sample*

Necessity_TEA	Model 1	Model 2	Model 3
Factor 1		-1.741* (0.679)	-1.841* (0.708)
Factor 1 Sq			0.757 (0.565)
Unemployment	-0.027 (0.055)	-0.043 (0.054)	-0.007 (0.042)
Population	7.49e-10 (8.38e-10)	-5.61e-10 (1.14e-09)	-1.03e-09 (1.35e-09)
Innovation-driven economy	-3.863** (0.768)	-1.311# (0.749)	-1.333 (0.746)
Constant	5.745** (1.182)	4.843** (0.825)	3.809** (0.921)
R-squared	0.431	0.565	0.605
Observations	40	40	40
F-test change in R-squared			0.189

Note: Standard errors are reported in the brackets. Significance levels are indicated as follows: \*\*: p<0.01, \*: p<0.05, #: p<0.10

For established business ownership, WJP sample shows consistency with previous findings, where no significant relationship is observed between rule of law and established business ownership. Furthermore, control variables remain insignificant showing further consistency in results.

*Table 24 – Stepwise regression rule of law on established business ownership – WJP sample*

Established business ownership	Model 1	Model 2	Model 3
Factor 1		-1.732 (1.059)	-1.795 (1.072)
Factor 1 Sq			0.478 (0.687)
Unemployment	-0.183 (0.136)	-0.198 (0.135)	-0.175 (0.143)
Population	4.83e-10 (1.63e-09)	-8.56e-10 (1.99e-09)	-1.16e-09 (2.14e-09)
Innovation-driven economy	-2.085 (1.553)	0.454 (1.734)	0.440 (1.761)
Constant	10.176** (2.443)	9.278** (2.123)	8.626** (2.486)
R-squared	0.110	0.162	0.169
Observations	40	40	40
F-test change in R-squared			0.491

Note: Standard errors are reported in the brackets. Significance levels are indicated as follows: \*\*:  $p < 0.01$ , \*:  $p < 0.05$ , #:  $p < 0.10$

Consistency is also observed for the U-shaped relationship between perceived opportunities and rule of law. Table 25 indicates a positive and significant ( $p < 0.05$ ) quadratic term in model 3. Furthermore, this model is significantly ( $p < 0.01$ ) better at explaining variation in perceived opportunities compared to the linear model. The relationship is plotted in Figure 2.

Table 25 – Stepwise regression Rule of Law on Perceived opportunities – WJP sample

Perceived opportunities	Model 1	Model 2	Model 3
Factor 1		5.447 (3.428)	4.230 (2.538)
Factor 1 Sq			9.297** (2.249)
Unemployment	-0.814** (0.262)	-0.764** (0.249)	-0.317 (0.243)
Population	-1.06e-08* (4.15e-09)	-6.48e-09 (4.79e-09)	-1.23e-08# (6.86e-09)
Innovation-driven economy	-8.370# (4.706)	-16.355** (5.830)	-16.635** (5.131)
Constant	51.449** (3.621)	54.272** (4.501)	41.579** (5.514)
R-squared	0.186	0.235	0.471
Observations	40	40	40
F-test change in R-squared			0.000

Note: Standard errors are reported in the brackets. Significance levels are indicated as follows: \*\*:  $p < 0.01$ , \*:  $p < 0.05$ , #:  $p < 0.10$

These analyses demonstrate consistent results across different databases and factor scores for rule of law. Reinforcing the previous results between rule of law and the various measures for entrepreneurial activity using the WGI sample.

