

Determinants of Entrepreneurial Startup: How Do They Differ Between Oil and Non-Oil Exporting Countries and How Have They Changed Over Time

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Abstract

While there is a long history of studies investigating the effects of oil curse on growth, and links thereto via various institutional characteristics like democracy, susceptibility to corruption and political instability, and macroeconomic policies including exchange rates, only quite rarely have these been extended to effects on entrepreneurship at the individual level. Even among the relatively few studies that have done so, seldom have such studies examined the effects of changes in the relevant variables over time.

The purpose of this paper is to examine an even wider range of factors (at both the individual and national levels) affecting entrepreneurial startup decisions among relevant individuals in a panel of 16 countries over the years 2005-2018. The panel takes advantage of the two different high quality data sets provided by the Global Entrepreneurship Monitor (GEM), namely the Adult Population Survey (APS) which provides comparable data on panels of individual adults in each country and survey year, and the National Expert Survey (NES) which provides parallel panel data on relevant educational and institutional conditions at the country level. The analysis investigates, first, the determinants of the individual's motives for starting a business and, then, the role of these motives, other individual characteristics including gender, age, education, and skills, and a wide variety of institutional characteristics, in determining, not only actual startups, but also in-progress startups, and startups anticipated in the next three years. The relatively long time-span of the data on each of the selected countries and the fact that the country sample is quite evenly split between oil and non-oil countries allows us to analyze the effects of changes in circumstances over time and to distinguish between those in oil exporting countries and non-oil countries. The results provide strong support for (1) the greater importance of "opportunity" over "necessity" as a motive for entrepreneurial startup, (2) the relevance of a large number of other individual and institutional factors changing over time that affect startup at different stages of startup, (3) the extent to which and how they vary between oil exporting and non-oil countries, but also (4) the absence of any real oil curse on entrepreneurship. They also point to important policy reforms that could raise both the incidence and degree of success of entrepreneurial startups in both oil and non-oil countries.

JEL Classifications: M13, M48, I7

Key words: Entrepreneurship, startups, necessity or opportunity, institutional quality

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1. Introduction

While there is a very long history of studies about the role of entrepreneurship in economic development and a fairly long one investigating the effects of “oil curse” on growth through various links thereto, only rarely have these two literatures been brought together to examine the effects of oil rents and other characteristics of oil exporting countries on entrepreneurship. Even among the relatively few studies that have done so, seldom have such studies been conducted at the individual level where the motives for entrepreneurship can best be examined. Even rarer have been existing studies capable of integrating and assessing the role of intermediate level institutional factors, such as the prospects for new business enterprises, skill acquisition, concerns about risks, access to finance, and relevant information about both media coverage, and social norms lying between the individual and national levels.

The purpose of this paper, therefore, is to link these two literatures by examining a wide range of factors affecting individual level entrepreneurial decisions to start up, or subsequently to further expand on these startup decisions, among relevant individuals in a panel of 16 different countries over the years 2005-2018 for which the relevant data from the same sources is available for at least three different rounds of the survey. Since 8 of these countries are oil exporting countries and the other 8 are not oil exporters, this allows us to test for differences between the two sets of countries and hence to determine quite precisely whether or not, and the extent to which, oil curse effects extend to entrepreneurship.

For examining entrepreneurial startup in both sets of countries, we take advantage of the two different, high-quality data sets provided by the Global Entrepreneurship Monitor (GEM), which seems to have become the best source of information at the individual level on entrepreneurial startups from around the world. One of these data sets is the Adult Population Survey (APS) addressed to individual adults and providing information about whether or not these individuals have ever heard of people starting new businesses and either have ever done so themselves or at least have thought about doing so in the future, and if so about their motives. The other is the National Expert Survey (NES) which contains lots of relevant information taken from a panel of experts on new business startups and relevant conditions, both favorable and unfavorable to new business startups in their country at the time of the survey. Because the relevance of many country-level and perhaps also industry-level characteristics, such as natural resource rents and relevant policies that may be changing over time, each of the countries included in our panel of countries has detailed information from both of these sources for at least three different rounds of both surveys, typically covering more than a decade between 2005 and 2018. Within each of these country groups, moreover, there is also sufficient variation in country income levels, sectoral production patterns, institutional characteristics, policies and location, and oil and other rents so as, potentially at least, to allow us to examine how and the extent to which each of these factors might interact with each other, and affect both the changing *motives* for, and outcomes of, entrepreneurial startup over time.

2. Literature Background

a. Literature and Data on Entrepreneurship

Given the much longer history of studies examining the determinants of entrepreneurship (dating back to ancient history and especially to the era of colonization) than those on natural resources and the oil curse, our review of relevant literature begins with some of the important objectives and themes that have arisen in the entrepreneurship literature since Joseph Schumpeter (1911). While generally entrepreneurship and startup has been viewed as useful, or even of crucial importance to, growth, Baumol (1990) has drawn on others to point to the fact that some forms of entrepreneurship, especially that motivated by rent-seeking and aimed at taking advantage of privileged access to scarce resources, may not be beneficial. Moreover, since such privileged access to resources may be more likely in oil and other natural resource countries (as suggested by Van der Ploeg (2011), this distinction may be especially relevant in the present context of comparing entrepreneurship patterns in oil and non-oil countries. Since many of the early studies of entrepreneurship relied on quite readily available national level information on firm counts and different vintages of managerial experience and ownership, it was not possible in these studies to identify individual or firm level distinctions with respect to rent-seeking and other barriers to business startups.

Over time, however, great progress has been made on the direct measurement of entrepreneurial startup at the individual level. Examples include Evans and Leighton (1989), Acs and Audretsch (1988) and Evans and Jovanovic (1989), which have tried to capture the kinds of individual attitudes deemed conducive to startup entrepreneurship by taking advantage of special surveys and direct measurement. Some of the more recent studies on entrepreneurship, e.g., Hayton et al (2002), Freytag and Thurik (2010), Hayton and Cacciotti (2013), Stephan, Hart and Drews (2015) and Bruns et al (2017), have extended the consideration of individual characteristics of actual or potential entrepreneurs further into their attitudes, skills, motives, culture and entrepreneurial ecosystems to see how these factors affect entrepreneurship. Not surprisingly, a number of the studies trying to delve into these issues at the individual level have taken advantage of the aforementioned APS and NES surveys of the GEM and given rise to much discussion, in part because some of the results have either been conflicting with one another or reflecting significant changes over time. Some more recent studies, such as Yuki (2010), Welter (2011), House et al (2014) have shown that opportunity entrepreneurs earn more than necessity entrepreneurs and Stephan et al (2023) have shown that entrepreneurs generally have greater sense of well-being than do those working for someone else.

