FOUR ENLIGHTENING RECIPES FOR GOVERNMENTS - WHICH EFCs CONTRIBUTE TO OPPORTUNITY- AND NECESSITY-DRIVEN ENTREPRENEURSHIP: A fs/QCA CROSS-COUNTRY ANALYSIS

by

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Abstract

Entrepreneurship, or entrepreneurial activity, is seen as a main driver for national economic growth. However, entrepreneurial activity needs to be differentiated into: 1) Opportunity-driven entrepreneurial activity, relating to people choosing to become entrepreneurs, and 2) necessity-driven entrepreneurial activity, relating to people who are pushed into entrepreneurship. For governments to foster opportunity-driven entrepreneurial activity, it is key to understand how EFCs (Entrepreneurial Framework Conditions), or combinations of EFCs contribute to the ratio of opportunity- to necessity-driven entrepreneurs in a country.

Accordingly, the research question of this study is *"Which EFCs or combination of EFCs contribute to opportunity-driven and necessity-driven entrepreneurship?"*

To answer this question, a systematic literature analysis and a fuzzy-set Qualitative Comparative Analysis (fs/QCA) are executed to outline combinations of EFCs contributing to different outcomes regarding the ratio between opportunity- and necessity-driven entrepreneurs. Four kinds of "compositions" (outcomes) are identified, each with its own recipe, presenting the composition of ingredients (EFCs). Some ingredients are found across outcomes. All cases related to the corresponding recipes are further investigated on economic development stage, to be able to connect the results to potentially related development stages.

It has been found that EFCs related to infrastructure (Commercial and Physical), Governmental tax policies, Governmental entrepreneurship programmes and R&D transfer positively relate to opportunity-driven entrepreneurship. Moreover, light is shed on the role of economic development in this relationship, identifying almost entirely innovation-driven economies related to the most dominant opportunity-driven countries.

This paper gives practical implications for governments, who need to understand the dynamics of both type of entrepreneurial activity, in order to foster national economic growth.

Keywords: GEM, fs/QCA, EFCs, national level entrepreneurship, global entrepreneurship monitor, opportunity-driven entrepreneurship, necessity-driven entrepreneurship, Opp-Nec ratio

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List of Abbreviations

APS	Adult Population Survey
EFC	Entrepreneurial Framework Conditions
fs/QCA	fuzzy-sets Qualitative Comparative Analysis
GEM	Global Entrepreneurship Monitor
MRA	Multiple regression analysis
NES	National Expert Survey
Opp-Nec Ratio	Opportunity to Necessity Ratio (relating to Motivational Index)
TEA	Total early-stage entrepreneurial activity
SLA	Systematic Literature Analysis

Glossary

Commercial and legal infrastructure	The presence of property right, commercial, accounting and other legal and assessment services and institutions that support or promote SMEs [*1]
Coverage Consistency (fs/QCA)	*Consistency* measures the degree to which membership in each solution term is a subset of the outcome. [*4]
Cultural and social norms	The extent to which social and cultural norms encourage or allow actions leading to new business methods or activities that can potentially increase personal wealth and income [*1]
Efficiency-driven development stage	Efficiency-driven economies are increasingly competitive, with more-efficient production processes and increased product quality [*2]
Entrepreneurial Finance	The availability of financial resources - equity and debt - for SME (including grants and subsidies) [*1]
Entrepreneurship education at school stage	The extent to which training is creating and managing SMEs is incorporated within the education and training system at primary and secondary levels [*1]
Entrepreneurship education at post school stage and entrepreneurship training	The extent to which training in creating or managing SMEs is incorporated within the education and training system in higher education such as vocational, college, business schools [*1]
Factor-driven development stage	Factor-driven economies are the least developed. They are dominated by subsistence agriculture and extraction businesses, with a heavy reliance on (unskilled) labour and natural resources [*2]
Government policies regarding taxes and bureaucracy	The extent to which public policies support entrepreneurship - taxes and regulations are either site-neutral or encourage new and SMEs [*1]
Government entrepreneurship programmes	The presence and quality of programmes directly assisting SMEs at all levels of government (national, regional, municipal) [*1]
Government policies support and relevance	The extent to which public policies support entrepreneurship - entrepreneurship as a relevant economic issue [*1]
Innovation-driven development stage	Innovation-driven economies are the most developed. In this phase, businesses are more knowledge-intensive, and the service sector expands [*2]
Internal market burdens or entry regulation	The extent to which new firms are free to enter existing markets [*1]
Internal Market Dynamics	The level of change in markets from year to year [*1]
Motivational Index	Percentage of those involved in TEA that are improvement-driven opportunity motivated, divided by the percentage of TEA that is necessity-motivated [**1]
Necessity-driven Entrepreneurs	Entrepreneurs who are entrepreneurs due to lack of choice/ out of necessity [*3]
Opp-Nec ratio	See Motivational Index
Opportunity-driven Entrepreneurs	Entrepreneurs who exploit opportunities, based on the desire of autonomy or personal profits [*3]
Physical infrastructure	Ease of access to Physical resources - communication, utilities, transportation, land or space - at a price that does not discriminate against SMEs. [*1]
Raw Coverage (fs/QCA)	*Raw coverage* measures the proportion of memberships in the outcome explained by each term of the solution.[*4]
Raw Unique Coverage (fs/QCA)	*Unique coverage* measures the proportion of memberships in the outcome explained solely by each individual solution term (memberships that are not covered by other

	solution terms). [*4]
Research and development (R&D) transfer	The extent to which national research and development will lead to new commercial opportunities and is available to SMEs). [* 1]
Solution coverage (fs/QCA)	*Solution coverage* measures the proportion of memberships in the outcome that is explained by the complete solution. [*4]
Total early-stage entreprenerial activity	The percentage of 18-64 population who are either a nascent entrepreneur or owner-manager of a new business. [*1]

[*1] from GEM website, as of 2018
[*2] from World Economic Forum classification 2019, and listed on https://www.gemconsortium.org/wiki/1367
[*3] Shane et al., 2003; Locke & Baum, 2007
[*4] Ragin, 2008a, p.86

1.) Introduction

Entrepreneurship boosts technical innovation, increases employment opportunities, and moreover promotes economic growth (Acs, 2006; Acs, Audretsch, Braunerhjelm, & Carlsson, 2004; Audretsch & Keilbach, 2004; Audretsch, 2012; Carree & Thurik, 2003; Carree, van Stel, Thurik, & Wennekers, 2007; Fernández-Serrano, Berbegal, Velasco, & Expósito, 2017; van Praag & Versloot, 2007; Wennekers, van Stel, Thurik, & Reynolds, 2005). According to academic studies, economic growth is related to starting new businesses, the application of new techniques, introduction of new products, or creation of new markets (Fernández-Serrano & Romero, 2013; Reynolds, Bygrave, Autio, & Hay, 2002; Santos, Romero, & Fernández-Serrano, 2012; Van Stel, Carree, & Thurik, 2005). In this respect, previous research has also found a U-shaped relationship between the degree of entrepreneurship and economic activity (Sternberg & Wennekers, 2005; Wennekers et al., 2005, 2007). Under certain circumstances, entrepreneurial activity by nascent entrepreneurs and young business owners impacts economic growth (Van Stel et al., 2005). Moreover, the widely accepted Global Entrepreneurship Monitor (GEM) model implies that "governments that ensure superior Entrepreneurial Framework Conditions (EFCs) should expect higher national rates of entrepreneurial activity – and higher rates of economic growth" (Levie & Autio, 2008, p. 2).

To frame and describe factors, impacting entrepreneurial activity, as well as the growth and level of entrepreneurship on a national level, recent studies use the Entrepreneurial Framework Conditions, which are published every year by the Global Entrepreneurship Monitor. It is crucial to understand the importance and consequences of EFCs, especially for governments, in order to appropriately shape a promotional framework for entrepreneurship. In general, Entrepreneurial Framework Conditions declare conditions of the ecosystem of a country, which can restrict or boost the degree of creation of new businesses (Singer, Amoros & Moska, 2015). Therefore, EFCs, which are based on social, political and cultural determinants of a country, are directly linked to entrepreneurial activity and consequently to economic growth.

In order to be able to distinguish between different kinds of entrepreneurial activity, it is important to understand the different motivations for starting up a business. GEM introduces the Motivational Index, which assesses the ratio of improvement-driven entrepreneurs to necessity-driven entrepreneurs, who are involved in Total early-stage entrepreneurial activity (TEA) in a country (Global Entrepreneurship Research Association, 2018). In the course of this paper the Motivational Index will be renamed into "Opp-Nec ratio" to avoid potential value judgments.

Stepping into any entrepreneurs´ shoes, economic growth on a national level, or job creation are hardly anybody's motivation to startup a business (Hessels, Van Gelderen & Thurik, 2008). Moreover, the motive for an individual to initiate entrepreneurship is based on two factors: 1) Exploiting opportunities and 2) out of necessity (Acs, Arenius, Hay, & Minniti, 2005; Tominc & Rebernik, 2007). In more detail, the execution of entrepreneurship is based on the 1) desire for autonomy and / or personal profits or 2) the lack of options (Shane et al., 2003; Locke & Baum, 2007). It is essential to understand the context of the entrepreneurial framework of a given country. This is to propose on how governments can boost economic growth, by providing a productive environment field for entrepreneurs, based on their motives.

The research question of this study is *"Which EFCs or combination of EFCs contribute to opportunity-driven and necessity-driven entrepreneurship?"*

Data from GEM are analyzed to explore this relationship and to gain a deeper understanding of the impact behind different combinations of conditions. To fulfill the objective of the study, two key areas are researched: First, a better understanding will be provided of the impact and relationship of EFCs on an entrepreneur's motivation to startup a business. And second, it is investigated and characterized which EFCs may show a leverage effect to increase opportunity-driven, respectively necessity-driven entrepreneurial activity on a national level. This part is important for Governments and their decisions. In this respect, in academic literature it has been highlighted that in studying entrepreneurship, the link between economic development, institutional framework and entrepreneurship should not to be ignored. Moreover, it is critical to understand that if countries from all types of economic development stages are analyzed, the three economic development stages factor-driven stage, efficiency-driven stage and innovation-driven stage should also be consulted in the interpretation of results (Acs, Desai, & Hessels, 2008).

To date, a number of scholars have investigated the entrepreneurial environment (such as EFCs) in a country, and the respective effect on entrepreneurial activity (e.g. Cerveny, Pilkova & Rehak, 2016; Levie & Autio, 2008; Minniti, 2013). Many studies research the effect of either a single or a small number of chosen conditions on entrepreneurial activity, but none of the current research focuses on the potential effect of all EFCs on drivers behind entrepreneurial activity. Therefore, potential causal effects, which might contribute to the outcome, are not fully

considered. Addressing all or most of the important causal factors opens insights into further and new possibilities for governments to improve the entrepreneurial conditions and environment.

The statistical method fs/QCA gives the necessary insights on the impact of combinations of conditions. In that sense, the methodological focus relies on conjunctional causation, which relates to the combination of various causal conditions, rather than the power of one single condition on the outcome (Woodside, 2013). It is crucial to understand the effects of all potential conditions on the outcome, and not just the isolated effects of single conditions. All possible combinations need to be considered in order to gain a holistic overview of relevant conditions for an outcome, and the corresponding direction of the effect (positive or negative).

This study will contribute to fill two gaps in academic literature. First, the most relevant conditions, for entrepreneurship, are derived out of a pool of all EFCs. From those relevant and constraining conditions, different combinations of conditions contributing to opportunity- and necessity-driven entrepreneurship will be discussed. Constraining conditions are of interest, as they may play a critical role for entrepreneurship. Understanding the conditions that affect entrepreneurial drivers on a national level is very important for government and relevant institutions. Governments and institutions may be enabled to better understand the interaction of conditions, which indicate to opportunity- and necessity-driven entrepreneurship, and facilitate the adjustment of the current national framework accordingly. The second contribution to academic literature relates to fs/QCA, an aspiring statistical method. Yet, no study has researched EFCs on the ratio of opportunity-driven entrepreneurship activity to necessity-driven entrepreneurial activity, using conjunctional causation, such as with fs/QCA. Most studies research EFCs as isolated conditions, by using regression analysis. Potential drawbacks of this method will be discussed and presented in the methodology part of this paper.

On an institutional level, it is critical to understand which measures, such as EFCs, contribute to which kind of entrepreneurship (if opportunity- or necessity-driven). The results are discussed in the light of economic development stages.

2.) Theoretical Framework

2.1) Global Entrepreneurship Monitor: Background, Goals and Model

When it comes to entrepreneurship, GEM delivers the most collaborative and comprehensive study in the world. In the Global Entrepreneurship Monitor report of 2017, GEM introduced the 19th consecutive global report. The Global Entrepreneurship Monitor is a global research project, which was founded in 1997 by the Babson College and London Business School. Multiple teams conduct and contribute to the studies across the world (De Clercq & Crijns, 2007). It can be traced back to the intensive involvement of hundreds of policy makers and researchers. GEM did not only conduct the GEM Global Report 2017 in 54 countries, but also carried out research in around hundred countries (GEM Global Report 2017, p. 5).

The GEM Consortium has several goals they strive for, and to which they contribute to on an annual basis: Firstly, the assessment of "the levels and nature of entrepreneurial activity across countries" (De Clercq & Crijns, 2007, p. 170). Secondly, GEM seeks to deliver a better understanding of the influencing factors inside of countries, which might be decisive to systematic discrepancies in the rates of entrepreneurship. Thirdly, Global Entrepreneurship Monitor investigates factors explaining national entrepreneurship outcomes (De Clercq & Crijns, 2007). The overall goal of the GEM model is to provide a framework, which facilitates the assessment of major empirical relationships between economic growth and entrepreneurship (De Clercq & Crijns, 2007). The initial conceptual model by GEM, as introduced by Reynolds, Hay & Camp (1999), is presented in Figure 1. Since its implementation in 1999 GEM´s conceptual framework has undergone a number of adjustments.

This model shows two paths contributing to national economic growth. The lower part of the framework highlights the assumption that national economic growth results out of the ability of individuals to identify and exploit entrepreneurial opportunities, which leads to an increase in new firms and ultimately to new jobs and technical innovation.

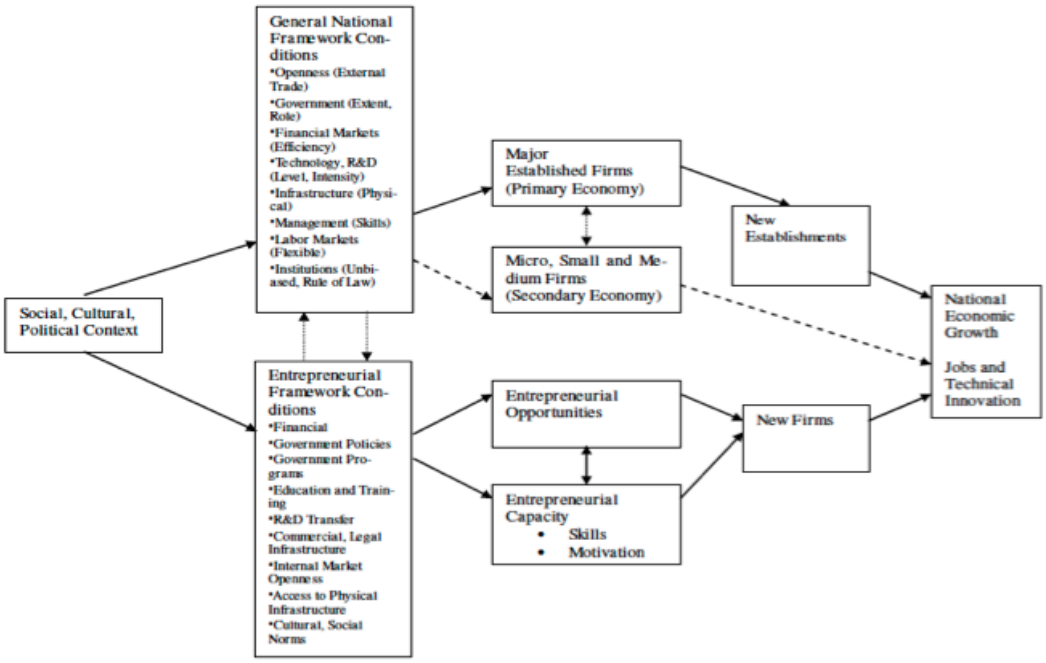


Figure 1. The GEM Conceptual Model by Reynolds et al. (1999) - (taken from Acs et al., 2005, p.14)

Today, the conceptual framework of GEM is extended and more detailed and complex (see figure 2). In the revised version of the GEM conceptual framework the research focus is directed towards understanding EFCs, social values and individual attributes, which have an effect on different types entrepreneurial activity (and all its subpoints – such as TEA, types of entrepreneurial activity, etc.). This entrepreneurial activity generates entrepreneurial output, which in turn affects the socio-economic development.

