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Daniel Nikolic

University of Arizona, shock1217@email.arizona.edu

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Social Capital, Culture, and Institutions as Determinants of Entrepreneurship in a Development Context

Abstract

Entrepreneurship is still a social term that scholars have difficulty defining, and a lack of consistency in theory in turn leaves researchers without an accurate way to measure entrepreneurial activity. A working definition and theory of the entrepreneur is provided as a way to synthesize the various multi-disciplinary approaches taken towards entrepreneurship in past literature, with emphasis on welfare and judgmental decision-making under uncertainty. Past studies find significant relationships between economic growth and the level of entrepreneurial activity in a country. Little is known, however, on which elements of a society contribute to entrepreneurship and which do not. This study examines the effects that social capital, culture, and institution measures have on the level of self-employment in a country, with specific focus on developing countries. Results of this cross-country regression analysis form a model of entrepreneurship with significant explanatory power from property rights, productivity, and trust.

Keywords

Entrepreneurship, Social Capital

Cover Page Footnote

I would like to thank Dr. Paul Wilson of the Agricultural and Resource Economics Department at the University of Arizona for his valuable guidance on this paper.

Introduction

Entrepreneurship in a development economics context has been a hot topic for decades, and recent studies have shown significant relationships between entrepreneurial activity and economic performance in many countries (Wennekers et al., 2005). Much less interest, however, has been expressed in what exactly influences entrepreneurship and how policy makers can address the entrepreneurial dynamics within a country. Difficulties in trying to measure the complex nature of the entrepreneur is one potential deterrent for this type of research, and it may suggest that one single measurement cannot capture the elusive essence of an entrepreneur. The purpose of this paper is to test the hypothesis that elements of culture, social capital, and institutions have an influence on entrepreneurship, as measured by self-employment.

While we know over a billion people in developing nations own their own farm or business, and possibly both, we do not know how this number changes or what causes it to vary across countries (Banerjee and Duflo, 2012). This study presents a comprehensive, quantitative look into the determinants of entrepreneurial activity, particularly in poor countries. It simultaneously reconciles several theories of the entrepreneur to form a working definition that can be used in further studies.

The structure of the paper is as follows. Presented further in this introduction is a definition of the entrepreneur. A review of relevant literature, with a focus on proposed determinants of entrepreneurship, follows in the next section. Methodologies and results for a cross-country regression analysis of several likely explanatory variables of entrepreneurship are then discussed, after which a model of entrepreneurship is posited. Suggestions for further research and concluding remarks are then given.

What is an entrepreneur?

Following the long tradition of the field, economists find themselves in disagreement over entrepreneurship. Basic neoclassical models generally assume perfect information, which “makes it impossible to analyze the role of entrepreneurs in taking decisions of a particular kind” (Casson, 1982, p. 9). After all, an entrepreneur is known for what he or she does- or how this decision making of a particular kind manifests itself. Additionally, orthodox economic models in general are more concerned with aggregate behavior and, again, do not necessarily reflect well the individual behavior of an entrepreneur. This latter point arguably does hold less relevance to this study, as this is a study into the country-level of entrepreneurial activity. While this study is primarily concerned with the country level differences in entrepreneurship, it is based on a definition that encompasses micro, meso, and macro perspectives of an entrepreneur. Modern researchers have not found consensus on entrepreneurship and how it ought to be measured either. Table 1 displays an array of definitions and measurements used in entrepreneurship research. Certain elements, such as some form combination or allocation of resources, are a theme in these studies, but little else is agreed upon.

Table 1 - Select Definitions Used Throughout Entrepreneurship Research		
Author(s)	Type	Definition or Measurement
Audretsch, Thurik, Wennekers, Verheul	Entrepreneurship	Business ownership (p. 5)
Casson (1982)	Entrepreneur	Someone who specializes in taking judgmental decisions about the coordination of scarce resources (p. 23).
Guiso et al. (2006)	Entrepreneurship	Self-employment (p. 35)
Hebert and Link (1989)	Entrepreneur	Someone who specializes in taking responsibility for and making judgmental decisions that affect the location, form, and the use of goods, resources, or institutions (p. 47).
Naude (2010)	Entrepreneurship	“Taking judgmental decisions about the coordination of scarce resources” (Casson, 2003, p.20)...related to innovative behavior through and in the creation and growth of a business firm (p. 33).
Schumpeter (1912)	Entrepreneurship	The carrying out of new combinations (p. 75)
Wennekers, van Stel, Thurik, and Reynolds (2005)	Nascent entrepreneurs	People actively involved in attempting to start a new business (p. 294)

Audretsch et al. (2001) reference multiple definitions of an entrepreneur and Hebert and Link (1989) list 12 concepts of entrepreneurship used throughout entrepreneurship research, highlighting the disparate nature of this multi-faceted subject.

