

Opportunity entrepreneurship, oil rents and control of corruption

Pedro Torres

CeBER and Faculty of Economics, University of Coimbra
Av. Dias da Silva, 165
3004-512 Coimbra - Portugal
Phone: +351 239 790584, Fax: +351 239 790514
E-mail: pedro.torres@uc.pt

Pedro Godinho

CeBER and Faculty of Economics, University of Coimbra
Av. Dias da Silva, 165
3004-512 Coimbra - Portugal
Phone: +351 239 790571, Fax: +351 239 790514
E-mail: pgodinho@fe.uc.pt

The final version of this article is available online at [https://www.emeraldinsight.com/doi/pdfplus/\[https://doi.org/10.1108/JEC-07-2019-0067\]](https://www.emeraldinsight.com/doi/pdfplus/[https://doi.org/10.1108/JEC-07-2019-0067])

This manuscript version is made available under the under the Creative Commons Attribution Non-commercial International Licence 4.0 (CC BY-NC 4.0). Reuse is allowed in accordance with the terms outlined by this licence.

Purpose – This study aims to better understand the conditions that can lead to high and low opportunity entrepreneurship in countries with oil rents. Additionally, the study aims to find out the differences between countries with oil rents and countries without oil rents.

Design/methodology/approach – A configurational analysis based on Fuzzy-set Qualitative Comparative Analysis was performed for a sample of 46 countries with oil rents and a sample of 20 countries without oil rents, using Country data from the World Bank World Development Indicators, World Bank Worldwide Governance Indicators, KOF Swiss Economic Institute, and Global Entrepreneurship Monitor.

Findings – The results show that control of corruption is important to achieve high levels of opportunity entrepreneurship in countries with oil rents and countries without oil rents alike. It is highlighted that the abundance of oil resources in a given country is not a curse, if some conditions are met. Multiple configurations that lead to high levels of opportunity entrepreneurship in countries with oil rents are presented. The study shows that none of the antecedent conditions is necessary *per se*, it is the combination of conditions that leads to the outcome of interest. The study indicates that either high control of corruption or low taxes should occur, no matter the combination of conditions, to achieve high levels of opportunity entrepreneurship.

Research limitations/implications – The relation between control of corruption and entrepreneurship is complex and, in spite of the insights that were gathered herein, much is still to be explored. The coverage rate of the solutions shows that there are countries with high levels of opportunity entrepreneurship that do not fit in any of the obtained configurations. The sample size is also a limitation. Furthermore, to compute the set membership thresholds, the anchors were based on the percentiles, given the lack of theoretical basis to do so. Thus, other methods should also be used in the future, if possible with a larger data sample.

Practical implications – The obtained results have implications for policy makers, authorities and potential entrepreneurs. In countries that are oil producers, policy makers aiming to promote opportunity entrepreneurship should take into account that it is the combination of conditions that is important, and not each condition by itself. They should consider that several solutions are possible. Authorities aiming to promote anti-corruption reforms, can leverage the findings of this study to demand for more resources in order to institute practices and structures to better control corruption, and should articulate among themselves the actions to carry on to improve the level of opportunity entrepreneurship in their country. Potential entrepreneurs can use the findings of this

study to ask for anticorruption reforms and tax reforms, and they should use their entrepreneurial talent to try to speed up the change.

Originality/value – By overlapping streams of research in entrepreneurship, institutions and oil curse, this study makes several contributions to the entrepreneurship literature. Different from extant literature, the study uses a configurational approach and identifies the combinations of conditions that lead to high and low opportunity entrepreneurship in countries with oil rents. The non-linearity of the configurations is highlighted. Furthermore, for the first time, the study includes a panel without oil rents in the analysis, which enabled a comparison with the other set of countries and provides new insights about the importance of control of corruption to achieve high levels of opportunity entrepreneurship.

Keywords: Opportunity entrepreneurship; fuzzy-set qualitative comparative analysis; oil rents; control of corruption; taxes.

1. Introduction

Worldwide national governments aim to increase the number of individuals that actually develop and implement opportunities (Jong, 2013). Thus, policy makers are continuously looking for new insights regarding the individuals' ability to discover or create new opportunities, exploit them, and implement them (Shane, 2003). The national context may enable or constrain opportunity entrepreneurship. Institutional conditions, which can be either formal or informal (Aparício *et al.*, 2016), play an important role in determining whether entrepreneurial initiatives will lead to productive or unproductive outcomes (Baumol, 1996).

The literature established long ago that the presence of natural resource wealth can have a negative effect on entrepreneurship because it can motivate rent-seeking behaviour (e.g., Torvik, 2002; Tornell and Lane, 1998). In particular, the negative effect of oil rents dependency on entrepreneurship has been considered to be notable (Farzanegan, 2014). Nevertheless, some oil-rich countries show high levels of opportunity entrepreneurship (e.g., Norway), which suggests that the “oil curse” is not inevitable. According to Majbouri (2016), the potential impact of oil on entrepreneurship is explained by two mechanisms. On the one hand, the presence of oil rents can be an opportunity for creating new businesses in a novel industry and can generate higher levels of disposable income, thereby increasing the demand for products and services. On the other hand, oil rents will increase governments’ resources and potential entrepreneurs will have incentives to engage in rent-seeking activities rather than in productive entrepreneurship. Furthermore, when a new oil and gas project is initiated, local people often perceive it as destroying their culture and leaving them with few economic benefits and many social costs (e.g., Dana *et al.*, 2009); but, there are examples of good practices that can mitigate these potential costs (see, for example, Mason *et al.*, 2012; Dana *et al.*, 2008).

The institutional environment affects the quality and the quantity of entrepreneurship in a given society (Bylund *et al.*, 2017). Institutional conditions determine the relative rewards from engaging in productive and non-productive market and non-market activities (Baumol, 1990; Williamson, 2000). Thus, the context can play an important role in explaining differences among oil-rich countries. It has been suggested that in developing countries, where corruption is often present, oil rents may not be advantageous for productive entrepreneurship (Majbouri, 2016). Nevertheless, contextualizing entrepreneurship is complex because contradictory effects may occur (Welter, 2011; Torres and Augusto, 2019). Furthermore, stimulation of entrepreneurship is

a non-trivial task, which goes beyond linear formulations (Anokhin and Schulze, 2009). The issues of adverse selection and moral hazard should be taken into consideration. It has already been noted that policies designed to encourage entrepreneurship, can also be seen a source of rent (Majbouri, 2016) because they can attract rent-seekers that write proposals just to acquire these rents from the government (the more extravagant, the higher chance of being chosen — adverse selection) and providing less incentives to them to work hard to be successful (moral hazard).

There is an ongoing debate on whether natural resources, such as oil, are a curse or a blessing (e.g., Dwumfour and Ntow-Gyamfi, 2018; Badeeb *et al.*, 2017). Resource rents have been linked with downward pressures on institutional quality (e.g., Hodler, 2006). Furthermore, it has been suggested that institutions are key for determining whether resource rents are a curse or a blessing (e.g., Mavrotas *et al.*, 2011), because good institutional quality can forestall the potential negative effects of natural resources (e.g., Sarmidi *et al.*, 2014). However, other authors didn't find evidence that institutions can play a significant role in the resource curse outcome (e.g., Brunnschweiler, 2008). Therefore, more research is needed to better understand the combination of conditions that make oil rents a curse or a blessing. Furthermore, most of the previous studies on this topic have focused on either developing countries, case studies or Africa as a whole (Dwumfour and Ntow-Gyamfi, 2018). To the best of our knowledge, there is no other study that focused on corruption and compared the countries with oil rents to those without oil rents. Aiming to fill this gap, the main objective of this study is to contribute to better understand the combinations of conditions that lead to high and low opportunity entrepreneurship levels in countries with oil rents. Additionally, the study aims to find out the differences between two sets of countries (countries with oil rents vs. countries without oil rents). Moreover, different from past research that studied the relationship between oil and entrepreneurship, this study takes a

configurational approach. Thus, it also contributes to the diffusion of Qualitative Comparative Analysis (QCA) in entrepreneurship research.

The analysis was performed using an application of QCA, termed fuzzy-set QCA (fsQCA), which is methodologically suitable to study complex interdependencies in a small or medium number of cases. The method implies the execution of a systematic cross-case analysis that models relations among variables in terms of set membership using fuzzy logic. The focus on complex and configurational models rather than additive and linear ones justifies the choice of method (Schneider and Eggert, 2014). Compared to regression-based methods, the fsQCA approach adds two interesting dimensions. First, the ability to puzzle out causally complex structures, such as equifinality, multifinality, and asymmetric causality (Grofman and Schneider, 2009). Second, the ability to identify configurations that reflect the necessary and sufficient conditions to achieve an outcome of interest (Ordanini *et al.*, 2014).