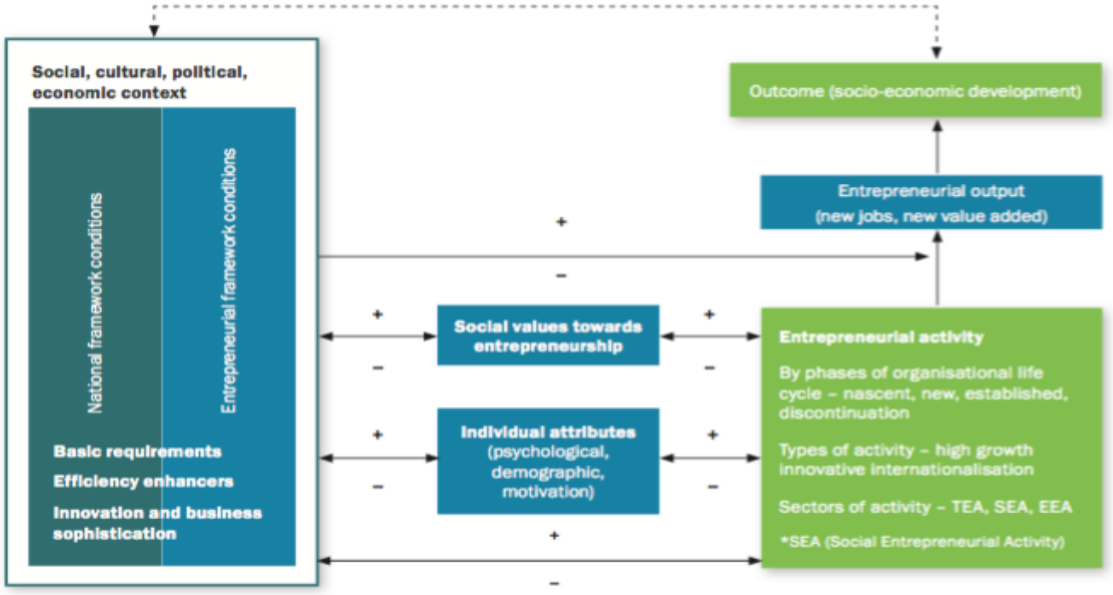


Figure 2.The (revised) GEM Conceptual Framework (2015)

In the model national economic growth is related to two sets of business processes: 1) General National Framework Conditions (GNFCs) and 2) Entrepreneurial Framework Conditions (EFCs).

The GNFCs (upper part of Figure 1), describes routine or established business activity processes, with their corresponding antecedents (Levie & Autio, 2008). In the initial GEM model it is outlined that while entrepreneurial activity varies with EFCs, the established business activity varies with GNFCs (Reynolds et al., 2005). As presented in figure 1, conditions included in the GNFCs are Openness (to external trade), Government (regarding its role and extent), the efficiency of Financial Markets, the level and intensity of Technology or R&D, the Physical Infrastructure, the degree of Management skills, the flexibility of Labor Markets and the degree to which Institutions are biased (Rule of law).

As this study has a focus on new and early-stage entrepreneurial activity and not on established entrepreneurial activity, the General National Framework Conditions are not relevant and are therefore not further investigated.

The second set relates to Entrepreneurial Framework Conditions, which are supposed to have a positive (if indirect) effect on entrepreneurial activity. In GEM characteristics are determined with respect to entrepreneurial activities. Additionally, ambitions and motivations of entrepreneurs and societal attitudes are examined. For the purpose of this study, information about the origin of the data and data collection method of GEM are further elaborated.

2.2) Entrepreneurial Framework Conditions

EFCs define the rules in whatever entrepreneurial activity-context. In other words, it is argued that if you change the entrepreneurial framework conditions, the nature and rate of productive entrepreneurial activity might change (Levie & Autio, 2008). This makes EFCs, if fully understood and applied accordingly, to a very powerful instrument for governments to foster entrepreneurial activity and productivity.

Today´s EFCs consist of twelve conditions (Global Entrepreneurship Research Association, 2018) compared to Reynold et al.´s (1999) model (see figure 1) where only nine conditions are presented. Over time two new conditions have been identified and have been added to the EFCs

(in GEM), namely Internal market dynamics and Government policies regarding taxes and bureaucracy. Furthermore, Education and Training has been divided into two conditions: Entrepreneurship education at school stage and Entrepreneurship education at post school stage and entrepreneurship training. The remaining EFCs are Entrepreneurial finance, Government policies support and relevance, Government entrepreneurship programmes, Research and development (R&D) transfer, Commercial and legal infrastructure, Internal market burdens or entry regulation, Physical infrastructure and Cultural and social norms (Global Entrepreneurship Research Association, 2018). The names of the conditions vary between GEMs Global Report and the website database. In the course of this paper the names of the conditions from the website are accepted, which can also be found in the glossary of this paper.

During the execution of this study, seven conditions have shown to be more relevant than the other five. In the later part of this paper the reasoning for the distinction and limitation of relevant and not relevant EFCs is discussed. The seven relevant conditions for this study are briefly introduced in the following section:

GEM´s condition **Commercial and legal infrastructure** relates to the degree of presence of commercial, property right, accounting or other legal services, which benefit or encourage SMEs (Global Entrepreneurship Research Association, 2018). Moreover, literature suggests that access to commercial infrastructure and a strong rule of law, among other factors, are the most influential attributes of an entrepreneurial environment (Holienka, Pilková & Ostapenko, 2016).

The condition **Physical infrastructure** relates to physical resources (such as transportation, utilities, etc.), which should be at a price to not discriminate SMEs (Global Entrepreneurship Research Association, 2018). Furthermore, literature suggests that as a foundation for a successful entrepreneurial activity or a venture startup a certain degree of (physical) infrastructure is necessary, such as communication facilities, transportation, land or space for operation (Hansen & Sebora, 2003; Liao, Welsch, & Pistrui, 2001; Trulsson, 2002). However, Physical infrastructure for entrepreneurs is likely to vary widely between countries. For some countries it may be a critical issue, whereas for instance in high-income countries it might be taken for granted (Bitzenis & Nito, 2005). Overall, the availability of utilities and infrastructure will promote new business creation (Carter, Gartner, & Reynolds, 1996).

In GEM, the condition **Cultural and social norms** relates to the degree to which cultural or social norms act as encouraging towards new business activities or methods. These actions lead potentially to an increase in income and personal wealth (Global Entrepreneurship Research Association, 2018). Furthermore, literature suggests that cultural norms show an encouraging self-reliance effect, especially on senior entrepreneurs (Cervený, Pilcová, & Rehák, 2016). Nevertheless, a solid number of studies have researched the impact of cultural factors on entrepreneurial activities or intent (Hayton et al., 2002; Hofstede et al., 2003; Levie & Hunt, 2005; Reynolds et al., 2003; Uhlaner & Thurik, 2007) with mixed results.

Entrepreneurship education at school stage relates to the degree to which in primary or secondary schools the creation or management of SMEs is incorporated in the education system (Global Entrepreneurship Research Association, 2018). Academic literature identifies that entrepreneurial education and training is one of the most influential conditions on entrepreneurial activity (Kirby & Ibrahim, 2011; Naudé, Gries, Wood & Meintjies, 2008). In the Global Entrepreneurship Monitor the condition Entrepreneurship education at school stage has been identified as one of the most constraining conditions.

Government entrepreneurship programmes addresses the presence and quality of these programmes, which assist SMEs on all governmental levels (such as national, municipal or regional) (Global Entrepreneurship Research Association, 2018). Furthermore**,** literature suggests that through support programmes, governments can support entrepreneurial ventures with subsidies, informational or material support (Dahles, 2005; Keuschnigg & Nielsen, 2001, 2002, 2004).

The condition **R&D transfer**, in GEM, refers to the commercial opportunities (for SMEs), which may arise from national research and development (Global Entrepreneurship Research Association, 2018). Just touching on the topic of knowledge spill-over theory of entrepreneurship (Acs et al., 2004; Acs, 2006; Acs et al., 2007), the GEM model suggests that if the transfer of knowledge in R&D is relatively cheap and quick (from lab to entrepreneur), more new innovative businesses may be generated (Levie & Autio, 2008).

Governmental policies regarding taxes and bureaucracy measures how public policies support entrepreneurship, especially if regulations and taxes are encouraging or neutral towards new and SMEs (Global Entrepreneurship Research Association, 2018). Literature provides

mixed results about the relationship of tax policies and growth of firms. Some literature finds a negative relationship, because taxes may cause direct financial cost on firms, which in turn might affect profitability and growth (Baumol, 1990; Davidsson & Henrekson, 2002; Van der Horst, Nijsen & Gulhan, 2000). On the other hand, there is academic proof that tax policies, if applied correctly, can provide incentives for growth of firms (Goldfarb & Henrekson, 2003; Keuschnigg & Nielsen, 2002, 2004; Puffer & McCarthy, 2001).

The additional five EFCs, which were not taken into further investigated in this study, are:

1) Financing for Entrepreneurs, 2) Government policies support and relevance, 3) Entrepreneurial education at post school stage and entrepreneurship training, 4) Internal market burdens and entry regulations and 5) Internal market dynamics.

Data for the entrepreneurial framework conditions is collected with National Expert Surveys (NES). The NES is a survey where specific national conditions are evaluated. The focus rests on environmental features, which are expected to have a significant (positive or negative) impact on entrepreneurial activities or attitudes. Every year, in participating economies, at least 36 key informants or key experts participate in the GEM cycle surveys. Experts, in the 2017 National Expert Surveys, supply data on EFCs by making use of a Likert Scale from one (highly insufficient) to nine (highly sufficient). The data collection of NES-data across the globe has the purpose to propose implications for governments to improve the entrepreneurial environment. The Likert scale is a measurement tool, which captures ordinal categorical variables and is often used to capture opinions, preferences or ratings of participants, or in this case, from experts. Likert scale has some limitations, which need to be addressed. First of all, the measurement usually relies on subjective impressions and experience of the asked person. Second, the proportions between the numbers (here one to nine) might not be exactly the same, as for instance two scores of four are not equal to one score of eight. Therefore the usage of Likert scale as measurement tool, might deliver a limitation regarding the NES-data collection procedure.

2.3) Entrepreneurial Behavior & Attitudes - The Role of Opportunity and Necessity as Driver for Entrepreneurship

It is crucial to understand and distinguish between specific kinds and types of entrepreneurial activities. The simple fact of a high or low entrepreneurial activity in a country only shows one dimension. In order to understand all implications, it is beneficial to explore the main drivers behind these entrepreneurial activities. As such, the high rate of entrepreneurial activity in developing countries, especially in comparison to most developed countries, was the focus of many researches. Findings show that in developing countries the key motivator for starting a business is survival, poverty and the lack of choice in work. In developed countries, innovation and opportunity are the main drivers for starting business ventures (Reynolds et al., 2001). Hence, 'necessity driven' entrepreneurs are rather pushed into entrepreneurship based on the aforementioned lack of choice or dissatisfaction of work options, whereas on the other hand opportunity driven' entrepreneurs are pulled into entrepreneurship because of their own choice (Aidis, Welter, Smallbone, & Isakova, 2007; Harding et al, 2006; Maritz, 2004; Minniti, Bygrave & Autio, 2006; Perunovic´, 2005; Reynolds et al, 2002; Smallbone & Welter, 2004). Regarding necessity-driven entrepreneurship it is identified that there is a direct link between high level of poverty and high drive for necessity entrepreneurship, which means that there is a high rate of entrepreneurial activity (Reynolds et al., 2001). Moreover, it is also observed that in the poorest countries entrepreneurs have comparatively lower education and that entrepreneurship is resting upon economic necessity (Acs et al., 2005).

In most developed countries, where more opportunity-driven entrepreneurs than necessity-driven entrepreneurs can be found, the rate of entrepreneurial activity is related to a boom in services, innovation and opportunity. These findings highlight an important distinction of which needs to be taken into consideration when researching the relationship between entrepreneurship and economic growth, as originally introduced in the GEM model (Reynolds et al., 2001; Wenneckers & Thurick, 1999). There are further motives which have an effect, but rather play a social than an economic role.

In prior studies, which have researched arising venturing, little attention was given to environmental factors (Liao & Welsch, 2008) like the ecosystem for instance. This study considers all conditions, which potentially influence entrepreneurial activity. A particular focus lies on the type of motivation, which drives nascent entrepreneurs or entrepreneurs who already

are involved in the startup stage. Based on GEM, and in order to investigate this relationship two variables are used: The Total early-stage entrepreneurial activity (TEA) and Opp-Nec ratio (originally called "Motivational Index" in GEM).

The Opp-Nec ratio relates to the percentage of opportunity-driven entrepreneurs divided by the percentage of necessity-driven entrepreneurs, who are involved in TEA. Since TEA is included in the Opp-Nec ratio, both conditions are observed. The exact definition of the conditions, as delivered by Global Entrepreneurship Monitor Website, is presented in the glossary.

Furthermore, in academic literature it has been found that opportunity-driven entrepreneurship has a positive significant effect on economic development, whilst necessity-driven entrepreneurship showed no effect on the economic development (Acs & Varga, 2005). In order to introduce the economic development stages, as introduced by Porter (1990), the next chapter will briefly elaborate on academic literature.

2.4) Economic Development Stages

The dynamics of entrepreneurship can show great variations depending on the level of economic development and the given institutional context. It is outlined that if entrepreneurship is being studied, it is key to consider the critical link between entrepreneurship, economic development and institutions. Understanding the diverse contexts is crucial to gain insight into what can work for economic development (Acs, Desai & Hessels, 2008). According to Porter (1990) there are three stages of economic development, which relate to the competitiveness of an economy. The three stages are called factor-driven stage, efficiency-driven stage and innovation-driven stage. Further, for these stages also two transition stages are accepted. Regarding the transition economies, GEM has grouped economies, which are in the transition from factor-to efficiency-driven into "factor-driven". Economies that are in the transition from efficiency-to innovation-driven are grouped in efficiency-driven (Global Entrepreneurship Research Association, 2018). The three economic development stages are briefly introduced in the following section.

In factor-driven countries competition is based on low value added products or low cost efficiencies in the production. One characteristic of the factor-driven stage is the high rates of non-agricultural self-employment, which relates to not business-related agricultural activities. In other terms, agricultural activities are mainly for the own use. Moreover, self-employment probably can be found in most small service or manufacturing firms. However, these economies do less exploit knowledge for export or creation of innovation (Acs et al., 2008). For economies in this stage, it is necessary to focus on the achievement of a stable macro-economic and institutional environment, in order evolve towards the efficiency-driven stage. The education of the workforce and an increase in production efficiency are critical in order to be competitive and for firms to use economies of scale (Acs et al., 2008).

Academic literature suggests that in **efficiency-driven economies** self-employment is decreasing (Acs et al., 2008). In view of increasing economic development, there are several reasons which suggest that entrepreneurial activity will decrease (Kuzents, 1966; Schultz, 1988). Furthermore, Acs et al. (2008) elaborate that if one assumes that individuals have different capabilities regarding management skills, the average company size should increase with increasing prosperity of the economy, as better managers lead the companies. Among efficiency-driven economies (economies which are evolving) the relationship between the entrepreneurial activities and economic development would be negative. The reasoning behind this relies on managers who find that they can earn more money by being employed by someone else (instead of being self-employed). Based on an increase in share capital (through state ownership, private enterprises or direct foreign investment) the wage labour will increase in comparison to entrepreneurial activities (Acs et al., 2008). Therefore, entrepreneurial activities are (monetarily) less attractive than being employed. Most developing countries (including Russia, India, China and Brazil) belong to the efficiency-driven stage. For economies to move towards the innovation-driven stage, the development of an entrepreneurship-promoting environment is key. In the past decade a number of countries (such as Israel, Taiwan, Ireland) have achieved this transition (Acs & Szerb, 2007).

Innovation-driven economies show an increase in entrepreneurial activities, which are based on three reasons. First, the share of manufacturing in innovation-driven economies is declining. In comparison to manufacturing, the business service sector is expanding, whereas it is to note that service firms (on average) are smaller than in manufacturing. Consequently, service firms may decline the average firm size. Moreover, it is outlined that service firms

supply more entrepreneurial opportunities, as demonstrated in developed economies such as United States, Germany or Sweden (Acs et al., 2008). The majority of developed economies are in the innovation-driven stage. In their research Acs et al. (2008) conclude that in the innovation-driven stage policy makers are able to positively impact entrepreneurship (also for more ambitions types of entrepreneurship), with promotion of entrepreneurship education and training, the stimulation of outward international trade and foreign direct investment.

Concluding, when studying entrepreneurship across all three economic development stages it is crucial to respect the existence of these stages, since each of them is marked with specific characteristics and potentially need to be treated differently. Furthermore, academic literature outlines that the effect of institutional measures (on different kinds of entrepreneurial activity) may differ depending on the economic development stage of an economy (Acs et al., 2008).

2.5) Systematic Literature Analysis - Motivation & Method

In this section the literature related to the subject of the thesis will thoroughly be reviewed. While describing the status quo of academic literature, the systematic literature analysis (SLA) aims at revealing a potential gap in literature. Further, the goal is to gain a deeper understanding and overview on the literatures on EFC, especially in respect to its effect on entrepreneurial activity. Additionally, the SLA will assess the degree of representation of the fuzzy-square Qualitative Comparison Analysis (fs/QCA) technique in the field of studies using GEM data. The benefits of fs/QCA will be discussed in the methodology part of this study.

The SLA is oriented towards Wolfswinkel, Furtmueller & Wilderom´s (2013) five stage grounded theory model. Since the overall framework for the SLA is delivered by GEM, it is not a grounded theory, but most of the five single stages are adopted, adjusted and executed accordingly to the scope of this study. This SLA is divided into four stages called 1) define, 2) search, 3) select & analyse & 4) presentation of findings.

2.5.1) Systematic Literature Analysis - Stage 1: Define

The first step, “define”, relates to the definition of criteria, which decide whether literature is included (or excluded), the identification of fields of research, the determination of adequate sources and finally, the decision on precise search terms (Wolfswinkel et al., 2013). Due to the

comparatively young and narrow field of study of Entrepreneurial Framework Conditions, this study includes and reflects on all papers, which are found under the corresponding search terms. As indicated, the search terms are identified based on the EFCs and executed partially with * to broaden search results, as for instance “financ*“ for Entrepreneurial Finance, or “educat*“ for entrepreneurial education. From the initially twelve EFCs eleven keywords arise, since Entrepreneurship education at school stage- and Entrepreneurship education at post school stage and entrepreneurship training are both covered with “educat*”. Additionally, “fs/QCA“, “Global Entrepreneurship Monitor“, “Total early-stage entrepreneurial activity“, “Opportunity”, “Framework” and “Entrepreneurial Framework Conditions“ are selected as keywords. This leads to 17 search terms, which are presented in Appendix 1. Those, in total, 17 keywords are used in different combinations leading to 26 different search queries. The combinations of the followed search logic and the number of findings per search combination, for each condition, are presented in Appendix 2. The logic behind the search queries in Appendix 2 relies on two main keywords (Global Entrepreneurship Monitor and Total early-stage entrepreneurial activity) in combination with all single EFCs, the term “fsQCA” and “framework opportunity”.