As indicated in Hill et al 2021/22, the data provided in the GEM surveys has greatly expanded the scope for examining relevant factors in the adult's environment which an individual may first think about in deciding whether or not to start a new business. These factors include the individual's familiarity with existing entrepreneurs either in the family or the community, the quality and availability of wage jobs (that might weaken the individual's interest in entrepreneurship), how easy or difficult it may be to start a business, the magnitude of the foreseen costs of failure in the new business and the individual's ability to bear those costs, and the individual's familiarity with both relevant technology (such as digitization), and the extent of its availability within the community, or even from firms in other countries.

One of the most fundamental objectives of research on entrepreneurship has been to identify and understand the motives of entrepreneurs, and in particular to distinguish between the aforementioned necessity and opportunity motives. The extremely comprehensive review of such motives by Stephan, Hart and Drews (2015) pointed to the relevance of the very commonly used distinction among motives for entrepreneurship, namely that between “necessity” and “opportunity”. The APS survey within GEM has become famous for the way it distinguished between the two motives. In particular, it identifies the individual entrepreneur as a *necessity* entrepreneur if the individual adult responds positively to a statement asserting that the individual is involved in start-up activities because they have no better choices for work. On the other hand, the entrepreneur is identified as an *opportunity* entrepreneur when the respondent responds positively to a statement about the motive being to take advantage of a favorable opportunity. Because both motives could be relevant in the same individual, in the APS portion of the GEM surveys, individuals are also asked if both motivations apply in their case, a response which is usually agreed to by relatively small, but not inconsequential, percentages of respondents in most countries. In their review these authors also paid attention to other motives for entrepreneurship, including achievement, independence and autonomy, income security, recognition and status, the desire to serve the community, and even combinations of these motives, as well as to how these seem to have differed across different kinds of individuals and countries. In general, they noted that insufficient attention had been given in the surveyed papers to integrating the role of various external region or country-level conditions, which is one of the objectives of the present study.

Recently, Fairlie and Fossen (2020) have tried to depart from this subjective questioning approach by simply categorizing necessity vs. opportunity on the basis of the type by the employment status prior to starting up. In this approach, someone who was unemployed would be categorized as a necessity entrepreneur. Yet, from the APS questioning approach where some individuals could be classified as both necessity and opportunity, it would seem unclear that such clear distinctions by the outside observer would be warranted. While quite naturally necessity entrepreneurs are identified somewhat more frequently in recessions than opportunity entrepreneurs, Fairlie and Fossen took advantage of special data sets from the US and Germany, both of which had detailed data even on a monthly basis of employment status before startup and found somewhat stronger countercyclicality among necessity entrepreneurs than among opportunity entrepreneurs. Not surprisingly, as in other studies, opportunity entrepreneurs turned out to be more successful in becoming incorporated and in hiring more workers than necessity entrepreneurs.

Besides the motives for entrepreneurship and their links to culture, quite naturally, there are a wide variety of other individual characteristics (such as gender, education, age, and personality characteristics) as well as regional and national differences in institutions of different types that may also influence entrepreneurship. But all these factors can influence the motives for entrepreneurship in different ways. For example, in the case of gender, it is often noted that females are less inclined toward entrepreneurship than males, and especially so with respect to the “opportunity” motives for entrepreneurship. Yet, because of their often weaker educational and work experience, and tighter cultural constraints on their ability to leave the home to take on

desirable jobs, females may be more likely to possess the “necessity” motives for entrepreneurship than males. Likewise, education can have mixed effects on entrepreneurship because, while education can increase the technological and other capabilities for entrepreneurship and hence opportunity entrepreneurship, it can lower the necessity motive for entrepreneurship in part because they may be better able to get jobs with higher wage rates. So, too, younger age may increase the “opportunity” motives for entrepreneurship but older age may well increase the “necessity” motives for entrepreneurship. It is also widely believed that other personality traits, such as those of risk aversion or “need for achievement”, may also affect entrepreneurial motives quite significantly and in different directions. Income, wealth and resources are also widely believed to exert influences on entrepreneurship, but once again, possibly in different directions, depending on whether the necessity or opportunity motives are most important, as well as on the relative importance of different constraints on the individual’s time and resource allocations.

Even though because of limited data availability, many of the earlier empirical studies on entrepreneurship focused on differences within a single country (often a high-income country), gradually over time large differences between countries in entrepreneurship and their determinants and effects have become noted. This has led to the development of frameworks for identifying different factors at the national level to fill the gap between entrepreneurial readiness at the individual level and that same individual’s current ability to carry out that intent. The income or wealth differences across regions or countries, as well as those in institutional characteristics, such as property rights, regulations of various sorts and their enforcement, are also deemed to be extremely relevant. For example, McMullan et al (2008) has shown that the existence of well-developed private property rights has had the effect of increasing entrepreneurship among opportunity motivated entrepreneurs but not among the necessity-motivated ones. So too, the political and social support for equality, and poverty reduction may be different between countries and exert quite different effects on entrepreneurship across countries.

Likewise, education can have mixed effects on entrepreneurship because, while education can increase the technological and other capabilities for entrepreneurship, it may lower the necessity motive for entrepreneurship. So too, younger age may increase an individual’s “opportunity” motives for entrepreneurship but older age may well increase the necessity motives for entrepreneurship. It is also widely believed that other personality traits, such as those for time discounting, risk aversion or “need for achievement”, may also affect entrepreneurial motives quite significantly. Income, wealth and resources are also widely believed to exert influences on entrepreneurship, but once again, possibly in different directions, depending on whether the necessity or opportunity motives are most important. There can at the same time be factors such as social norms or social welfare policies that may strongly affect the different motives for entrepreneurship or affect the ability to carry out these objectives.

With respect to the topic under discussion here, investigating differences in the likelihood of entrepreneurial startup between oil and other natural resources countries and non-natural resource countries, it should be noted that some progress had been made prior to the availability

and use of the micro-level surveys of the GEM type. One major such source has been the country-level data supplied by the World Bank on the number of newly registered businesses per 1000 adults aged 15-64. This measure has sometimes been related to institutional measures, such as the governance indicators also from the World Bank, and can be related to country-level information on oil revenues or perhaps more appropriately oil rents. One recent and quite impressive study of this type is that of Ajide and Soyemi (2022) which explained variations in the number of newly registered businesses per 1000 adults across a panel of 11 oil-rich countries in Africa for at least a few different years over the period 2006-2018, making use of a variety of explanatory variables including, not only oil rents and the growth rates of GDP per capita, but also quality-of-governance measures and measures relating to the time or procedures required to start a new business and to get it registered. A key feature of their analysis was the inclusion of interaction terms between oil rents and each of the different governance institutions to measure the extent to which higher quality of institutions could offset the effect of oil rents and vice versa. In general, they found that in most cases, oil rents by themselves had positive effects on the number of newly registered businesses per thousand people as did most of the individual governance indexes, but that in quite a few cases the interactions between the two types of measures were negative, indicating that the institutional quality measures were less positive on new business in countries and years with high oil rents. Torres and Godinho (2019) extended this analysis a little bit further by changing the dependent variable in the analysis from the number of newly registered businesses to one constructed from the aforementioned GEM, namely, high opportunity entrepreneurship. The results showed that, if they displayed either high scores on the control of corruption governance index or low tax rates, oil countries could offset the otherwise dominating negative effect of oil rents on opportunity entrepreneurship, thereby indicating that oil curse outcomes were not necessary if the oil countries chose appropriate institutions and policies.