By overlapping streams of research in entrepreneurship, institutions and oil curse, this study makes several contributions to the entrepreneurship literature. First, it shows that control of corruption is important to achieve high levels of opportunity entrepreneurship in countries with oil rents and countries without oil rents alike. Second, the results indicate that the abundance of oil resources is not a curse, if some institutional conditions are met. Third, multiple configurations that lead to high levels of opportunity entrepreneurship in countries with oil rents are presented. Fourth, the study shows that none of the antecedent conditions is necessary *per se*, it is the combination of conditions that leads to the outcome of interest. Fifth, the study indicates that either high control of corruption or low taxes should occur, no matter the combination of conditions, to achieve high levels of opportunity entrepreneurship. Finally, this study further justifies the application of non-linear methods in entrepreneurship research; the configurations that lead to low

levels of opportunity entrepreneurship are not the mirror opposites of the configurations that are sufficient to achieve high levels of opportunity entrepreneurship, at least in countries with oil rents. Besides these theoretical contributions, the study has implications for practice, namely for policy makers, authorities and potential entrepreneurs, which are discussed in the end of the paper; the results suggest that countries with low opportunity entrepreneurship can change course.

Following this introduction, in the remaining sections, the conceptual background is given; the data and the methods are described; the results of the analysis are presented; and finally, in the last section, the findings are discussed and the main conclusions are highlighted.

2. Conceptual background

Economics interest in entrepreneurship is mainly justified by its outcomes at higher levels, such as resource allocation, economic growth, and social change (Bjørnskov and Foss, 2016). Many studies addressed entrepreneurship, measuring potentially productive entrepreneurship in terms of self-employment or start-up activity. The discovery of opportunities (e.g., Kirzner, 1973) and the pursuit of imagined opportunities are often associated with entrepreneurship (e.g., Foss and Klein, 2012). The entrepreneurship literature often defines the entrepreneur as a risk-taker, as an agent of social change, and as an identifier of opportunities. But, the dimensions associated with being an entrepreneur are not quite the same across cultures (see, for example, Dana, 2007). Nevertheless, although there are different types of entrepreneurs, most of the categories into which entrepreneurs can be classified correspond to the type of entrepreneurship identified as “opportunity seeking” (Dana, 1995). Following the concept used in the Global Entrepreneurship Monitor questionnaires, the term “opportunity entrepreneurship” reflects individuals who start their own business to take advantage of an entrepreneurial opportunity (Reynolds *et al.*, 2004). Thus, opportunity

entrepreneurship corresponds to “the pursuit of potentially valuable business opportunities as perceived by individual actors” (Boudreaux et al., 2019, p. 179). Opportunity entrepreneurship is an important topic for policy-makers because it is associated with high growth business creation, which leads to economic growth and job creation (e.g., Autio and Acs, 2010; Estrin et al., 2013).

Institutional conditions can be particularly useful in explaining opportunity entrepreneurship (e.g. Carlsson *et al.*, 2013; Bruton *et al.*, 2010). However, contextualizing entrepreneurship is complex (Welter, 2011). Linear formulations do not reflect this complexity. The literature has already acknowledged that governments aiming to promote entrepreneurship should not base their policies in linear formulations. The interacting, multilevel institutions supporting productive entrepreneurship that constitute the “entrepreneurial ecosystem” (Acs *et al.*, 2017) are complex and hard to analyse empirically (Bosna *et al.*, 2018). Moreover, contradictory effects often occur (Welter, 2011). In particular, the resource curse literature presents some divergence regarding the role of institutions (Badeeb *et al.*, 2017). Thus, although it has been recognized that institutions can influence entrepreneurship activity and can channel entrepreneurship towards productive entrepreneurship, rather than unproductive, there are still many under-researched issues. In fact, the importance of each institutional condition in driving entrepreneurship to a productive direction remains an open question (Bjørnskov and Foss, 2016). The configurational approach considered in this study can uncover new insights on these issues.

Institutions correspond to “the rules of the game in a society” (North, 1990, p. 3) and can be either formal, such as regulations, contracts, procedures, or informal, such as the culture or social norms. Informal institutions can constrain formal institutions and vice versa (Aparicio *et al.*, 2016). Informal institutions require more time to change than formal institutions, which can be changed in a short period of time (Williamson, 2000). The literature suggests that the presence of

lootable resources can favour the allocation of human skills and talents towards unproductive activities rather than entrepreneurial activities (Torvik, 2002). Oil is among the most lootable resources (Farzanegan, 2014) and the term “oil curse” reflects the negative effect of the presence of oil rents. Therefore, the study of the configurations (combinations of simple antecedent conditions) that lead to opportunity entrepreneurship, in countries that benefit from oil rents, is justified.

Previous research has highlighted that when natural resources represent a large portion of a country economy, several positive and negative consequences may occur (e.g., van der Ploeg, 2011). However, the effects of oil rents are likely to be different depending on the context. In some countries, the presence of oil rents can favour rent-seeking behaviour. In other countries, the presence of oil not only provides new opportunities within the oil industry, but also leads to increasing incomes and consequently to higher demand for new products and services. These outcomes influence the value of the society’s entrepreneurial activities. According to Baumol (1996), this value depends in great extent of the allocation of entrepreneurial activities between productive activities (e.g., innovation) and unproductive activities (e.g., rent-seeking). While productive entrepreneurship corresponds to the creation and the selling of products and services in the marketplace, unproductive entrepreneurship is more focused on creating connections with sources of rent and on capturing a higher portion of rents. Policy makers can change the context by designing policies to reconfigure institutional conditions, and, in doing so, they can influence the allocation of human capital and foster entrepreneurial activities. To guide these policies, decision makers should be aware of the combination of institutional conditions that can drive opportunity entrepreneurship.

Previous research has noted that the inverse relationship between oil rents and productive entrepreneurship was only pronounced in a corrupt environment (e.g., Majbouri, 2016). Corruption can be defined as an abuse of public power or authority for private benefit (Rodriguez *et al.*, 2006). The level of corruption is one of the fundamental aspects of institutions and it is considered an informal (i.e. highest order) institution (Estrin *et al.*, 2013). In some countries, the windfall of resource revenues increases the power of elites that take a large share of the revenues and distribute them for the benefit of their immediate circles (Badeeb *et al.*, 2017). The literature has recognized that corruption can affect entrepreneurial activity (e.g., Dreher and Gassebner, 2013; Douhan and Henrekson, 2010), discouraging the creation of new firms (e.g., DeSoto, 1989). Potential entrepreneurs face higher transaction costs in a more corrupt environment (Anokhin and Schulze, 2009). Furthermore, individuals' perception of governance ability is distorted in the presence of corruption (Méon and Sekkat, 2005). Thus, the institutional environment becomes less certain. When institutions themselves become uncertain, they make decision-making more challenging (Bylund *et al.*, 2017). In the presence of institutional uncertainty, economic agents are more likely to refrain from investing in new ventures, even if they perceived potentially profitable business opportunities (Bylund and McCraffey, 2017). When corruption is present, opportunistic behaviour of those involved in the value chain may occur. Hence, entrepreneurs face great uncertainty about their ability to appropriate future benefits of their entrepreneurial activity (Anokhin and Schulze, 2009). Thus, they will be less willing to invest in innovation, venturing, or other speculative activities (Baker *et al.*, 2005). Entrepreneurship involves action, and action requires willingness to bear uncertainty (McMullen and Shepherd, 2006).

Corruption can also be linked to asymmetrical information (e.g., Banerjee, 1997). When corruption is present, powerful elites tend to concentrate a large share of revenues related to

natural resources, such as oil, and are likely to have more access to information. Thus, it is likely that they can spot new business opportunities earlier than potential entrepreneurs, so, these opportunities will be taken by already established companies that they dominate. When corruption is present “incumbents share private benefits with government administrators at the cost of newcomers” (Aidis *et al.*, 2008, p 567). Therefore, new business opportunities are likely to attract rent-seekers rather than high-impact innovators (adverse selection) and talented entrepreneurs will have less incentives to work hard to be successful (moral hazard). Theoretically, this situation can be similar to the well-known “lemons” problem described by Akerlof (1970). Furthermore, career choices are influenced by the institutional context (Wood and Bandura, 1989) and, according to the social cognitive theory, expectations about future outcomes constitute a key determinant of the latter (Bandura, 1986). In a corruption environment, productive market activities will be seen as less profitable compared to other behaviours. Thus, non-productive entrepreneurship activities, such as manipulating the political and legal system to capture favourable treatment from the state are more likely to happen (e.g., Sobel, 2008).