2.5.2) Systematic Literature Analysis - Step 2: Search

The second step, as suggested by Wolfswinkel et al. (2013), is called “search” and refers to the actual process of searching in the chosen databases. In the scope of this study the Scopus database is used. All searches are not limited to any time frame or to certain journals. All search queries combined delivered a total of 432 academic literature papers. In all searches either “Global Entrepreneurship Monitor” or “Total early-stage entrepreneurial activity” is included, in order to control the direction and focus of the systematic literature analysis. The literature is searched and collected with information about the author, title, publication year and abstract.

2.5.3) Systematic Literature Analysis - Step 3: Select & Analyse

In the third stage, “select”, the sample of literature is selected and refined. All literature, regardless of keywords used for the search, is merged into one pool of literature. The refining procedure starts with the deletion of duplicates in the sample. After that, the titles of the literature are checked for relevance and focus of the study. Later two more filter-stages are conducted: Filter by abstract and full text-analysis.

From the initial 432 findings in literature, 161 duplicates are identified, delivering 271 academic papers, which are investigated more in depth. In the procedure of checking the titles of each literature piece, its relevance for this study is evaluated and consequently marked as "relevant" or "not relevant". In the first two filter stages, by title and abstract, a study is declared as adequate if it covers at least one of the following study fields: 1) Entrepreneurial activity, 2) effects of EFCs on TEA and 3) the driver to startup a business.

After the first screening stage, by title, only 100 papers are further considered. After the next filter stage, by abstract, 52 papers remain adequate for the scope of this study. From these 52 literature pieces 27 are marked as not relevant, twelve are marked as potentially relevant and 13 are labeled as relevant. Those literatures from the samples, which are marked as relevant, go into the next round, whilst the other literature is excluded from further consideration. The same filter rules as before are applied again. The literature remaining after each filtering stage is presented in Appendix 3. In the last step a full text examination is executed. During the last filtering stage the literature pieces run through a full-text analysis. In the full text analysis, a closer look into literature is performed and only literature relating to 1) EFC´s effect on TEA and 2) drivers for starting up a business are declared as relevant. During the full text analysis notes are taken about the focus and scope of each paper, in order to be able to identify more in depth the respective relevance related to this study´s scope. Studies, which have no relevance, are again labeled as not relevant, whereas literatures showing a very good fit are labeled as relevant. Some literature has a (slightly) different scope but content wise might be relevant in a later stage. Those literature pieces are labeled as potentially relevant. In the full-text analysis stage, due to the limited access to literature, 17 academic papers had to be excluded because there is no free access to the full texts (on Scopus or alternatively checked on Google Scholar).

In the course of the SLA the keywords that lead to the relevant (and potentially relevant) literatures are retrieved. The keyword combinations and their frequency, which lead to relevant or potentially relevant literature, are presented in Appendix 4 (relevant) and Appendix 5 (potentially relevant).

In addition to the systematic literature review, literature from GEM (Global Entrepreneurship Research Association, 2018) delivered seven extra studies, relating to fs/QCA studies, by using the filter for "Fuzzy Set Analysis". Those papers are checked for duplicates and

one is found in the collection of "relevant" literature and one additional literature is added to the final collection of relevant academic papers. The other papers are not considered as relevant.

2.5.4) Systematic Literature Analysis - Step 4: Presentation of Findings

The overall goal of this SLA is to present the status quo of the academic literature related to the effect of EFCs on the motivation to startup a business and entrepreneurial activity. This SLA delivers varying insights regarding the named relationships, which are presented in four main findings. Firstly, they present a gap in literature regarding the impact of all EFCs on the drivers to startup a business. Secondly, there are diverse approaches and contexts among the academic findings related to the impact of EFCs on entrepreneurial activity. Thirdly, the direction of found effects regarding the EFCs on entrepreneurial activity is different, and finally, there is an underrepresentation of fs/QCA in academic literature related to EFCs and entrepreneurial activity. The final section of this chapter introduces additional findings, related and derived by the GEM-research database.

The first and most striking finding highlights that no study has yet investigated the direct link of EFCs on the drivers to startup a business. Many studies research the effects of EFCs on entrepreneurial activity. However, such studies do not distinguish between the two types of drivers behind entrepreneurship (opportunity-driven and necessity-driven entrepreneurship). For example one paper focuses on the effect of a number of EFCs (such as government finance, government policies in terms of support, taxes and government programs, commercial-legal infrastructure, internal market burdens and entry regulation) in emerging and emerged Latin American countries, and related impacts of direct international entrepreneurial activity in that region (Tabares, 2017). Another study focuses on the combination of several interacting determinants, such as "degree of administrative complexity/bureaucracy, the tax environment, the intellectual property rights regime, the enforcement of property rights in general, the level of trust, competition law, political freedom, labor laws, social security regime, bankruptcy law, corruption, crime, the ethnic composition of the population, availability of finance capital, etc." (Bjørnskov & Foss, 2008, p.312) to explain the effect of and determine factors to foster entrepreneurship. Furthermore, in the Global Entrepreneurship Monitor, data regarding entrepreneurial activity, appears to be higher for developing countries, than for developed countries (except for Germany and United States), which might be related to informality and intent of entrepreneurial activity in developing countries (Acs, Desai & Klapper, 2008). These

studies are representative for the existing lack of distinction into opportunity- and necessity-driven entrepreneurial activity.

Second, in academic literature a considerable heterogeneity is obvious with the selection of EFCs, when investigating their relationship on entrepreneurial activity. The scope, context and focus of these studies are very diverse and conditions are rather selected ad hoc and less holistically in the corresponding context. One study, for instance has identified that government programmes, good banking services and cultural norms have a positive effect on entrepreneurial activity, whilst comparing senior (50+) population with general population (Červený, Pilková & Rehák, 2016). Similarly, another study showed that government programmes, in combination with rule of law, access to infrastructure, and market dynamics and openness are key drivers for entrepreneurial productiveness, which may in turn impact entrepreneurial activity (Holienka, Pilkova & Ostapenko, 2016). Regarding administrative burden, such as number of procedures, cost or time, there is no significant effect on young or nascent business formations (Van Stel, Storey & Thurik, 2007). Therefore, governmental policies seem to be directly linked to other investigated variables in this study, such as financing (at least access to sound money) for entrepreneurs but not to bureaucracy. These policies, in turn, have provided "public laws and Governmental entrepreneurship programmes for entrepreneurs, educational programmes to introduce entrepreneurship at schools and universities, tax benefits for informal investors, improvements on bureaucracy, new capital markets, awards, fairs, and many more" (Coduras, Clemente & Clemente & Ruiz, 2016, p.1265). Other studies, however, find that minimum capital which is required to startup a business, lowers rates of entrepreneurship across countries. Therefore, it is emphasized that in order to manage a new business model (or its initial cash flow) financial capital is critical (Sahasranamam & Sud, 2016). Among developing countries findings suggest that entrepreneurship and R&D are substitutes. Higher levels in the R&D capability therefore decrease growth penalties (having too less entrepreneurs) in developing countries (Prieger, Bampoky, Blanco & Liu, 2016). This high number of diverse findings underlines the complexity of EFCs, especially in relation to entrepreneurial activity on a national level. Many findings can only be accepted for the given context.

The third main finding relates to the direction of the found relationships, especially the single EFCs and their effects on entrepreneurial activity. Summing up the aforementioned findings, it is to note that for Commercial legal and infrastructure, Cultural and social norms, Physical infrastructure, Entrepreneurship education (both, at basic school stage and post school

stage), Financing for entrepreneurs, Market dynamics and openness, Governmental policies and support and for Government entrepreneurship programmes are identified as having a positive effect on entrepreneurial activity. It is however for two conditions, R&D transfer and Government policies regarding taxes and bureaucracy, that no clear direction of the variables can be accepted. Furthermore, these findings are limited to national or regional contexts and therefore call for a cross-country analysis. Moreover, the combination of tested conditions varies immensely, which again triggers a need for a holistic testing and presentation of conditions.

The fourth main finding relates to the underrepresentation of fs/QCA among academic literature. Most studies use regression analysis to research the selected conditions and their impact. Yet, few researchers use fs/QCA as the statistical method of choice. It has been identified that one-fits all results, such as in regression analysis, can easily be achieved. But they should be critically applied (Coduras et al., 2016). Fs/QCA statistical method is able to explore complex causal relations between conditions and outcomes (Crespo, 2017), and fs/QCA enables researchers to understand the complexity of social values and attitudes, which are necessary or sufficient (or both) for entrepreneurial activity in a country (Coduras et al., 2016). The fs/QCA method is already applied in studies to demonstrate a novel approach for contrasting and comparing entrepreneurial performance, and in order to relate entrepreneurship to sets of entrepreneurship drivers (Beynon, Jones & Pickernell, 2016). The study by Beynon, Jones & Pickernell (2016) is used as an exemplary approach for this research. It is key to note that results in such studies using fs/QCA, show "possible combinations of factors" (Beynon, Jones & Pickernell, 2016, p.1275), which deliver a deeper insight into tested relationships.

As indicated, with an additional search on the GEM-research database, five additional papers regarding fs/QCA are identified, from which three papers investigate the effect of entrepreneurial skills and perceptions on TEA (Lewellyn & Muller-Kahle, 2016; Ferreira & Dionísio, 2018; Velilla, Molina & Ortega, 2018) using the fs/QCA method. One study uses fs/QCA to analyse the effect of entrepreneurial climate on self-perceptions about entrepreneurship (Beynon, Jones & Pickernell, 2017), where EFCs are used as one condition of entrepreneurial climate. Only one study researches the effect of entrepreneurial framework conditions (Government entrepreneurship programmes, Educational incentives and Cultural and social norms) on TEA for nascent entrepreneurs, using fuzzy clustering as a method in OECD countries (Semerci & Çimen, 2017). Even though few papers could not be accessed, due to financial restrictions by the publishing companies, it is as a fair key finding that no paper

investigates the effect of all entrepreneurial framework conditions on motives behind entrepreneurial activity, using GEM data and fs/QCA as a method. It is necessary to investigate the effect of that relationship to be able to get further insights for governments on how to shape the environment for different types of entrepreneurs.

2.6.) Methodological Decision

To date, in academic research, regression analysis is a widely accepted and an applied method for analysing the effect of multiple factors on one outcome (Montgomery, Peck & Vining, 2012). In many of the studies addressed in this paper, regression analyses are applied. But researchers also claim that methods and tools, at some point, require new theoretical thoughts when they emerge from practice (Gigerenzer, 1991). Hence, there is an ongoing discussion among academics whether there is a need for new statistical methods. For instance, Ioannidis (2005) illustrates why a huge number of published findings are not correct, because of the usage of MRA. One aspiring new statistical method, which differentiates from MRA is called fuzzy set qualitative comparative analysis (fs/QCA). The so-called fs/QCA, the fuzzy version of qualitative comparative analysis (QCA), applies an analytical tool with Boolean algebra in order to conduct principles of comparison (Roig-Tierno, Huarng & Ribeiro-Soriano, 2016).

There are four major differences between MRA and fs/QCA, which are outlined by Ragin (2008): correlations versus set-theoretic, measurement versus calibration, independent variables versus configurations of conditions, and net effects versus causal complexity.

The first major contrast is found in the degree of symmetry. Correlations are symmetrical, whereas asymmetry in set relations are possible. In set-theoretic analysis a focus on uniformities can be seen, and less so on general patterns of association (Roig-Tierno, Huarng & Ribeiro-Soriano, 2016). Taking into consideration that more than one condition might be contributing to one outcome, symmetry might not be expedient. The symmetry in correlations relates to the phenomenon that, for instance, with an increase of the independent variable, the dependent variable increases as well. In set-theoretic approach, we not only consider the effect of one condition alone, but potentially of a combination of conditions. In this scenario symmetry is unlikely, because probably there is no linear uniform effect. Furthermore, looking at studies, which are conducted, often a correlation is used to explain the outcome, without properly

explaining the cause. For instance, it might happen that the increase in sales of winter jackets correlates with people freezing to death. Accepting this correlation is not accurate, without understanding the common cause, which might be the intense drop of temperature.

Secondly, in multiple regression analysis the correlation coefficient is sufficient for stating the correlational. Hereby it is only required that measures are varying around a sample specific mean (Roig-Tierno, Huarng & Ribeiro-Soriano, 2016). The fs/QCA method on the other hand needs scores with calibration according to external factors. Therefore, fs/QCA sets the conditions into relation to external factors, and does not simply accept isolated effects.

Third, another important distinction between the two methods relates to the interdependence of variables. MRA takes each independent variable as analytically separate and distinct, whereas in fs/QCA the idea of a causal recipe relates to a specific combination of causally considered conditions which are connected to an outcome (Roig-Tierno, Huarng & Ribeiro-Soriano, 2016).

The last major difference between the two mentioned methods, Ragin (2008) names the distinction between net-effect and causal complexity. In the analysis of causal complexity, all logical combinations of causal conditions are considered. The MRA investigates and analyzes independently the effects of each individual variable, the so-called net effect, rather than an overall effect of the variables.

Based on prior discussed findings it is assumed that a combination of conditions leads to the researched outcome. In order to find the compositions leading to different Opp-Nec ratio outcomes, this paper chooses the more suitable method of fuzzy-square/ Qualitative Comparative Analysis.

3) Methodology

3.1) Data Collection

The data used in this research is collected by the GEM for the time range from 2001 till 2017 for 110 countries from across the globe. During the execution of this study, GEM published its new Global Entrepreneurship Report 2017/2018. Accordingly, for all countries the scores are adjusted so that data from 2017 is included. Only countries where for all indicators and conditions data are available are considered in this study. Countries, where for instance the name of the republic changed, such as Slovakia/ Slovak Republic, are computed into the same variable (called Slovakia total). The countries excluded from this study due to incomplete data are: Dom. Republic, Kuwait, New Zealand, Serbia, Syria and Tonga. Furthermore, Madagascar is not included, as data were only made available after the start of the research. After exclusion of countries with incomplete data, the dataset consists of 102 countries. For most countries data are not complete for all ten years. To overcome the issue of different data and different time frames being available for each country, an average for each country for each variable is calculated.

The GEM´s database is divided into two sub-datasets with sub-fields. One sub-data base is the Entrepreneurial behavior and attitudes, which are resting on the collected Adult Population Survey (APS). From this sub-dataset the two Indicators Total early-stage entrepreneurial activity and the Motivational Index (Opp-Nec ratio) are used. The other sub-data base deals with the Entrepreneurial Framework Conditions via a National Expert Survey (NES), and the national context is investigated in order to understand in which contexts individuals are going to start a business. From this sub-dataset all conditions are considered. Data from both sub-datasets is publicly available on the Global Entrepreneurship Monitor webpage. For both, APS and NPS, this paper will discuss the respective limitations of GEMs data collection methods in a later part of this paper.

3.2) Data Analysis: Sufficient and Necessary Causal Conditions

The fuzzy-set Qualitative Comparison Analysis (fs/QCA), as proposed by Ragin (2008) delivers a causality analysis based on set-theoretic approach, which considers outcome and causal conditions. Through the fuzzy-sets in QCA the degree of membership of cases in causal

conditions and their relation in membership in the outcome is investigated. By model conjunctural causation, which is a feature of fs/QCA, combinations of conditions are identified which may cause the outcome, rather than only one condition (Woodside, 2013). Conjunctural causation means that the effect which might be identified, relates to a combination of causes, and not on one single cause. Using fs/QCA, different conditions or combinations of conditions identify all causes on the outcome, and therefore can generate a more holistic view on the tested condition´s effect on the outcome. Based on the statistical approach of the fs/QCA method, no more than four conditions should be tested at the same time. Therefore, first sufficient causal conditions are determined. Next, the recommended necessary causal condition test is applied, before the calibration of the relevant conditions. Furthermore, fs/QCA delivers the possibility to capture equifinality, which relates to the scenario that more than one combination of a causal condition might result in the same outcome (Fiss, 2007).

3.2.1) Sufficient Causal Conditions

In order to get all logically possible combinations of conditions showing causal effects into an outcome, a truth table with fs/QCA software is executed. It is key to note that each combination illustrates a theoretical configuration. The combinations increase exponentially with 2^k, whilst k represents the number of causal conditions (Lowik, Kraaijenbrink & Groen, 2016; Ragin, 2008a). This study considers 12 conditions (based on GEM´s EFCs) as relevant and therefore reveals 4096 combinations (2^12). With an increase in tested conditions, the fs/QCA software is forced to make simplifying assumptions, whilst calculating their effect on the outcome, which in turn could take the power out of the conclusions. In order to reduce the number of unobserved cases, which emerge with a high number of conditions, it is recommended for fs/QCA to split the conditions, via a two-step approach, into two groups. Dividing the conditions into two groups does not only reduce the logical combinations (from 4096 to 32 and 128 cases) for each analysis, it also delivers the opportunity to divide the conditions based on context. All conditions, in each group will be analyzed in relation to each other and on the outcome (Schneider & Wagemann, 2006).

3.2.1.1) Two-Step Qualification: Step 1

According to Schneider & Wagemann (2006) it is useful to differentiate conditions between remote and proximate conditions. There are specific characteristics associated with the different kind of conditions.

Remote conditions show (relative) stability over a certain time and are almost not in the sphere of influence of the current actors (Schneider & Wagemann, 2006). Contextual factors are an example of remote conditions (Lowik, Kraaijenbrink & Groen, 2016). Generally, contextual factors relate to factors which are unique and applicable for a certain group, as for instance societies, cultures, etc.. In order to distinguish between remote and proximate conditions a closer look into the nature of the conditions is taken. Conditions, which are not likely to be quickly changed through a governmental or citizen´s initiative are handled as remote conditions. Therefore, the following conditions are considered as remote conditions: Physical infrastructure, Commercial and legal infrastructure and Cultural and social norms. Taking a look at the definition of each variable as used by GEM, we consider culture and conditions related to infrastructure as not easily to be changed or created by an initiative.