Yet, since entrepreneurship decisions are made at the individual level and therefore are very dependent on individual characteristics and their local environments which also might change over time, without access to any information on the individuals in those businesses and their norms and motivation (which has been highlighted in the literature on entrepreneurship in general), even nice studies linking oil rents and new businesses with only macro-level data cannot get us very far in understanding the many possible links between oil rents and entrepreneurial startup decisions of individuals and how these may be changing over time and in different ways between oil and non-oil countries.

To set the stage for making that link between oil rents at the macro level to entrepreneurship at the individual level, we now highlight the usefulness of data from the aforementioned *Global Entrepreneurship Monitor (GEM)*. GEM was established in 1999 and seems to have become the leading organization for both (1) collecting detailed data on potential entrepreneurs and their initial intentions to start up, on actual startup in sectors deemed appropriate for startups and expectations of the subsequent outcomes of such startups, and (2) in the Schumpeterian tradition advising governments and other parties on appropriate policies to encourage entrepreneurship and overall economic development. GEM has come out with annual reports on the findings of its two main surveys, the *Adult Populations Survey (APS)*, and the *National Experts Survey (NES)*,

providing an overall perspective on the dynamics of entrepreneurship for each surveyed country and on country-level conditions affecting the extent and nature of entrepreneurial activities in that particular year.

While the initial 1999 GEM surveys included only ten countries, those in 2021/2022 included 50 countries of widely varying levels of GDP per capita, although these were fully completed for only 47 of them. While the surveys are not conducted in every country in each year, over the entire 1999-2022 period, each of the two GEM surveys has been undertaken at least once in 120 countries. Each of the country- and year-specific APS surveys has been based on samples of at least 2000 adults, stratified so as to be representative of the adult population in each country. Over the years and across countries over 3 million individual adults have been interviewed in the APS surveys. The NES expert surveys have been based on carefully selected highly professional experts, numbering at least 36 in each individual country and year, so as to assure sufficient diversity in their backgrounds and perspectives but in the end to reflect both a degree of consensus and relevant differences in their views.

From its beginning GEM has been focused on tracing the various entrepreneurship intentions and actual outcomes, including the most widely cited of these measures, consisting of the total of “nascent entrepreneurs” (those currently involved in starting a new business, or having already started one in the last 12 months or even in thinking about starting one in the next three years), back to each of the following general types of determinants: (a) attitudes of various sorts of the adult individuals and the cultural norms which pervade them, (b) contacts with people who have already undertaken some entrepreneurial activities, (c) local factors deemed relevant to success in entrepreneurial outcomes as well as fears of failed outcomes and the costs thereof, (d) the age, education, gender, occupational background and other characteristics of the individual adults deemed relevant to entrepreneurial decisions, (e) other country characteristics, such as GDP per capita, media access, the relative importance of the informal sector or “shadow economy” and the various quality of governance measures of the World Bank, and (f) a number of other measures captured by “Entrepreneurship Framework Conditions (EFCs)” that are believed to be especially relevant to the effect of entrepreneurial activity on economic growth.

Of special use and importance is the ability to capture (from the surveys of the same countries in different years) changes over time in relevant conditions in surveyed countries which cannot be captured by an individual country survey for a given year or even a cross section of country surveys for a given year. As Morgan and Sisak (2016) also pointed out, non-linearities and possible interactions among various characteristics and conditions are likely to be very relevant. They made use of one of the APS measures, “fear of failure” or loss aversion, in trying to explain why this measure is often seen as having a negative effect on entrepreneurship. In that light very confident people would be very likely to become entrepreneurs. But, when they put fear of failure together with aspiration levels on what should constitute success in entrepreneurship and develop a simple theoretical model, they argue that, for those who have already become entrepreneurs, a fear of failure is likely to motivate greater effort and investment when the threshold for success is high. The importance of non-linearities and possible interactions between

different influential factors is further illustrated in the more country-level research in the following section.

b. The Role of Oil and other Natural Resources on Entrepreneurship

Entrepreneurship has of course been of crucial importance in the pursuit of natural resources in different countries across the world and over time. Clearly, the relative importance of the motives for entrepreneurship in any particular location and time period has depended, not only on individual characteristics like skills, strength, age and experience, but also on institutional characteristics like property rights and their enforcement, access to credit, labor and other regulations, and social norms. Entrepreneurship in mining, such as that for copper, silver and gold, is quite often done at a relatively small scale in relatively poor countries. Some recent studies on entrepreneurship in small-scale mining in South Africa, e.g., Hilson (2009) and Mkubukel and Cronje (2018), have shown that, while it was unclear as to which of the “opportunity” or “necessity” motives was dominant overall, there were clear differences in such dominance between relevant individual characteristics such as gender and age (and therefore, experience). In particular, among those with experience the opportunity motive dominated, but for females the necessity motive as much more common.

When mining is done in large scale, however, it is more like oil and likely to be undertaken primarily by large scale foreign owned private corporations or domestically owned public enterprises. Therefore its effect on entrepreneurship is likely to be more indirect and perhaps harder to detect. According to Van der Ploeg (2011), Ross (2012) and others, however, since the effect of oil is often seen to be a “curse”, by increasing volatility of the economy (thereby limiting credit and financial sustainability), increasing rent-seeking and lowering both female labor force participation, and the quality of many institutions, one could suppose that oil might also lower entrepreneurship, unless offset by the presence of high quality institutions. Yet, Mehlum et al (2006) and others have extended the oil curse back to specific forms of institutional quality such as the rule of law and risk of expropriation.

Farzanegen (2014) conducted an empirical study on the effect of oil rents on entrepreneurship based exclusively on macroeconomic indicators (and thus not based on GEM data) from a panel of 65 countries over the period 2004-2011. That paper showed that oil rents had a significant negative effect on entrepreneurship although once again this effect could be somewhat mitigated by the presence of strong governance institutions.

The paper in the existing literature making use of the GEM surveys which comes closest to the present one is the excellent and quite comprehensive study by Majbouri (2016). Majbouri’s study took advantage of the aforementioned GEM Surveys. Yet, since he found that the uniformly high quality of the relatively recent GEM Surveys could not be assured for those undertaken before 2004, he used only the GEM surveys between 2004 and 2008. His main dependent variable was based on questions to each individual adult included in the APS about various possible involvement in various ways, such as starting up, extending, managing or closing down an existing firm or self-employment. In particular, he used the APS Survey data from GEM to construct a single but very comprehensive aggregate measure of entrepreneurial activity (namely,

the percentage of adults in the country who started up a new business, extended an existing business, owned an existing business or shut down an existing business in the past 12 months) and then went on to measure the extent to which that measure could be explained by oil rents per capita, (and its interaction with control of corruption), the level of GDP per capita and its square, and the gender and age of the individuals. The key findings were that per capita oil rents, by themselves, tended to have a significant negative effect on the entrepreneurship index but, when its interaction with the control of corruption index was included, the effect of that interaction term was positive and significant and the negative effect of the oil rents variable was no longer significant. This was interpreted to indicate, once again, that, while oil rents could have a harmful effect on entrepreneurship, if control of corruption at the national level was sufficiently strong, that negative effect of the oil rents could be fully offset. Notably, neither female gender nor age were found to have significant effects once these factors were controlled for.

