

Understanding Variation in Cross-Country Rates of Entrepreneurship:
Modeling Capitalism and Government Involvement

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Abstract

Previous efforts to explain variation in rates of entrepreneurship across countries often relies upon widely-publicized indices of economic freedom. However these indices confound path-dependent variables with other intervening and moderating variables and thus jeopardize critical understanding of the influences of markets and policy on entrepreneurship attitudes, activities, and aspiration. The present study relies on capitalism theory to build a model that distinguishes among causal and descriptive characteristics of free markets as well as governmental influences which moderate the outcomes of such markets. The model is tested drawing on data for 42 countries over the 2004-2006 time period. Results point to interesting lag effects on entrepreneurship attitudes and activity for certain moderating government influences, as well as the effects of changes in conditions over time.

INTRODUCTION

This study proposes that variations in the presence of entrepreneurship in countries can be explained by the characteristics of and influences on the system of capitalism. Capitalism is an economic system characterized by freedom of choice, open markets and trading, the mobility of labor, and competition, and its efficacy can be heavily influenced by a host of government regulations, policies and programs. These dimensions of capitalism have been observed and richly described in the economics literature for a very long time (Friedman, 1962; Smith, 1776). Where the conditions for capitalism exist without undue government influence, there is greater opportunity for entrepreneurship (Baumol, Litan, & Schramm, 2007; Phelps, 2006; Schumpeter, 1942), presumably resulting in enhanced entrepreneurial attitudes, aspirations, and activity (Acs & Szerb, 2009).

This is an especially important dynamic to understand in less-developed and emerging nations, such as in Africa. Entrepreneurial development is seen by many government and community leaders as a gateway to economic vitality, leading to a growing tax revenue base, enhancing prospects for self-generating innovation and future growth, and yielding qualitative improvements to an area's social and economic fabric (Acs, 1996; Birch, 1979; Kirchoff & Phillips, 1991; Romer, 1990; Zacharakis, Reynolds, & Bygrave, 1999). But in emerging economies the problem of initiating and supporting economic growth through entrepreneurship is acute (Fritsch & Mueller, 2004). Lacking the constellation of resources required (Prahalad, 2004; Sachs, 2005) or even the understanding of how to do so, however, these countries often begin by relying on economic aid from multinational corporations, global aid organizations, and international non-governmental organizations (NGOs) to spark their economic engines. While potentially helpful as a first step toward an enhanced economy, such approaches can create dependencies for the indigenous populations on large outside organizations, further distancing them from the pursuit of entrepreneurial activity, economic independence and sustainability, and often contribute to significant losses in local resources, culture and historic values. A longer term and more sustainable solution is to generate entrepreneurial activity organically from within.

Previous research has sought to explain variation in rates of entrepreneurship as a function of “economic freedom” observed in countries under study (Bjornskov & Foss, 2008; McMullen, Bagby, & Palich, 2008; Nystrom, 2008; Sobel, Clark, & Lee, 2007). Each of these studies relies on published indices for prediction, such as the Index of Economic Freedom (Heritage Foundation, 2009) or the Economic Freedom of the World Index (Gwartney & Lawson, 2003). Understandably, the use of these freedom indices would at first glance seem to provide insight into how the country's system affects the spawning of new entrepreneurial ventures and the growth of others, due to the fact that capitalism holds individual freedom as paramount (Friedman, 1962). However such indices define freedom broadly by including not only freedom to act, but also aspects of legislation regarding property ownership and corruption, government fiscal and monetary policy, banking independence and more. So the use of freedom indices in previous studies effectively combines path-dependent and moderating variables together with other variables as direct predictors of rates of entrepreneurship. This suggests the possibility of mis-specified models, and thus presents problems of interpretation of factors which directly facilitate or impede entrepreneurship. It is for this reason that McMullen et al. warn that "studies may wish to employ the economic freedom variables more judiciously" (2008: 889).

In order to more accurately explain cross-country variation in rates of entrepreneurship, in this study we propose and test a theoretical model of capitalism. The model we propose distinguishes among dimensions which are foundational causes of capitalism, characteristics of a capitalist system itself, and factors that moderate the extent to which such a system can produce healthy economic activity. We draw on the rich theoretical literature on capitalism to develop this model, which can provide insight into direct and moderating influences on entrepreneurship across countries.

For source predictive data we draw on data found in freedom indices subcomponents as proxies for variables theoretically-derived from capitalism research. Longitudinal data enables analysis of time-lags and of the effect of changes in predictor conditions. Of special importance is the examination of the moderating influences of government actions with characteristics of capitalist systems. This analysis can lead to better understanding of practical effects that governments have on entrepreneurship, which is

especially important today due to the tumultuous nature of the global economy that have left many across the world unemployed.