Additionally, the literature suggests that control of corruption is positively perceived by entrepreneurs and can motivate higher levels of entrepreneurial activity (e.g., Aidis *et al.*, 2008). Furthermore, it has been suggested that good institutions can turn the oil curse into a blessing (e.g., Sarmidi *et al.*, 2014; Arezki and Van der Ploeg, 2010). Therefore, control of corruption is expected to be a core condition for achieving high levels of opportunity entrepreneurship, particularly in countries with oil rents.

However, the relationship between control of corruption and entrepreneurship is complex (Anokhin and Schulze, 2009); it is likely that other antecedent conditions must be present or absent to achieve high levels of opportunity entrepreneurship. One of those conditions might be the

country gross domestic product (GDP), which can be seen as a proxy of the market size (Farzanegan, 2014). In this way, GDP can be used by entrepreneurs to assess new business opportunities. Hence, a higher GDP can contribute to motivate high opportunity entrepreneurship.

According to some authors, such as Arezki and Van der Ploeg (2010), the degree of economic openness should also be considered when addressing the resource curse, in order to avoid misleading results. These authors suggest that a trade policy aiming to increase a country's exposure to foreign competition can also turn the resource curse into a blessing because the country will benefit from managerial skills and know-how from abroad. Therefore, globalization could be a substitute of institutional quality. Despite the results obtained in their study not being conclusive, they claim that the resource curse was less severe when trade openness and good institutions were present. Hence, globalization can complement the control of corruption and can contribute to achieve higher levels of opportunity entrepreneurship.

It has been acknowledged that some governments design policies aiming to decreasing the entry "barriers" to the formation of new firms, in particular those based on opportunity (van Stel *et al.*, 2007). Governmental regulations, such as taxes, are usually perceived negatively by potential entrepreneurs (Gnyawali and Fogel, 1994). Thus, taxes can be an institutional constraint to opportunity entrepreneurship. The entrepreneurship literature has recognized that tax policies can influence the incidence of entrepreneurship (e.g., Bjørnskov and Foss, 2016). High levels of taxation make the accumulation of capital required to start a business more difficult (Henrekson, 2005). Furthermore, high taxes represent an additional cost to productive market activities, thereby reducing expected returns of new businesses; the tax burden influences negatively entrepreneurs' opportunity evaluation (Wood *et al.*, 2016). Nevertheless, although higher corporate taxes can

reduce the incentives to start new businesses, it has been noted that low entry barriers are likely to promote replicative but not high-impact entrepreneurship (Stenholm *et al.*, 2013).

The present research takes a configurational perspective, thereby recognizing that several combinations may lead to the outcome of interest. Following this approach, it is common to use the term “tenet” to express testable precepts. Considering the existing literature and this novel perspective, four tenets were formulated. The term “outcome condition” corresponds to either the presence or absence of opportunity entrepreneurship. Five simple antecedent conditions were taken into account: GDP based on purchasing power parity, oil rents, control of corruption, a globalization index, and taxes on goods and services. As aforementioned, prior studies suggested that these conditions are important: GDP (e.g., Farzanegan, 2014); oil rents (e.g., Majbouri, 2016); control of corruption (e.g., Estrin *et al.*, 2013); globalization (e.g., Arezki and van der Ploeg, 2010); taxes (e.g., Wood *et al.*, 2016). The combination of antecedent conditions is termed a “complex antecedent condition” or “configuration”.

Considering the aforementioned, the following tenets can be formulated:

T1: Control of corruption is present in the configurations that lead to opportunity entrepreneurship, at least in countries with oil rents.

T2: The presence or absence of a simple antecedent condition is neither necessary nor sufficient to obtain the outcome condition.

T3: Any one configuration which is sufficient for identifying countries with a high score in a focal outcome condition is not necessary, that is, more than one path can lead to the same outcome.

T4: The mirror opposites of configurations leading to high scores in a focal outcome condition do not indicate the negation of the outcome condition, that is, asymmetrical causality occurs.

3. Data and methods

3.1 Data

Country data used in this research comes from the World Bank World Development Indicators (WBWDI, <https://databank.worldbank.org/data/source/world-development-indicators>), World Bank Worldwide Governance Indicators (WBWGI, <https://datacatalog.worldbank.org/dataset/worldwide-governance-indicators>), KOF Swiss Economic Institute (KOF, <https://www.kof.ethz.ch/>) and Global Entrepreneurship Monitor (GEM, <https://www.gemconsortium.org/>). The following indicators were used:

- Opportunity Entrepreneurship Activity (OEA) is measured by the improvement-driven opportunity as a percentage of early stage entrepreneurial activity, obtained from the GEM Global Reports.
- Gross Domestic Product (GDP) at Purchasing Power Parity, measured in constant 2011 international dollars, obtained from WBWDI.
- Oil rents (OIL) as a percentage of the gross domestic product, obtained from WBWDI.
- Control of corruption (CONTROL), a score that captures perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as “capture” of the state by elites and private interests. This score is obtained from WBWGI.

- The KOF Globalisation Index (GLOBALISATION), which measures the economic, social and political dimensions of globalisation, obtained from KOF.
- Taxes on goods and services (TAXES), measured as a percentage of value added of industry and services, obtained from WBWDI.

The main idea of this study was to analyse the impact of these indicators for countries that were oil producers, so countries for which OIL was zero were analysed separately from those with a strictly positive value for this variable. Some of these indicators were unavailable for 2017 and 2018 and, in the case of KOFGI, there was also no data for 2016. Additionally, in many cases there were missing values for particular countries and years. In order to avoid ending up with a very small number of observations, data from 2014 to 2016 was gathered and the following procedure was employed:

- For OEA, GDP, OIL, CONTROL and TAXES, a simple average of the available values, from 2014 to 2016, was calculated, leaving out any missing values;
- For GLOBALISATION, an average of the values of 2014 and 2015 was calculated. Since values from 2016 were not available, more weight was given to the observation that was closer to 2016 (that is, a weighted average was calculated, giving a 1/3 weight to the 2014 value and a 2/3 weight to the 2015 value).

Therefore, the selection consisted of the countries that, for all indicators, had values for at least one year of the 2014-2016 period. This led to 46 countries with a strictly positive value in the OIL indicator and 20 countries with a zero value for this indicator. Two countries with some oil rents were very small (with less than half a million inhabitants), Barbados and Belize, and we considered that values from very small countries may be less representative of a general pattern, so these two

countries were removed. Thus, the final set of countries with oil rents was reduced to 44 countries. The list of countries is presented in Table 1.

(Insert Table 1 about here)

3.2 Methods

Two different methods were used in this work: Multiple Regression Analysis (MRA) and fuzzy set Qualitative Comparative Analysis (fsQCA). Methods based on symmetric relations between the predictors and the outcomes, like MRA or Structural Equation Modelling (SEM), are often used in management studies, but they may show some difficulty in capturing non-linear relations (see, e.g., Woodside, 2017). FsQCA can explain the outcomes based on combinations of values of the predictors, thus being able to find asymmetric relations between the predictors and the outcomes. In this paper, we use both types of methods in a complementary way, in order to achieve more robust results and to obtain more insights.

FsQCA belongs to a general approach termed Qualitative Comparative Analysis (QCA) (Rihoux *et al.*, 2011). QCA techniques look for asymmetric effects of the variables on the outcomes: in some configurations, the presence of a given condition may contribute to reaching the outcome while, in other contexts, it may be its absence that leads to the outcome (Torres *et al.*, 2017). Furthermore, fsQCA is especially suitable for the analysis of a small number of cases, that is, between 15 and 60 cases (Fiss, 2011). Configurational methods are increasingly used in the sub-disciplines of management (Berger, 2016; Woodside, 2014), but they remain underused in entrepreneurship research. In fact, expanding the scope of methodologies used in entrepreneurship

research has been recommended (for a discussion on the methodologies in entrepreneurship research see, for example, Dana and Dana, 2005).