Some other studies on entrepreneurship in oil countries and including some dealing with countries from the Middle East and North Africa have been undertaken prior to and after the Majbouri study. For example, Sarfaraz and Faghih (2011) made use of the GEM surveys for one particular year (2008) for one such oil country (Iran), to try to explain why entrepreneurial startups were so low there, and especially among females. They attributed the explanation of the low level of entrepreneurial startup in Iran to social and cultural norms that were especially constraining to females, but which were not especially related to legal institutions or to oil. Relatedly, Bahramitash and Esfahani (2014) combined data from the GEM for Iran with firm level data from the World Bank's Enterprise Survey for Iran to show that trade sanctions and infrastructural shortcomings may have contributed to the low rate of entrepreneurship among Iranian females. Notably, even after many years of oil countries trying to diversify their economies by starting new businesses, so many oil countries (not simply the Gulf countries with their enormous Vision 2030 and other programs) have been identifying entrepreneurship as the key to their hopes of success in this respect (Hadnani,2020)

Cinar et al 2019 has gone further toward the goal of the present study by drawing on the GEM data for a more recent year (2012), but in this case comparing the two sets of aforementioned commonly used motives for entrepreneurial startup, namely, Necessity Driven and Improvement-Opportunity Driven, and their determinants between two sets of countries in the same broad region, namely, Southern Europe (just above the Mediterranean), and North Africa (just below it) . Only one of these countries (Egypt) is an oil and gas exporting country. Notable among the results obtained were: (1) that female gender was indeed a major deterrent to business startups only in the two North African countries, (2) rather surprisingly that, irrespective of gender, entrepreneurial startup was found to be more common in the North African countries than in the North Mediterranean countries, and (3) that, perhaps consistent with oil curse, the fear of failure was a major contributor to the lack of entrepreneurship among Egyptian women.

Although confined to the use of country level data, even more recent studies examining the determinants of formal entrepreneurship (measured by the number of limited liability corporations per thousand people), across countries (including some oil countries) and over time are those of Moaaz (2022) and Awoa et al (2022). The former examined the relationship between

formal entrepreneurship and a number of potentially endogenous institutional and macroeconomic variables, including some governance indicators measured in the GEM Surveys of 9 different MENA countries over the period 2010-2018. The latter made use of a much larger sample (some 115 countries of which 82 were developing countries, over the period 2006-2018) to examine the determinants of formal entrepreneurship at the country level, based, not only on Oil Rents as % of GDP but also on a number of other macro-level variables. A key innovation in this study was to employ quadratic specifications with respect to the Oil Rents as % of GDP to capture non-linearities in the relationship, and panel smooth transition regression (PSTR), and in some cases GMM estimation. In each oil country there was strong evidence of non-linearity in the form of an Inverted-U shape such that, below a certain threshold, increases in oil rents as a % of GDP would raise entrepreneurship, whereas above that threshold, further increases in the oil rents as a % of GDP lower entrepreneurship. The thresholds for the various non-linearities were shown to differ by country, and the magnitudes and even directions of the effects of some of the other explanatory variables to change between different sides of the identified thresholds.

Yet, at the same time, it has been recognized that there are some exceptions to the rule that high quality institutions can be counted on to improve the prospects for entrepreneurship. For example, Parker, forthcoming, made use of GEM data on entrepreneurial startups in 2019 across some 22 relatively high-income OECD countries (including a few with oil) to show that the incidence of entrepreneurial startup was at least slightly negatively related to two commonly used indexes of good governance, control of corruption from the World Bank's governance indicators and the Corruption Perception Index (CPI) from Transparency International. This prompted the author to construct a simple political economy model to help explain how voting and other democratic institutions may induce already established businesses to display Corporate Social Responsibility (CSR) to voters so as to moderate any anti-incumbent business attitudes and to promote proactive support for new entrepreneurs among the voters. Such findings further encourage the use of non-linearities and interaction terms in examining how oil, governance institutions and other variables may affect not only the motivation for startup but also actual startup decisions.

3. Objectives of This Study: Methods and Data

While the quantity and quality of such studies getting at links between natural resource rents and entrepreneurship has been growing impressively, and some of them have taken advantage of some of the best measures of entrepreneurship, such as those from GEM's APS, for the most part since natural resource rents and institutions are typically determined at the national level, many of the aforementioned and other studies focusing on natural resource rich countries have focused exclusively on the macro level. This is despite the fact that the decision to become an entrepreneur is such an individual one and subject to numerous constraints which can seriously affect the individual's interest in and ability to startup over time. Yet, as shown in the preceding section, measurement at the individual level of both the motives for entrepreneurial startup and actual startup has expanded so impressively, and it is increasingly recognized that the effects of the national level institutional and other measures are likely to differ substantially across

individuals of different types, we deem it important to make use of the excellent individual-level data like that of the aforementioned APS from GEM in analyses of this type.

The purpose of this paper is therefore to make some progress in returning to explaining variation in entrepreneurship at the individual level, as in the Majbouri (2016) and a few other studies reviewed in Section 2, by taking advantage of data from both the APS and NES surveys of GEM. Yet, to capture the effects of changes over time in the quality of various institutions and other conditions over time, we also deem it important to make greater use of data on both individuals and the macro-level institutional measures over time. This is facilitated by the fact that the GEM Surveys and Global Reports of each year have asked many of the same questions relevant to entrepreneurial startup over time and been used to rank all countries surveyed in that year on both many of the entrepreneurship measures and also on some of the key factors considered to be potential determinants of entrepreneurial decisions. To that end we have chosen to select into our sample those countries with GEM data for as many years as possible between 2005 and 2018.

Consistent with much of the empirical literature on the determinants and effects of entrepreneurship, we deem it important to include both (1) a wide range of characteristics of the adult individuals, such as their gender (as in Elam and Terjesen (2010) and Estrin and Mickiewicz (2011)), age, education, location, work experience and liquidity constraints (as, e.g., in Evans and Jovanovic (1989) and Evans and Leighton (1989)), deemed relevant to their interest and ability to start a new business, and (2) the many different country-level institutional measures and country characteristics, such as governance indexes and the relative importance of oil and other natural resource rents that may also be changing substantially over time.