Using available data from the Global Entrepreneurship Monitor studies, surveys for which have recently begun in African nations, the dependent variables in this study are built on work by Acs and Szerb (2009) that argues for attention to entrepreneurial attitudes, aspirations, and activities. Other recent work in entrepreneurship has also pointed to the importance of attitudes about entrepreneurship (e.g. Lumpkin & Dess, 1996), especially in less developed countries (West, Bamford, & Marsden, 2008), and to the sort of growth aspirations that prospective entrepreneurs might envision for new ventures (e.g. Gaglio, 2004; Sarasvathy, 2001). These may be affected by the existence of a capitalist system (Newbert, 2003), as well as by institutional forces created through government actions (McMullen et al., 2008).

This paper proceeds as follows. We first establish the vital connection between free markets and economic development, of which entrepreneurship plays an important role. Next we develop a theoretical model of capitalism, which provides greater insight into the causes, characteristics and outcomes of the concept of free markets. We then operationalize the concepts and test relationships in the model using published historical data from freedom indices and the GEM studies, as mentioned above. Finally, we report interesting results observed and suggest areas for future research.

FREE MARKETS AND ENTREPRENEURIAL ECONOMIC ACTIVITY

It has long been held that increased levels of entrepreneurship lead to increased economic development, which in turn benefits all members of society. Endogenous models of economic growth (Varga & Schalk, 2004) offer one consistent set of reasons for this. New business startups in an area improve the regional stock of knowledge, contribute to industrial infrastructure such as clusters (Porter, 1998) that can lead to knowledge spillovers, which can enhance the economic development of a region (Marshall, 1949), and thereby stimulate economic growth (Fritsch & Mueller, 2004). The bulk of this

research has been conducted in more developed regions such as the United States (West & Bamford, 2005) and western Europe (e.g. Busenitz, Gomez, & Spencer, 2000; Cooke, 2001; Davidsson, 1995), or with respect to technology firms and cluster development (e.g. Cooke & Leydesdorff, 2006; Laukkanen, 2000), where the infrastructures and national economies have the capability of supporting such efforts. However, recent work also addresses transition economies and emerging economies (e.g. Ahlstrom & Bruton, 2006; Bruton & Rubanik, 2002; McMillan & Woodruff, 2002; Yiu, Bruton, & Lu, 2005), as well as entrepreneurship in subsistence economies (West et al., 2008).

Thus the relationship between entrepreneurship and beneficial economic development (Newbert, 2003) has been well documented (Birch, 1979; Reynolds, Hay, Bygrave, Camp, & Autio, 2000). Entrepreneurial development is seen by many government and community leaders as a gateway to economic vitality, leading to a growing tax revenue base, enhancing prospects for self-generating innovation and future growth, and yielding qualitative improvements to an area's social and economic fabric (Acs, 1996; Birch, 1979; Kirchoff & Phillips, 1991; Romer, 1990; Zacharakis et al., 1999).

The relationship between entrepreneurship and economic development is one dimension of a broader set of relationships between economic freedom and economic development (Figure 1). While longstanding economic views have supported this vibrant connection (e.g. Hayek, 1944; Smith, 1776), recent research has lent greater credibility to the positive effects that free markets have on economic development because of the kinds of economic activity free markets generate. Roll and Talbott (2003) point out that since there is little variation in human DNA across countries and thus little variation in human nature, the differences in economic activity, vitality, and growth are caused by politically determined local conditions. Scully (1988) points out how per capita output and market efficiency measures across 115 countries improved with increases in political, civil and economic liberty. A "rational policy" framework is offered by Jackson (2005) as a way of understanding exactly how economic freedom with less government involvement can produce such changes in per capita income. These and other studies have led to the development of various indices of freedom (e.g. Gwartney &

Lawson, 2003; Heritage Foundation, 2009), their use in predicting economic outcomes, and to research summaries of such indices (Berggren, 2003).

(Please insert Figure 1 about here)

As indicated in Figure 1, entrepreneurship is one subset of economic activity that is a consequence of free markets, a connection that has also been explored in recent research. Looking at just domestic U.S. data, Kraft and Sobel (2005) find that sole proprietorship growth rates are positively predicted by an index of economic freedom relevant to U.S. states as well as to low rates of government taxation. In an interesting follow up study examining total entrepreneurship activity (TEA) across countries participating in earlier GEM studies, Sobel et al. (2007) discovered that influencing government policy can either impede or facilitate new venturing activity because policy interrupts normal free market activity. This is an important contribution because it recognizes that government policies can forestall entrepreneurial activity, but in some cases may provide momentum for additional activity when the proper underlying free market conditions exist. Other recent research seeking to understand rates of entrepreneurship based on GEM data have found differential influences of a variety of factors including positive effects of property rights, labor freedom, fiscal freedom and monetary freedom (McMullen et al., 2008), but negative effects of government size (Bjornskov & Foss, 2008). While Nystrom's (2008) study of OECD countries confirms the positive influence of property rights on self-employment rates, however, her study in contrast provides evidence that the size of government and regulations placed on labor and credit exert positive influences on self-employment.