The type of definition proposed in this study is a functional definition. It describes what an entrepreneur does. Yet an entrepreneur can serve many functions, and the context in which entrepreneurship is measured is important. Entrepreneurs can be coordinators, market-makers, and innovators, often of varying importance across fields of study. The purpose of the following definition is to integrate these various perspectives into a cohesive understanding of the entrepreneur.

An entrepreneur makes judgmental decisions on the allocation or reallocation of scarce resources under a high degree of uncertainty and does so through the use of a business model to achieve a net welfare gain. In the larger context of proposed theories, this definition follows closely to those presented in Casson (1982) and Naude (2010). Casson (1982) focuses on behavior - judgment and coordination are key elements of his view. Naude (2010) points out the use of a business model in the coordination of resources to be a distinguishing characteristic. What this definition does not do is remove ambiguity on measurement. How exactly the various elements of this definition can be measured is an ongoing debate.

Makes judgmental decisions... Entrepreneurs make decisions of a certain kind. They are distinguished by their responses to new information, uncertainty, and scarcity. Casson (1982) describes an entrepreneur as an active planner- someone who invests heavily in decision-making, which is where the entrepreneur's advantage lays. By being responsive to new information one can "question the efficiency of the existing plan" (p. 28) and seek improvements.

On the allocation or reallocation of scarce resources... Coordination can be as straightforward as computing an output from a function. Entrepreneurs are distinguished by their non-obvious coordination and unique strategic behavior. For Casson (1982) what makes the essence of the theory of an entrepreneur is the contrast with the non-entrepreneur. Entrepreneurs come up with better ways to coordinate or use resources, which must mean that non-entrepreneurs are in some way inefficient, unaware, or wrong. As long as better allocations of resources exist and can be acted upon, entrepreneurs have a transformative role in society. The way in which entrepreneurs manage this is through the use of scarce resources, whether owned by them or not.

Under a high degree of uncertainty... This is a recognition to popular notions of entrepreneurs creating *new* allocations of resources, or doing something never been done before. A store owner investing in new products, a farm owner trying a new crop for the season, and anyone starting any new business with a goal of meeting an unmet need are all examples of entrepreneurial behavior. An interesting confound comes into play here: two same actions taken can be different in uncertainty depending on the society in which each occur. Measures of culture and social capital therefore play an important role in determining uncertainty. In a more trustworthy country, for example, an owner of a business, especially one transacting on credit, is operating under less uncertainty than a business owner in a less trustworthy country. Consider another confounding scenario: self-employment could possibly be often chosen out of necessity, i.e. when there are no better labor alternatives. This could be considered less risky, because those choosing self-employment are not foregoing any alternative revenue. While owning a business in the former scenario would likely be considered entrepreneurial by the vast majority of researchers, the latter garners much more skepticism.

Perhaps what matters most here is context. It still matters what kind of business is run, how decisions are made, how resources are allocated, and how demands are met. Past studies point to a generalization for those in the latter scenario- they own small, low-impact businesses with no interest in creating *new* allocations of resources. They do what works, which oftentimes means replicating others, such as operating a fruit stand on crowded streets in the same way everyone else is. There are, of course, exceptions: businesses that find huge success and grow considerably. Banerjee and Duflo (2012) tell the story of Xu Aihua, a Chinese woman who began teaching other young women how to sew garments. Her returns were large enough after eight years to allow her to invest over 100 times as much as she started with, and her business became a huge success. Is Xu Aihua entrepreneurial and the fruit vendor not? Some clarity is given in the discussion on net welfare gain below, but what this determination comes down to is where on the 'certainty

spectrum' the researcher wants to designate as the cutoff. The argument here is not that some arbitrary amount of uncertainty is the breaking point between entrepreneurial and not, but that the relevant attribute for this distinction is, in part, operating under uncertainty.

And does so through the use of a business model... A particular advantage of making this distinction is the possibility to measure it. Registering a business leaves a paper trail, opening the door for data to be collected. Recent literature points out a considerable aspect of the economy, especially in developing countries, takes place in the informal realm where this registration measure can only be roughly measured in its current state. One way of incorporating the informal sector into an accurate measure of business registration can be through some *informal multiplier* or error condition.

This element of the definition also serves to distinguish entrepreneurs from other similar innovators. To clarify, entrepreneurship and innovation are not synonymous. Rather, entrepreneurship is one of many variations of innovation. A microbiologist could come up with, say, a way for apoptosis to occur in the vicinity of cancer cells, but unless the scientist can commercialize and offer the process to buyers the scientist is not an entrepreneur. This discovery has all the other elements of entrepreneurship, but without the use of a business model the distinction should be withheld. The next person who comes along, the one to hire the microbiologist and to manufacture the remedy, is the entrepreneur.