FsQCA is based on fuzzy numbers that represent degrees of membership (belonging to the [0,1] interval) in sets defined by conditions. The degree of membership of each case must be established a priori, since the comparison across cases is based on it (Muñoz and Dimov, 2015). In this work, a method proposed by Ragin (2008, chapter 5), termed the direct method, is used for defining the fuzzy degrees of membership. The method uses a function that defines the fuzzy scores for the original values of the variables based on three thresholds: a full membership threshold, a non-membership threshold, and a crossover point. The full membership and non-membership thresholds specify the limits beyond which a case can be considered to be virtually a full member of the set or virtually outside the set, respectively (Ragin, 2008, p. 88), while the crossover point is the value for which there is most ambiguity as to whether a case is more in or more out of the set (Ragin, 2008, p. 90). Each of these thresholds defines a specific fuzzy value – fuzzy values of 0.95, 0.05 and 0.50 are usually used for the full membership and non-membership thresholds and for the crossover point, respectively (see, e.g., Ragin, 2008, chapter 5). Several authors resort to the 90th, 10th and 50th percentiles of the values of the original distribution to define these thresholds (e.g., Navarro *et al.*, 2016; Ryan and Berbegal-Mirabent, 2016; Torres and Augusto, 2019). The same procedure was used in this study to obtain the membership degrees for the variables.

FsQCA is used to obtain both the necessary conditions leading to the outcomes of interest and the configurations of sufficient conditions leading to these outcomes (in this work, the outcomes are the presence of a high level of opportunity entrepreneurship, denoted by OEA, and the absence of a high level of opportunity entrepreneurship, denoted by ~OEA). For the analysis

of sufficient conditions, it is necessary to define a frequency cutoff and a consistency cutoff. The frequency cutoff establishes the minimum number of cases that should belong to a given causal combination for it to be included in the causal analysis. When the number of cases is not large (as in this research), a low frequency cutoff is often recommended (e.g., Ragin, 2008, p. 143, recommends a frequency threshold of one or two when the total number of cases is relatively small). A frequency cutoff of one case was used in this study, due to the relatively small number of countries in the dataset. Consistency cutoffs are usually chosen using a procedure based on the identification of gaps occurring above the 0.8 value in the range of consistency scores (e.g., Ragin, 2009, p. 121). In this study, sizeable gaps were found close to the 0.850 consistency score (for countries with oil rents, a gap between 0.824 and 0.858 for OEA and a gap between 0.838 and 0.860 for ~OEA; for countries without oil rents, a gap between 0.834 and 0.860 for OEA and a gap between 0.823 and 0.908 for ~OEA), leading us to use a consistency cutoff of 0.850.

In fsQCA, the strength of the results is usually assessed using the concepts of consistency and coverage. Consistency is a measure of how closely a perfect subset relation is approximated (Ragin, 2008, p. 44), that is, of how much the data agrees with the relation being considered. Coverage is a measure of the empirical relevance of a given relation (Ragin, 2008, p. 44), according to the data. The values of both consistency and coverage range between zero and one.

4. Results

4.1 Multiple Regression Analysis

The selected variables were used in a Multiple-Regression Analysis (MRA), with OEA as the dependent variable. At the outset, GDP, CONTROL and GLOBALISATION were expected to have a positive impact on OEA, and TAXES was expected to have a negative impact. As for OIL,

it is not clear the kind of effect it would have on OEA. To obtain more insights the analysis was performed not only for countries with oil rents, but also for countries without oil rents.

The main results of these regressions are presented in Table 2. For countries with oil rents we can see the F-statistic is statistically significant at the 1% level, but no individual variable has a statistically significant coefficient at the 1% level, and only OIL and TAXES are significant at the 10% and 5% level, respectively. The coefficient of GLOBALISATION has a negative sign, contrary to what we expected, although this coefficient is not significantly different from zero at any of the usual levels. The global R^2 is quite small, only 0.373, and the adjusted R^2 is 0.291. So, a linear combination of the original variables is only able to explain a limited amount of the variance of the dependent variable, and three variables (GDP, CONTROL and GLOBALISATION) seem to play no significant role in explaining OEA. For countries without oil rents none of the variables (GDP, CONTROL, GLOBALIZATION, and TAXES) is significant. The global R^2 is quite small, 0.422, and the adjusted R^2 is 0.268. When considering all countries, CONTROL becomes significant at the 5% level, alongside with OIL and TAXES, which are significant at the 5% and 1% level, respectively. The global R^2 remains small, only 0.380, and the adjusted R^2 is 0.327.

(Insert Table 2 about here)

The results of the regression may be due to the limitations of this kind of analysis. MRA is only able to uncover linear relations between the independent variables and the outcome and, therefore, it may fail to identify more complex relations. So, it was important to use fsQCA to take a different look at the relation between the independent variables and OEA.

4.2 Analysis of necessary conditions

The first step in using fsQCA is usually looking for necessary conditions that lead to the outcome. In this work, it was analysed whether the presence or the absence of a high value of any single variable was necessary to achieve OEA. A summary of the results is presented in Table 3.

(Insert Table 3 about here)

Consistency thresholds of 0.9 are usually considered to identify necessary conditions (e.g., Schneider *et al.*, 2010; Torres *et al.*, 2017). As can be seen in Table 3, none of the consistency scores comes even close to 0.9: all scores are lower than 0.79. These results clearly show that neither the presence nor the absence of high values of a single antecedent condition is necessary for achieving OEA or ~OEA.

4.3 Configurational analysis

The most relevant results of fsQCA are usually the ones obtained with a configurational analysis, or analysis of sufficient conditions. Such an analysis looks for configurations of conditions that are sufficient for the outcome to be obtained. The conditions may be defined as the presence or the absence of high values of the different variables. The set of configurations can be termed a “solution” for the outcome.

A standard configurational analysis produces three solutions, which differ in the way the logical remainders are used to simplify the configurations: a “complex” solution, in which no logical remainders are incorporated into the solution, a “parsimonious” solution, in which all

logical remainders are used, and an “intermediate” solution, in which only the plausible logical remainders are incorporated into the solution (Ragin, 2009). Intermediate solutions are often considered superior to the complex and parsimonious ones (e.g., Ragin, 2009). Fiss (2011) defines a representation of the solutions based on the concept of “core” and “peripheral” conditions. Core conditions are defined as those that are part of both parsimonious and intermediate solutions, and peripheral conditions are those that do not show in the parsimonious solution. In this work, we follow this representation, using black circles (“●”) to indicate the presence of a condition, crossed-out circles (“⊗”) to represent the absence of a condition and blank spaces to indicate a situation in which the condition may be either present or absent. Large circles represent core conditions and small circles represent peripheral conditions.

Table 4 presents four configurations for achieving a high level of OEA in countries with oil rents, but two of them have the same conditions (OEA2a and OEA2b only differ in what are core and peripheral conditions). Control of corruption (CONTROL) is present in all configurations as a core condition; this shows that it is very important to achieve a high level of OEA. For countries with oil rents the presence of OIL and GLOBALISATION can be seen in three configurations, and their absence is never part of a configuration; this finding seems to contradict the results of MRA. Furthermore, for countries with oil rents, the absence of a high level of taxes on goods and services (TAXES) is a part of three configurations, showing that a low level of taxes may be relevant to achieve a high level of OEA; a high level of GDP is part of two configurations. Additionally, the configurational analysis was performed for a different panel of countries — countries without oil rents. The results indicate that the combination of high levels of control of corruption and low levels of taxes lead to high levels of opportunity entrepreneurship, and both

are core conditions. This is consistent with the results obtained for countries with oil rents and further emphasizes the importance of these conditions for entrepreneurial activities.

(Insert Table 4 about here)

The consistency of all configurations obtained for countries with oil rents is above 0.85, and the overall consistency is also above 0.85, indicating that the configurations consistently lead to the outcome – that is, each one should be sufficient for obtaining a high level of OEA. In terms of coverage, all configurations have a limited raw coverage (between 0.22 and 0.45), meaning that only a limited number of cases falls into each one. The first configuration, consisting of the presence of a high GDP and a high CONTROL and the absence of high TAXES, has the higher unique and raw coverage, meaning that it is the more meaningful, being obtained by a larger number of countries with a high level of OEA. The overall coverage is 0.546, which indicates that some countries are achieving a high level of OEA without fitting in any of these configurations. This is consistent with the results of the analysis of necessary conditions. The solution obtained for countries without oil rents presents a consistency of 0.874, above the 0.85 threshold, and a coverage of 0.563, better than the overall coverage obtained for countries with oil rents. To further test the importance of these conditions, an analysis of necessary conditions was performed considering the presence of CONTROL or the absence of TAXES. The analysis of necessary conditions for this new type of condition (CONTROL + ~TAXES; the symbol “+” represents “or”) leads to a consistency score above 0.90 in both panels (0.950 for countries with oil rents; 0.944 for countries without oil rents), and present coverages above 0.60, which can be considered non-negligible (0.627 for countries with oil rents; 0.698 for countries without oil rents). Therefore, the

two criteria proposed by Ragin (2008) for assessing necessary conditions are met: The tested condition (CONTROL + ~TAXES) is highly consistent and it is not trivial. Thus, although none of the conditions *per se* can be considered necessary, the results suggest that the presence of CONTROL or the absence of TAXES is necessary for achieving high levels of opportunity entrepreneurship; that is, the latter outcome cannot occur without CONTROL or ~TAXES.