The above studies relating economic freedom to types of new venturing behavior are very recent and present non-cumulative, sometimes contradictory findings. All of the studies on cross-country variations in entrepreneurship rely upon one of the earlier-mentioned freedom indices, the Economic Freedom of the World index (Gwartney & Lawson, 2003) or the Index of Economic Freedom (Heritage Foundation, 2009). However, since the focus of such indices is on the concept of economic freedom, each is built out of a variety of sub-elements that measure various contributions toward that concept. These include, for example, property rights and the rule of law, freedom to trade and investment freedom,

as well as government influences (or more precisely, the lack thereof). While these sub-elements may help describe or characterize a multidimensional concept of freedom, it is not clear that all of the sub-elements have an equal relationship to or impact on economic activity.

Combining all of these elements into one summary measure of freedom can, in fact, result in models that jeopardize the cause-effect understanding of entrepreneurship because they confound path-dependent variables with other intervening and moderating variables. It has long been held, for example, that the existence of property rights and the rule of law (Hayek, 1944; Locke, 1689) lead to conditions that characterize a smoothly-functioning economic system where individuals are free to choose. This system, which was described in its purest form early on by Smith (1776), in turn is generative of entrepreneurial behavior. Similarly, government actions have a moderating influence on the extent to which an economic system characterized by freedom of action can generate economic activity and growth. Yet prior studies which rely on various freedom indices effectively combine all these variables together as direct predictors of rates of entrepreneurship, without regard to path-dependent or moderating influences.

In this paper we propose a different lens to use to better understand cross country variation in rates of entrepreneurship. That lens is the system of capitalism. Capitalism is a system that is firmly rooted in economics, which thus provides a strong theoretical background for its concepts and relationships to aspects of economic development. As we shall see in the next section, a focus on a system of capitalism allows us to articulate not only its conceptual characteristics, but also the factors that contribute to its establishment and those that moderate its effectiveness in generating economic activity.

CAPITALISM AND ENTREPRENEURSHIP

A system of capitalism allows the flow of labor and capital to fill perceived voids within the market (Friedman, 1962; Hayek, 1944; Smith, 1776). In such a system there seems to be an inherently greater opportunity for entrepreneurial ventures (Baumol et al., 2007; Knight, 1921; Phelps, 2006; Schumpeter, 1942). Based on foundational literature in the field of economics we propose a model of

capitalism as depicted in Figure 2, along with its consequent effects on entrepreneurship. This section further develops the rationale and support for each of the concepts. We briefly mention factors that the literature refers to as causes of a functioning capitalist system – property rights and rule of law – because these concepts are often contained within the sub-elements of frequently-used freedom indices. However, since the focus of this paper is on direct effects on entrepreneurship, we focus most of our discussion on the factors within the dotted-line circle in the figure.

(Please insert Figure 2 about here)

Foundations Leading to Capitalism

Historically, property rights and the rule of law have been held to be the foundations that contribute to a well organized and functioning capitalist system (Hayek, 1944; Locke, 1689). This foundation of property rights and the rule of law, which allows man to be his own master, has been understood to lead to an economic system that encourages freedom of choice, open markets and trading, the mobility of labor, and competition, due to man's propensity to exchange with others in a marketplace (Smith, 1776).

There are many definitions of capitalism, however one of the broadest understandings of it refers to a system where private capital is employed to help generate additional economic activity and growth. The right to ownership of capital is a pivotal dimension that leads to freedom to employ it. In the western hemisphere ownership rights were first formally recognized as early as 1215 in the signing of the Magna Carta, through which the English king agreed that the state had no right to attach the property of its barons. In the late 1600s Locke formalized this understanding of the relationship between government and the governed by arguing that man's ownership of capital was tied to his own productive pursuits, and that neither the government or other individuals had claim to anyone's property unless they had been damaged in some way by the possessor of the property.

The rule of law is also a foundation leading to a well-functioning capitalist system. As is the case with property rights, the rule of law refers to the relationship between the government and the governed.

Under the rule of law the government is bound by rules fixed and announced beforehand. This makes it possible for individuals and businesses to foresee with fair certainty how the authority might exercise its coercive powers, and thus to plan their affairs and allocate their capital on the basis of this knowledge (Hayek, 1944). Although Hayek is perhaps the champion of the rule of law in the 20th century, he draws on ideas suggested much earlier by Locke (1689) and even Mill (1865).