To achieve a net welfare gain... Entrepreneurs take into account both supply-side resources and capabilities as well as demand-side needs and preferences, whether realized or unrealized. An entrepreneur uses her judgmental decision-making, or innovative capacity, creativity, insight, etc., in order to meet an unmet need in society and to benefit from it, not to enter an already near-perfectly competitive market like the fruit vendor from the example above. Entering existing markets can be entrepreneurial, but only if net welfare increases. In the fruit vendor example the new entrant, under the assumption she actually operates in the same way as everyone else, makes no significant impact on the market dynamics and no change in surplus occurs. She does not expand the market or change the allocation of the resources within it to improve welfare. Where it was unclear how to distinguish an entrepreneur from a non-entrepreneur using only a measure of uncertainty, the difference between achieving net welfare gains and not is revealing.

There are several components of society that stand out in the context of this theory. The ability for a nation to ease the process of starting, operating, and owning a business increases the incentive to be an entrepreneur. Additionally, a society's ability to limit the riskiness of transactions and other business negotiations should increase the amount of people willing to be entrepreneurial, while improvements in education should increase the amount of people able to be entrepreneurial. Property rights are also important to the theory: they determine how quickly resources can be allocated and which resources are allowed to be used. Most importantly, property rights incentivize entrepreneurship- when an individual clearly owns her business, she also clearly owns the gains from that business or any other resource.

Whether entering a new market, expanding an existing market, or establishing one, entrepreneurs constitute a type of human capital often characterized by innovative ability. Entrepreneurship is the mechanism or process through which this type of human capital facilitates gains in society. Relevant literature expands on this connection between gains in society and entrepreneurship, and it also provides a contextual understanding of the impacts culture, social capital, and institutions can have on the level of entrepreneurship.

Literature Review

The impact of entrepreneurship has been a critical focus on economic growth literature in recent years, and several studies suggest a significant relationship between entrepreneurial activity and economic growth (Guiso, Sapienza, and Zingales, 2006; Naude, 2009; Wennekers et al., 2005), while some also argue that entrepreneurship may not hold economic importance even with its high relevance (Naude, 2010). Additionally, culture and institutions have been shown, and are regularly acknowledged, to have an impact on economic performance in both emerging and developed countries (Acemoglu, Johnson, and Robinson, 2001; Acemoglu and Robinson, 2012; Guiso et al., 2006; Keefer and Knack, 1995; Knack and Zak, 2001; Mohan and Tebaldi, 2009). This review of relevant literature will move through relationships found between these topics: entrepreneurial activity, economic development, and social capital.

Entrepreneurship and Economic Growth

Wennekers et al. (2005) find the relationship between development and entrepreneurship to be critical. The transition for a country from poor to developed is described in three stages: factor-driven to investment-driven to innovation-driven, the last stage being a virtuous “knowledge economy” (p. 295). ‘Driven’ in this context means a sufficient condition for growth. When poor countries grow it is because of their resources and its allocation, when developing countries grow, it is because of industry, and when rich countries grow, it is because innovation feeds innovation. Assuming there actually is a virtuous cycle of innovation, and assuming no decreasing marginal returns to innovation, one could conclude that entrepreneurs can flourish in advanced nations where they are the driving force for Pareto improvements and be of little use in poor nations.

Wennekers et al. (2005) revise this reasoning through their findings of a U-shaped relationship between economic development and entrepreneurship, suggesting a natural rate of entrepreneurship throughout the economic development spectrum, or at least through OECD countries. In other words, Wennekers et al. (2005) find high entrepreneurial activity, measured as the level of new business ownership, at both ends of the economic spectrum, measured as both per capita income and innovative capacity, and low activity in the middle (p. 293). What matters for policy makers, therefore, is only the extent to which entrepreneurial dynamics differ from the natural rate. Naude (2010) describes this entrepreneurial activity at the low end of the spectrum largely as “replicative entrepreneurship” (p. 36), whose main function is to provide an additional labor option for the poor. He argues that entrepreneurship researchers ought to exclude this type from study, as it does not exhibit the qualities often attributed to entrepreneurs such as high innovative capacity and high risk tolerance. The process by which this type of faux entrepreneur is to be identified, however, is not made clear.

Naude (2010) continues by stating “radical innovations are not essential in poor economies to move the production and technology frontier outwards” (p. 36), which supports the idea that emerging nations are in a factor-driven stage. Naude’s (2010) argument defends the view that entrepreneurship is not a binding constraint on growth in developing countries, meaning countries with low entrepreneurial activity can potentially grow just as robustly as countries with high entrepreneurial activity, and that policy makers in developing countries should therefore focus on actual constraints to growth, such as market failures and lack of coordination (p. 35). The author’s equivocation of ‘radical innovations’ to entrepreneurship is a limited acknowledgement of what an entrepreneur does. While it is agreed that entrepreneurs attempt to push improvements in society, there is no reason to restrict it to the frontier.