The configurational analysis and the MRA provide different results, and show that new insights can be added by using the former method. The configurational analysis considers sets of conditions that consistently lead to OEA. So, it may identify cases in which a condition must be present in order to achieve OEA and other cases in which it does not have to be present (or must even be absent). This way, the configurational analysis is able to identify asymmetric effects of the conditions. On the other hand, MRA is only able to identify the main impacts of the variables, not taking into account that the effect of a variable may be different depending on the context that is defined by the values of other variables. When this happens, the coefficients obtained using MRA may not provide a good description of the way the variable impacts the outcome. This can be noted by the fact that some variables which are not significant in MRA come up as part of configurations leading to the outcomes of interest. In the case of OIL, whose presence is part of some solutions for OEA, the MRA coefficients are negative. These results emphasize that, although the average effect is negative, in the proper context it may help achieve OEA.

In order to check whether the result of the configurational analysis might help explain the original value of the OEA, a simple regression was performed. The results are shown in Table 5. This table shows that just one variable composed of the results of the configurational analysis is able to explain more than 25% of the variance of OEA in countries with oil rents and more than 23% in countries without oil rents. Notice that fsQCA analyses the fuzzified values of the outcome,

so the results of might not do a good job in explaining the original values of OEA but, as shown by this regression analysis, they do.

(Insert Table 5 about here)

A configurational analysis was also performed to the absence of a high level of opportunity entrepreneurship (~OEA). Such an analysis is particularly relevant because the overall coverage obtained for the presence of OEA is not very high, in particular for countries with oil rents, meaning that the fact that a country does not fit any of the configurations shown in Table 4 does not mean that a high level of opportunity entrepreneurship will be absent. The results are shown in Table 6.

(Insert Table 6 about here)

Table 6 shows five configurations for the absence of a high level of OEA (~OEA) in countries with oil rents, with two of them having the same conditions (~OEA2a and ~OEA2b only differ in what are core and peripheral conditions). No condition is present or absent in all configurations simultaneously, but the absence of control of corruption (~CONTROL) is a core condition in four configurations. A high level of goods and services taxes (TAXES) is also present in four configurations, being core in three of them. This shows that such taxes often have a role in preventing opportunity entrepreneurship. ~OIL is a part of four configurations. Notice that ~OIL does not mean that a country is not an oil producer, it only means that oil rents do not represent a high percentage of the country's GDP. The condition ~GDP is part of two configurations, and

~GLOBALISATION is also part of two configurations. All configurations obtained for countries with oil rents show a high consistency, larger than 0.86. This leads to a high overall consistency of 0.882. Furthermore, all configurations show a coverage between 0.385 and 0.426, meaning that a reasonable number of countries falls into each one. However, the unique coverage is low for all configurations (smaller than 0.086), which leads to an overall coverage of 0.609. This overall coverage is better than the one obtained for the configurational analysis of OEA, but it still means that some countries that have a low level of OEA do not fall in any of these configurations.

Regarding countries without oil rents, the solution for ~OEA is the mirror opposite of the one obtained for OEA: the absence of CONTROL and the presence of TAXES. This configuration has a consistency of 0.907 and a coverage of 0.574. This result stresses the importance of these two conditions for opportunity entrepreneurship.

Thus, the analysis of necessary conditions was performed for a new condition (~CONTROL + TAXES). Because the consistency is above 0.90 (0.907 for countries with oil rents and 0.916 for countries without oil rents) and the coverage can be considered non-negligible (0.642 for countries with oil rents and 0.667 for countries without oil rents), it can be concluded that the absence of control of corruption or the presence of high levels of taxes is always part of the configurations that lead to low levels of OEA.

5. Discussion and Conclusions

This study takes a novel perspective to advance the resource curse and entrepreneurship-related literature. The obtained results extend the understanding of opportunity entrepreneurship and reinforce the suitability of employing configurational analysis in entrepreneurship research. The main objective of the study was to find out the combinations of conditions that lead to high and

low opportunity entrepreneurship levels in countries that are oil producers. In contrast with extant literature (e.g., Farzanegan, 2014; Torvik, 2002; Tornell and Lane, 1998), the results show that having oil rents can be more a blessing, rather than a curse. The presence of high levels of oil rents is included in three out of four solutions for OEA, and the absence of oil rents (i.e. low levels of oil rents) is part of four out of five configurations leading to ~OEA. In fact, although in most cases the absence of control of corruption is a core condition for ~OEA, the presence of high oil rents is never part of the configuration. This result contradicts past research (e.g., Majbouri, 2016) that suggested an inverse relation between oil rents and entrepreneurship when corruption is high. However, control of corruption is always a core condition in the configurations that are sufficient to explaining high levels of opportunity entrepreneurship, meaning that it is a very important condition. This finding is in line with past research (e.g., Dreher and Gassebner, 2013; Aidis *et al.*, 2008) and corroborates the tenet 1. A possible justification is provided by the literature. With weak control of corruption, entrepreneurs face uncertainty regarding their ability to appropriate future benefits of their entrepreneurial activity (Anokhin and Schulze, 2009). Thus, they will be less willing to invest in innovation and venturing activities (Baker *et al.*, 2005). Furthermore, Arezki and Van der Ploeg (2010) suggested that the degree of economic openness (reflected in the globalisation index) could be a substitute of institutional quality, but the results of the present study indicate that globalisation should be seen as a complement of control of corruption, and not as a substitute.

The results presented in the previous section also show that different combinations of conditions may lead to the same outcome in countries with oil rents, which follows the concept of *equifinality* (Fiss, 2011). Thereby, tenet 3 is also corroborated. Moreover, none of the antecedent conditions is necessary, which also supports tenet 2. Furthermore, the mirror opposites of

configurations leading to high scores in OEA (in countries with oil rents) do not indicate the negation of OEA, which corroborates the existence of asymmetrical causality (tenet 4). These new insights can contribute to understanding the conditions required for enhancing opportunity entrepreneurship in countries with oil rents. Furthermore, these results give support to the idea that entrepreneurship stimulation should go beyond linear formulations (Anokhin and Schulze, 2009).

Additionally, this study used a panel of countries without oil rents, in order to check if there are differences in the results. The obtained results further highlight the importance of control of corruption and taxes for opportunity entrepreneurship. On the one hand, the configuration that leads to high levels of opportunity entrepreneurship, in countries without oil rents, includes a combination of control of corruption and low level of taxes. On the other hand, lack of control of corruption and high level of taxes leads to low levels of opportunity entrepreneurship. Furthermore, opportunity entrepreneurship requires high levels of control of corruption or low levels of taxes (in countries with or without oil rents); one of these conditions is necessary for achieving high levels of opportunity entrepreneurship, meaning that one of them should be always part of the solution. Symmetrically, the configurations that lead to low levels of opportunity entrepreneurship (in countries with and without oil rents) always happens in the absence of control of corruption or the presence of high levels of taxes. This insight not only emphasizes the importance of control of corruption and taxes, but also shows that they are important even in countries without oil rents. This result is consistent with the claim that systemic and persistent corruption affects developing and developed countries alike (Misangyi *et al.*, 2008).

5.1. Implications for research

The study contributes to overlapping streams of research in entrepreneurship, institutions and oil curse. The main objective of the study was to understand the conditions that lead to opportunity entrepreneurship in countries with oil rents. Therefore, the study contributes to the ongoing debate on whether natural resources, such as oil, are a curse or a blessing, considering opportunity entrepreneurship as the outcome of interest. The analysis was also applied to a panel of countries without oil rents, which provided additional insights.