Together, property rights and the rule of law are pivotal causal factors that lead to an effectively-functioning system of capitalism. These dimensions confer the opportunity for informed choice on individuals. Individuals may allocate their property resources as they see fit. And they may have reasonable confidence that, having made their allocation decisions, the rules of the game will not subsequently shift and jeopardize their decision. We turn now to further describe these and other characteristics of a system of capitalism.

Characteristics of Capitalism

Freedom of Choice

Freedom of choice reflects the understanding that men are equal and that no man has the right to require anything of another, especially demands placed on his labor or property (Locke, 1689). This has been referred to as man's "natural liberty," which leaves him "...perfectly free to pursue his own interest his own way, and to bring both his industry and capital into competition with those of any other man, or order of men" (Smith, 1776).

Within the capitalist system man is free to choose how to use his facilities and property. The ability to choose within a market allows the flow of his capital to the productive endeavors of his own choosing. By choosing he embraces the uncertainty associated with any new productive enterprise, bears the risk that accompanies such uncertainty, and is free to either succeed or fail (Knight, 1921; Schumpeter, 1934; Sobel et al., 2007). Man's fundamental interest in growth and development (e.g. Barnes, 2000), coupled with freedom of choice, leads to patterns of resource allocations across an economy that contribute to the economy's variety and productivity in meeting the needs and demands of the market.

Often time the freedom of choice leads to organization in which specialization and the division of labor are paramount, allowing for greater productivity through the more efficient use of capital. Thus, in the production of the many versus the few, workers' dexterity is increased, his time is used more efficiently, and he is encouraged to innovate to make his own job easier, which in itself is entrepreneurship (Smith, 1776).

The inherent freedom of choice can only be prevented by the coercion of other men, most notably via the force of the government (Friedman, 1962). This force by way of the government often puts certain societal goals above those of the individual, which in some ways accomplishes an end, but stifles the possibility of capital allocation to private initiatives or businesses that otherwise may accomplish the desired ends over a different time period more effectively or efficiently (Hayek, 1944).

Hypothesis 1: Freedom of choice is positively related to entrepreneurship.

Open Markets and Trading

Working in concert with the freedom of choice is the ability to access markets and trade freely within those markets. Therefore, due to their "natural liberty" men are free to bring their products and services to markets and sell them at a rate that is agreed through the mutual consent and voluntary contracting of the selling and purchasing parties, whether or not the trading of these items are viewed by others to be advantageous or disadvantageous (Hayek, 1944; Smith, 1776). After all, if trade does occur without coercion, then both parties involved have consciously determined that particular trade to be beneficial to themselves or their business. Furthermore, the act of closing markets requires the intervention of the government, which, again, is only the coercion of man by another (Friedman, 1962). As well, the closing of markets by an institution such as government presupposes that a smaller or elite group knows what is best for an entire market or for individuals in that market who have never come into contact with the group of decision makers (Hayek, 1944).

In addition to government coercion due to perceived societal benefits, corporatism (e.g. corporate influence on government decisions accomplished through lobbying) can play a large role in closing

markets and preventing trade for individual entrepreneurs who engage in the “creative destruction” that challenges the status quo, increases competition, and eventually drives some producers out of business (Schumpeter, 1942).

Hypothesis 2: Open markets and trading are positively related to entrepreneurship.

Mobility of Labor

The mobility of labor is characteristic of a well-functioning capitalist system because it allows workers to move freely into industries that will better utilize their skills and in which exists the prospects of greater reward. Mobility allows workers to make the most of their own talents and thus to elevate their own standards of living (Fulcher, 2004; Smith, 1776). In respect to a country’s economy as a whole, the mobility of labor provides a more efficient use of the country’s capital resources, manpower, and innovative ability, resulting in the production of goods and services that increase the sustainability and growth of the economy. Previous research demonstrates that economies with labor mobility restrictions, such as through strong labor union and workplace protections in the European Union, experience lower rates of entrepreneurship (Acs, Arenius, Hay, & Minniti, 2005).

The mobility of labor inherently fosters a macroeconomic bottom-up approach to a country’s economy, which significantly diversifies the economic horizon. This bottom-up approach relies on the free individual to do what is in his or her rational self-interest, which naturally brings about variation in the market. However, in this capitalist model individuals are not working towards a specific societal end, but instead are working for the enjoyment of the fruits of their own labor. Although this system is not focused specifically on a social goal, it creates the range of diversity needed to compete in a global market. Likewise, the diversity of the market represents the individualistic nature of capitalism, which allows the individual to pursue his or her passions entrepreneurially.