On the other hand, proximate conditions are more likely to be directly affected by actors (Schneider & Wagemann, 2006). Furthermore, they might differ over time and are more closely related to the outcome (Lowik, Kraaijenbrink & Groen, 2016). The conditions Entrepreneurial Finance, Government policies regarding taxes and bureaucracy, Government policies regarding taxes and bureaucracy, R&D Transfer, Government entrepreneurship programmes, Entrepreneurship education at school stage and Entrepreneurship education at post school stage and entrepreneurship training, Internal market burdens or entry regulation, Internal Market Dynamics are considered proximate conditions. In general, these conditions are considered as proximate because of their nature of being regulated or affected relatively quickly by policies, programmes or laws.

The imbalance of conditions (three remote conditions and nine proximate conditions), as well as the recommendation by fs/QCA to not have a high number of conditions on one outcome, suggests a second qualification step for the nine proximate conditions.

3.2.1.2.) Two-Step Qualification: Step 2

In the next step theoretical findings from GEM report 2017/2018 are consulted, to potentially distinguish and split the group of identified proximate conditions into smaller groups. GEM identifies some conditions to be most constraining among all groups of countries (whether they are factor-driven, efficiency-driven or innovation-driven). These conditions are critical conditions for entrepreneurship in general, and therefore likely to impact the drivers to startup a business.

Among factor-driven groups Entrepreneurship education at school stage, R&D transfer, Government policies on taxes and bureaucracy, Government entrepreneurship programmes and Internal markets: burdens or entry regulations are listed as most constraining factors for entrepreneurship.

In efficiency-driven groups the following conditions (factors) have been identified to be the most constraining: Entrepreneurship education at school stage, Government policies on taxes and bureaucracy, R&D transfer, Government policies on taxes and bureaucracy, Government policies regarding support and relevance and Government entrepreneurship programmes.

In innovation-driven groups also Entrepreneurship education at school stage is identified as most constraining factor. Additionally, Government policies on taxes and bureaucracy, R&D transfer and Entrepreneurial Finance are found to be most constraining in innovation-driven groups.

Three conditions are present in all three groups: Entrepreneurship education at school stage (representing Entrepreneurship education at school stage), R&D transfer and Government policies on taxes and bureaucracy (representing Government policies regarding taxes and bureaucracy). Moreover, Government entrepreneurship programmes is present in two of the three groups. All other conditions are present only once among the one of the three groups of countries. These findings provide the opportunity to divide the proximate countries into two groups, and additionally to see if the results of the GEM report 2017/2018 hold in an fs/QCA test. Ultimately, this leads to a classification of conditions into three groups, as presented in table 3.

3.2.2) Necessary Causal Conditions

Before starting with the main analysis in fs/QCA, it is recommended to conduct a necessary conditions analysis (Ragin, 2008; Schneider & Wagemann, 2010). If the outcome is always associated with a condition´s presence in a configuration, this condition is necessary for the outcome (Ragin, 2008). By contrast, the condition can exist without the presence of the outcome (Schneider & Wagemann, 2006). Thus, the outcome is a subset of the cause (Lowik, Kraaijenbrink & Groen, 2016).

Again, the fs/QCA Software is used to execute the necessary causal condition analysis for the outcome of Opportunity-driven and its counterpart, Necessity-driven, and in relation to the calibrated versions of the following EFCs: Government policies regarding taxes and bureaucracy (Taxes and ~Taxes), Government entrepreneurship programmes (GovProg and ~GovProg), Entrepreneurship education at school stage (BasicSch and ~BasicSch), R&D Transfer (RD and ~RD), Commercial and legal infrastructure(Commerc and ~Commerc), Physical infrastructure (PhysicalInfr and ~PhysicalInfr) and Cultural and social norms (Culture and ~Culture)**.**

For the necessary causal conditions, the accepted consistency threshold value of .8 is set (Fiss, 2011). The results of the necessary conditions for remote EFCs on both outcomes, Opportunity-driven and Necessity-driven, are presented in table 1.

Table 1. Necessary Causal Conditions (remote conditions)

Variable (remote conditions)	Opportunity-driven	Necessity-driven
Commercial	.69	.7
~Commercial	.61	.8
Physical	.7	.65
~Physical	.62	.85
Cultural	.66	.7
~Cultural	.61	.77

As indicated, in table 1 we face the three remote conditions, and their negated version, delivering six tested variables. Moreover, each variable is tested on both outcomes (Opportunity- and Necessity-driven). In table 2 the four proximate conditions lead to 8 tested variables and ultimately to 16 scores, after being tested on both outcomes.

Table 2. Necessary Causal Conditions (proximate conditions)

Variable (proximate conditions)	Opportunity-driven	Necessity-driven
Taxes	.69	.7
~Taxes	.62	.81
GovProg	.68	.62
~GovProg	.62	.87
Basic School	.64	.7
~Basic School	.67	.82
RD	.71	.65
~RD	.6	.82

In order to understand the effect of each condition on the corresponding outcome, the necessary causal condition test is applied. This test takes every condition and its negated version into consideration, and tests it on the outcome and the negated version of the outcome. In order to be somehow relevant, or in other terms "necessary", at least one of the four scores need to be >.8. Breaking it down to each condition, a 2x2 matrix evolves. Taking the condition Taxes on the outcome Opp-Nec ratio, we find two scores for Taxes, one on Opportunity-driven and one on Necessity-driven. The same applies for ~Taxes. If none of the four scores reaches the consistency threshold of .8, this means that the conditions is not necessary for the outcome. The same line of argumentation applies when for instance Taxes has a score of >.8 for Opportunity-driven and Necessity-driven, for instance.

However, as presented in table 1, two values are close to .8, the consistency threshold: ~Culture on Necessity-driven (.7649) and ~Commerce on Necessity-driven (.795). These conditions´ values are rounded to .8, but the conditions will be under particular observation.

Additionally, to the necessary causal condition test, in the fs/QCA software the necessity of a condition can be tested with X-Y plots, as also suggested by Schneider & Wagemann (2010). Four plots have been executed to show exemplarily how conditions (X-Axis) fall within the outcome (Y-Axis) and how the distribution is expressed graphically. Therefore, the highest and lowest consistency combinations from necessary causal conditions are tested (Highest: ~GovProgram on Necessity-driven; Lowest: ~RD on Opportunity-driven) and presented in Appendix 1 and 2. The two marginal conditions, ~Culture on Necessity-driven and ~Commerce on Necessity-driven and their necessity for the outcome are also counterchecked with a X-Y Plot (see Appendix 3 and 4).

Since no condition showed a trivial effect, no condition is excluded after the necessary causal condition test. A trivial effect is given if a condition has for both outcomes, Opportunity-driven and necessity-driven, a coverage of <.8. This means that if a condition leads to both possible outcomes, it is questionable whether the condition is necessary for the outcome.

3.3) Data Pre-Processing - Calibration of Set Memberships

In the methodology of fs/QCA the next step is to calibrate the dataset, from interval-scale values to fuzzy-membership scores. This means that values of the conditions and the outcome are transformed into a range from 0 (full non-membership) to 1(full-membership) (Woodside, Hsu & Marshall, 2011; Lowik, Kraaijenbrink & Groen, 2016). The dataset is calibrated into a four-value fuzzy-set. The calibration of all relevant EFCs is conducted with respect to 5%, 50% and 95% thresholds, which have been identified with SPSS. The crossover point for each of the relevant EFC is at .5. The outcome, Opp-Nec ratio, however, is treated differently to the EFCs. The thresholds for the EFCs and the outcomes are presented with the descriptive statistics in table 3 and 4 in the results part of this paper. The transformation of conditions into calibrated conditions is executed with fs/QCA 3.0 Software.

3.3.1) Outcome: Opp-Nec Ratio

Regarding the turnover point, the outcome is treated differently than the measures. Since the outcome is a ratio (opportunity-driven entrepreneurs/ necessity-driven entrepreneurs) the crossover point is no percentile but set at 1. The value 1 represents the balance point where the ratio of opportunity-driven entrepreneurs is 1:1 with necessity-driven entrepreneurs. Therefore, the turnover point 1 represents the border where a country is rather improvement driven (>1) or necessity driven (<1). The 5-percentile threshold (for non-membership) is set at .68 and the 95-percentile threshold (for full membership) lies at 7.26.

3.3.2) Measures: Entrepreneurial Framework Conditions

For **Commercial and legal infrastructure** the lower threshold is set at the value 2.56 and for full membership it is 3.5. The turnover point for the condition commercial and legal infrastructure is set at 2.99. Full non-membership for **Physical infrastructure** is set at 2.92, whilst the threshold for full-membership lies at 4.44. Physical infrastructure has the crossover

point at 3.77. In the calibration of **Cultural and social Norms**, the value for full membership is set at 3.51, for full non-membership is set at 2.16 and the crossover point is set a t 2.82. The lower threshold for the condition for **Entrepreneurship at school stage** is set at 1.42, whereas the upper threshold for full-membership lies at 2.71. As crossover point for the condition Entrepreneurship at school stage the value 2.06 is set. The crossover point for fs/QCA calibration for the condition **Government entrepreneurship programmes** is set at 2.52, whilst the threshold for full non-membership lies at 1.97 and the threshold for full membership lies at 3.43. **R&D transfers´** upper threshold for full-membership is at 2.88. The lower threshold, for full non-membership is set at 1.76 and the crossover point for R&D transfer is at 2.28. In the calibration of the condition **Government policies regarding taxes and bureaucracy** the two thresholds are set: Upper threshold, for full membership, lies at 3.43 and lower threshold, for full non-membership lies at 1.69. Moreover, this condition has the cross-over point at 2.34.

3.4) Fuzzy Set Analyses

In case one Entrepreneurial Framework Condition or a combination of conditions is sufficient for the outcome (opportunity-driven entrepreneurship), it can be assumed that the appearance of the conditions is accompanied by opportunity-driven entrepreneurship (see Ragin, 2000). Sufficiency suggests that the EFCs are a subset of the outcome. From a technical perspective, sufficiency regarding a combination of conditions for the observation of opportunity-driven entrepreneurship, presents itself if the membership scores of the suggested combination of conditions are consistently equal or less than the membership scores in opportunity-driven entrepreneurship. In this case, the consistency gives an indication of how close a perfect subset relation is approached (Ragin, 2008).
The consistency, in respect to sufficiency, is calculated as the following (Ragin, 2006a):

$$\textbf{Consistency } (X_i \leq Y_i) = \sum (\min(X_i, Y_i)) / \sum (X_i)$$

In this equation Xi stands for the membership score of the economies in the specific combination of conditions, and Yi represents the membership score of the economies, in the particular set of opportunity-driven entrepreneurship. Despite the desire for a perfect consistent subset relation (with consistency = 1), a minimum consistency of .80 is determined in order to assure that the subset relation is consistent (Greckhamer et al., 2013).

Fs/QCA´s truth table is conducted to analyse the sufficiency. The so-called truth table shows the empirically occurring and logically possible combinations of the fuzzy sets, which are studied (see Greckhamer et al., 2008; Ragin, 2000, 2008). Whilst analysing the data, the truth table algorithm requires a previously set minimum threshold for frequency and for consistency. The researcher sets this threshold. The minimum acceptable frequency used in this study was first set at 3 (following Fiss, 2011). After a first screening, the frequency threshold was lifted to 5, in order to prevent accidental results, by assuring that at least 5 out of 102 countries are represented in a configuration (approximately 5%). Regarding consistency, all cases with five or more cases and a minimum raw consistency of .8 are identified. Subsequently, as recommended, this study sets the acceptable overall coverage consistency at .80 (Fiss, 2011).

However, prior to the discussion of the sufficiency results, first two elucidations regarding the reporting of intermediate solutions need to be explained. The cases for the intermediate solutions, as given by the fs/QCA software, is presented in configuration tables 6-9. In table 4 the presence and absence of EFCs (remote and proximate) is labeled by symbols for each configuration (Fiss, 2011), as the following:

The symbol ● represents the presence of core conditions, whilst ● relates to presence of peripheral conditions. For absence of core conditions ⊖ is used and for absence of peripheral the symbol ⊖. Generally, whether a condition has a central or peripheral role is determined by a counterfactual analysis, using the three different kind of solutions, which are produced in fs/QCA: 1) complex solution, 2) parsimonious solution, and 3) intermediate solution (for more detailed discussions, see Fiss, 2011; Ragin, 2008). The complex solutions illustrate configurations, which are sufficient in order to observe the outcome, without any counterfactual check. On the other hand, for both, parsimonious and intermediate solutions, configurations that are sufficient for the outcome, with a counterfactual analysis, are presented. This analysis respects all logically possible configurations for the so-called remainders (configurations with no cases from the sample). Usually, the parsimonious solution reveals the core conditions (after an easy and difficult counterfactual analysis). The intermediate solutions are rather simplified and rely on the researcher´s assumption of what expected remainders would populate the cases. This is also why it is called intermediate solution, since it is a compromise between complex (without counterfactual. analysis) and parsimonious (easy and hard counterfactual analysis). Therefore, intermediate solutions are a good choice to identify the contributing (Ragin, 2008) or peripheral explanatory conditions, which after the application of difficult counterfactual analysis could be

removed (Misangyi & Acharya, 2014). For the purpose of this study the intermediate solution is used in order to understand the configurational combinations and the parsimonious solution delivers the information whether conditions are core or peripheral conditions.

Typically, before initiating the easy counterfactual analysis, the researcher needs to determine and specify the assumptions of the easy counterfactual analysis. In this case, the assumptions applied are based on findings in the systematic literature analysis, pointing out an impact on entrepreneurial activity, and therefore on the choice to become entrepreneur. In detail for the impact on the outcome of the Opp-Nec ratio, the conditions Commercial legal and infrastructure, Cultural and Social norms, Physical Infrastructure, Entrepreneurship education at school stage, Government entrepreneurship programmes are considered. Only for two conditions (R&D transfer and Government policies regarding taxes and bureaucracy), literature outlines that a clear direction of the conditions impacts on the outcome is not indefensible. Therefore, no strong assumption is made for these two conditions.

For the overall configuration, as well as for each condition, consistencies and coverages are accounted (Fiss, 2011). One solution can consist of several configurations (as exemplified in solution 2 – with 2a-c). The raw coverage of a configuration explains the proportion of the membership in opportunity-driven cases, which is declared for by each specific condition combination. It may happen that cases show several configurations, as raw coverage implies overlap of cases. To understand the proportion of the membership in the outcome, which is particularly related to one configuration, the unique coverage must be consulted (Ragin, 2006a).

Since two groups of conditions are investigated (remote and proximate), a two-step approach regarding the analysis of the fuzzy set is applied. First, a group-internal test is executed (for remote and proximate conditions), and second, each single remote condition is tested on all proximate conditions in order to cover all possible combinations of conditions.

The truth table is the method of the fs/QCA software to identify configurations of causal conditions, which lead to high (or low) Opp-Nec ratio scores. In the truth table all combination of conditions and the corresponding number of cases are presented. An exemplary truth table is attached in the appendix of this paper.

4.) Results

The results chapter of this paper is divided in three sections: 1) descriptive statistics of measures (EFCs, Opp-Nec ratio - and TEA), 2) all fs/QCA findings and 3) summary of findings. In order to get an understanding of the average status quo (from the sample of 102 countries across the globe) results are descriptively presented based on country cases for the remote, the proximate conditions and the outcome.

4.1) Descriptive statistics

For the seven conditions, the minimum, maximum and average score with some country case evidence per condition are highlighted. Further, countries with the highest and lowest scores are presented. All descriptive statistics are presented in table 3 and 4.

Table 3. Descriptive Statistics of Conditions

						Percentiles		
Conditions	N	Mean	SD	Minimum	Maximum	5	50	95
Remote Conditions								
Commercial and legal infrastructure	102	3.01	.30	2.16	3.64	2.56	2.99	3.50
Cultural and social norms	102	2.83	.43	2.11	4.13	2.16	2.82	3.52
Physical infrastructure	102	3.68	.48	2.28	4.68	2.92	3.77	4.44
Proximate Conditions								
Entrepreneurship education at school stage	102	2.02	.36	1.23	2.99	1.42	2.06	2.71
Government entrepreneurship programmes	102	2.56	.43	1.64	3.58	1.97	2.52	3.43
R&D transfer	102	2.31	.36	1.52	3.51	1.76	2.28	2.88
Government policies regarding taxes and bureaucracy	102	2.45	.53	1.53	4.05	1.69	2.34	3.43

Table 4. Descriptive Statistics of the Outcome(s)

						Percentiles		
Outcome	N	Mean	SD	Minimum	Maximum	5	50	95
Opp-Nec ratio*	102	2.69	2.07	.51	11.91	.68	1.93	7.26
Total early-stage entrepreneurial activity (TEA)	102	13.58	9.35	1.60	52.11	4.17	10.60	32.07

*Cross-over point is not chosen by 50th % rule. but by the value 1.

Each of the Entrepreneurial Framework Conditions and the Opp-Nec ratio is presented individually. Please note that for each condition the average is calculated, assigning each country an average score for each condition. The data available for each country varied between one and ten years. Countries with only one year of data available are Kosovo, Cyprus, Libya, Jordan, Bangladesh, Ethiopia, Montenegro and Vanuatu. The countries with the most data available (all 10 years of data) are Slovenia, Finland, Spain, Croatia, Greece, Brazil, Chile and Peru. The

descriptive results are split in three groups, as given by the two different types of conditions (table 3) and, lastly, the outcome Opp-Nec ratio and TEA as explanatory variable (table 4). As a brief reminder: GEM collected data for the EFCs with a Likert scale from 1= highly insufficient and 9= highly sufficient and data for Opp-Nec ratio (and TEA) is in percentage, as explained in the definition table.

4.1.1) Remote Conditions

Starting with remote conditions, first, the condition Commercial and legal infrastructure is presented. This condition has an average score of 3.01. The lowest score on this condition is achieved by Vanuatu (with 2.16) and the highest score is occupied from Switzerland (=3.64). Around the mean score point countries such as Qatar, Guatemala and Sweden (all =3.02) can be found.