Social Capital

Guiso, Sapienza, and Zingales (2006) find trust to have a significant impact on the level of self-employment, a proxy for entrepreneurship, in a country. The theoretical explanation is that entrepreneurs are exposed more often than other professionals to incomplete or informal contracts, where trust and trustworthiness play a pivotal role. Trust is also found to have significant impact on economic growth (Knack and Zak, 2001). When trust is lower, social distances are larger and wages for investors are lower (p. 317). In comparison, Bjørnskov (2006) provides a non-exhaustive list of determinants of trust. Trust falls at higher levels of income inequality (social distance) but increases at higher levels of Catholic and Muslim populations in the country. Former communist countries are less trusting and countries with a monarchy are more trusting than others. The problem of endogeneity appears clearly in the discourse on trust, as Knack and Zak (2001) claim trust creates larger social distances and Bjørnskov (2006) finds evidence for the reverse effect.

Institutions matter, and the type of institution enforcing rights and verifying contracts impacts GDP per capita significantly. An institution, used in this context, exists when an entity, i.e. government, has the ability to govern and create policies. For those countries that were colonies of another power at some point, it greatly mattered which power colonized you and in which way, much more so than other contributing factors (Acemoglu, Johnson, and Robinson, 2001). “The reason why African countries are poorer is not due to cultural or geographic factors, but mostly accounted for by the existence of worse institutions in Africa” (p. 1387). In a similar study, Keefer and Knack (1995) propose through their data that worse property rights means a lower steady state of income and a slower convergence. However, the relevance of these findings to the level of entrepreneurship in the country is not entirely clear. If incomes from salaried government jobs, for example, decrease, then an ambiguous effect on entrepreneurship takes place-

- More people may switch to self-employment to try to find higher income, increasing the supply of entrepreneurs.
- With lower wages the government could afford to offer more jobs, which are seen as prestigious positions due to the income security it can provide. This effect would decrease the supply of entrepreneurs.

Proposed Determinants

The existence of impactful studies on the relationship between social capital, entrepreneurship, and economic growth should theoretically create demand for research on what contributes to the level of entrepreneurship in developing countries. The fact that there have been no comprehensive studies on these factors may be a reflection of Naude’s (2010) point that “entrepreneurship is not what matters most for development” (p. 34). However, the conclusion Naude (2010) comes to does not necessarily follow: entrepreneurship can have an economically significant relationship with development without being what matters most.

These important studies have created demand to a certain degree but only in a disjointed way. Guiso et al. (2006) do find trust to be an important factor for self-employment, but the study may be marred by measurement errors as both Bjørnskov (2006) and Guiso et al. (2006) stress endogeneity in their methodologies and yet come to opposite conclusions with similar data, suggesting that this factor needs further examining.

The size of the informal sector is proposed as a determinant of the level of entrepreneurship in developing countries. Bennett (2009) points to research that finds nearly 40% of GDP in

developing countries is created through informal business. The informal sector, in theory, helps entrepreneurs absorb risk- it can serve as a “stepping stone” into formal business (p.54). Additionally, the informal sector can serve as a form of social security, where a business owner who has an unsuccessful venture in the formal sector can find success in the informal one. However, this latter role was not found to be significant. The author draws attention to the idea that tradeoffs exist between operating in the two different sectors. Firms in the informal sector likely have lower labor costs because they do not abide by social benefit or minimum wage requirements, but they are limited in scale in fear of attracting the attention of the law. Formal firms see productivity benefits through contract enforcement, the protection of the law, and production scale but have higher costs in taxes and labor. Additionally, the author offers possible determinants of becoming an entrepreneur: cost of labor, cost of capital, and expected profitability.

Acemoglu and Robinson (2012) focus on institutions and rights to explain cross-country differences in entrepreneurial activity. “The broad distribution of political rights in the United States...ensured that those with ideas and inventions could benefit from them” (p. 36). This points specifically to the ability to patent and secure intellectual property rights in a country as important for entrepreneurs. What augments this are the right of the people not to be cheated by government officials, the effectiveness of government policies, and the quality of the rule of law to secure the rights necessary to support entrepreneurs.

Through two micro-grant programs for small business owners, one in Sri Lanka and one in Mexico, Banerjee and Duflo (2012) find that, although business owners are making high returns off of the investments provided through the program, the businesses do not substantially grow. The authors explain their results as a lack of motivation in the owners to grow their young firms—the owners will remain poor with the gains from the investment, and reinvesting into the business will either mean more work to simply remain in the same social stratus or higher fixed costs from expansion. This could suggest profitability as a determinant of entrepreneurship as well, but in a much different way than Bennett (2009). In Bennett’s model, the only two options at any one time is owning a business in the informal sector or owning a business in the formal sector. Banerjee and Duflo (2012) consider whether an individual even wants to be self-employed. This introduces the idea of a constrained set of labor options- an individual may want, for example, to become a government nurse and work for a salary, but this type of job is characteristically unavailable to the majority of the poor with little education. Born out of necessity, entrepreneurship is often one of the few choices for income.