In doing so, we build upon an impressive study by Schillo et al (2016). Even though that study was not focused on differences between oil and non-oil countries and the possible curse of oil on entrepreneurship, it did make use of both the APS portion of the GEM Survey, indeed for 67 countries for the individual characteristics, and the average scores on the national level institutional characteristics taken from NES portion of the GEM surveys for the years 2008-2012 and from a few other sources. A key innovation was to integrate the effects of individual characteristics relevant to entrepreneurial startup that might differ from one country to another into a factor called “entrepreneurial readiness” with those of nation-level institutional measures that were pooled into four groups (Regulative, (such as “Ease of starting up a business” from the World Bank), Normative and Cognitive (all from the NES portions of the GEM Survey) and Conducive (having to do with established business and research facilities taken from the Global Competitiveness Index), and in addition to that interactions between the two sets of factors in affecting entrepreneurial startup. Although the APS portions of the GEM Survey include data on three different measures of business startups among the adult population, Schillo et al focused exclusively on one, namely, expecting to start a new business within the next 3 years. This was coded as a 0, 1 dummy variable and served as the dependent variable in their analysis and is labeled FUTSUP in the analysis below. Their results showed that all the individual characteristics (age, gender, income, education, skills, fear of failure, social connectedness and opportunity), GDP, population, and all the aforementioned factors (except that for regulative) taken from the NES portion of GEM and even some interactions between them, exerted

significant effects on that intention to start a business. By using a multi-level analysis, they showed that the addition of country-level institutional measures significantly improved the explanatory power of the model and demonstrated the significance of several interaction terms involving “entrepreneurial readiness” measures.

Yet, so as to better allow for, and capture, the effects of changes over time in both the individual and especially macro-level institutional measures, we deem it important to go well beyond the 2008-2012 period used by Schillo et. al for each included country so as to include comparable data for as many different years as possible between 2005 and 2018 (usually spanning a full decade).¹ We also deem it important to broaden the set of institutional measures included in Schillo et al (2016) to include some other institutional variables, such as the relative importance of the informal sector (or “shadow economy” in each country, the extent of openness to trade, governance characteristics, and the rigidity of labor regulations.² Some of these influences have been believed to have changed substantially over time and differently across countries and thereby could exert quite different effects on entrepreneurship across countries and especially over time.³

Table 1 shows the names of the sixteen countries for which we have panel data for at least three different years between 2005 and 2018. As can be seen, the samples range considerably in size from Burkina Faso, Cameroon, Tunisia and Uganda at the small end to Iran and South Africa at the high end, but rather amazingly, the total sample sizes of the eight oil countries and the eight non-oil countries turned out to be almost identical, with about 124 thousand adult individuals included in each of the group panels.

Definitions of all the different measures used in the analysis are presented in Table 2, and descriptive statistics on each are provided in Table 3, separately for oil and non-oil countries. The first five rows in each of these tables provide such information for each of the dependent variables in the analysis, starting with REASON and REASONALL (the motive that each individual identifies if they are interested in starting a business, ranging from necessity to a mixture of necessity and opportunity to pure opportunity in two different samples to be identified in the next section), followed by three different startup entrepreneur measures, BSTART (currently trying to start a business), SUACTSs (having done something in the last twelve months to start a business), and FUTSUP (based on a subset of actual or potential owner managers expecting to start a new business or self-employment in the next 3 years).

¹ While GEM Surveys have also been carried out in years subsequent to 2018, in view of the very different health and mobility conditions emanating from the spread of the COVID-19 epidemic in those years, we do not include GEM data from years after 2018 so as to avoid the considerable distortions that might arise from the presence of such variable health conditions across individuals in those years.

² Notably, Estrin and Mickiewicz (2012) used GEM data between 1998 and 2005 across countries to show that, while simple correlation showed a positive relation between entrepreneurial entry and the relative share of the informal sector across countries, with suitable controls for institutional quality and suitable estimation techniques, the impact of the informal sector on entrepreneurial entry turned out to be negative, especially for countries in which the informal sector is of medium size, and where private property rights were relatively weak.

³ These include financing, tax and other policies, support for SMEs, the availability of education that is relevant to entrepreneurship (both while in school and after school), R&D transfers, market regulations, relevant physical infrastructure and culture and social norms.

The remaining rows in these tables provide the same information on all the different explanatory variables used in the analysis. These start with relevant individual characteristics, such as gender, age, household size, weak ability to work, education, relative income, knowing someone else who may have started a business, fearfail (the extent to which fear of failure might inhibit the individual from starting a business), suskill (the possession of relevant skills), nbmedia (often seeing stories in the media about people who have succeeded in starting new businesses, nbgoodc (a feeling that most people think that starting a new business is a good career choice), opport (that there will be good opportunities for starting a business near where you live in the next six months). These are followed by country-level assessments by new business specialists from the NES surveys in GEM, including entrepreneurs' access to finance (financing), taxes and bureaucracy (taxburcy), post-school training for business (postschool), government programs (govprog), internal market dynamics (intermktdy), physical infrastructure (physicserv), cultural and social norms (culsnorm), the extent to which the educational system (a) fosters initiative, (b) helps in understanding market principles, and (c) provides information relevant to new firm creation. Finally, at the bottom of the table are a variety of other country-level measures, including GDP per capita (in US\$), unemployment rates, the share in the overall economy of the informal sector (informal where regulations are not enforced), the rigidity of labor regulations (CBR), the corruption perception index (CPI), oil price, oil rents and other natural resource rents as percentages of GDP, trade openness, and several of the governance indexes of the World Bank, such as Government Effectiveness, Political Stability and Voice and Accountability.

Descriptive statistics on all these measures in Table 3 are provided separately for the full "pooled" sample in Section A followed by those from the oil and non-oil samples in Sections B and C, respectively. Because of the wide variation in the responses to the questions posed in the APS Surveys on individual characteristics within each country group, it becomes very difficult to demonstrate that the means of the two groups are statistically different from each other. Notably also, the means for the main motive for enterprise startup (REASON) are almost identical for the two different sets of countries (1.20 for nonoil countries and 1.18 for oil countries). Yet, one can see at least one sign of the oil curse applying to entrepreneurship in that the mean of SUACTS is at least slightly higher for non-oil countries than for oil countries, although notably the reverse is true and to a slightly larger extent for both BSTART and FUTSUP, the latter two being the more future-oriented but not yet fully realized measures of entrepreneurial startup. Note that the samples of individuals in the non-oil countries are more likely to be females and slightly older than those in oil countries, but also that they come from slightly smaller households, have weaker work experience, less education, weaker skills, and are less likely to perceive of opportunities for starting a business in the area where they live. From the relevant country-level variables from the NES surveys, some additional sources of concern for the presence of oil curse effects on entrepreneurship in oil exporting countries are that financing for entrepreneurs looks slightly less possible, post-school education and training less available, cultural norms slightly less positive to entrepreneurship, and that the average scores for financial success, status, media and recognition are all slightly lower in oil countries than in non-oil countries. On the other hand, many of the macro-level variables like higher GDP per capita, lower unemployment rates, smaller size of the informal sector, larger natural resource and oil rents all look more favorable to entrepreneurship in oil countries than in non-oil ones. Yet, some other institutional

characteristics, like Government Effectiveness and Voice and Accountability, would seem somewhat weaker in oil than in non-oil countries.