The results suggest that future studies should include “control of corruption” and “taxes” among the institutional antecedents of opportunity entrepreneurship. Furthermore, the findings further justify the application of non-linear methods when studying entrepreneurship, in particular when the focus is the influence of institutions on entrepreneurship. The obtained results provide support for considering control of corruption an important antecedent of opportunity entrepreneurship. The comparison of the results obtained for countries with oil rents and countries without oil rents shows that this institutional condition is important whether the country is an oil producer or not. Corruption is a high order informal institution and, when it becomes a norm, potential entrepreneurs face more uncertainty; for example, while uncertainty is always associated with entrepreneurial activities, potential entrepreneurs may have more doubts about their ability to appropriate future benefits of their entrepreneurial actions. Thus, they will face more challenges when evaluating new business opportunities and, consequently, they will refrain from investing in new ventures. Furthermore, when corruption is present, asymmetries of information regarding new business opportunities are likely to occur and incumbents tend to share private benefits with government administrators at the cost of potential entrepreneurs. Thus, new business opportunities

are likely to attract rent-seekers rather than high-impact innovators (adverse selection) and talented potential entrepreneurs will have less incentives to work hard to be successful (moral hazard).

As in any research, the study is subject to some limitations that may set directions for future research. The relation between control of corruption and entrepreneurship is complex and, in spite of the insights that were gathered herein, much is still to be explored. The coverage rate of the solutions shows that there are countries with high levels of opportunity entrepreneurship that do not fit in any of the obtained configurations. Therefore, other conditions (e.g., culture-related conditions) should be added in future research. The sample size is also a limitation. Furthermore, to compute the set membership thresholds, the anchors were based on the percentiles, given the lack of theoretical basis to do so. Thus, other methods should also be used in the future, if possible with a larger data sample. It is worth noting that the relations among the institutional conditions are likely to be non-linear, which should be taken into consideration.

5.2. Implications for practice

The results have clear implications for policy makers, authorities and potential entrepreneurs. In countries that are oil producers, policy makers aiming to promote opportunity entrepreneurship should take into account that it is the combination of conditions that is important, and not each condition by itself. They should consider that several solutions are possible and adjust the policy according to the conditions that characterize their own country. For instance, regarding the United States the first configuration that combines high GDP, high control of corruption and low taxes seems to be sufficient to drive high levels of opportunity entrepreneurship. However, this solution is not suitable in countries that do not have high levels of GDP. Countries with low GDP should adopt policies framed by other configurations. The results suggest that to stimulate opportunity

entrepreneurship, in countries with high levels of oil rents, two types of configurations are sufficient to lead to the outcome of interest: *i*) combining high levels of oil rents with high control of corruption, high level of openness (globalisation) and low level of taxation; or *ii*) combining high level of oil rents with high control of corruption, high GDP, and a high level of globalisation. In either case, it seems to be a good idea to set policies to fight corruption and increase the openness of the economy. When countries have high GDP, another solution is possible (in which the level of oil rents is indifferent), which requires the presence of high control of corruption and low taxes. Furthermore, in each configuration there are core and peripheral conditions, meaning that some conditions can be considered more important than others. While control of corruption is always a core condition, the presence of high oil rents and the absence of high taxation are only core conditions in some configurations. GDP and globalisation are included in some configurations, but these conditions can be considered less important, since they are peripheral conditions. The results obtained for countries without oil rents further emphasize the importance of having high levels of control of corruption and low levels of taxes. Policy makers should also avoid contexts (combinations of conditions) that may lead to the absence of opportunity entrepreneurship.

Authorities aiming to promote anti-corrupt reforms, can leverage the findings of this study to demand more resources in order to institute practices and structures to better control corruption. Authorities that are responsible for the promotion of entrepreneurial activities could also use the findings presented herein to change some “rules of the game”, such as the tax policy. Furthermore, authorities should articulate among themselves the actions to carry on in order to improve the level of opportunity entrepreneurship in their country, because a combination of conditions is required to achieve this outcome.

Finally, the findings also have implications for potential entrepreneurs. First, they will be more aware of the importance of some conditions; thereby they can use this knowledge to ask for anticorruption reforms and taxes reforms. Second, because corruption is a high-order informal institution, which is likely to be embedded in the society and takes time to change, they should use their entrepreneurial talent to try to speed up the change.

References

- Acs, Z. J., Stam, E., Audretsch, D. B. and O'Connor, A. (2017), "The lineages of the entrepreneurial ecosystem approach", *Small Business Economics*, Vol. 49 No. 1, pp. 1–10.
- Aidis, R., Estrin, S. and Mickiewicz, T. (2008), "Institutions and entrepreneurship development in Russia: a comparative perspective", *Journal of Business Venturing*, Vol. 23 No. 6, pp. 656–672.
- Akerlof, G. A. (1970), "The market for 'lemons': quality uncertainty and the market mechanism. *Quarterly Journal of Economics*, Vol. 84 No. 3, pp. 488–500.
- Anokhin, S. and Schulze, W. S. (2009), "Entrepreneurship, innovation, and corruption", *Journal of Business Venturing*, Vol. 24 No. 5, pp. 465-476.
- Aparicio, S., Urbano, D. and Audretsch, D. (2016), "Institutional factors, opportunity entrepreneurship and economic growth: Panel data evidence", *Technological Forecasting & Social Change*, Vol. 102, pp. 45-61.
- Arezki, R. and van der Ploeg (2010), "Trade policies, institutions and the natural resource curse", *Applied Economic Letters*, Vol. 17, pp. 1443-1451.
- Autio, E. and Acs, Z. (2010), "Intellectual property protection and the formation of entrepreneurial growth aspirations", *Strategic Entrepreneurship Journal*, Vol. 4 No. 3, pp. 234–251.
- Badeeb, R. A., Lean, H. H., and Clarck, J. (2017), "The evolution of the natural resource curse thesis: A critical literature survey", *Resources Policy*, Vol. 51, pp. 123-134.
- Banerjee, A.V. (1997), "A theory of misgovernance", *The Quarterly Journal of Economics*, Vol. 112 No. 4, pp. 1289–1332.
- Baumol, W. (1996), "Entrepreneurship: productive, unproductive, and destructive", *Journal of Business Venturing*, Vol. 11 No. 1, pp. 3–22.
- Baumol, W. J. (1990), "Entrepreneurship: productive, unproductive, and destructive", *Journal of Political Economy*, Vol. 98 No. 5 Part 1, pp. 893–921.
- Berger, E. S. (2016), "Is qualitative comparative analysis an emerging method?—Structured literature review and bibliometric analysis of QCA applications in business and management research", in Berger, E.S.C and Kuckertz, A. (Eds.). *Complexity in entrepreneurship, innovation and technology research, applications of emergent and neglected methods*, Springer International Publishing, Switzerland, pp. 287-308.
- Bjørnskov, C. and Foss, N. J. (2016), "Institutions, entrepreneurship, and economic growth: what do we know and what do we still need to know?", *Academy of Management Perspectives*, Vol. 30 No. 3, pp. 292-315.
- Bosma, N., Content, J., Sanders, M. and Stam, E. (2018), "Institutions, entrepreneurship, and economic growth in Europe", *Small Business Economics*, Vol. 51, pp. 483-499.
- Boudreaux, C. J., Nikolaev, B. N., and Klein, P. (2019), "Socio-cognitive traits and entrepreneurship: The moderating role of economic institutions", *Journal of Business Venturing*, Vol. 34, pp. 178-196.