An important dichotomy is found when comparing this relevant literature. Banerjee and Duflo’s (2012) definition of entrepreneurship greatly differs from Naude’s (2010). Many of the business owners in Banerjee and Duflo’s (2012) programs are replicative, low-impact entrepreneurs. Naude (2010) would not describe these individuals as true entrepreneurs, yet they were counted as such by Banerjee and Duflo’s (2012). The discourse on entrepreneurship in development economics is often mired by disagreement on the definition of an entrepreneur and how it ought to be measured. To expand the explanatory power of entrepreneurship research, a working, panoptic definition needs to be incorporated into future studies, and that is why the basis of one is proposed in this paper.

The goal of this paper is not only to begin the search for the factors that contribute to the level of entrepreneurship in the poorest countries, but to reconcile the wide range of directions that many authors before me have taken regarding entrepreneurship and the role it plays in an economy. Several elements of a society believed to affect entrepreneurs, both from the literature and from the theory, are discussed and tested next.

Methodologies

The hypothesis being tested through this regression analysis is that certain elements of culture, social capital, and institutions have significant relationships with, and predictive power of, entrepreneurship across countries. Expressed as a model, the hypothesis is:

$$\text{Entrepreneurship} = \hat{\beta}_0 + \hat{\beta}_1(\text{Culture}) + \hat{\beta}_2(\text{Social Capital}) + \hat{\beta}_3(\text{Institutions}) + \epsilon$$

With such a broad contextual reach and a multitude of ways this hypothesis can be formed, the test conducted herein is generally exploratory. The variables used in the initial tests include self-employment, trust, property rights, freedom to trade, number of procedures to start a business, time to comply with taxes, employment rigidity, language fractionalization, colonial power, and literacy, and the proxies used for each are explained next. Since independent variables are categorized along similar attributes, the first step in this analysis is to control for collinearity. Then, a regression is done for three different data sets. Robustness of the results is finally tested, with a rule of law measure and an additional fractionalization variable added to the largest data set.

Dependent Variable

The variable used to measure entrepreneurship is self-employment rate (SE). A self-employed worker has a job where the remuneration is directly dependent upon the profits derived from the goods and services produced. The most recent data (2005-2014) is used from the World Bank's World Development Indicators data set. The established business ownership rate and, the more popular, business start-up rate were also options; however, both have glaring downfalls when it comes to measuring entrepreneurship.

To reemphasize, what is trying to be measured in the dependent variable is entrepreneurial activity. A debate exists on which type of macro-level quantitative measurement can capture this. A recent trend has been to use a measure of nascent entrepreneurship, or a business start-up rate (Wennekers et al., 2005). Using a start-up rate is meant to test the dynamic view of entrepreneurship, i.e. how the number of entrepreneurs is changing. The assumption when taking a dynamic view is that the entirety of entrepreneurial activity takes place at the start of a business. The reciprocal assumption is made if only established businesses are considered. Entrepreneurs are not entrepreneurial only once, however. Oftentimes, expanding a business takes as much innovation as starting out. The current study assumes that at least a considerable portion of entrepreneurial activity takes place in both established businesses and start-ups. Therefore, both are included in the representative variable for entrepreneurship.

Businesses are not inherently entrepreneurial. An owner of a business doing something she has never done before, however, is entrepreneurial. For example, an experienced farmer choosing to grow a new crop at the risk of foregone wages from other reliable crops captures the essence of entrepreneurship. This holds only when a business creates net welfare gain, and one potential proxy for that is continued economic success. A successful owner is staying in business because she is creating value for her customers in a profitable way. The established business ownership rate, because it only counts businesses that are at least 42 months old, can reflect this outcome more accurately than a start-up rate or even a self-employment measure of all businesses. A start-up business may not be meeting this requisite of net welfare gain, or it may be but only

momentarily and not in the long run. The use of a precursor like economic success helps identify this requisite of net welfare gain. However, the tradeoff from using the established business ownership rate, which is leaving out all start-up entrepreneurs for more accurate identification of net welfare gain, is not favored in this study.

A trait jumps out of all three of these measures- it is not quite clear what all of them are actually capturing. It is important to understand what the distribution of entrepreneurs and non-entrepreneurs looks like for start-ups and how it changes as businesses become more established. Are the vast majority of start-ups replicative and less so for older businesses? Implications vary for different distributions. In a uniform, or even a normal, distribution across all ages of businesses, the self-employment rate will most accurately detect entrepreneurship. In more skewed distributions, one or the other between start-up rate and established business ownership rate would be better if the skew is extreme enough. To repeat, this study assumes at least a considerable portion of entrepreneurial activity takes place in both established businesses and start-ups, rejecting the probability of extreme skews.