Second, Cultural and social norms shows a mean of 2.83, where the value is close to countries such as Pakistan and Chile (both =2.82), as well as Turkey (=2.84). The country with the lowest score is Czech Republic, with 2.11. Israel is the country with the highest score for Cultural and social norms, with 4.13. Moreover, Cultural and social norms shows the lowest range between country scores (range of 2.02).

The third remote EFC is Physical infrastructure, with an average score of 3.68, for all 102 countries. Six countries gather equally around this score: Croatia, Qatar, Cyprus (all =3.66) and Iran, Namibia, Montenegro (all =3.70). The highest score achieved here comes from Hong Kong (=4.58), whereas the lowest score is achieved, again, by Vanuatu (=2.28). Furthermore, Physical infrastructure shows the highest maximum score among all tested conditions.

4.1.2) Proximate Conditions

The condition Entrepreneurship education at school stage does not only have the lowest mean of all EFCs, with 2.02, but has also has the lowest minimum (= 1.23) and lowest maximum score (=2.99). The country with the lowest score on Entrepreneurship education at school stage is Senegal, whereas the Philippines achieve the highest score. Jamaica hits the exact mean with its score. Looking at the average score, USA is found with 2.03 and Germany with a below-average score of 1.8 for Entrepreneurship education at school stage.

Secondly, Government entrepreneurship programmes show an average score of 2.56. Japan and Lithuania hit these exact scores. The lowest score for this condition goes to Iran, with 1.64. Austria achieves the highest score for Government entrepreneurship programmes (=3.58).

As third condition, among the proximate conditions, R&D transfer has a high score of 3.5 - by Switzerland. With less than half of that high score, Senegal is placed on the last place (lowest score) with 1.52. However, the average rests at 2.31, where (almost) Thailand (=2.32) is found.

The last proximate condition is Government policies regarding taxes and bureaucracy or also called Taxes and Bureaucracy (according to GEM website). In this condition the biggest range (by 2.52) is found. The lowest country score is occupied by Brazil (=1.53) and the highest scoring country is Singapore (=4.05). The average score lies at 2.45, whereat Latvia (=2.44) is the closest.

4.1.3) Outcome

For the purpose of this study, two variables need to be introduced in order to fully understand the outcome condition. First, the TEA (Total early-stage entrepreneurial activity), and second, the Opp-Nec ratio. The reasoning for the result presentation of TEA relies on the fact that it is a variable, which is included as a subset of the Opp-Nec ratio, and therefore might give insights into the later discussion. Furthermore, as flagged earlier on, the nature of the data collection of Opp-Nec ratio (and TEA) is different to EFCs, as they are based on percentages (both, TEA and Opp-Nec ratio). As a brief reminder: TEA gives an indication on how much new entrepreneurial activity there is (in percentage of the economy), whereas the Opp-Nec ratio shows how many of the entrepreneurially active people (in an economy) are opportunity-driven, and divides it by the percentage of people who are necessity-driven entrepreneurs. Therefore, the Opp-Nec ratio score gives a precise number of how many times more (or less) opportunity-driven entrepreneurs to necessity-driven entrepreneurs are existent, in a country.

The first finding about the data collected is that TEA is the longest studied variable, which is used in this study, with a minimum of one year and a maximum of 16 years.

4.1.3.1) Total Early-Stage Entrepreneurial Activity (TEA)

The lowest scorer is Japan with a TEA of 3.46. This means that 3.46% of the population (ages 18-64) either run a new business (startup) or are nascent entrepreneurs in Japan. TEA has a mean of 13.56, a score where countries such as Costa Rica (=13.27) and Uruguay (=13.76) are listed close by. The highest score for TEA is achieved by Vanuatu, with 52.11, meaning that over 50% of the 18-64-year-old population is either nascent entrepreneur or running/ owning a new business. It is again, to be reminded that Vanuatu has only data available for one year. In total, it is to note that the twelve highest scoring countries regarding TEA are all factor-driven economies. The lowest scoring countries regarding TEA are mostly innovation-driven economies (16 out of 20).

4.1.3.2) Opp-Nec Ratio

Observing the scores of Opp-Nec ratio, it is found that only ten countries have an Opp-Nec ratio <1, which means that these countries are necessity-driven countries. All necessity-driven countries are either efficiency- (six out of ten) or factor-driven (four out of ten). The mentioned countries are Macedonia, Bosnia Herzegovina, Vanuatu, Pakistan, Georgia, Egypt, Palestine, Malawi, Jamaica and Namibia. The average score for Opp-Nec ratio lies at 2.69; the nearest country to this score is Chile (=2.71). However, the lowest score is achieved by Macedonia, with an Opp-Nec ratio score of .51. This means that that there are almost double as many necessity-driven entrepreneurs than opportunity-driven entrepreneurs (between age 18-64). It is to note that all ten countries with an Opp-Nec ratio below 1 are either the efficiency-driven (six economies) or in the factor-driven (four economies) development stage. The highest Opp-Nec ratio score is reached by Norway (=11.91) having almost twelve times more opportunity-driven entrepreneurs than necessity-driven entrepreneurs (among nascent entrepreneurs or business owner-managers of a new business). Among the highest scoring Opp-Nec ratio countries, most economies are in the innovation-driven development stage (eight among the top ten), whereas one economy is factor-driven and one economy is efficiency-driven.

4.2) Fs/QCA Findings

The first analysis of the solution table related to the results of the fuzzy set analyses delivered twelve configurations. Some configurations show diverse characteristics regarding the core and peripheral conditions. From initially twelve identified configurations, four configurations show a lower coverage than .8 and are therefore excluded. Finally, eight final configurations are presented in table 5. As indicated, the configurations are presented with respect to core conditions in large black circles for present, and large circles with a cross for absence of the core condition. Further, small black circles stand for presence of a peripheral causal condition, whereas a small circle with a cross represents the absence of the condition. In case of a blank space in a solution, a "don´t care" is expressed. Besides each configuration´s consistency, as explained before, the results of raw coverage and the raw unique coverage are stated for each configuration. The raw coverage assesses the overall coverage of the particular combination, which might overlap with another combination. On the other hand, unique coverage relates to the (unique) coverage of a specific combination. The solution coverage is not considered in this study, since only some configurations out of the solutions are accepted. Therefore the solution coverage would not be appropriate for the presented configurations.

All conditions have been tested with each other, so that all possible configurations of conditions (among remote and proximate conditions) are covered. The results of these tests are screened for the strongest configurations, which show an impact on the outcome opportunity-driven (and later for necessity-driven as well). The highest common denominators among the configurations are identified and tested again, until a satisfactory outcome (regarding consistency and coverage) is reached (as suggested by Lowik et al., 2016).

Table 5. EFCs sufficient for Opp-Nec ratio

	Opportunity-driven				Necessity-driven			
Conditions solution	1	2a	2b	2c	3a	3b	4a	4b
Remote Conditions								
Cultural and social norms								
Commercial and legal infrastructure	●						●	●
Physical infrastructure	●							
Proximate Conditions								
Government policies regarding taxes and bureaucracy	●		⊖	⊖		⊖		⊖
Government entrepreneurship programmes	●	⊖	⊖		⊖	⊖	⊖	⊖
Entrepreneurship education at school age		⊖	⊖	⊖	●	●		
R&D transfer	●	⊖		⊖	⊖		⊖	
Raw Coverage	0.3944	0.4614	0.4519	0.3539	0.5371	0.5480	0.5361	0.5259
Raw Unique Coverage	0.2494	0.0053	0.0036	0.0011	0.00	0.00	0.0337	0.0301
Coverage Consistency	0.9773	0.8273	0.8351	0.9619	0.8446	0.8301	0.8189	0.8167

4.2.1) Opportunity-Driven Configurations

Regarding core and peripheral solutions, the first finding suggests no core conditions for the outcome opportunity-driven cases. In order to gain a better understanding of the meaning of the identified cases (countries), they are summarized, and the sum and the average of the cases of each configuration is presented. Please note that countries with a lower Opp-Nec ratio score than 1 are excluded from the analysis for the outcome opportunity-driven.

Configuration 1 indicates that the combination of Commercial and legal infrastructure, Physical infrastructure, Government policies regarding taxes and bureaucracy, Governmental entrepreneurship programmes and R&D transfer (all present) contribute to opportunity-driven cases. From these 20 countries, which are related to this configuration, eight countries are among the top most opportunity-driven countries. Taking a closer look into the top 10 countries, Norway has the highest Opp-Nec ratio score with 11.91, while Switzerland takes up place 10 (with =5.29). The difference between the first to the tenth place is bigger (=6.62) than the difference between the tenth and 102nd place (Macedonia with =.51) regarding the Opp-Nec ratio. This indicates uneven distribution when it comes to the ranking of countries and actual values. Regarding the economic development stage of the related countries, 17 countries are innovation-driven, whereas only three countries are efficiency-driven. Among the innovation-driven cases most of them show a TEA score below average (TEA mean =13.66). All cases related to configuration 1 are presented in table 6.

Table 6. Cases of configuration 1

Case/ Economy	Ranking Opp-Nec Ratio	Opp-Nec Ratio score	Ranking TEA	TEA score	Economic Development Stage*
Norway	1	11.91	78	7.38	Innovation
Iceland	2	10	46	11.27	Innovation
Denmark	3	8.86	93	5.17	Innovation
Sweden	4	7.52	90	5.54	Innovation
Netherlands	6	6.55	84	7	Innovation
Luxembourg	7	5.92	62	8.85	Innovation
Singapore	9	5.33	76	7.44	Innovation
Switzerland	10	5.29	83	7.02	Innovation
Malaysia	12	4.99	77	7.41	Efficiency
Finland	15	4.48	89	5.73	Innovation
Hong Kong	18	4.4	91	5.45	Innovation
United States	19	4.18	45	11.38	Innovation
France	22	4.18	95	4.71	Innovation
Canada	23	3.83	44	11.7	Innovation
Austria	27	3.31	82	7.13	Innovation
United Kingdom	28	3.17	85	6.95	Innovation
Estonia	29	3.15	36	14.25	Innovation
Germany	31	3.04	94	4.88	Innovation
Tunisia	46	2.26	73	7.62	Efficiency
Uruguay	50	2.06	37	13.76	Efficiency
Sum		104.44			
Average	62.9	5.22	51.2	12.82	

*adopted from Global Entrepreneurship Monitor database, January 2019

Overall, 17 out of 20 countries are among the top 30 highest Opp-Nec ratio ranking countries. Only three countries (Uruguay, Tunisia and Germany) are below the overall average. Nevertheless, Uruguay, who has the lowest Opp-Nec ratio score in this configuration, has a Opp-Nec ratio score of 2.07. This result suggests that Uruguay has double as many opportunity-driven entrepreneurs than necessity-driven entrepreneurs. The average of all identified cases in this solution lies at 5.22 (Opp-Nec ratio), whereas the highest sum of Opp-Nec ratio (across all configurations) is at 104.44. Configuration 1, therefore relates to the group with the highest scoring Opp-Nec ratio countries.

For solution 2, three configurations are linked to opportunity-driven entrepreneurship (2a, 2b and 2c). All three configurations of solution 2 are derived from the absence of combinations of conditions.

In configuration 2a the combination of the absence of Governmental entrepreneurship programmes, Education at school stage and R&D transfer are determinants for opportunity-driven entrepreneurship. Further reviewing the cases related to this outcome, 20 countries are found to have full membership in this configuration. These countries are presented in Conf. 2a, and show that ten out of 20 countries are in the 35 lowest ranked countries and have an Opp-Nec ratio of <1.5. Within the scope of this study the value of 1.5 for Opp-Nec ratio is taken as critical value, due to the following reason: Having a score of <1.5 in Opp-Nec ratio means that one out of three people is entrepreneur out of necessity. Furthermore, compared to the rest of the sample, the value 1.5 is relatively low and close to the crossover point 1. However, three countries are in the top 15 in Opp-Nec ratio (Libya, Barbados and Saudi Arabia). In configuration 2a an average Opp-Nec ratio of 2.12 is reached, whilst having a sum of all Opp-Nec ratio scores in this case of 42.41. In configuration 2a countries from all three economic development stages are present. The smallest represented country stage in this configuration is the innovation-driven stage, with 3 countries. The most dominant stage is the efficiency-driven, with nine countries, followed by factor-driven, with six countries. All cases related to configuration 2a are collected in table 7.

Table 7. Cases of configuration 2a

Case/ Economy	Ranking Opp-Nec Ratio	Opp-Nec Ratio score	Ranking TEA	TEA score	Economic Development Stage*
Libya	5	7.41	47	11.15	Factor
Barbados	8	5.54	28	16.11	Efficiency
Saudi Arabia	14	4.67	61	9.24	Efficiency
Bolivia	35	2.81	6	31.94	Factor
Czech Republic	44	2.36	74	7.61	Innovation
Cyprus	51	2	57	9.65	Innovation
Puerto Rico	58	1.75	65	8.47	Innovation
Morocco	64	1.63	64	8.63	Efficiency
Brazil	68	1.52	30	15.29	Efficiency
Venezuela	69	1.52	18	21.02	Factor
El Salvador	71	1.43	27	16.33	Efficiency
Angola	75	1.33	12	27.32	Factor
Kosovo	76	1.32	99	4.03	Factor
Guatemala	79	1.26	21	18.75	Efficiency
South Africa	80	1.24	81	7.24	Efficiency
Iran	83	.2	41	12.61	Factor
Croatia	90	1.04	87	6.71	Efficiency
Bulgaria	92	1.01	100	4	Efficiency
Sum		40.04			
Average	59	2.22	51	13.12	

*adopted from Global Entrepreneurship Monitor database, January 2019

Configuration 2b relates to the absence of Governmental policies regarding taxes and bureaucracy, Governmental program and Education at school stage for the outcome opportunity-driven entrepreneurship. For this configuration similar cases as in 2a are found. Most countries (19 out of 20) are not in the top ranking countries (>top 30) regarding their Opp-Nec ratio scores, except for Barbados (=5.54). Three quarter of the cases do not belong to the top 50 high ranking opportunity-driven countries. Again two countries, as in 2a, are found to have an Opp-Nec ratio of below 1 (again Egypt and Pakistan). For the configuration 2b the sum of all cases Opp-Nec ratio lies at 36.03 and the average score at 1.8. In this configuration also most identified cases relate to efficiency-driven development stage economies (ten out of 20). Both, innovation- and factor-driven stage are present four times each. The cases related to configuration 2b are presented in table 8.

Table 8. Cases of configuration 2b

Case/ Economy	Ranking Opp-Nec Ratio	Opp-Nec Ratio score	Ranking TEA	TEA score	Economic Development Stage*
Barbados	8	5.54	28	16.11	Efficiency
Peru	32	3.01	14	26.71	Efficiency
Bolivia	35	2.81	6	31.94	Factor
Italy	40	2.45	96	4.51	Innovation
Cyprus	51	2	57	9.65	Innovation
Jordan	55	1.9	42	12.21	Efficiency
Puerto Rico	58	1.75	65	8.47	Innovation
Hungary	63	1.64	80	7.13	Efficiency
Turkey	65	1.62	59	9.55	Efficiency
Brazil	68	1.52	30	15.29	Efficiency
Venezuela	69	1.52	18	21.02	Factor
El Salvador	72	1.37	27	16.33	Efficiency
Greece	74	1.35	86	6.78	Innovation
Angola	75	1.33	12	27.32	Factor
Guatemala	79	1.26	21	18.75	Efficiency
South Africa	80	1.24	81	7.24	Efficiency
Iran	83	1.2	41	12.61	Factor
Ecuador	88	1.15	13	26.9	Efficiency
Sum		34.66			
Average	60.83	1.92	43.11	15.47	

*adopted from Global Entrepreneurship Monitor database, January 2019

The third configuration of solution 2 (called 2c) highlights the absence of Governmental policies regarding Taxes and bureaucracy, Education at school stage and R&D transfer as

determinants for opportunity-driven entrepreneurship. There are eleven cases related to this configuration. The rankings for these cases are less extreme, as compared to 2a and 2b. Only two countries rank in the top 30 (Belgium and Slovenia) of Opp-Nec ratio, whereas only one country ranks among the last 30 countries (China). In this configuration no country lies within the necessity-driven countries (with a Opp-Nec ratio <1). The sum of all countries´ Opp-Nec ratio, in this solution, lies at 24.17 and the average score is 2.2. Configuration 2c relates to the smallest amount of cases (11 in total), which are divided in two economic development stages, efficiency-driven (6) and innovation-driven (5). The cases related to configuration 2c are presented in table 9.

Table 9. Cases of configuration 2c

Case/ Economy	Ranking Opp-Nec Ratio	Opp-Nec Ratio score	Ranking TEA	TEA score	Economic Development Stage*
Slovenia	24	3.41	92	5.26	Innovation
Belgium	26	3.36	98	4.12	Innovation
Mexico	34	2.86	39	12.98	Efficiency
Japan	36	2.74	102	3.46	Innovation
Italy	40	2.45	96	4.51	Innovation
Jordan	55	1.9	42	12.21	Efficiency
Hungary	63	1.64	80	7.13	Efficiency
Turkey	65	1.62	59	9.55	Efficiency
Argentina	66	1.6	35	14.38	Efficiency
Spain	70	1.51	88	5.82	Innovation
China	89	1.08	34	14.55	Efficiency
Sum		24.17			
Average	51.64	2.2	69.55	8.54	

*adopted from Global Entrepreneurship Monitor database, January 2019

4.2.2) Necessity-Driven Configurations

Besides the configurations, which show the determinants for opportunity-driven entrepreneurship, furthermore, determinants leading to necessity-driven entrepreneurship are investigated. The relevant configurations relating to necessity-driven entrepreneurship, with a minimum coverage of .8, are configuration 3a, 3b and 4. In contrast to the aforementioned configurations, for necessity-driven configurations parsimonious solutions are found. These parsimonious solutions highlight the core conditions of the particular configurations. Moreover, in contrast to the prior section, where necessity-driven cases were not considered for the outcome opportunity-driven, the number of opportunity-driven cases for the outcome necessity-driven are

too many to exclude. Therefore, the opportunity-driven cases will in the first instance stay, and be discussed in a later stage of this paper.