- Brunnschweiler, C. N. (2008), “Cursing the blessings? Natural resource abundance, institutions, and economic growth. *World Development*, Vol. 36 No. 3, pp. 399–419.
- Bruton, G. D., Ahlstrom, D. and Li, H.- L. (2010), “Institutional theory and entrepreneurship: where are we now and where do we need to move in the future?” *Entrepreneurship Theory and Practice*, Vol. 34 No. 3, pp. 421–440.
- Bylund, P. L. and McCaffrey, M. (2017), “A theory of entrepreneurship and institutional uncertainty”. *Journal of Business Venturing*, Vol. 32 No. 5, pp. 461–475.
- Carlsson, B., Braunerhjelm, P., McKelvey, M., Olofsson, C., Persson, L. and Ylinenpää, H. (2013), “The evolving domain of entrepreneurship research”, *Small Business Economics*, Vol. 41 No. 4, pp. 913–930.
- Dana, L-P. (1995), “Entrepreneurship in a remote sub-Arctic community”, *Entrepreneurship Theory and Practice*, Vol. 20 No. 1, pp. 57-72.
- Dana, L-P. (2007), “A comparison of indigenous and non-indigenous enterprise in the Canadian sub-Arctic”, *International Journal of Business Performance Management*, Vol. 9 No. 3, pp. 278-286.
- Dana, L-P. and Dana, T. E. (2005), “Expanding the scope of methodologies used in entrepreneurship research”, *International Journal of Entrepreneurship and Small Business*, Vol. 2 No. 1, pp. 79-88.
- Dana, L-P., Anderson, R. B., and Mason, A. M. (2009), “A study of the impact of oil and gas development on the Dene First Nations of the Sahtu (Great Bear Lake) Region of the Canadian Northwest Territories (NWT)”, *Journal of Enterprising Communities: People and Places in the Global Economy*, Vol. 3 No. 1, pp. 94-117.
- Dana, L-P., Mason, A. M., and Anderson, R. B. (2008), “Oil and gas and the Inuvialuit people of the Western Arctic”, *Journal of Enterprising Communities: People and Places in the Global Economy*, Vol. 2 No. 2, pp. 151-167.
- DeSoto, H. (1989), *The Other Path: The Invisible Revolution in the Third World*. Harper and Row Publishers, New York.
- Douhan, R. and Henrekson, M. (2010), “Entrepreneurship and second-best institutions: going beyond Baumol’s typology”, *Journal of Evolutionary Economics*, Vol. 20 No. 4, pp. 629-643.
- Dreher, A. and Gassebner, M. (2013), “Greasing the wheels? The impact of regulations and corruption on firm entry”, *Public Choice*, Vol. 155 No. 3/4, pp. 413–432.
- Dwumfour, R. A. and Ntow-GYamfi, M. (2018), “Natural resources, financial development and institutional quality in Africa: Is there a resource curse?”, *Resources Policy*, Vol. 59, pp. 411-426.
- Estrin, S., Korosteleva, J., and Mickiewicz, T. (2013), “Which institutions encourage entrepreneurial growth aspirations?” *Journal of Business Venturing*, Vol. 28 No. 4, pp. 564–580.
- Farzanegan, M. R. (2014), “Can oil-rich countries encourage entrepreneurship?”, *Entrepreneurship & Regional Development*, Vol. 26 No. 9/10, pp. 706-725.

- Fiss, P. C. (2011), "Building better causal theories: A fuzzy set approach to typologies in organization research", *Academy of Management Journal*, Vol. 54, pp. 393-420.
- Foss, N. J. and Klein, P. G. (2012), *Organizing entrepreneurial judgment: A new theory of the firm*, Cambridge University Press, Cambridge, UK.
- Gnyawali, D. R. and Fogel, D. S. (1994), "Environments for entrepreneurship development: key dimensions and research implications", *Entrepreneurship Theory and Practice*, Vol. 18, pp. 43-62.
- Grofman, B. and Schneider, C. Q. (2009), "An introduction to crisp set QCA, with a comparison to binary logistic regression", *Political Research Quarterly*, Vol. 62, pp. 662-672.
- Henrekson, M. (2005), "Entrepreneurship: a weak link in welfare state?" *Industrial and Corporate Change*, Vol. 14, pp. 437-467.
- Hodler, R. (2006), "The curse of natural resources in fractionalized countries", *European Economic Review*, Vol. 50 No. 6, pp. 1367-1386.
- Jong, J. P. J. (2013), "The decision to exploit opportunities for innovation: A study of high-tech small-business owners", *Entrepreneurship Theory and Practice*, Vol. 37 No. 2, pp. 281-301.
- Kirzner, I. M. (1973), *Competition and entrepreneurship*, University of Chicago Press, Chicago.
- Majbouri, M. (2016), "Oil and entrepreneurship", *Energy Policy*, Vol. 94, pp. 10-15.
- Mason, A. H. M., Dana, L.-P., and Anderson, R. B. (2012), "Getting ready for oil and gas development in Canada's Northwest territories: aboriginal entrepreneurship and economic development", *International Journal of Entrepreneurship and Small Business*, Vol. 16 No. 3, pp. 242-266.
- Mavrotas, G., Murshed, S. M., Torres, S. (2011), "Natural resource dependence and economic performance in the 1970-2000 period", *Review of Development Economics*, Vol. 15 No. 1, pp. 124-138.
- McMullen, J. S. and Shepherd, D. A. (2006), "Entrepreneurial action and the role of uncertainty in the theory of the entrepreneur", *Academy of Management Review*, Vol. 31 No. 1, pp. 132-152.
- Méon, P.- G. and Weill, L. (2010), "Is corruption an efficient grease?", *World Development*, Vol. 38 No. 3, pp. 244-259.
- Misangyi, V. F., Weaver, G. R., and Elms, H. (2008), "Ending corruption: the interplay among institutional logics, resources, and institutional entrepreneurs", *Academy of Management Review*, Vol. 33 No. 3, pp. 750-770.
- Muñoz, P. and Dimov, D. (2015), "The call of the whole in understanding the development of sustainable ventures", *Journal of Business Venturing*, Vol. 30, pp. 532-654.
- Navarro, S., Llinares, C., and Garzon, D. (2016), "Exploring the relationship between cocreation and satisfaction using QCA", *Journal of Business Research*, Vol. 69, pp. 1336-1339.
- North, D. C. (1990), *Institutions, institutional change and economic performance*, Cambridge University Press, Cambridge.

- Ordanini, A., Parasuraman, A., and Rubera, G. (2014), “When the recipe is more important than the ingredients a Qualitative Comparative Analysis (QCA) of service innovation configurations”, *Journal of Service Research*, Vol. 17, pp. 134-149.
- Ragin, C. C. (2008), *Redesigning social inquiry: Fuzzy sets and beyond*, University of Chicago Press, Chicago.
- Ragin, C.C. (2009), “Qualitative comparative analysis using fuzzy sets (fsQCA)”, in Ragin, C.C. and Rihoux, B. (Eds.), *Configurational comparative methods: qualitative comparative analysis (QCA) and related techniques*, Sage, Los Angeles, pp. 87-122.
- Reynolds, P. D., Carter, N. M., Gartner, W. B., Greene, P. G. (2004), “The prevalence of nascent entrepreneurs in the United States: evidence from the panel study of entrepreneurial dynamics”, *Small Business Economics*, Vol. 23 No. 4, pp. 263–284.
- Rihoux, B., Rezsöházy, I. and Bol, D. (2011), “Qualitative comparative analysis (QCA) in public policy analysis: an extensive review”, *German Policy Studies*, Vol. 7 No. 3, pp. 9-82.
- Ryan, J. C. and Berbegal-Mirabent, J. (2016), “Motivational recipes and research performance: A fuzzy set analysis of the motivational profile of high performing research scientists”, *Journal of Business Research*, Vol. 69 No. 11, pp. 5299-5304.
- Sarmidi, T., Law, S. H., Jafari, Y. (2014), “Resource curse: new evidence on the role of institutions. *International Economic Journal*, Vol. 28 No. 1, pp. 191–206.
- Schneider, M. R. and Eggert, A. (2014), “Embracing complex causality with the QCA method: An invitation”, *Journal of Business Market Management*, Vol. 7 No. 1, pp. 312-328.
- Schneider, M. R., Schulze-Bentrop, C. and Paunescu, M. (2010), “Mapping the institutional capital of high-tech firms: A fuzzy-set analysis of capitalist variety and export performance”, *Journal of International Business Studies*, Vol. 41 No. 2, pp. 246-266.
- Shane, S.A. (2003), *A General Theory of Entrepreneurship: The Individual-Opportunity Nexus*, Edward Elgar Publishing, Cheltenham and Northampton.
- Stenholm, P., Acs, Z. J. and Wuebker, R. (2013), “Exploring country level institutional arrangements on the rate and type of entrepreneurial activity”, *Journal of Business Venturing*, Vol. 28 No. 1, pp. 176–193.
- Tornell, A. and Lane, P.R. (1998), “Are windfalls a curse? A non-representative agent model of the current account”, *Journal of International Economics*, Vol. 44, pp. 83–112.
- Torres, P. and Augusto, M. (2019), “Cultural configurations and entrepreneurial realisation”, *International Journal of Entrepreneurial Behavior & Research*, Vol. 25 No. 1, pp. 112-128.
- Torres, P., Augusto, M. and Godinho, P. (2017), “Predicting high consumer-brand identification and high repurchase: necessary and sufficient conditions”, *Journal of Business Research*, Vol. 79, pp. 52-65.
- Torvik, R. (2002), “Natural Resources, rent-Seeking and welfare”, *Journal of Development Economics*, Vol. 67, pp. 455–470.
- Van der Ploeg, F. (2011), “Natural resources: curse or blessing”, *Journal of Economic Literature*, Vol. 49 No. 2, pp. 366–420.