Explanatory Variables

Institutions

When it comes to institutional proxies, attention is brought to the importance of capacity and autonomy of government, as opposed to outcomes of government (Fukuyama, 2013). Appropriate levels of capacity and autonomy, the argument goes, will dictate the quality of law, control of corruption, and levels of civil justice. Unavailability of data persists here, as it often does when collecting data on developing countries, as a problem for accurately capturing factors. Regardless, outcomes, such as how well property rights are secured, how low tariffs and tax rates are, and how well countries compare on indices of rule of law, are useful for studying entrepreneurship. An entrepreneur's advantage lies in how she responds to information and how she plans, and much of the relevant information that entrepreneurs devise their plans from comes from institutional outcomes.

The IEF property rights index is used to measure the ability to accumulate wealth under the security of fully enforced laws. This data comes from Heritage Foundation's 2015 Index of Economic Freedom. A higher property rights index score is expected to create higher incentives for self-employment, where employees will be more able to legitimately start their own businesses. In order to account for the ease of starting and doing business, the number of procedures to start a business (PSB), as well as the time to comply with taxes (TCT), are also measured. PSB is measured by count, and TCT is measured by hours. Both are obtained from the World Bank's Doing Business data 2014. As PSB increases, it is expected that self-employment decreases, and as TCT increases it should be made easier to entrepreneurs to operate. An additional concern in doing business is the ease of hiring and firing workers. An employment rigidity index (ERI) is used as well, and it is obtained from the World Bank's Doing Business data as well. The higher ERI is the more difficult it is to hire and fire employees, making it tougher for start-ups to find success. Finally, the EFW freedom to trade internationally index is used. This index measures taxes on international trade, regulatory trade barriers, international capital market controls, etc. It is expected that freedom to trade internationally has an indirect influence to many self-employed in developing countries. Business owners in export-heavy industries, such as agriculture, likely benefit from better trade agreements by selling to exporters. The data comes from Fraser Institute's Economic Freedom of the World 2013 data set.

Social Capital and Culture

One social capital variable explored is trust. The theoretical reasoning is that entrepreneurs are more likely than other professionals to be exposed to informal agreements and contracts, so cultures with higher trust should have more entrepreneurial activity. As for the trust proxy, the relevant trust to entrepreneurial behavior is generalized trust, meaning trust in individuals with no specific prior information (Bjørnskov, 2006). Individualized trust, which is trust in friends and family, plays a smaller role in the lifespan of an entrepreneurial business, but it does likely have a critical role when an entrepreneur is looking for loans and other capital to start a business with. The World Values Survey provides a quantifiable measure of generalized trust in the form of a survey question. Participants across all participating nations and municipalities were asked “Generally speaking, would you say that most people can be trusted or that you need to be very careful in dealing with people?” The trust variable is the percentage of responses of “Most people can be trusted”, and the data comes from Wave 6 (2010-2014) of the World Values Survey.

Another social capital variable is fractionalization. Fractionalization is how diverse a population is, and the type in this test is based on language. The higher the value of fractionalization, the more diverse the population is. It is expected that more diverse societies have a more difficult time promoting entrepreneurship, as language and other cultural barriers may prohibit some business transactions. However, a diverse population could also introduce uncommon consumer needs, such as translation and mediating services. The fractionalization data comes from the 2001 Encyclopedia Britannica.

Colonial power, as discussed by Acemoglu, Johnson, and Robinson (2001), has long-lasting implications for a nation. It is used as a measure of culture here, in the belief that colonial powers helped shape world-view in a society, but it is interchangeable with institution. This study highlights British colonies apart from the rest, because French and Spanish colonies can be grouped together as Napoleonic colonists. A dummy variable is assigned to all former colonies of Britain at a value of one. For every other nation, a value of zero is assigned.

Literacy rate, obtained from the 2014 UNESCO literacy data set and supplemented by the CIA World Factbook, is used primarily as a control for educational competency, which could be viewed as either a culture or institutional measure. Literacy’s close correlation to productivity, however, could confound this measurement (OECD, PIAAC).

Results

Table 2 reports correlations for all independent variables in the first test, which includes all of the variables discussed above. Two correlations, between trust and property rights (IEF) and property rights (IEF) and freedom to trade internationally (EFW) are problematically high. Surprisingly, high correlations are seen both within categories as well as across categories. These high correlations, 0.69 and 0.67, respectively, limit the ability to determine the relative contribution of either variable.