On the other hand, a top-down approach relies on an individual or a group of individuals in government or regulatory agencies that are granted power over the rest of the population to try to understand and predict the optimal allocations of resources, including stocks of labor. In this type of

system, with greater attention being paid to utilitarian societal goals (Mill, 1863), leaders must correctly select industries and predict the proper supply of resources to those industries. However, it has been long suggested that understanding the complexity of an entire economy is nearly impossible due to the lack of accessible information on every minute aspect of the economy at the same point in time (Hayek, 1944; 1945). For instance, it would be safe to say that no one in the mid 20th Century could have predicted the degree to which technology is part in the everyday lives of people across the globe. Therefore, it is through the trial and error process, such as through entrepreneurship, that allows economies which implement the bottom-up approach to innovate and create new products which unpredictably enhance the life and productivity of man.

Hypothesis 3: Mobility of labor is positively related to entrepreneurship.

Competition

Competition is an essential characteristic of the system of capitalism because it encourages innovation not only in production to lower costs, but in the development of new products which are better than the prior version (Schumpeter, 1934). When the other characteristics of capitalism, which are presented above, are present competition naturally occurs between individuals and firms because of the freedom of each to pursue interests in any sector of the economy. Therefore, when more than one individual or firm is selling a product in a market, they naturally begin trying to best the competing products by creating more efficient means of production as well as new products. Additionally, the competition present is due to individuals' natural inclinations toward productivity and firms' propensity to want to increase profits, which are the measure of achievement of each individual and firm within the economy. This increase in profits allows for the creation of more products and technological advances in production that not only benefit the products of the creator, but those across the economy as information spreads freely. Therefore, this natural occurrence of competition between free individuals is based in the desire to achieve rather than the desire to defeat others in the market, contrary to the misinterpretation of competition often presented by opponents of the system of capitalism.

Hypothesis 4: Competition is positively related to entrepreneurship.

Moderating Influences of Government Actions

Actions taken by governments are equally important within the system of capitalism. Often these actions are presented as beneficial to society because they are intended to make the outcomes of trade, innovation, and the inevitable “creative destruction” within a market more equitable across the board. However, these actions have unintended consequences on the preexisting entrepreneurial and business ventures as well as those that have not yet been created. In particular, these unintended consequences can be effectively explained by the famous fallacy of the broken window (Bastiat, 1850). This exercise suggests that governments generally perceive the well being of the economy in a different light than truly exists and misinterprets the consequences of their actions that so often block or increase the barriers to entry within a market. Therefore, when these barriers to entry increase, whether through licensing, production regulation, etc., the amount of entrepreneurial activity tends to dwindle and the market becomes controlled by existing businesses in the industry in question. This translates into corporatism which encourages large firms to favor licensing, production regulations, etc., closing entry into markets of which they are a part (Schumpeter, 1942). Moreover, these practices which lead to corporatism eventually lead to decreased levels of innovation and production because there are fewer participants within the market. After all, great innovative ideas do not always come from those with the most resources at hand. Thus, as the fallacy of broken window suggests, often people who would have otherwise used their resources to patronize businesses or create their own are forced to give them up as a result of policies which initially were intended to promote a better societal welfare.

Furthermore, the actions taken by governments that create these unintended consequences are products of fiscal and monetary policy as well as through government spending, which inherently decreases the financial freedom of the individual. Take for instance, the dilemma of the income tax, which in some cases represents 40 percent or more of an individual’s annual income, and which for businesses in the U.S. is set at one of the highest rates worldwide. Although the services received from

the government may very well be worth this amount, they generally limit the amount of freedom an individual or business has to invest, not only in other products or stocks, but in their own ideas and innovations. Also, it may be the case that the services offered by the government could become more productive through private enterprise because of the natural competition that occurs when multiple individuals or firms enter a market. Additionally, one can assume that if a market were to be operational within the realm of services offered by the government, there would be a natural shift in the resources available that would fill that void by multiple suppliers as explained by Smith's understanding of the mobility of labor (Smith, 1776). However, it is true that the infrastructure and development of services (formerly provided by the government) would possibly take longer to develop in the private sector due to its bottom-up approach. Nevertheless, after the initial development of an active and free market in this sector would provide better and more innovative services (Hayek, 1944).

Hypothesis 5: Government actions have a negative moderating influence on the relationship between capitalism-based economies and entrepreneurship.