What lies ahead in this analysis is to make use of pooled regressions to further uncover the extent to which any of these individual or country level measures can reveal whether or not and to what extent the oil curse hypothesis seems to apply to entrepreneurship at the individual level, by taking advantage of differences across, not only individuals and countries, but also over time during the 2005-2018 period.

4. Empirical Results

The empirical analysis is broken down into two stages, the first being to examine the determinants of the main motive for starting a business, which as shown in the literature has varied primarily between *Necessity* (when job opportunities are perceived by the individual adult in the GEM APS surveys to be sufficiently poor that starting a new business is considered a necessity) and *Opportunity* (when it is the existence of positive opportunities for business that induces the individual to start a business). The second stage is one in which, the motive for startup identified in the first stage is employed, along with numerous other individual as well as national level characteristics obtained from both the APS and NES surveys of GEM, as well as from other sources, to explain entrepreneurial startup measured at each of the three different stages, (a) having already done something to start a business within the last 12 months (SUACTS), (b) currently doing something to start a business (BSTART), and (c) expecting to start a business within the next 3 years (FUTSUP).

A. The First Stage

Since the literature devoted to identifying the motives for startup entrepreneurship, based on a large variety of studies around the world including many taking advantage of the same APS surveys from GEM used here, has typically shown the *Opportunity* motive to be more important or powerful than the *Necessity* motive in generating actual startup⁴ and that the magnitudes of startup operations are also considerably larger in the case of *Opportunity*-driven startups, we have chosen to measure the motive by the variable *REASON*, coded in the following way: = 0 if the motive is only *necessity*, =1 if the motive is a mixture of *necessity* and *opportunity* and =2 if it is exclusively *opportunity*. For robustness purposes, we have also obtained alternative estimates (shown in Appendix A Tables 1 and 2) based on a slightly different coding, namely one in which the we used both pure necessity or pure opportunity as 0,1 measures.

Because of the 0, 1, 2 coding of the dependent variable *REASON*, Table 4 presents ordered probit estimates of the results for *REASON* obtained with the standard set of individual characteristics ranging from Female gender, age, household size, work experience (GEMWORK), relative income GEMHINC, education (GEMEDUC), the extent to which the individual feels that he (she) has the knowledge, skill, and experience deemed necessary for business startup (SUSKILL), the extent to which individuals feel that there will be opportunities in the area where they live for new businesses in the next 6 months (OPPORT), the extent to

⁴ See especially, Fairlie and Fossen (2020) when applied to both Germany and the US.

which new businesses are deemed able to have access to finance (FINANCING) followed by standard macro-level variables, starting with Log GDP, UNEMPLOYMENT, the share of the informal sector in GDP (INFORMAL), and to get at the so-called “oil-curse” hypothesis, natural resource rents as a share of GDP (RENT) (which exist even in non-oil countries), the Corruption Perception Index (CPI), followed by some key measures from the NES portion of GEM concerning the extent to which the media carries information about new business, and that financing and/or government programs are deemed available for providing credit or other support to small and medium sized enterprises (SMEs). To capture some possible non-linearities in these relationships, in some cases square terms are included in the specification. Last, but not least, the results include estimates of the effects of the survey year (YRSURV) to account for changes over time in the effects of unmeasured influences.

Notably, and quite consistent with expectations based on the existing literature, the results shown in Table 4 point to quite a few variables which do seem to be significantly related to REASON. For example, REASON seems to be negatively related to female gender and low-grade employment opportunities as measured by GEMWORK), especially in non-oil exporting countries, but positively related to higher relative income (GEMHINC), greater education (GEMEDUC), and greater job skills (SUSKILL). Note, however, that the relation of REASON with FINANCING becomes non-linear (of the inverted-U shape) in the case of oil countries, possibly suggesting that once a relatively high threshold in such financing is reached, above that further increases may be associated with lower REASON. Non-linearity seems also to be readily apparent in the case of INFORMAL where the relation reflects an inverted U-shape in Non-oil Countries but a U-shape in Oil Exporting countries. Non-linearity in U-shaped form is also observable in the cases of both CPI and Government Programs (both institutional measures deemed to provide protection against oil-curse effects). A particularly relevant difference in the results for REASON between oil and non-oil countries is that the time trend (YRSURV) exerts a positive effect in non-oil countries but not in Oil-exporting countries, seemingly indicating that the time trend in unobservables may have been moving in the direction favorable to the opportunity motive in non-oil countries

For robustness purposes the same specification has also been estimated by OLS, with the results presented in Table 5. As can easily be seen, they are almost identical to those in Table 4. Given their strength, robustness to the two different estimations, and the fact that the relationships, and even some differences therein between the oil exporting and non-oil countries, seem quite reasonable, our next investigation will be to move from the first stage results for REASON to the second stage in which the effects of REASON and the numerous other relevant factors will be employed together to help explain the extent to which entrepreneurial startups actually take place at each of the respective stages of Startup captured by BSTART, SUACTS and FUTSUP.

However, an important source of concern here is that the available samples of individuals in both sets of countries for BSTART and FUTSUP far exceed that for SUACTS which was obtained almost simultaneously with REASON. While the fit between the samples of REASON and SUACTS was reasonably good, allowing us to have between 7000 and 8500 observations for estimating the relationship between these variables for both non-oil and oil countries, the sample

sizes for both BSTART and FUTSUP are much larger, with over 30,000 observations each for both non-oil and oil countries, but without any additional observations for REASON.

The reason for this discrepancy is that according to the structure of the APS questionnaire, only the participants who answered “yes” in BSTART and FUTSUP were eligible to answer the motivation part, meaning that only those who in reality succeeded to involve in entrepreneurial activities (currently or in the past) were able to reveal their motivation types, yet those who failed to do so were ruled out in answering this part. Confining attention in estimation of the BSTART and FUTSUP functions to those for whom observations for REASON were available, however, could elicit two problems: (a) the sample size would be lowered significantly relative to the number of total participants (especially for the non-oil countries), and (b) excluding the group which failed to engage in entrepreneurship could give rise to selection bias. Semantically, the existence of “motivation” is indeed predicted on the occurrence of an act, but in this business, not all who had the motivation at the very beginning would eventually succeed in putting ideas into practice. Therefore, to overcome these problems and allow us to estimate these relationships for BSTART and FUTSUP in such a way as to take full advantage of their larger samples, we use individual traits and environment variables to predict their motivation types even if they ceased to proceed beyond “just considering entrepreneurship”. The results of these predictions provide the measures identified as REASONALL, the descriptive statistics for which were also included in Table 3 above, once again for each of the three samples, the full sample in Section A, the oil country sample in Section B and the non-oil sample in Section C.