Table 2 – Test 1 Correlations for Social Capital, Culture, and Institution Variables (n=33)

	Trust	IEF	PSB	TCT	ERI	EFW	Language	Britain	LR
Trust	1								
IEF	0.69**	1							
PSB	-0.38**	-0.52**	1						
TCT	-0.31*	-0.25	0.35**	1					
ERI	-0.35**	-0.52**	0.27	0.24	1				
EFW	0.40**	0.67**	-0.50**	-0.19	-0.42**	1			
Language	-0.04	-0.07	0.02	-0.22	-0.06	0.07	1		
Britain	0.32*	0.16	-0.19	-0.21	-0.58**	0.09	0.35**	1	
LR	0.22	0.39**	-0.28	-0.11	-0.26	0.55**	-0.23	-0.26	1

**p < .05, *p < .10

Test 1 includes these variables, but Test 2 removes the IEF property rights index. Test 3, in contrast, removes the trust variable. Trust measures are not collected for nearly as many countries as all the other variables used, so removing trust may exhume significance in other variables. The number of observations in this first two tests is 33, and there are 68 in the third. With over double the observation count, Test 3 is predicted to have a higher adjusted r square than Tests 1 and 2.

Table 3 – Test 2 (removes IEF) Correlations for Social Capital, Culture, and Institution Variables (n=33)

	Trust	PSB	TCT	ERI	EFW	Language	Britain	LR
Trust	1							
PSB	-0.38**	1						
TCT	-0.32*	0.35**	1					
ERI	-0.35*	0.27	0.24	1				
EFW	0.40**	-0.50**	-0.19	-0.42**	1			
Language	-0.04	0.02	-0.22	-0.06	0.07	1		
Britain	0.32*	-0.19	-0.21	-0.58**	0.09	0.35**	1	
LR	0.22	-0.28	-0.11	-0.26	0.55**	-0.23	-0.26	1

**p < .05, *p < .10

Table 4 – Test 3 (removes Trust) Correlations for Social Capital, Culture, and Institution Variables (n=68)

	IEF	PSB	TCT	ERI	EFW	Language	Britain	LR
IEF	1							
PSB	-0.54**	1						
TCT	-0.36**	0.41**	1					
ERI	-0.43**	0.23*	0.19	1				
EFW	0.62**	-0.45**	-0.25**	-0.47**	1			
Language	-0.14	0.13	-0.15	-0.06	-0.05	1		
Britain	0.14	-0.07	-0.18	-0.55**	0.08	0.32**	1	
LR	0.33**	-0.20	-0.09	-0.18	0.51**	-0.32**	-0.24*	1

**p < .05, *p < .10

Although the correlation between IEF and EFW remains high (0.62) in Test 3 after the increase in observation count, it falls by 0.05. Most variables remain relatively consistent between the first two tests and the third, and variables that share a category tend to be more highly correlated.

Next, an ordinary least squares regression is taken for each test, the results of which are reported in Table 5. As expected, Test 3 has more predictive power of self-employment than either of the first two tests with its higher adjusted r square, while not adding more variables.

Table 5: Ordinary Least Squares Regression Estimating Effects of Culture, Social Capital, and Institutions on Self-employment

Variable	Test 1	Test 2 (IEF removed)	Test 3 (Trust removed)
Intercept	120.952** (44.29)	102.337** (47.464)	148.665** (22.605)
Trust	-0.100 (0.22)	-0.419** (0.189)	-
IEF Property rights index	-0.467** (0.199)	-	-0.412** (0.083)
Procedures to start a business	0.165 (0.851)	0.690 (0.894)	0.737 (0.509)
Time to comply with taxes	-0.001 (0.006)	-0.003 (0.007)	-0.001 (0.005)
Employment rigidity index	-0.066 (0.232)	0.169 (0.228)	-0.105 (0.121)
Freedom to trade internationally	8.629* (4.250)	4.640 (4.245)	4.299* (2.269)
Language fractionalization	17.002 (10.905)	17.471 (11.877)	8.074 (6.655)
Colonial power dummy			
-Britain 1	-4.201	2.479	-1.295
-All others 0	(8.564)	(8.795)	(4.587)
Literacy rate	-1.346** (0.395)	-1.194** (0.424)	-1.372** (0.203)
N observations	33	33	68
Adjusted R ²	0.539	0.453	0.669
F	5.151**	4.307**	17.917***

**p < .05, *p < .10. Standard errors in parentheses.

Interestingly, in the test in which the other was removed, the property rights index and trust variable turn out significant. In Test 1 where both are included, only the property rights index between the two is significant. In all three tests, literacy rate is significantly related to self-employment; however, literacy's high correlation with productivity most likely means there are multiple effects being recorded through this one variable, the relative significance of each unsure. When GDP per capita was included in these data sets to separate productivity, its correlation coefficient with most other variables was too high and could not be used. In Tests 1 and 2, freedom to trade internationally is also significant, but only at the 0.10 level.