METHODOLOGY

The Sample

To determine whether relationships exist between capitalist economies and entrepreneurship, we created a database from the intersection of available data from the Index of Economic Freedom (IEF) (Heritage Foundation, 2009), developed by the Heritage Foundation and the *Wall Street Journal*, and the Global Entrepreneurship Monitor (GEM) dataset, originally developed by Babson College and the London Business School but now owned by the non-profit organization Global Entrepreneurship Research Association (2012). GEM began analyzing entrepreneurial trends in 1999 using data from 10 countries (McMullen et al., 2008), by 2006 had expanded their country sample to 42 countries and in 2009 initiated data collection in a number of African nations. GEM's randomized phone surveys in each country in each year collect hundreds of answers to questions about a range of entrepreneurial activities,

attitudes about entrepreneurship, and other demographics qualifiers. The IEF has been published annually since 1995 and contains over 150 countries. The IEF measure for each country is composed out of ten sub-indices, each of which is developed using third-party published macro-economic data about countries and their economies. In this study we used data that preceded the onset of the worldwide financial markets crisis and ensuing recession.

Dependent Variables

Building on recent work by Acs and Laszlo (2009) using the GEM dataset, we measured entrepreneurship in three ways: entrepreneurial attitudes, entrepreneurial activities, and entrepreneurial aspirations. All three dimensions are important to consider by countries interested in ginning up economic growth through entrepreneurship, a finding borne out by previous research on cross-country entrepreneurship (e.g. Busenitz et al., 2000; Davidsson, 1995; West et al., 2008). Each of the three dependent variables in this study is composed out of items in the 2006 GEM dataset. The 2006 dataset was used because it is the latest year that is currently publicly available, and because it contains all of the response items that Acs and Laszlo evaluated in their more recent study. The Acs and Laszlo (2009) study's entrepreneurship variables were also created by using interactions between GEM data response items and macro-economic data for each country. Since one of the main goals of this study is to parse out the direct and moderating influences of different factors using a model of capitalism, our measures of entrepreneurship rely purely on response items from the GEM data.

Entrepreneurial attitude is composed of four items from the 2006 GEM data. We combined together in one index the percentage of respondents who a) believe there is good opportunity to start a new business in the next six months, b) have the knowledge, skill and experience to start a business, c) know someone personally who started a business within the last two years, and d) believe starting a new business is a desirable career choice and receives respect and high status in their communities. The Cronbach alpha for this index of entrepreneurial attitude is 0.82.

Entrepreneurial activity is composed of three items from the 2006 GEM data. Combined into one index are the incidences of those involved in a nascent or young firms who a) report opportunity as a motive for doing so, b) have post-secondary or graduate education, and c) have provided funds for new business startup by someone else. Although Acs and Laszlo included the third item within another entrepreneurship variable, we believed that the combination of these three fairly represent the activities present in each country related to entrepreneurship. The Cronbach alpha for this index of entrepreneurial activity is 0.82.

Entrepreneurial aspirations are a combination of three items from the 2006 GEM data. Combined into one index are the percentages of total entrepreneurial activity that a) expect to have 10 or more employees in five years, b) expect to have 19 or more employees in five years, and c) have between 26-75% of their customers outside their home country. Together, these three items reflect the growth aspirations of individuals who are already engaged in entrepreneurial activity. The Cronbach alpha for this index of entrepreneurial aspiration is 0.72.

The entrepreneurship variables were all normalized to a standard positive scale.

Independent Variables

We use four of the ten sub-indices of the Index of Economic Freedom (Heritage Foundation, 2009) to serve as proxies for the concepts in our model of capitalism that are theorized to have a direct effect on entrepreneurship. A complete description of the composition of each sub-index can be found in the publications of the IEF's author. As mentioned previously, this index has been previously used in other studies about entrepreneurship and economic development. Moreover, the Acs and Laszlo (2009) study reports a 0.79 correlation between their GEINDEX and the IEF. All of the IEF sub-indices are scaled such that a higher measure represents greater "freedom."

Freedom of choice is measured by the IEF sub-index for "business freedom." Business freedom represents the ability to start, operate and close a business. It also accounts for the low burden of

regulation by the government as well as the efficiency of government in enabling businesses to start up quickly and inexpensively (i.e. less paperwork, lower fees, fewer days/months to get a license).

Mobility of labor is measured by the IEF sub-index for "labor freedom." The IEF sub-index for labor freedom accounts for regulations concerning minimum wages, laws inhibiting layoffs, severance requirements, and measurable regulatory burdens on hiring, hours, etc.

Open trading and markets is measured by the IEF sub-index for "trade freedom." Trade freedom represents the absence of tariff and non-tariff barriers that effect imports and exports of goods and services.

Competition is measured by the IEF sub-index for "investment freedom." Investment freedom represents the lack of constraints on the flow of investment capital both within countries and across borders. The ability to participate in markets, without regulation, is a critical dimension of competition which has been described by classical economists like Smith (1776) as well as industrial economists like Porter (1979). More perfectly competitive markets exist to the extent that barriers to entry can be overcome allowing the flow of new entrants into an industry (Porter, 1979).