B. The Second Stage

Once we have generated values for the key motive for possibly starting a new business for each adult in the APS surveys in each country and year, we can proceed to probit estimation of actual or anticipated startup across survey years in the two different country pools, Non-oil and Oil Exporting countries, respectively.

Following the design of the APS questionnaires which first addressed adults currently doing something to start a business, and then among them identified and questioned those who had already started a business, we turn, first, to the currently doing something to start a business sample BSTART. The results based for this sample are shown in Table 6. The results presented in the first two columns of the table include only variables coming directly from the APS and NES Surveys whereas those in the last two columns include as explanatory variables also some additional macro-level variables, such as GDP per capita, the unemployment rate, the share of the informal sector in GDP, the rigidity of labor regulations (CBR), oil and other rents as a share of GDP, the corruption perception index (CPI), the oil price, and an indicator of openness to trade (tradeopen) . In each case, the results for non-oil countries are shown in the first of the two columns in the pair and those for the oil countries in the second columns in each pair.

From the top row of the table it can be seen that, when our preferred mixed measure of opportunity (REASON) is used for the largest possible sample (in which missing observations on REASON are filled in by using the results of Table 4 to predict REASON and to constitute REASON ALL, BSTART is found to be positively and significantly related to REASON ALL,

and perhaps to a slightly larger extent in oil countries than in non-oil countries. Moreover, this positive effect of REASON_ALL on BSTART is observed while controlling for the whole host of other relevant individual and country-level measures. From the subsequent rows in the table relating to individual characteristics, it can be seen that knowing someone who had started a business (knowent) has a small but significant positive effect on BSTART whereas the measure for relatively weak work experience (GEMWORK) has negative effect as does relatively high household income (GEMHHINC), in both cases with effects that are somewhat stronger in oil than in non-oil countries. As expected, suskill, nbgoode, nbmedia, oport and household size all seem to exert positive influences on BSTART, in most cases to a slightly larger extent in oil countries, although once non-linearities are taken into consideration this is not necessarily so for of household size. Female gender and age both seem to be negatively related to BSTART and, once again, to a slightly larger extent in oil countries.

Beginning with the row for financing, one can see the effects of the more institutional measures, on BSTART and, beginning with logGDPpc also the effects of more strictly macroeconomic measures. Just before the latter is yrsurv capturing the time trend in the observations over time, which seems to reflect no significant change in the effects of this variable over the sample as a whole. While in a few such cases, like voice and accountability (voiceacct) and control of corruption (CPI), these measures of high quality institutions seem to raise BSTART in both oil and non-oil countries, in most cases, there are sharp difference in the effects between the oil and non-oil countries. For example, the effects seem more positive in oil countries for financing, intermktdy, goveffect, and polistab and less negative in oil countries for cognitive and informal. On the other hand, they seem more negative for oil countries than in non-oil countries for postschool, taxburcy, govprog, and physicserv. Not surprisingly, because of the multi collinearity introduced by the inclusion of so many macroeconomic and institutional variables at the same time, the results for many of these variables are also more sensitive to changes in specification. Yet, in view of the slightly more positive or less negative influences of a majority of the variables and the more positive impact of rent itself, it would seem quite dubious that the oil or other rents are imposing a curse on entrepreneurship as measured by BSTART.

Next, in Table 7 we turn to the second stage results for those adult individuals who have said that they have already done something to start a business, the likelihood of which is captured by SUACTS. Note that the sample sizes for those to whom the questions were addressed in each set of countries are much smaller in this case (although still over 11 thousand in non-oil countries and over 17,000 in oil countries). The results in the top row of Table 7 show that REASON_ALL once again exerts positive influences on startup, in both non-oil and oil countries but again to a slightly larger extent in oil than in non- oil countries, and to a slightly larger extent than in the case of BSTART in Table 6. Once again, knowing someone who started a new business (knowent) , having skills deemed relevant to the business (subskill) , and believing that there will be good opportunities for starting a new business in the area in which one lives in the next six months (oport) are also positively related to entrepreneurship in the form of SUACT, as was the case with BSTART, although in these cases the effects in oil countries are not higher than in non-oil countries. While those with more education (GEMEDUC) and higher relative household income GEMHHINC) have slightly larger positive influences on SUACTS in non-oil countries,

these effects in oil countries are nevertheless all positive and significant. As expected, in Table 7 female gender seems negatively related to SUACTS, although primarily only in non-oil countries. There are clearly also once again some signs of non-linearities in some of these relationships, such as for household size and relative income.

Not surprisingly, when more macro-level measures are added to the specification as in the last two columns of the table, some additional collinearities are added, once again it becomes more difficult to obtain estimates of some of these variables (accounting for the blanks for Financing and PostSchool and some of the governance variables in the last two columns of the table. So too, the effects of some of the other more-macro level measures from the NES, such as TaxBureaucracy, Government Programs, and Cultural Norms, become very sensitive to the different specifications used.

While some of the observed differences in the effects of the different explanatory variables between oil and non-oil countries are rather minimal, for some others, and especially those at the more macro-level, like financing, tax bureaucracy, government programs, physical services, cultural norms, government effectiveness, voice and accountability, log GDP, unemployment rate, the share of the informal sector in GDP, CBR and even trade openness, these differences are quite sizeable. In particular, the effects of financing, tax bureaucracy, cultural norms, physical services, voice and accountability, and trade openness on SUACTS are all positive for oil countries and negative for non-oil countries. By contrast, those for government programs, cultural norms, government effectiveness, cognitive, survey year (reflecting a time trend), competition from the informal sector and CBR are all more positive or less negative for Non-oil countries than for oil countries. The positive effect of rent on SUACTS in non-oil countries can be attributed to the fact that the rents measure includes more rents (such as those from mining products) than oil rents alone, and thus simply reflect the fact that non-oil rents were doing more to stimulate business startups in non-oil exporting countries than oil rents were doing in oil exporting countries..

In Table 8 we go on to present comparable results for the more future oriented startup measure FUTSUP. Once again, as in the case of BSTART the sample of adult individuals answering the questions concerning FUTSUP is large with more than 30,000 adults in both the non-oil and oil exporting samples. When this measure of startup is used, we can see that REASON ALL seems be more strongly positively related to startup in the form of FUTSUP in non-oil countries than in oil countries. The same is true for knowent, postschool, and inter market dynamics (intermktdy). At the same time, GEMWORK and GEMHINC are shown to have stronger negative effects on FUTSUP in Oil countries. Female gender is shown to negatively affect FUTSUP in both oil and non-oil countries and these effects are stronger than in the case of the SUACTS or BSTART startups in Tables 6 and 7, respectively. Opport is shown to have positive effects on FUTSUP in both oil and non-oil countries, and in this case the effects are slightly stronger that they were on either SUACTS or BSTART. The effects of the yrsurvey variable, reflecting trends over time, are now negative for non-oil countries,) and positive for oil countries, just the opposite of what they were in the case of SUACTS in Table 6. The effects of nbgood are considerably larger for FUTSUP than for either SUACTS or BSTART, and especially so for oil countries, and the same

is true for nbmedia (the latter perhaps attributable to the rising importance of mass media in the oil countries).