Configuration 3a highlights the combination of conditions relating to necessity-driven entrepreneurship, which are: Absence of Governmental entrepreneurship programmes and R&D transfer and further the presence of Entrepreneurship education at school stage. In 3a all conditions are identified as core conditions. It is found that 14 out of the 19 cases belonging to the second half of the sample, having a low score in Opp-Nec ratio. Seven of these cases appertain to the top 10 lowest scoring countries, regarding Opp-Nec ratio (with a score below 1). Again, a score <1 relates to countries having more necessity-driven entrepreneurs than opportunity-driven entrepreneurs. With this finding, configuration 3a shows the most necessity-driven countries among all configurations. The corresponding countries found in this configuration are Namibia**,** Jamaica, Malawi, Georgia, Vanuatu, Bosnia Herzegovina and Macedonia (who has the lowest score in Opp-Nec ratio). The sum of configuration 3a's cases lies at 21.73 and the average score is 1.67. In this configuration, however, two types of economics development stages are found among the country cases. Six of the identified economies are efficiency-driven, whereas seven economies are factor-driven. The cases related to configuration 3a are presented in table 10.

Table 10. Cases of configuration 3a

Case/ Economy	Ranking Opp-Nec Ratio	Opp-Nec Ratio score	Ranking TEA	TEA score	Economic Development Stage*
Suriname	11	5.29	101	3.62	Efficiency
Belize	13	4.92	23	17.99	Efficiency
Nigeria	61	1.70	4	36.63	Factor
Uganda	67	1.59	8	31.7	Factor
Ghana	73	1.37	5	32.1	Factor
Zambia	81	1.23	3	38	Factor
Russia	87	1.15	97	4.26	Factor
Namibia	93	0.99	15	25.75	Efficiency
Jamaica	94	0.96	29	15.86	Efficiency
Malawi	95	0.85	7	31.84	Factor
Vanuatu	100	0.63	1	52.11	Factor
Bosnia Herzegovina	101	0.56	79	7.45	Efficiency
Macedonia	102	0.51	67	8.1	Efficiency
Sum		21.75			
Average	75.12	1.67	33.77	23.49	

*adopted from Global Entrepreneurship Monitor database, January 2019

The characteristic of configuration 3b is similar to configuration 3a. They only differ in the allocation of core and peripheral conditions, and R&D transfer being substituted for Governmental policies regarding taxes and bureaucracy. In configuration 3b the presence of Entrepreneurial education at school stage and the absence of Governmental policies regarding taxes and bureaucracy are core conditions, whereas Governmental entrepreneurship programmes is a peripheral condition. In total 18 country cases show full membership for low Opp-Nec ratio. Cases are relatively wide-spread for this configuration with Suriname (who has a Opp-Nec ratio of 5.29) up to Macedonia (who has the lowest Opp-Nec ratio score in the sample, =.51). Six cases are found, which have an Opp-Nec ratio score below 1. The countries are the same as in 3a, except that Georgia is not included. In this collection of cases, 14 out for 18 countries belong to the lower half-scoring countries. The sum of this solution 3b's cases lies at 27.8 and the average score is 1.99. The amount of economic development stages occurring in this configuration is headed by efficiency-driven (seven), and followed by factor-driven (five) and innovation-driven (two) economies. The cases related to configuration 3b are presented in table 11.

Table 11. Cases of configuration 3b

Case/ Economy	Ranking Opp-Nec Ratio	Opp-Nec Ratio score	Ranking TEA	TEA score	Economic Development Stage*
Suriname	11	5.29	101	3.62	Efficiency
Belize	13	4.92	23	17.99	Efficiency
Australia	21	4.08	43	11.81	Innovation
Israel	39	2.57	69	7.86	Innovation
Nigeria	61	1.70	4	36.63	Factor
Lebanon	71	1.43	16	22.60	Efficiency
Ghana	73	1.37	5	32.1	Factor
Romania	77	1.32	72	7.64	Efficiency
Russia	87	1.15	97	4.26	Factor
Namibia	93	0.99	15	25.75	Efficiency
Jamaica	94	0.96	29	15.86	Efficiency
Malawi	95	0.85	7	31.84	Factor
Vanuatu	100	0.63	1	52.11	Factor
Bosnia Herzegovina	101	0.56	79	7.45	Efficiency
Sum		27.82			
Average	66.86	1.99	40.07	19.82	

*adopted from Global Entrepreneurship Monitor database, January 2019

The two configurations in solution 4 (with configuration 4a and 4b), both, identify the presence of Commercial and legal infrastructure and the absence of Governmental entrepreneurship programmes as core conditions. Furthermore, in 4a R&D transfer is one contributing (peripheral) condition, whereas in configuration 4b Governmental policies regarding taxes and bureaucracy appears as contributing condition, instead of R&D transfer.

Configuration 4a highlights two necessity-driven countries (Pakistan and Macedonia). The highest scoring country in this configuration is Trinidad and Tobago (Opp-Nec ratio of 4.46). Overall, seven from eleven related countries, of this configuration, have an Opp-Nec ratio of <1.5. These countries are Kosovo, Slovakia, Guatemala, Russia, Bulgaria, Pakistan and Macedonia. The sum of this configuration 4a's cases lies at 17.6 and the average score is 1.6. The country cases relating to this configuration almost equally represent the three economic development stages (factor-driven= 4, efficiency-driven= 4 and innovation-driven=3). The cases related to configuration 4a are presented in table 12.

Table 12. Cases of configuration 4a

Case / Economy	Ranking Opp-Nec Ratio	Opp-Nec Ratio score	Ranking TEA	TEA score	Economic Development Stage*
Trinidad and Tobago	16	4.46	24	17.35	Innovation
Czech Republic	44	2.36	74	7.61	Innovation
Cyprus	51	2.00	57	9.65	Innovation
Uganda	67	1.59	8	31.70	Factor
Kosovo	76	1.32	99	4.03	Factor
Slovakia total	78	1.29	49	10.82	Efficiency
Guatemala	79	1.26	21	18.75	Efficiency
Russia	87	1.15	97	4.26	Factor
Bulgaria	92	1.01	100	4	Efficiency
Pakistan	99	0.65	55	9.91	Factor
Macedonia	102	0.51	67	8.1	Efficiency
Sum		17.60			
Average	71.91	1.60	59.18	11.47	

*adopted from Global Entrepreneurship Monitor database, January 2019

In configuration 4b a slightly different results is found (compared to configuration 4a). Here only one country with a Motivation of <1 is outlined (Pakistan =.65) and six out of eleven countries have an Opp-Nec ratio score of <1.5. However, the highest scoring case related to this configuration is Trinidad and Tobago, as also found in configuration 4a. The sum of 4b's cases

lies at 21.85 and the average score is 1.99. Regarding the economic development stages of the economies, four innovation-driven, five efficiency-driven and two factor-driven stage economies are present. The cases related to configuration 4b are presented in table 13.

Table 13. Cases of configuration 4b

Case/ Economy	Ranking Opp-Nec Ratio	Opp-Nec Ratio score	Ranking TEA	TEA score	Economic Development Stage*
Trinidad and Tobago	16	4.46	24	17.35	Innovation
Australia	21	4.08	43	11.81	Innovation
Israel	39	2.57	69	7.86	Innovation
Cyprus	51	2.00	57	9.65	Innovation
Hungary	63	1.64	80	7.13	Efficiency
Lebanon	71	1.43	16	22.60	Efficiency
Romania	77	1.32	72	7.64	Efficiency
Slovakia total	78	1.29	49	10.82	Efficiency
Guatemala	79	1.26	21	18.75	Efficiency
Russia	87	1.15	97	4.26	Factor
Pakistan	99	0.65	55	9.91	Factor
Sum		21.85			
Average	61.91	1.99	53	11.62	

*adopted from Global Entrepreneurship Monitor database, January 2019

4.3) Summary of Findings

A two-step identification approach is applied in order to find out the most convincing and expedient configurations. First, in order to identify the most dominant configurations regarding opportunity- and necessity-driven entrepreneurship, the coverage consistency of each configuration is observed. The consistency measures to what degree the membership in a solution is a subset of the outcome (Ragin, 2008b). In order to counter-check if the identified dominant solutions are also purposeful and representative, the sum and average of all configurations cases' Opp-Nec ratio is consulted. The sum gives an indication about the power of the cases (Opp-Nec ratio per country) found in each configuration. The sum value serves as an indicator, which helps to understand how much Opp-Nec ratio in total can be ascribed to each configuration. In order to assure that the sum of the configurations Opp-Nec ratio is not only attributed to a small number of countries, the average of Opp-Nec ratio is consulted as well. The

combination of sum and average of the cases' Opp-Nec ratio assures that the configurations are representative.

The solution table 5 is conceptually divided in two areas i.e., opportunity-driven countries and necessity-driven countries. On the left-hand side four configurations are stated, which relate to opportunity-driven entrepreneurship. Following the first step, the two highest coverage consistencies, for opportunity-driven, are defined: Configuration 1a (coverage of .977) and 2c (coverage of .962). The goal of the identification of the most dominant configuration is to be able to make propositions. These propositions should identify which combination of conditions contributes to opportunity-driven countries. Comparing configuration 1 and 2c, the coverage consistency is relatively close to each other. In order to assure that the configuration leads to the highest possible scoring opportunity-driven cases, the sum and average of the corresponding cases are consulted.

For configuration 1 the sum (for all cases) of 104.44 in Opp-Nec ratio is calculated, in comparison to an overall sum of 24.17 in configuration 2c. The sum, even though it is based on percentages, is accepted as measuring tool in this study. Since there is an imbalance of number of cases found for each configuration (1= 20 cases and 2c=11 cases), the sum may not be appropriate and the average score of the cases is consulted. Considering the average case scores in Opp-Nec ratio, configuration 1 shows an average of 5.22, whereas 2c has an average score of 2.2. After the two rounds of screening, configuration 1 is identified as the most dominant configuration as most appropriate representative configuration for opportunity-driven countries. The other configurations (2a, 2b & 2c) are declared as "rather opportunity-driven countries". A key finding for the dominant opportunity-driven countries is that this group is much dominated by innovation-driven countries (17 out of 20). For the rather opportunity-driven countries the efficiency-driven economic development stage is dominant among all three configurations (as presented in table 14).

Table 14. Economic development stages in configurations

	Configurations							
Economic Development Stage	**1**	**2a**	**2b**	**2c**	**3a**	**3b**	**4a**	**4b**
Innovation-driven	**17**	3	4	5	-	2	3	4
Efficiency-driven	3	**9**	**10**	**6**	6	**7**	**4**	**5**
Factor-driven	-	6	4	-	**7**	5	**4**	2
Total	20	18	18	11	13	14	11	11

*note: The most dominant economic development stage of each configuration is marked in bold

Taking a look on the right-hand side of table 5, for necessity-driven entrepreneurship, again four configurations are screened for the highest coverage consistency. The goal of these configurations is to identify the combination of conditions, which are responsible for necessity-driven entrepreneurship. Configuration 3a and 3b have the highest coverage consistency among the four configurations (3a= .845 and 3b= .83). However, the coverage consistency of all four conditions is not extremely apart (complementarily: 4a= .82 and 4b= .82). Taking into account all four conditions (for the counter-check), again, there is an imbalance in cases per configuration. Therefore, the average of each configuration is consulted, and the two lowest configurations are identified (3a=1.67 and 4=1.60). Even though configuration 4a shows a smaller average score, configuration 3a has the most necessity-driven country cases, with an Opp-Nec ratio below 1. Combining these findings, with higher coverage achieved by configuration 3a, this means that the most dominant configuration for necessity-driven entrepreneurship is 3a. The other three configurations, namely 3b, 4a and 4b are declared as "rather necessity-driven countries", since they show some but not the majority of necessity-driven countries. Regarding the economic development stages of the dominant necessity-driven configuration, the majority of the countries are factor-driven, closely followed by efficiency-driven. In the rather necessity-driven countries the efficiency-driven stage is dominant in all three configurations, even though it is to find that all three stages are present in each configuration. A critical note needs to be made at this point: Among all configurations relating to necessity-driven entrepreneurship, the majority of the cases had a higher Opp-Nec ratio than 1, and is therefore actually opportunity-driven. For the purpose of the discussion, these cases were not deleted.

5.) Discussion

The guiding question of this study is *"Which EFCs or combination of EFCs contribute to opportunity-driven and necessity-driven entrepreneurship?"*. In order to answer this question, findings will be presented and discussed with respect to the economic development stages in the corresponding countries. This research aims to deliver a better understanding of different influences, such as EFCs or the economic development stages, on the drivers behind entrepreneurial activity.

In prior research EFCs and their impact on drivers of entrepreneurial activity have mostly been tested individually or in a small number. To date there is still a gap in understanding different combinations of conditions, which together contribute to opportunity- and necessity-driven countries. Prominent academic literature regarding entrepreneurship does highlight the importance of EFCs in the context of entrepreneurial activity and regulations (Levie & Autio, 2008). Yet, entrepreneurial activity needs to be better understood. Simply increasing entrepreneurial activity is not distinct enough, since there are different types of entrepreneurial activity, such as necessity- and opportunity-driven entrepreneurial activity. To understand and distinguish between these two types of entrepreneurial activity is of critical importance, since both types potentially have different requirements and dynamics.

Necessity-driven entrepreneurship exists in countries with a poor entrepreneurial environment, where people are forced into entrepreneurship, due to lack of choice, poverty or dissatisfaction (Reynolds et al., 2001). On the other hand, there is the so-called opportunity-driven entrepreneurship, which is shown to have a significant effect on economic development (Acs et al., 2008). This pull-mechanism occurs when opportunities are identified and exploited. Overall, in most studies entrepreneurial activity is taken as something purely good and beneficial, whereas a lack of distinction between the two types of entrepreneurship needs to be noted.

In this study, the best example for this critical aspect is shown in the case of the country Vanuatu, who has the highest score in TEA, with a score of 52.11. This means that over 50% of population 18-64 in Vanuatu is either nascent entrepreneurs or already running/ owning a new business. This score, however, does not deliver any information about the kind of entrepreneurship. The kind of predominant entrepreneurship becomes apparent when a closer

look at the Opp-Nec ratio is taken, which lies at .64, and as such the 3rd lowest score among all 102 countries. The score .64 means that 64% of all nascent or new entrepreneurs are entrepreneurs, because they are pushed into it, not because they have chosen to do so. This study calls for a more distinguished research approach regarding entrepreneurial activity.

To deliver governments a more detailed and differentiated proposition, causal conditions are tested, which are (combined) contributing to opportunity- and necessity-driven countries. Among the four final solutions of this study, eight different configurations are found, from which four are connected to opportunity-driven and four to necessity-driven countries. The combinations of the conditions in the configurations for each configuration will be discussed in the light of the findings from literature. Finally, propositions will be stated.

The first outcome of this study found the combination of five (not core) conditions leading to the most dominant opportunity-driven countries. In this solution the majority of the countries related to this configuration are innovation-driven countries. The responsible conditions are namely Commercial and legal infrastructure, Physical infrastructure, Government entrepreneurship programmes, R&D transfer and Government policies regarding taxes and bureaucracy. Even though no core condition is found in this configuration, this finding is still in line with current academic literature. It is already described that infrastructure, legislation and effective Governmental entrepreneurship programmes have an impact on entrepreneurial activities, and especially on the degree of productiveness (Holienka, Pilkova & Ostapenko, 2016). Further, it is stated that bureaucracy or a tax environment is positively related with entrepreneurship (Bjørnskov & Foss, 2008). Considering the countries found in this configuration, the expressiveness of this configuration might be supported, even though no core conditions are present. In innovation-driven economies entrepreneurial activity is increasing, because the service sector is expanding and delivering more entrepreneurial opportunities (Acs et al., 2008). However, it is also to note that none of the innovation-driven countries is necessity-driven. The findings of this configuration underline that the presence of a number of EFCs relates directly to innovation-driven countries, who are also the most opportunity-driven countries.

Any assessments have to be interpreted with some care since none of the identified conditions is a core condition. Still, the following proposition can be suggested:

Proposition 1

High rates of opportunity-driven entrepreneurship require the presence of Commercial and legal infrastructure, Physical infrastructure, Government entrepreneurship programmes, R&D transfer and Government policies regarding taxes and bureaucracy.

The second main contribution of this study is related to the identification of configurations leading to opportunity-driven countries with a lower Opp-Nec ratio than the average. As compared to solution 1, the combination of conditions leads to less powerful cases within the configurations of solution 2. The term powerful is used to distinguish between very high scoring Opp-Nec ratio countries, as found in solution 1, and countries who have a Opp-Nec ratio >1, but which is smaller than the average Opp-Nec ratio. Whereas in solution 1 almost all countries are above the average (18 out of 20), in solution 2 (a, b and c) most identified cases have a lower score than the average (2a= 12 out of 18; 2b= 13 out of 18; 2c=7 out of 11). As indicated before, the dominant economic development stage among the related configurations is the efficiency-driven stage. Due to the exploratory approach of this paper, these results give a clear indication about the combination(s) of condition(s), which contribute to lower scoring opportunity-driven countries.

The four conditions contributing to the three outcomes 2a, 2b and 2c are all absent peripheral conditions, and partly work as substitutes when comparing the configurations. Only the absence of Entrepreneurial Education at school stage is present in all three configurations of solution 2. The condition Entrepreneurial education at school stage, however, is the weakest (lowest scoring) condition of all. It has the lowest minimum score, the lowest mean, and the lowest maximum score and therefore also the lowest range of all conditions. Due to this small range among all countries score, it is no surprise that some well-developed countries, such as Germany or France, fall under the crossover point of this condition. One general finding is that Entrepreneurial education at school stage seems to be very weak among all countries.