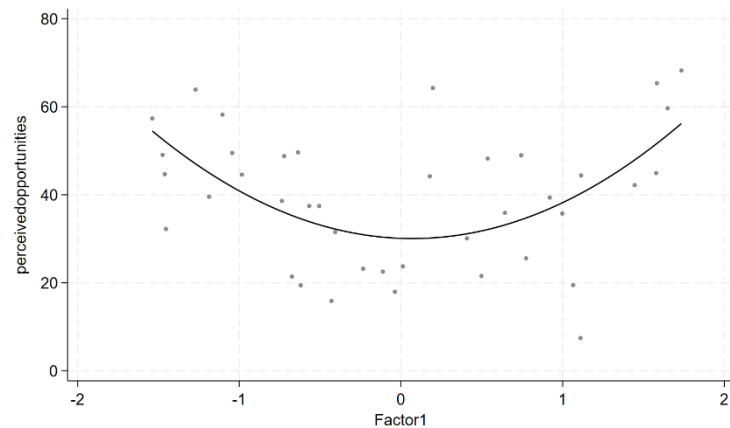


Figure 2: U-shaped relation perceived opportunities - WJP data

## 5. Discussion

This thesis analysed the relationship between rule of law and entrepreneurship across countries. The analysis focussed on early-stage entrepreneurs, established entrepreneurs, and the perceived possibilities by individuals not engaging in entrepreneurship. Early-stage entrepreneurs were categorized by their motivation for engaging in entrepreneurship, distinguishing between necessity-driven and opportunity-driven entrepreneurs. With these dependent variables this thesis aimed to achieve an answer to the research question: *Does the quality of rule of law influence the level of entrepreneurship across different countries?*

A negative relationship between rule of law and necessity-driven early-stage entrepreneurship was found, suggesting that countries with a better rule of law have relatively fewer necessity-driven entrepreneurs. No significant relationship was found for opportunity-driven early-stage entrepreneurs or established business owners. However, a significant U-shaped relationship was observed between rule of law and perceived opportunities for starting a business by individuals not active in entrepreneurship. These results were consistent across WGI and WJP datasets.

### 5.1 Theoretical contributions

The theoretical contributions of the findings are limited. The results indicate that the rule of law primarily influences necessity-driven entrepreneurship. The lack of significant effect for the other entrepreneurial activities suggests that rule of law is not as influential as theory suggests. Furthermore, due to various limitations that will be discussed shortly, theoretical contributions of this paper are limited. Nonetheless, this paper highlights that cross-country analysis is not a sufficient way of analysing the causal effect of rule of law on entrepreneurship. This study does support the findings of Hartog et al. (2010). Furthermore, their explanation that in developed countries, the benefits of rule of law gather into large enterprises does match the findings.

### 5.2 Practical implications:

The practical implications of this thesis are limited. The results suggest that improving rule of law can help reduce necessity-driven entrepreneurship, which might be beneficial for policy-makers aiming to reduce this type of entrepreneurship in order to shift people to other forms of employment. However, due to the limited effect on other types of entrepreneurship, policymakers should consider other factors beyond rule of law to achieve desired outcomes.

### **5.3 Limitations**

This study has several limitations. The use of cross-sectional presents difficulties in establishing causal inference. This is the case with GEM data, where countries show high values for entrepreneurship despite having low scores for rule of law. This can be misleading in analyses, because it gives the impression that to increase entrepreneurship, one should decrease rule of law. However, this is merely the relationship and not the causal effect.

The external validity of this thesis is also limited due to the exclusion of factor-driven countries. This restricts the applicability of the findings to efficiency-driven and innovation-driven economies. Moreover, this thesis did not employ a multi-level analysis with individual-level data. Including this data would allow to control for individual-specific characteristics and reveal how different groups respond to the rule of law. Additionally, utilizing a factor score did not allow for individual analysis of variables that make up the rule of law. This aggregated approach might conceal the more nuanced effects of specific components of rule of law. Finally, this analysis did not consider any informal factors that could influence entrepreneurship. This is of importance because informal institutional factors have been shown to have greater influence on entrepreneurship compared to formal factors (Aparicio et al., 2021; Zhai et al., 2019). If these informal institutions correlate with rule of law, the relationship observed might be biased.