A ten point increase in the property rights index would mean a drop in self-employment by approximately four percent aggregated over all observed countries. A theoretical explanation for this negative relationship is that property rights matters more for large enterprises than for those that are self-employed. Large and mid-sized firms are more incentivized to grow and hire more workers when property rights are more secure, turning the potential self-employed into salaried workers and wage laborers instead. So in an overall labor force for a country, the model predicts a higher share of employees than employers when property rights are improved. A more straightforward explanation may involve a government's ability to tax more efficiently with increases in the security of property rights. Better property rights could mean that an individual's belongings, business, or other capital are easier to identify and tax, a substantive cost of being registered in the formal sector. The negative coefficient could suggest that those who would be entrepreneurs in the formal sector choose instead to be entrepreneurs in the informal sector, which the self-employment measure does not capture, thereby evading some costs of formal business.

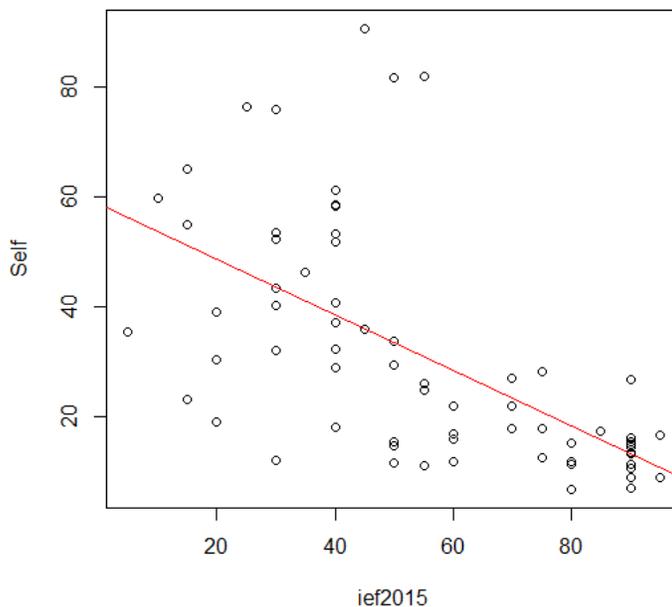


Figure 1 – Plot of property rights index scores on self-employment with a fitted line

Trust has a similar effect, where a ten percent increase in generalized trust predicts a four percent decrease in self-employment. The same interpretation can be made as well here. What is beneficial for both corporations and entrepreneurs likely has a larger impact on an economy through its effect on corporations. Trust theoretically makes investment less risky and less costly, and what appears through this test is that the net effect is that large and mid-sized businesses are able to grow and hire employees at a higher rate than the self-employed can grow their businesses with increases in trust.

Freedom to trade internationally comes out as the only significant positive coefficient of self-employment. A one point increase on this index predicts, according to Test 3, more than a four percent increase in self-employment. As many of the self-employed do own their own farms or work in some way producing commodities, the connection between freedom to trade and entrepreneurship can be seen in commodities markets where exporters, entrepreneurial or not, are able to operate more effectively at higher scores of freedom to trade, benefitting those producing the commodities.

Concluding Remarks and Suggestions

Entrepreneurship is still a social term that scholars have difficulty defining, and a lack of consistency in theory in turn leaves researchers without an accurate way to measure entrepreneurial activity. A working definition and theory of the entrepreneur has been provided as a way to synthesize the various multi-disciplinary approaches taken towards entrepreneurship in past literature, with emphasis on welfare and judgmental decision-making under uncertainty. One distinct advantage from this definition has been the ability to compare different macro-level measures of entrepreneurship. Net welfare gain becomes an important determinant for entrepreneurship, a factor often missed by popular entrepreneurship proxies like business start-up rate and, partially, by self-employment rate. Tradeoffs were highlighted between potential macro-level proxies, all of which are shown to be imperfect.

The results of the regression model does not allow for the null hypothesis to be rejected in full, which is no surprise in a relatively exploratory study. However, significance is found in multiple variables in several different data sets. Both property rights, measured by the IEF property rights index, and trust, measured by the World Values Survey, are found to have statistically significant negative relationships with self-employment. On the other hand, freedom to trade internationally, measured by the EFW index, and literacy rate, obtained from UNESCO, have significant positive relationships with self-employment. Further research is required to determine whether the literacy variable is capturing educational competency, productivity, or both. Controlling for productivity could provide clarity in this measure as well as many others. Recalling the findings of Wennekens et al.'s (2005) study, although only start-up firms were counted in that test, changes in per capita income likely have critical effects on self-employment and ought to be included in future studies as its own factor. Additionally, the effect informal sectors have on entrepreneurs needs more clarification. One connection could be seen through property rights, where more secure property rights encourage informal entrepreneurship. Indirect measures of the informal sector, such as through this effect with property rights and self-employment, can prove useful in future studies.

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