- Van Stel, A., Storey, D. J. and Thurik, A. R. (2007), “The effect of business regulations on nascent and young business entrepreneurship”, *Small Business Economics*, Vol. 28 No. 2/3, pp. 171–186.
- Welter, F. (2011), “Contextualizing entrepreneurship – conceptual challenges and ways forward”, *Entrepreneurship Theory and Practice*, Vol. 35 No. 1, pp. 165-184.
- Williamson, O. E. (2000), “The new institutional economics: taking stock, looking ahead”, *Journal of Economic Literature*, Vol. 38 No. 3, pp. 595–613.
- Wood, M. S., Bylund, P., and Bradley, S. (2016), “The influence of tax and regulatory policies on entrepreneurs' opportunity evaluation decisions”, *Management Decision*, Vol. 54 No. 5, pp. 1160–1182.
- Woodside, A. G. (2014), “Embrace*perform*model: Complexity theory, contrarian cases analysis, and multiple realities”, *Journal of Business Research*, Vol. 67, pp. 2495-2503.
- Woodside, A. G. (2017), “Preface”, in Woodside, A. G. (Ed.), *The complexity turn: Cultural, management, and marketing applications*, Springer, pp. v-xviii.

Table 1: Countries included in the analysis

Countries with oil rents		
Argentina	Guatemala	Poland
Australia	Hungary	Romania
Austria	Indonesia	Russia
Brazil	Ireland	Slovakia
Bulgaria	Israel	Slovenia
Chile	Italy	South Africa
China	Japan	South Korea
Colombia	Kazakhstan	Spain
Croatia	Lithuania	Thailand
Denmark	Malaysia	Trinidad and Tobago
Estonia	Mexico	Turkey
France	Netherlands	United Arab Emirates
Georgia	Norway	United Kingdom
Germany	Peru	United States
Greece	Philippines	
Countries without oil rents		
Belgium	Finland	Senegal
Bosnia and Herzegovina	Jamaica	Singapore
Botswana	Latvia	Sweden
Burkina Faso	Lebanon	Switzerland
Costa Rica	Luxembourg	Uganda
Cyprus	Macedonia	Uruguay
El Salvador	Portugal	

Table 2: Regression analyses using the original variables

Variable	Countries with oil rents		Countries without oil rents	
	Coefficient	t-Statistic	Coefficient	t-Statistic
Constant	62.66**	2.620	71.45***	3.043
GDP	0.0001922	0.7189	0.0001010	0.5993
OIL	-1.396*	-1.760	-	-
CONTROL	4.838	1.329	5.725	1.294
GLOBALISATION	-0.1415	-0.3688	-0.2732	-0.7013
TAXES	-0.8867**	-2.260	-0.6872	-1.285
Number of observations	44		20	
R ²	0.3732		0.4221	
Adjusted R ²	0.2907		0.2680	
F-statistic (F(5,38))	4.525***		2.739*	
All countries				
Variable	Coefficient		t-Statistic	
Constant	65.71***		4.508	
GDP	0.0001040		0.7799	
OIL	-1.211**		-2.055	
CONTROL	5.570**		2.257	
GLOBALISATION	-0.1648		-0.7254	
TAXES	-0.8338***		-2.953	
Number of observations	64			
R ²	0.3801			
Adjusted R ²	0.3266			
F-statistic (F(5,38))	7.112***			

Dependent variable: Opportunity entrepreneurship.

GDP = Gross domestic product at purchasing power parity; OIL = Oil rents; CONTROL = Control of corruption; GLOBALISATION = KOF globalisation index; TAXES = Taxes on goods and services.

***, **, * Significant at 1%, 5% and 10% respectively

Table 3: Analysis of necessary conditions

Countries with oil rents				
	OEA		~OEA	
	Consistency	Raw Coverage	Consistency	Raw coverage
GDP	0.732	0.706	0.531	0.539
~GDP	0.523	0.514	0.711	0.736
OIL	0.562	0.672	0.474	0.597
~OIL	0.663	0.545	0.739	0.640
CONTROL	0.725	0.702	0.508	0.517
~CONTROL	0.501	0.492	0.708	0.731
GLOBALISATION	0.655	0.670	0.522	0.562
~ GLOBALISATION	0.571	0.532	0.693	0.679
TAXES	0.546	0.542	0.663	0.693
~ TAXES	0.691	0.661	0.562	0.566
Countries without oil rents				
	OEA		~OEA	
	Consistency	Raw Coverage	Consistency	Raw coverage
GDP	0.714	0.774	0.546	0.566
~GDP	0.600	0.579	0.782	0.724
CONTROL	0.737	0.771	0.532	0.533
~CONTROL	0.554	0.552	0.771	0.737
GLOBALISATION	0.725	0.689	0.592	0.539
~ GLOBALISATION	0.515	0.568	0.659	0.696
TAXES	0.595	0.648	0.719	0.749
~ TAXES	0.770	0.741	0.662	0.610

Note: OEA = Opportunity entrepreneurship; GDP = Gross domestic product based on purchasing power parity; OIL = Oil rents; CONTROL = Control of corruption; GLOBALISATION = KOF globalisation index; TAXES = Taxes on goods and services. The tilde “~” represents negation..

Table 4: Configurations supporting high opportunity entrepreneurship

	Countries with oil rents				Countries without oil rents
	OEA1	OEA2a	OEA2b	OEA3	OEA1
GDP	●			●	
OIL		●	●	●	
CONTROL	●	●	●	●	●
GLOBALISATION		●	●	●	
TAXES	⊗	⊗	⊗		⊗
Consistency	0.855	0.939	0.939	0.911	0.874
Raw coverage	0.444	0.228	0.228	0.320	0.563
Unique coverage	0.221	0.005	0.005	0.097	0.563
Overall consistency	0.856				0.874
Overall coverage	0.546				0.563

Note: OEA = Opportunity entrepreneurship; GDP = Gross domestic product based on purchasing power parity; OIL = Oil rents; CONTROL = Control of corruption; GLOBALISATION = KOF globalisation index; TAXES = Taxes on goods and services. Black circles (“●”) indicate the presence of a condition; circles with a cross-out (“⊗”) indicate its absence; blank spaces indicate “don’t care”. Large circles indicate core conditions and small ones indicate peripheral conditions.

Table 5: Regression analysis using the result of the configurational analysis

Variable	Countries with oil rents		Countries without oil rents	
	Coefficient	t-Statistic	Coefficient	t-Statistic
Constant	42.30***	17.09	43.12***	11.43
Config_OEA	22.71***	3.807	20.53**	2.327
Number of observations	44		20	
R ²	0.2565		0.2313	
Adjusted R ²	0.2388		0.1886	
F-statistic (F(1,42))	14.49***		5.415**	

Dependent variable: Opportunity entrepreneurship.

Config_OEA = Result of the configurational analysis.

***, **, * Significant at 1%, 5% and 10% respectively

Table 6: Configurations supporting the absence of opportunity entrepreneurship

	Countries with oil rents					Countries without oil rents
	~OEA1	~OEA2a	~OEA2b	~OEA3	~OEA4	~OEA
GDP				⊗	⊗	
OIL	⊗	⊗	⊗		⊗	
CONTROL		⊗	⊗	⊗	⊗	⊗
GLOBALISATION	⊗				⊗	
TAXES	●	●	●	●		●
Consistency	0.863	0.917	0.917	0.901	0.912	0.907
Raw coverage	0.385	0.426	0.426	0.415	0.400	0.574
Unique coverage	0.060	0.036	0.036	0.037	0.086	0.574
Overall consistency	0.882					0.907
Overall coverage	0.609					0.574

Note: OEA = Opportunity entrepreneurship; GDP = Gross domestic product based on purchasing power parity; OIL = Oil rents; CONTROL = Control of corruption; GLOBALISATION = KOF globalisation index; TAXES = Taxes on goods and services. The tilde “~” represents negation. Black circles (“●”) indicate the presence of a condition; circles with a cross-out (“⊗”) indicate its absence; blank spaces indicate “don’t care”. Large circles indicate core conditions and small ones indicate peripheral conditions.