Future research should continue studying the effects of rule of law on different types of entrepreneurship. Exploring multi-level would be interesting, as it will be able to control for cross-country differences and individual characteristics. Regional-level studies would also be able to give improved insight into the effect of rule of law on entrepreneurship. Additionally, this thesis follows the recommendations of Terjesen et al. (2016) in determining the indirect linkages between institutions and entrepreneurship. Enhancing the understanding of how institutions influence attitudes, intentions or skills will improve the ability to comprehend why individuals choose entrepreneurship. Finally, using measures for size of business would be interesting to see if the explanation of Hartog et al. (2010) holds.

## **6. Conclusion**

This thesis employed a cross-country analysis to compare differences in rule of law with differences in entrepreneurship over the subsequent period. The results from this analysis suggest that cross-country differences in entrepreneurship can only be explained by rule of law for necessity-driven entrepreneurs. Furthermore, higher scores for rule of law are associated with lower levels of necessity-driven early-stage entrepreneurship. For opportunity-driven early-stage entrepreneurs and established business owners, rule of law does not significantly explain variances between countries. Finally, a U-shaped relationship was identified between rule of law and perceived opportunities, suggesting that individuals perceive greater possibilities for starting a business in countries with a bad rule of law compared to those with a slightly better rule of law. However, beyond a threshold of rule of law, the relationship for perceived opportunities turns positive. In conclusion, these results suggest that strengthening the rule of law may reduce necessity-driven entrepreneurship while having no impact on other types of entrepreneurship.

## References

- Acemoglu, D., Johnson, S., & Robinson, J. A. (2020). Institutions as a fundamental cause of long-run growth. *Handbook of Economic Growth, 1*, 385-472.
- Acs, Z. J., Autio, E., & Szerb, L. (2014). National Systems of Entrepreneurship: Measurement issues and policy implications. *Research Policy, 43*(3), 476-494.
- Agostino, M., Nifo, A., Trivieri, F., & Vecchione, G. (2019). Rule of law and regulatory quality as drivers of entrepreneurship. *Regional studies, 54*(6), 814-826.
- Alvarez, C., Lopez, T., & Urbano, D. (2024). Do institutional dimensions matter at different stages of the entrepreneurial process? A multi-country study. *Small Business Economics*.
- Aparicio, S., Urbano, D., & Stenholm, P. (2021). Attracting the entrepreneurial potential: A multilevel institutional approach. *Technological Forecasting and Social Change, 168*, 120784.
- Bhat, S., & Khan, R. (2014). Entrepreneurship and Institutional Environment: Perspectives from the Review of Literature. *European Journal of Business and Management, 6*(1), 84-91.
- Dreher, A., & Gassebner, M. (2013). Greasing the wheels? The impact of regulations and corruption on firm entry. *Public Choice, 155*(3), 413-432.
- Dutta, N., & Sobel, R. (2016). Does corruption ever help entrepreneurship? *Small Business Economics, 47*, 179-199.
- Estrin, S., Korosteleva, J., & Mickiewicz, T. (2013). Which institutions encourage entrepreneurial growth aspirations? *Journal of Business Venturing, 28*(4), 564-580.
- Gimenez-Fernandez, E. M., Sandulli, F. D., & Bogers, M. (2020). Unpacking liabilities of newness and smallness in innovative start-ups: Investigating the differences in innovation performance between new and older small firms. *Research Policy, 49*(10), 104049.
- Hartog, C., Van Stel, A., & Story, D. J. (2010). Institutions and entrepreneurship: The role of the rule of law. *EIM Scales paper H, 201003*, 591-629.
- Hechter, M., & Kanazawa, S. (1997). Sociological Rational Choice Theory. *Annual Review of Sociology, 23*, 191-214.