Moderating Variables

The IEF includes four sub-indices that are used in this study as moderators to the relationship between capitalism and entrepreneurship. The four moderators we use reflect areas where government-run institutions or policy exerts control over the macro-economic environment. "Fiscal freedom" is a measure of the tax burden imposed by government. "Government spending" considers the level of government expenditures as a percentage of GNP. "Monetary freedom" combines a measure of price stability with an assessment of government-induced price controls. "Financial freedom" is a measure of banking security and independence from government control. As with other IEF sub-indices, these are all scaled such that higher scores reflect greater "freedom."

Size of economy is used as a control variable in all the analyses. Greater economic activity, including higher levels of entrepreneurship, should be observed in economies that are larger. So we want

to make sure to control for this effect. Several studies employ GDP per capita as a control, however this measure is purported to control for different aspects of economic activity than simply size (Bjornskov & Foss, 2008; McMullen et al., 2008; Nystrom, 2008), and has been previously been noted as being invariant over time. Therefore in this study we employ a measure of size of each country's economy based on a 2006 index of global competitiveness provided by the World Bank (2006).

Entrepreneurship reflects a dynamic relationship between a capitalist system and moderating government influences. Karatnycky (2004) points out that changes occur over time in levels of freedom in undeveloped as well as developed countries, and that such changes should have an impact on the nature and scale of economic activity. McMullen et al. (2008) commented that longitudinal data analysis would be helpful in determining causality and understanding how changes in freedom shape entrepreneurship. With this in mind, our analyses of 2006 GEM-based entrepreneurship variables includes a time lag, relying on 2004 and 2005 predictive values from the IEF. Labor freedom was not measured by IEF during 2004, so this variable is only included in the 2005 analysis.

A number of the variables in the analysis were transformed in order to produce normal distributions. Hierarchical regression analyses were used in order to assess the effects of the independent variables after the moderating and control variables were accounted for.

Analysis and Results

Table 1 presents the descriptive statistics and correlations for the variables used in the regression analyses. Significant correlation is apparent between entrepreneurial attitudes and activity.

Entrepreneurial activity is positively correlated with the freedom from government spending index, and entrepreneurial attitude is negatively correlated with size of government.

(Please insert Table 1 about here)

Table 2 presents the results of the regression analyses. For each entrepreneurial variable composed of items from the 2006 GEM data, two regressions were run – a 1 year lag using predictor

values from 2005 IEF, and a 2 year lag using predictor values from the 2004 IEF. Each of the sets of regressions on each dependent variable report consistent relationships.

(Please insert Table 2 about here)

On an overall basis the combination of variables are significant predictors of attitudes and activities, but not of aspirations. Entrepreneurial attitudes are significantly predicted by the combination of variables using 2005 data ($F = 3.35$, $R^2 = 0.49$, $p < .01$) and 2004 data ($F = 4.14$, $R^2 = 0.51$, $p < .01$). Similarly, entrepreneurial activities are predicted by 2005 data ($F = 4.08$, $R^2 = 0.62$, $p < .01$) as well as 2004 data ($F = 7.25$, $R^2 = 0.71$, $p < .01$). However, neither 2004 nor 2005 data are significant predictors of entrepreneurial aspirations.

We find that there is a negative relationship between trade freedom and entrepreneurial attitude ($p < .05$ using 2005 data, $p < .01$ using 2004 data). This means that entrepreneurial attitudes decline when trade freedom increases, while attitudes increase when trade freedom decreases. This is the opposite of what was predicted in hypothesis 2. When assessing entrepreneurial activities, the same relationships with trade freedom are observed ($p < .01$ in both 2005 and 2004 data). When trade freedom decreases, entrepreneurial activities increase.

Other independent variables characterizing a system of capitalism – business freedom, investment freedom, and labor freedom – bear no significant relationship to either entrepreneurial attitudes or activities when using either 2005 or 2004 data. Together these results lead us to reject hypotheses 1 through 4. There is no positive relationship between entrepreneurship attitudes or activities and the characteristics that describe capitalist economies.

On the other hand, although significant in the opposite direction from what was hypothesized in hypothesis 2, the negative relationship between trade freedom and both attitudes and activities bears further comment. After accounting for the government variables and economy size, in each of the four regressions the strength of the trade freedom variable significantly enhances the prediction of the entrepreneurship factors. The F-change and R2 change for each equation is significant at either the .05 or .01 level.