Besides Entrepreneurial education at school stage, three other conditions are found to contribute to (rather) opportunity-driven entrepreneurship. The term “rather” is used to describe, without judgment that the corresponding countries in configuration 2a, 2b and 2c are

opportunity-driven, but are (mostly) below average or even necessity-driven. The absence of the conditions Government entrepreneurship programmes, R&D transfer and Government policies regarding taxes and bureaucracy work as substitutes for each other among the configurations 2a, 2b and 2c. Each of them is present twice in the three configurational solutions of 2. However, analysing these countries that are efficiency-driven economies, we also face mainly developing countries. In developing countries it is very likely that R&D transfer, Government entrepreneurship progammes. Government policies regarding taxes and bureaucracy and Entrepreneurship education at school stage are not well established, and entrepreneurial opportunities therefore can hardly be identified and exploited.

These findings suggest that a simple distinction between opportunity-driven and necessity-driven countries (with <1 and >1) is not sufficient, especially when there is an imbalance in the distribution of the included countries. Only ten out of 102 countries have more necessity-driven than opportunity-driven entrepreneurs. Moreover, the economic development stage of the countries was, yet, not considered. More thorough analysis needs to be performed to understand the proposition of given configurations. Accordingly, the results of solution 2 lead to the following (modest) proposition:

Proposition 2

To become a (rather) opportunity-driven country the absence of Entrepreneurship education at school stage, in combination with the absence of two out of the following three conditions is required: Government entrepreneurship programmes, R&D transfer or Government policies regarding taxes and bureaucracy.

To show the full context, and to explain combinations of conditions that are conducive to opportunity-driven countries, this study also discusses and presents proposition for the outcome of necessity-driven countries. Both, solution 3 and 4 relate to necessity-driven countries as outcome, with each 2 configurations (3a, 3b and 4a, 4b). Two observation for the following propositions need to be noted: 1) In comparison to the four configurations, contributing to opportunity-driven countries, these four necessity-related configurations show core and peripheral conditions. Therefore, propositions for solution 3 and 4 may be more significant than the first two propositions. 2) The configurations 3a, 3b and 4a and 4b are mainly intended to deliver insights for the outcome necessity-driven entrepreneurship. It needs to be noted that most cases, related to the named configurations delivered also opportunity-driven cases. Due to the

high number of opportunity-driven cases for the necessity-driven outcome, a critical discussion for the outcomes needs to take place.

Configuration 3a is representative for dominant necessity-driven entrepreneurship. From all configurations, 3a shows the highest coverage (in percentage) of country cases with a Opp-Nec ratio <1. In configuration 3a it is proposes that the absence of Governmental entrepreneurship programmes and R&D transfer, in combination with presence of Entrepreneurship education at school stage are determinants for necessity-driven economies. All conditions in this configuration are ´core´. The countries related to this configuration, are (slightly) mostly factor-driven economies. As indicated in literature, factor-driven countries it is necessary to evolve towards the efficiency-driven stage, by focusing on the implementation of a stable institutional and macro-economic environment (Acs et al., 2008). In line with these theoretical findings is a lack of most EFCs for the countries in this configuration. The only EFC present is Entrepreneurship education at school stage. Considering economic development as a process (towards innovation-driven economic development stage), literature suggests that the education of the workforce is critical for becoming more competitive. Moreover, academic findings underline the role of R&D transfer for innovation (Levie & Autio, 2008) and entrepreneurial activity (Hechavarria & Ingram, 2014). Also, in GEM the condition R&D transfer is identified as one of the most constraining factors, among factor-driven, efficiency-driven and innovation-driven countries. Government entrepreneurship programmes have been found as most constraining in two of the three economic development groups (factor-driven and efficiency-driven countries). However, the condition Government entrepreneurship programmes is not present in this configuration, but was found, in literature, to have a positive effect on entrepreneurial activity (Červený, Pilková & Rehák, 2016) and productiveness (Holienka, Pilkova & Ostapenko, 2016). In other literature, it is emphasized that in efficiency-driven economies entrepreneurial activity is declining (Acs et al., 2008). Therefore, the economic development stage needs to be considered in order to understand the full context. With respect to the discussed findings, the following proposition is suggested:

Proposition 3

High rates of necessity-driven entrepreneurship require absence of Governmental entrepreneurship programmes, R&D transfer and the presence of Entrepreneurship education at school stage.

Complementarily to configuration 3a it is to note that in configuration 3b the absence of Governmental policies regarding taxes and bureaucracy works as a substitute for R&D transfer (from configuration 3a). Furthermore, Governmental entrepreneurship program loses its role as core condition and persists as peripheral condition. In configuration 3b most countries are efficiency-driven and developing countries. Two countries of this configuration are innovation-driven and five countries are factor-driven, representing all groups of economic development in this stage. Although, not all countries listed in configuration 3b are necessity-driven countries. In fact, as in configuration 3a, most countries are opportunity-driven, based on the Opp-Nec ratio. These finding gives insights, which will be further elaborated in the practical implication part of this paper.

Again, Entrepreneurship education at school stage is the only present EFC, which can be linked to the low economic development of the countries related. In line with findings from the previous configuration, the absence of Government entrepreneurship programmes is identified. Furthermore, the lack of Government policies regarding taxes and bureaucracy is found as core condition for the corresponding countries. Regarding necessity-driven entrepreneurship, these findings are not in line with Bjørnskov & Foss (2008) who highlight that the tax environment is a condition, which in combination with other determinants promotes entrepreneurship. Furthermore, tax benefits for investors and improvements on bureaucracy are also associated with policies that foster entrepreneurship (Coduras, Clemente & Ruiz, 2016). Despite, based on the discussed findings the following proposition is stated:

Proposition 4

Rates of necessity-driven entrepreneurship require absence of Governmental entrepreneurship programmes, Governmental policies regarding taxes and bureaucracy and the presence of Entrepreneurship education at school stage.

The fourth solution delivers two configurations, the only ones related to any remote condition. Since these two configurations show the lowest coverage among all configurations, the findings of these configurations will, firstly, be presented and, secondly, be further reviewed to discuss similarities to the aforementioned configurations. Countries related to both configurations (4a and 4b) are almost evenly representative regarding economic development stages. In 4a we face three innovation-driven economies, and each four in efficiency-driven and factor-driven economies. Configuration 4b presents four innovation-driven economies, five

efficiency-driven and two factor-driven economies. However, it is to note that across configurations only three cases are necessity-driven (4a= 2 and 4b= 1), even though configurations are tested on the outcome necessity-driven.

Both configurations (4a and 4b) relate to the remote condition Commercial and legal infrastructure. Only these configurations outline Commercial and legal infrastructure as a core condition. Furthermore, the presence of Commercial and legal infrastructure as core condition for necessity-driven countries stands in contrast to configuration 1, but is in line with academic literature. Whilst in configuration 1 the presence of Commercial and legal infrastructure is a peripheral condition, in academic literature, such as in configuration 4a and 4b, Commercial and legal infrastructure is identified as most influential factor for the entrepreneurial environment (Van Stel, Storey & Thurik, 2007; Holienka, Pilková & Ostapenko, 2016).

It is to note that both configurations (4a and 4b) do relate to rather necessity-driven country cases, but not to the purely necessity-driven countries, as also proposed in propositions 2 and 3b. Most countries´ cases, as found in configurations 4a and 4b, are below the Opp-Nec ratio average score, but not below the value 1. Again, the absence of the condition Governmental entrepreneurship programmes is found in both configurations, as already in configuration 3a and 3b. In configuration 4a and 4b, however, Governmental entrepreneurship programmes is always a core condition. This finding supports configuration 1, where Governmental entrepreneurship programmes contribute to opportunity-driven entrepreneurship, but it contradicts configuration 2a and 2b. The other two conditions in configuration 4a and 4b, Governmental policies regarding taxes and bureaucracy and R&D transfer work as substitutes for each other, across configurations.

Considering now the economic development stages of the configuration 1 and 4a and 4b, it turns out that apparently some low scoring opportunity-driven countries have similarities to necessity-driven countries on an institutional level. As indicated before, this very mixed group of countries shows to be marked by the presence of Commercial and legal infrastructure, which seems odd due to the occurrence of factor- and innovation-driven economies. Further factors such as TEA, Opp-Nec ratio and economic development stage have thoroughly been observed, without being able to make distinct assumptions for underlying factors for these two configurations. Acs et al. (2008), however, introduced income per capita in order to investigate a similar research approach. Further research needs to be addressed to this issue.

Related to an alternative way, a fifth (cautious) proposition is stated, to explain rather necessity-driven countries:

Proposition 5

(Rather) necessity-driven and (rather) opportunity-driven entrepreneurship requires the presence of Commercial and legal infrastructure and the absence of Governmental entrepreneurship programmes. Additionally, either absence of Governmental policies regarding taxes and bureaucracy or absence of R&D transfer are required.

6.) Conclusion

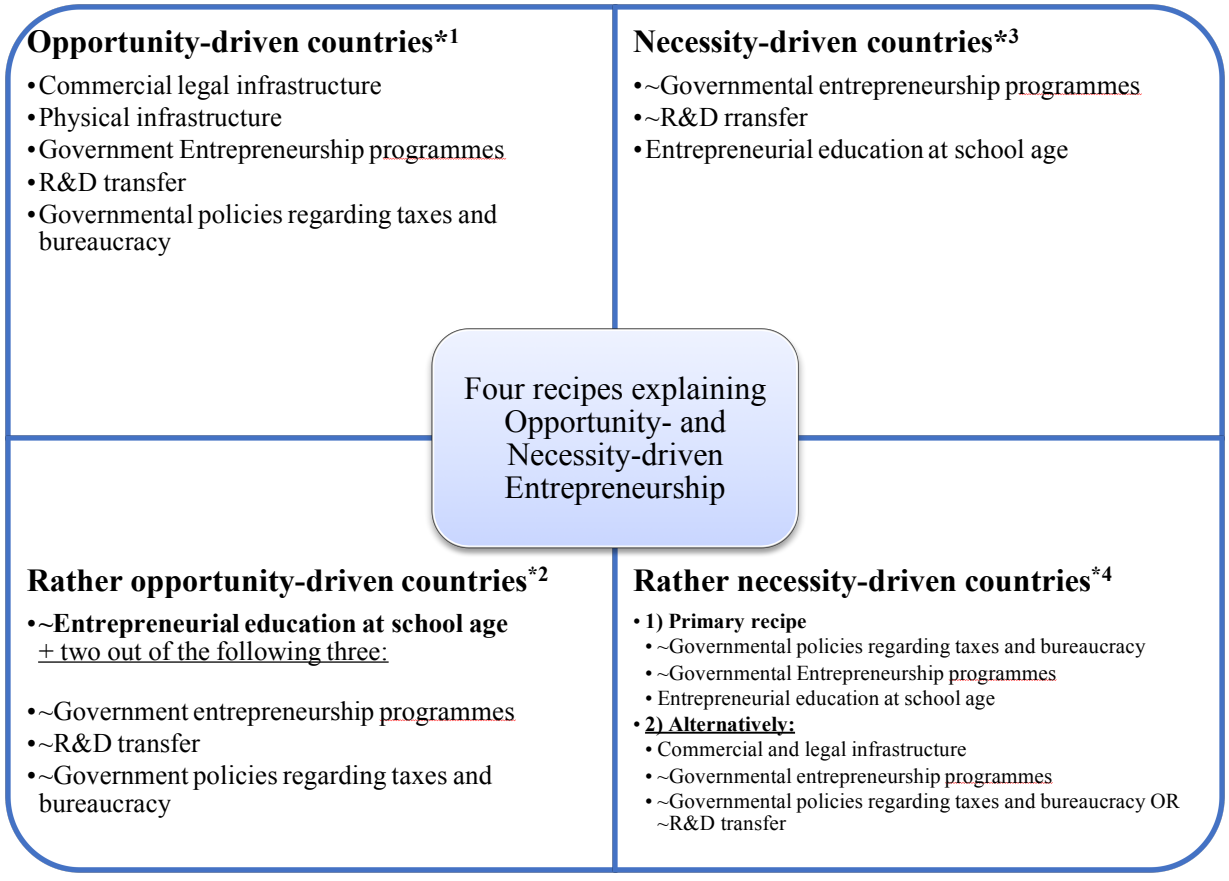
The overall goal of this research is to explore combinations of conditions, which contribute to opportunity- or necessity-driven entrepreneurship. The exploratory nature of this study does not propose a single and distinct answer. A range of answers is proposed, for different degrees of opportunity- and necessity-driven countries, which in turn is representative for the complexity of this research area. In simple terms, it is not the purpose to just state, which conditions lead to an outcome. For a holistic view on the dynamics of EFCs, especially regarding interdependencies, more than one outcome is considered. Moreover, the stages of economic development have been consulted to shed a first light on potential underlying factors.

Why is it beneficial to understand the impact and composition of different combination of conditions on the drivers (or motivation) to startup a business?

First of all, only if all conditions (EFCs) are taken into consideration, a holistic view can be generated. Second, by understanding concurrent causes, a foundation for governments can be laid out to trace which (combination of) conditions contributes to opportunity- and necessity-driven entrepreneurship. Especially on a national level, constraining causes can be identified, and on institutional level actions can be taken. This distinction and retracing can in particular be explored and executed with fs/QCA. It is to note that causes are based on common denominators, which are found for the respective cases. The process of understanding combinations of conditions leading to opportunity- or necessity-driven entrepreneurship, relies on the

understanding of which combination of cases are responsible for opportunity- and necessity-driven entrepreneurship.

It was found that each configuration leads to a maximum of 20 cases (countries) at the same time, which highlights that a one-fits all result may not be evident. All configurations rather outline recipes, where different combination of EFCs (or ingredients) point to the outcome, or in other terms which combination of conditions explains the performance regarding the Opp-Nec ratio. Taking a composition as a proxy, in the course of this study, configurations are labeled recipes, whereas conditions stand for ingredients. In total five recipes are identified, which each lead to different groups of countries and outcomes.



*1 Country cases related to this recipe – see table 6
*2 Country cases related to this recipe – see table 7,8 & 9
*3 Country cases related to this recipe – see table 10
*4 Country cases related to this recipe – see table 11, 12 & 13

Figure 3. Four recipes explaining opportunity- and necessity-driven entrepreneurship (Opp-Nec ratio)

As presented in figure 3, four final compositions (outcomes such as opportunity-driven countries, necessitiy-driven countries, rather opportunity-driven or rather necessity-driven

countries) are proposed, with the respective recipes (combination of conditions). For the outcome "rather necessity-driven" two different configurations, or recipes, are found. All compositions relate to certain cases, or countries, and the corresponding countries are presented in tables 6-13. In the analysis of all compositions and the corresponding countries, an extra focus was directed towards the economic development stage, in order to include underlying factors, apart from the effect of EFCs on the Opp-Nec ratio.

Figure 3 shows that the first recipe, representative for opportunity-driven countries, includes the presence of Commercial and legal infrastructure, Physical infrastructure, Government entrepreneurship programmes, R&D transfer and Government policies regarding taxes and bureaucracy. In other terms, if a country wants to increase its a high scoring opportunity-driven country, an improvement in the areas of Commercial and legal infrastructure, Physical infrastructure, Government entrepreneurship programmes, R&D transfer and Government policies regarding taxes and bureaucracy should be aspired. Economies related to this high level of opportunity-driven entrepreneurship mainly are innovation-driven economies.

However, even though that none of the conditions showed to be a core condition, configuration 1 is supported by configuration 4a and 4b, such as by configuration 3b, if and only if, the following assumption is accepted: If a condition is present for a opportunity-driven recipe, it is expected to be absent for a necessity-driven recipe.

The second composition relates to opportunity-driven countries in the (mostly) efficiency-driven economic stage. In order to become a not very, but considerate opportunity-driven entrepreneurship country, the absence of Entrepreneurship education at school stage as main contributor is required, with the absence of two from the following three conditions: Governmental entrepreneurship programmes, R&D transfer or Governmental policies regarding taxes and bureaucracy. This composition outlines that countries that are not the most critical, but also not the highest regarding the Opp-Nec ratio, all show a low score in Entrepreneurship education at school stage.

As indicated before, it is not only important to understand recipes relating to high-scoring or rather opportunity-driven countries, but it is also at least as important to understand which ingredients are related to necessity-driven countries**.** In order to become more like the most dominant necessity-driven countries, the absence of Governmental entrepreneurship programmes

and R&D transfer and the presence of Entrepreneurial education at school stage are requirements. As indicated, this group consists only out of factor- and efficiency-driven economies, where R&D transfer, such as Governmental entrepreneurship groups are probably not well established yet. Furthermore, since for developing countries, such as in this configuration, it is key to educate the workforce in order to become more competitive (Acs et al., 2008), the presence of Entrepreneurial education at school stage for this group of countries might be interpreted as a step towards economic development in the corresponding countries. Moreover, it is not surprising that in innovation-driven economies Entrepreneurship education at school stage is not listed as requirement, since this is, in first instance, an issue for developing countries.

As complementary recipe, and in order to understand the rather necessity-driven countries, proposition 3b is introduced. The term 'rather low' is chosen because the average Opp-Nec ratio in this configuration is 1.99 and therefore higher than in 3a, but still below the overall average of 2.71.

A second proposition is related to rather necessity-driven countries as well. With different ingredients, a similar outcome is achieved, by configuration 4a and 4b. Not only the ingredients are different, but also the country-cases related to rather necessity-driven countries are almost entirely different. In 3b the majority of countries is efficiency-driven, whereas in 4a all three economic development stages are almost equally represented. Configuration 4b is dominated by efficiency- and innovation-driven economies.

Two sets of propositions explain the rather necessity-driven countries, with the following combination of conditions:

a. The combination of conditions relating to countries that are rather necessity-driven consists of absence of Governmental policies regarding taxes and bureaucracy and Governmental entrepreneurship programmes, and the presence of Entrepreneurial education at school stage.
b. The combination of conditions relating to countries, which are rather necessity-driven consists of absence in Governmental entrepreneurship programmes and the presence of Commercial and legal infrastructure as core conditions. Moreover, the absence of the peripheral conditions Governmental policies regarding taxes and

bureaucracy interacts as a substitute for absence of the peripheral condition R&D transfer.