Once again, because of increased collinearity problems, the coefficients of the more macroeconomic measures (starting with financing) are more sensitive to differences in specifications than are the individual level measures. Nevertheless, even for them, some interesting findings are notable, such as the significantly different directions of the influences of financing and postschool, intermkdy, physserv, goveffect, unemployment, CBR, and especially rent, between oil and non-oil countries. Also notable is that the effects on FUTSUP of CPI are positive in both oil and non-oil countries and larger than they had been on both SUACTS and BSTART.

Despite some cases of similarities in second stage results across Tables 6-8, reflecting cases where the effects of the individual and country characteristics have rather consistent effects on startups irrespective of the stages of the startups, in general, the second stage results reflect a surprising number of differences across the three different startup stages, SUACTS for startups already accomplished in the last year, BSTART for those currently under way, and FUTSUP for those expected to be made in the next 3 years. These differences vary quite considerably from one variable and startup horizon to another, suggesting that interest and commitment to starting a new business can vary quite considerably from one time horizon to another. Since positive responses to SUACTS are the only ones in which the startups have actually been carried out, a case could be made that these results are perhaps the most important. On the other hand, considering that the sample sizes available for both BSTART and FUTSUP are considerably larger than that for SUACTS, and since they are more future-oriented, the results for BSTART and FUTSUP might be considered more important.

Several of the results presented in the appendix tables would seem to suggest the usefulness of some improvements in modeling the determinants of entrepreneurial startups that have been made over time. One such finding is that, when our preferred measure of REASON ALL, which measures the motive for wanting to startup as a combination of Necessity and Opportunity, instead of simply one or the other, it seems to do a better job in predicting actual startup. This is especially the case when Reason All is used in a non-linear way (as when both REASON All and its square are introduced at the same time) along with a relevant set of other individual and country characteristics. Another area in which progress seems to have been made over some of the earlier studies is the usefulness of some of the institutional conditions, such as those captured so nicely by the data from the NES data set provided by GEM, since these measures have been shown in this study to be very influential in affecting each stage of startup, and in reflecting the different institutional channels, such as those of education (including postschool, training, social norms and interactions thereof), through which entrepreneurial take-up is generated.

Consistent with the ideas put forward by Morgan and Sisak (2016), we do see some significant differences in the effects of some of the individual characteristics on entrepreneurial startup at different stages of entrepreneurship. For example, while the fearfail measure seems to be negatively related to startup among those who have only begun to do something or to think about

it as long away as three years in the future, among those who have already started up as in the SUACTS sample, we have detected at least a small positive effect of fearfail on entrepreneurial startup. So, too, comparisons across Tables 6-8 are suggest that the effects of the unfavorable employment experience measure (GEMWORK) as well as those of the higher relative income of the household (GEMHHINC) are both more positive in both oil and non-oil countries in SUACTS than in BSTART and FUTSUP and also in at least non-oil countries in the case of Cognition, logGDPpc, Unemployment, competition from the informal sector (INFORMAL) and RENT.

Several of the results presented in these tables would also seem to suggest some potentially important policy reforms that could further stimulate the promotion of entrepreneurship in a variety of countries. For example, from the positive effects of institutional measures like Voice and Accountability, Government Effectiveness, Financing and Government Programs in affecting entrepreneurial startup in at least one of the regions in all three stages of startup calls additional attention to the importance of making progress in improving the quality of these institutions over time based on their effects on entrepreneurial startup. Additional grounds for other useful reforms arise from the findings from the most future-oriented startups (FUTSUP) in which when local citizenry can be led to believe that most people think that new business is good, and the Media carry information about new business, the likelihood of FUTSUP is increased.

The hints about the importance of policy reforms may also be drawn from comparisons between the results of some of the relevant institutions on startup at different stages of startup where there may be indications of declining interest in startup over time. For example, the effect of the time trend yrsurvey on startup tended to be negative on adult individuals in at least one of the regions in each of the Tables 6-8.

Consistent with the findings of the aforementioned study by Awoa et al 2022 which showed that the relation between oil rents and growth was non-linear of the inverted U shape, this study has revealed considerable non-linearities between oil rents and all three measures of startup entrepreneurship. This implies that suitable management of oil rents over time could be used to increase entrepreneurial startups and mitigate any remaining oil curse in this respect.

5. Conclusions

This paper has made some significant efforts to identify factors which could help adults decide whether or not to start a business, and, if so, in how to improve the prospects for their success. For example, it has further demonstrated the usefulness of the APS surveys currently available for no less than 120 countries, in each case with information on a wide variety of characteristics for thousands of randomly selected individual adults from which it is possible to identify the different motives for starting a business, ranging from “necessity” to “opportunity”. To demonstrate the potential usefulness of distinguishing the relative importance of these motives in different kinds of countries, and the effects of these different motives and institutional characteristics across countries on entrepreneurial startup, it has focused on differences between oil exporting countries (where it has long been hypothesized that business startups would be less

likely) and nonoil exporting countries, such analyses have been carried out separately in oil and non-oil exporting countries and at different stages of startup, ranging from (a) actually having done something to start a new business within the last year (SUACTS) to (b) presently doing something to start a business (BSTART) and (c) to planning to do something to start a business within the next three years (FUTSUP). Then, the characteristics of these different motives for starting a business have been combined with a wide variety of both other individual level and country-level characteristics to examine the extent to which individual adults in the different countries have yet done anything to start a business.

Indeed, the growing experience with the NES surveys of GEM with their comparative evaluations by country experts on entrepreneurial startup, and increasing evidence on the relevance of many relevant institutional characteristics to new business startups have pointed to the potential usefulness of funding to encourage actual startups by those with the greatest entrepreneurial motivation and talent. While identifying such individuals with the greatest potential is not easy, Hussam et al 2022 has pointed to the potential usefulness of drawing on neighbors of the potential entrepreneurs to help identify which ones are most deserving of access to credit and other critical information. Given that the World Bank has pointed to the existence of growing amounts of funding for cash transfer programs on the one hand and increasing success of getting credit to, and receiving repayment from poor individuals through microcredit, there would at least seem to be some hope that access to funding for the individuals with the greatest potential for entrepreneurial success could be substantially improved. Yet, as these authors demonstrated through a cash grant experiment in India, obtaining truthful information about these potential entrepreneurs is quite a challenge since these neighbors are likely to be strongly biased towards friends and family and against the provision of financial support to others. This suggests that, in addition to extending the research in the direction suggested above, it might also be useful to attempt to extend the GEM and other accompanying data collection and program implementation efforts to finding ways to identify the most promising entrepreneurs.

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