- Ho, Y., & Wong, P. (2007). Financing, Regulatory Costs and Entrepreneurial Propensity. *Small Business Economics*, 28, 187-204.
- Klapper, L. F., & Love, I. (2010). The Impact of the Financial Crisis on New Firm Registration. *World Bank Policy Research Working Paper No. 5444*.
- Klapper, L., Laeven, L., & Rajan, R. (2006). Entry regulation as a barrier to entrepreneurship. *Journal of Financial Economics*, 82(3), 591-629.
- Kritikos, A. (2004). Entrepreneurs and their impact on jobs and economic growth. *IZA World of Labor*. Retrieved from <https://wol.iza.org/articles/entrepreneurs-and-their-impact-on-jobs-and-economic-growth/long>
- McGrath, R. G. (1997). A Real Options Logic for Initiating Technology Positioning Investments. *The Academy of Management Review*, 22(4), 974-996.
- Mehmood, W., Din, S. M., Aman-Ullah, A., Khan, A. B., & Fareed, M. (2023). Institutional quality and economic growth: Evidence from South-Asian countries. *Journal of Public Affairs*, 23, 2824.
- Mickiewicz, T., Nyakudya, F. W., Theodorakopoulos, N., & Hart, M. (2017). Resource endowment and opportunity cost effects along the stages of entrepreneurship. *Small Business Economics*, 48, 953–976.
- Mickiewicz, T., Sauka, A., & Stephan, U. (2021). The consequences of short-term institutional change in the rule of law for entrepreneurship. *Global Strategy Journal*, 11(4), 709-739.
- Naudé, W. (2008). Entrepreneurship in economic development. *WIDER Research Paper*. Retrieved from <https://hdl.handle.net/10419/63572>
- Naudé, W. (2010). Entrepreneurship, developing countries, and development economics: new approaches and insights. *Small Business Economics*, 34, 1-12.
- Naudé, W. (n.d.). Entrepreneurship in economic development. *UNU-WIDER research paper no. 2008/20, United Nations University, Helsinki, Finland*.
- North, D. C. (1990). *Institutions, institutional change and economic performance*. Cambridge university press.

- O'Brien, J. P., Folta, T. B., & Johnson, D. R. (2003). A Real Options Perspective on Entrepreneurial Entry in the Face of Uncertainty. *Managerial and Decision Economics*, 24(8), 515-533.
- Parker, S. C. (2004). *The Economics of Self-Employment and Entrepreneurship*. Cambridge: Cambridge University Press.
- Rodríguez-Gulías, M. J., Gabriel, V. M., & Rodeiro-Pazos, D. (2018). Effects of governance on entrepreneurship: European Union vs non-European Union. *Competitiveness Review*, 28(1), 43-57.
- Terjesen, S., Hessels, J., & Li, D. (2016). Comparative international entrepreneurship: A review and research agenda. *Journal of management*, 42(1), 299-344.
- Urbano, D., Aparicio, S., & Audretsch, D. (2019). Twenty-five years of research on institutions, entrepreneurship, and economic growth: what has been learned? *Small Business Economics*, 53, 21-49.
- Valcke, A. (2012). *The Rule of Law: Its Origins and Meanings*. SSRN.
- Van der Zwan, P., Thurik, R., Verheul, I., & Hessels, J. (2016). Factors influencing the entrepreneurial engagement of opportunity and necessity entrepreneurs. *Eurasian Business Review*, 6, 273–295.
- Veciana, J. M., & Urbano, D. (2008). The institutional approach to entrepreneurship research. Introduction. *International Entrepreneurship and Management Journal*, 4, 365-379. Retrieved from <https://doi.org/10.1007/s11365-008-0081-4>
- Wennekers, S., Wennekers, A. V., Thurik, R., & Reynolds, P. (2005). Nascent Entrepreneurship and the Level of Economic Development. *Small Business Economics*, 24, 293-309.
- Williamson, O. E. (2000). The new institutional economics: taking stock, looking ahead. *Journal of economic literature*, 38(3), 595-613.
- Wright, F. (n.d.). *SPOTLIGHTING TRENDS IN EARLY-STAGE ENTREPRENEURIAL ACTIVITY*. Retrieved from Global Entrepreneurship Monitor.

Zhai, Q., Su, J., Ye, M., & Xu, Y. (2019). How do institutions relate to entrepreneurship: An integrative model. *Entrepreneurship Research Journal*, 9(2), 20170001.