Due to the exploratory approach of this study, a holistic overview of the effects of several conditions and combination of conditions is generated. Having a holistic view enables to understand effects on a macro level. Next to the micro level, which is rather case-related, similarities and contrasts among all configurations are of interest. The following findings are generated based on identified conditions, the related type of entrepreneurial activity and prominent economic development stages in the corresponding configurations.

1. The absence in Governmental entrepreneurship programmes contributes to necessity-driven countries. Corresponding necessity-driven countries are either efficiency- or factor-driven economies.
2. The presence of Commercial and legal infrastructure and presence of Entrepreneurship Education at school stage interact as substitutes for the outcome necessity-driven countries. However, also opportunity-driven countries have been identified with the same characteristics. The country cases related to these findings represent all stages of economic development.
3. The absence of R&D transfer and Governmental policies regarding taxes and bureaucracy show complementary characteristics in some configurations for the necessity-driven entrepreneurship.
4. The condition Entrepreneurship education at school stage has the lowest overall scores and is mostly present in efficiency and factor-driven economies. Yet, the condition Entrepreneurship at school stage can be interpreted, for factor-driven countries, as first step towards the efficiency-driven stage.
5. Only one conditions shows no impact in any of the identified configurations: Cultural and social norms.
6. Physical infrastructure also just appears once, as a peripheral condition for innovation-driven economies (and a small number of efficiency-driven economies).

7.) Practical Implications

How do the findings of this study translate into practical proposals, in particular on a governmental level?

First of all, the recipes can support the understanding of which conditions are common denominators among high and low Opp-Nec ratio countries. This study proposes governments the combinations of conditions, which potentially contribute to a superior role for opportunity-driven and necessity-driven entrepreneurship. Country cases from the first recipe (for opportunity-driven entrepreneurship) therefore can be seen as best practice cases. But also exemplifying insights for necessity-driven entrepreneurship are addressed. Moreover, most results are discussed in the light of economic development stages. However, not all configurations could be explained (such as the dispersion of countries in configuration 4a and 4b).

Until now each economy had a score for Opp-Nec ratio as well as for each EFCs, but without understanding related interdependent effects.

This study aims to l deliver two practical implications on a governmental level:

1) Understand which EFCs or combination of EFCs relate to what degree of opportunity- and necessity-driven entrepreneurship
2) How does economic development stage interact in this relationship

Overall, by understanding different combinations of conditions leading to opportunity- or necessity-driven entrepreneurship, for the corresponding economic development stage, will help to understand which factors are most relevant. Increasing opportunity-driven entrepreneurship is desirable, because it may decrease the fact that people are forced into entrepreneurship (necessity-driven entrepreneurship) and it advances economic development (Acs et al., 2008)

8.) Limitations & Future Research

However, the results of this study should be interpreted with respect to some limitations. First, the overall results relate to the Opp-Nec ratio in countries, and do not go in depth regarding the degree of entrepreneurial activity in the particular countries. Secondly, with fs/QCA common denominators are found in order to explain the outcome, which still does not deliver all potential factors influencing the outcome. Third, due to the limited resources of this study, five EFCs are excluded from this study, which might potentially have a contributing role to the outcome. Fourth, the method fs/QCA is much related to researchers' choices in a given framework, which leaves potential room for discussion. Fifth, the imbalance in representative countries for the ratio of opportunity-driven to necessity-driven countries needs to be considered. Next, regarding the data collection of GEM, by using the Likert scale in the NES, limitations need to be addressed towards the truthfulness of data. As also outlined by Acs et al. (2008) it may occur that respondents may state that they are pursuing an opportunity, instead of stating that they have no other option, which would be the case. Further, regarding the data available it needs to be noted that due to the imbalance of data available for each country, the average is consulted. By using the average scores accuracy decreases. Finally, for countries with one year of available data, the validity of given data is questionable, since in those countries data is not challenged with a countercheck (as if a second year of data were available).

In future research, all EFCs should be tested in order to gain a more holistic view on the effect of all conditions on the outcome - opportunity- and necessity-driven entrepreneurs. Moreover, since entrepreneurial activity is a regional event, a more in-depth insight about countries performance can only be gained by country-specific research. Future studies need to investigate further underlying factors influencing relationships.

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Appendices

Appendix 1: Search terms and corresponding conditions/ terms

Keywords	Conditions/ terms
1. financ*	Entrepreneurial Finance
2. educat*	Basic- and entrepreneurship education at post school stage and entrepreneurship training
3. R&D	Research and development (R&D) transfer
4. polic*	Government policies support and relevance
5. program*	Government entrepreneurship programmes
6. dynamic*	Internal Market Dynamics
7. commercial	Commercial and legal infrastructure
8. openness	Internal market burdens or entry regulation
9. infrastructure	Commercial and legal infrastructure OR Physical infrastructure
10. cultur*	Cultural and social norms
11. taxes	Government policies regarding taxes and bureaucracy
12. Global Entrepreneurship Monitor	Global Entrepreneurship Monitor (GEM)
13. Entrepreneurial Framework Conditions	Entrepreneurial Framework Conditions
14. fs/QCA	Fuzzy-square Qualitative Comparative Analysis
15. Opportunity	Opportunity-driven entrepreneurs
16. Framework	Framework
17. Total early-stage entreprenerial activity	Total early-stage entreprenerial activity

Appendix 2: Search Queries (for Scopus)

(fs/QCA AND (Global AND Entrepreuneurship AND Monitor))	5
(global AND entrepreneurship AND monitor) AND (entrepreneurial AND framework And conditions)	23
(global AND entrepreneurship AND monitor) AND commercial AND infrastructure	2
(global AND entrepreneurship AND monitor) AND cultural AND social AND norms	10
(global AND entrepreneurship AND monitor) AND educat*	100
(global AND entrepreneurship AND monitor) AND financ*	53
(global AND entrepreneurship AND monitor) AND market AND dynamics	4
(global AND entrepreneurship AND monitor) AND market AND openness	1
(global AND entrepreneurship AND monitor) AND polic*	147
(global AND entrepreneurship AND monitor) AND program*	30
(global AND entrepreneurship AND monitor) AND R&D	5
(global AND entrepreneurship AND monitor) AND services AND infrastructure	1
(global AND entrepreneurship AND monitor) AND framework AND opportunity)	23
(global AND entrepreneurship AND monitor) AND bureacracy)	0
(total AND early-stage AND entrepreneurial AND activity) AND opportunity)	6
(total AND early-stage AND entrepreneurial AND activity) AND commercial	0
(total AND early-stage AND entrepreneurial AND activity) AND cultur*	3
(total AND early-stage AND entrepreneurial AND activity) AND educat*	5
(total AND early-stage AND entrepreneurial AND activity) AND financ*	6
(total AND early-stage AND entrepreneurial AND activity) AND dynamic*	2
(total AND early-stage AND entrepreneurial AND activity) AND openness	0
(total AND early-stage AND entrepreneurial AND activity) AND polic*	3
(total AND early-stage AND entrepreneurial AND activity) AND program*	2
(total AND early-stage AND entrepreneurial AND activity) AND R&D	1
(total AND early-stage AND entrepreneurial AND activity) AND infrastructure	0
(total AND early-stage AND entrepreneurial AND activity) AND taxes	0

Appendix 3: Literature after filtering stage

Screening stage	Residual relevant literature
1. Title	101
2. Abstract	52
3. Fulltext: not relevant	26
Fulltext: slightly relevant	12
Fulltext: good	13

Appendix 4: Relevant literature

Relevant literature

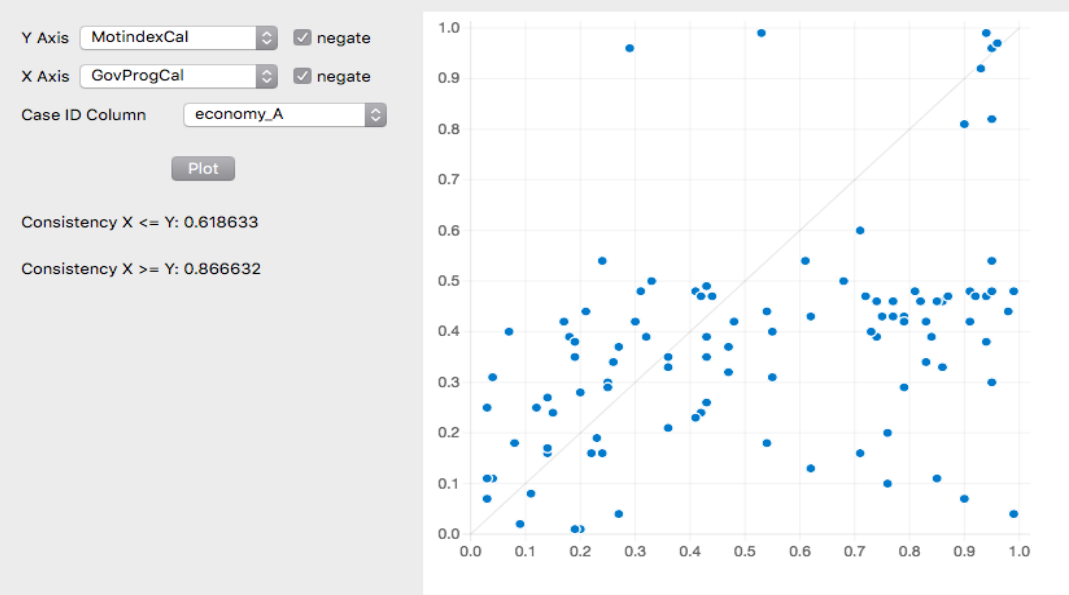
Green Literature	#
GEM + educat*	5
GEM + polic*	5
GEM + program*	3
GEM+financ*	3
GEM + EFA	1
fs/QCA+GEM	1
TEA + Opportunity	1
GEM + commercial + infrastructure	1
Total	19

Appendix 5: Potentially relevant literature

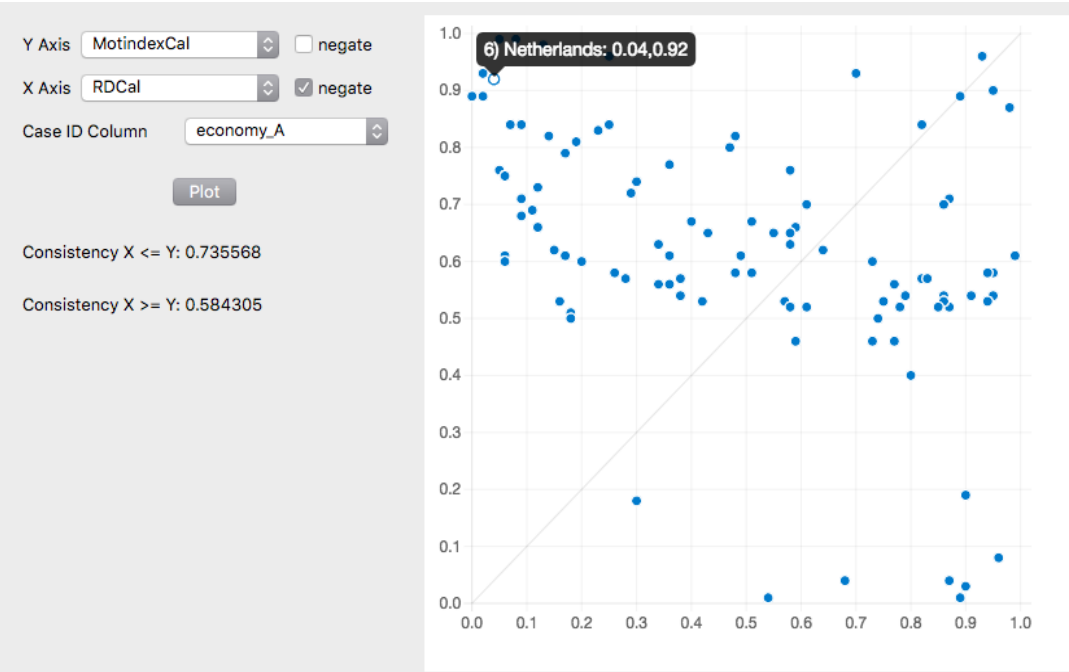
Potentially relevant literature

Yellow Literature	#2
GEM + educat*	2
GEM + polic*	6
GEM + program*	1
GEM+financ*	4
GEM + EFA	0
fs/QCA+GEM	1
GEM+ R&D	1
GEM + framework + Opportunity	1
Total	16

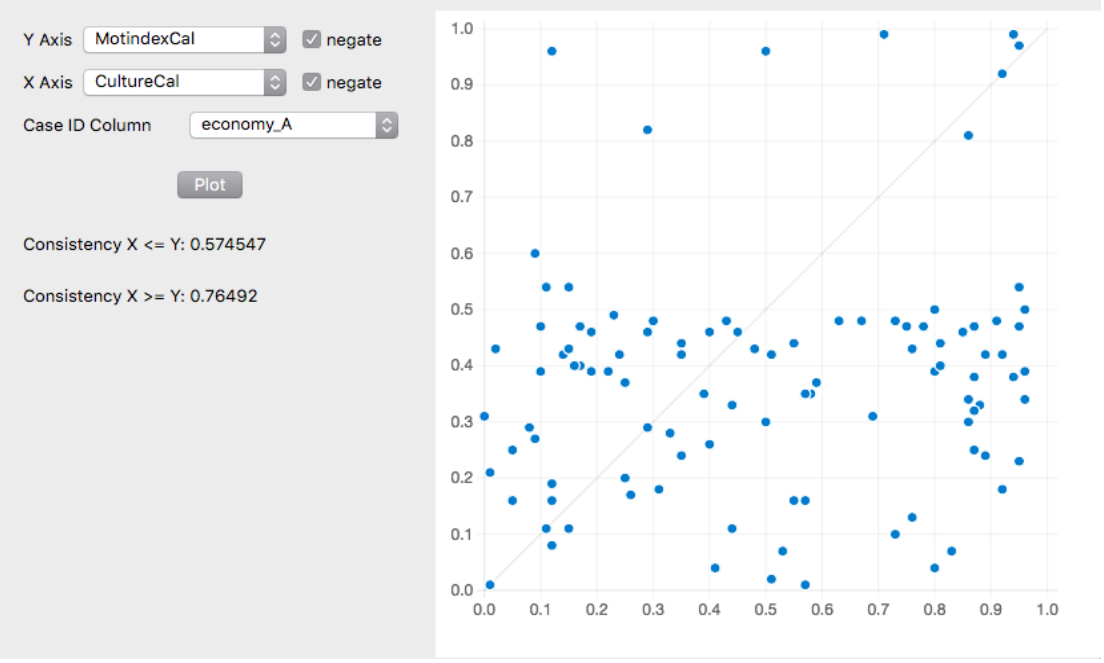
Appendix 6: XY-Plot: Highest scoring consistency in Necessary Condition Test: ~GovProgramCal on ~MotindexCal



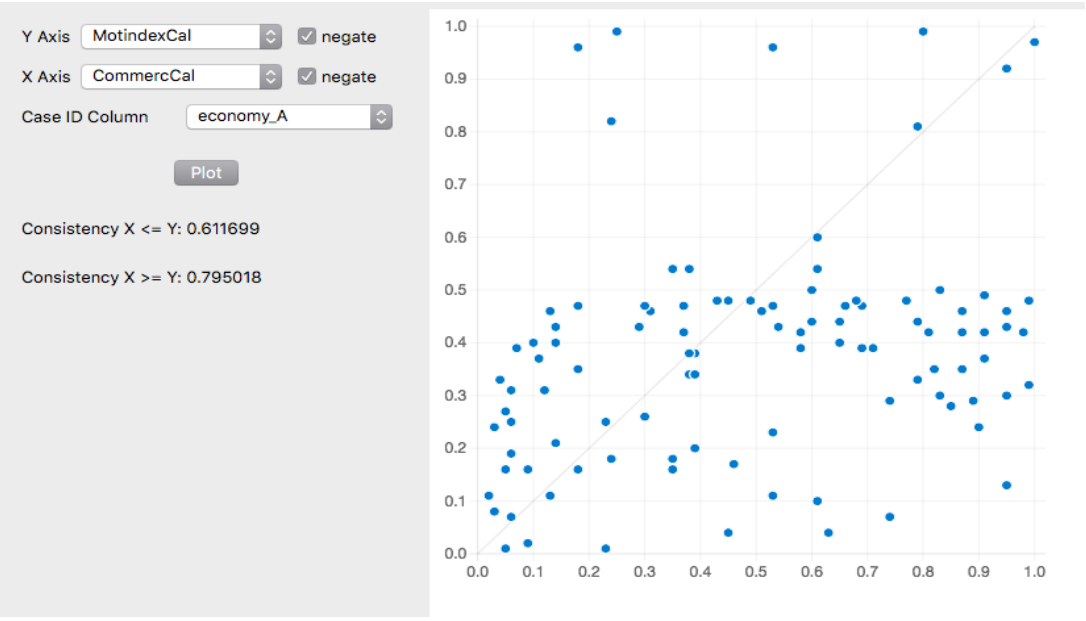
Appendix 7: XY-Plot: Lowest scoring consistency in Necessary Condition Test: ~RDCal on MotindexCal



Appendix 8: XY-Plot: Critically scoring (slightly under threshold of 0.8) consistency in Necessary Condition Test: ~CultureCal on ~MotindexCal



Appendix 9: XY-Plot: Critically scoring (slightly under threshold of 0.8) consistency in Necessary Condition Test: ~CommerceCal on ~MotindexCal



Appendix 10: Exemplary truth table

Culture	Taxes	GovProg	BasisSch	RD	number	Motindex	cases	raw consist.	PRI consist.	SYM consist
0	1	1	0	1	5	1		0.973198	0.881266	0.885942
1	1	1	1	1	16	1		0.970921	0.930569	0.956392
0	1	1	1	1	5	1		0.962346	0.844387	0.846547
1	0	0	1	0	5	1		0.95	0.726444	0.737654
0	1	0	0	0	6	1		0.908711	0.611973	0.673171
0	0	0	1	0	5	1		0.884862	0.494146	0.514634
0	0	0	0	0	13	1		0.861822	0.548585	0.632624