Turning now to hypothesis 5 regarding the moderating influence of government factors on the relationship between capitalism and entrepreneurship, we again find consistent results across entrepreneurial attitudes and activities but not for aspirations. Across attitudes and activities, and using both years' source predictive data, we find that freedom from government influence on GDP is positively associated with entrepreneurship. When the GDP of an economy relies more on the productive forces of the economy and less on government, then entrepreneurial attitudes and activities increase. This finding is significant at the .01 level with regard to activities.

Financial freedom is also positively related to entrepreneurial activities in 2004 ($p < .05$), but in 2005 the relationship is not apparent. Other factors reflecting freedom from government influence and policy are not significant, for either attitudes or activities using either 2004 or 2005 data. Therefore, there is mixed support for hypothesis 5.

Discussion

Despite a conservative statistical test (small sample size with relatively few degrees of freedom), we find significant relationships that confound our thinking about the relationship between free markets and entrepreneurship at one level, but at another level confirm some of our thinking. That all of the "free markets" variables describing capitalism bear no positive relationship with entrepreneurship is surprising. One possible explanation is that the entrepreneurial variables in this study were much more oriented toward opportunity-based entrepreneurship versus necessity based entrepreneurship. Entrepreneurs begin new businesses when they perceive opportunity, have the skills, know others who started new companies and believe there is status attached to breaking away from the traditional and striking out on one's own. In this light opportunity-based entrepreneurship may be less dependent on free markets and government policy than on the nature of the opportunities perceived. In contrast, in necessity-based entrepreneurship – which this study may not have captured – entrepreneurs would care far less about skill, who else had started a business and whether there is status than on what they must do to get by when there is nothing

else for them. The GEM data does in fact collect other measures of both opportunity- and necessity-based entrepreneurship, and the overall sample is heavily weighted toward opportunity based.

The negative relationship between trade freedom and entrepreneurial attitudes or activities bears some discussion. Although trade freedom normally means open markets and the ability to both source materials and services abroad as well as more easily enter foreign markets, this is a two-edged sword for the entrepreneur. Just as trade freedom makes it easier for the entrepreneur to conduct business across markets, it also makes it easier for potential competitors to conduct business in the entrepreneur's own industry or segment. Without the perhaps insulating benefits of tariffs or other trade restrictions, every entrepreneur – and especially opportunity-based entrepreneurs - may see less opportunity because so many potential others could be filling the gaps already.

The positive relationship between freedom from government influence on GDP and both entrepreneurial attitudes and activities does confirm what one might expect when considering a capitalist system. Over the last 36-48 months we have witnessed the propensities of governments to get more involved in industries and to create jobs through elevated government programs designed to stimulate economies. When governments spend more, after controlling for the effects of size of economy, entrepreneurial attitudes and activities decline because they see there is less opportunity. When government efforts account for less of the GDP and the economy is based more on trading and transactions among businesses, entrepreneurs see more opportunity and act more opportunistically.

Finally, we note that there appear to be more significant relationships in our analyses when using 2004 data versus 2005 data as predictors for 2006 levels of entrepreneurial attitudes and activities. Although this is a limited set of analyses, it suggests that there may be important time lags to consider in what leads to current levels of entrepreneurship across countries. We know from previous studies that the gestation time for new ideas is long before they turn into real commercial ventures, and that the pace of new venture development once started can take a long time. The implication for policy makers is that they should not expect instant bumps in widespread entrepreneurial activity when new legislation is passed. The implication for entrepreneurship research is that we need to more carefully assess the

temporal dynamics of factors which cause increases in entrepreneurship. Future research should look at a series of longer time lags and should include panel data analysis to better understand the dynamic nature of entrepreneurship across countries.

Figure 1
Effects of Economic Freedom

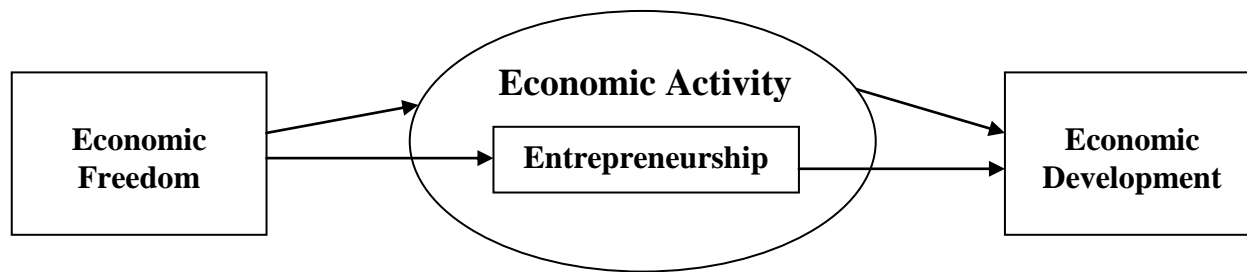


Figure 2
Model of Capitalism

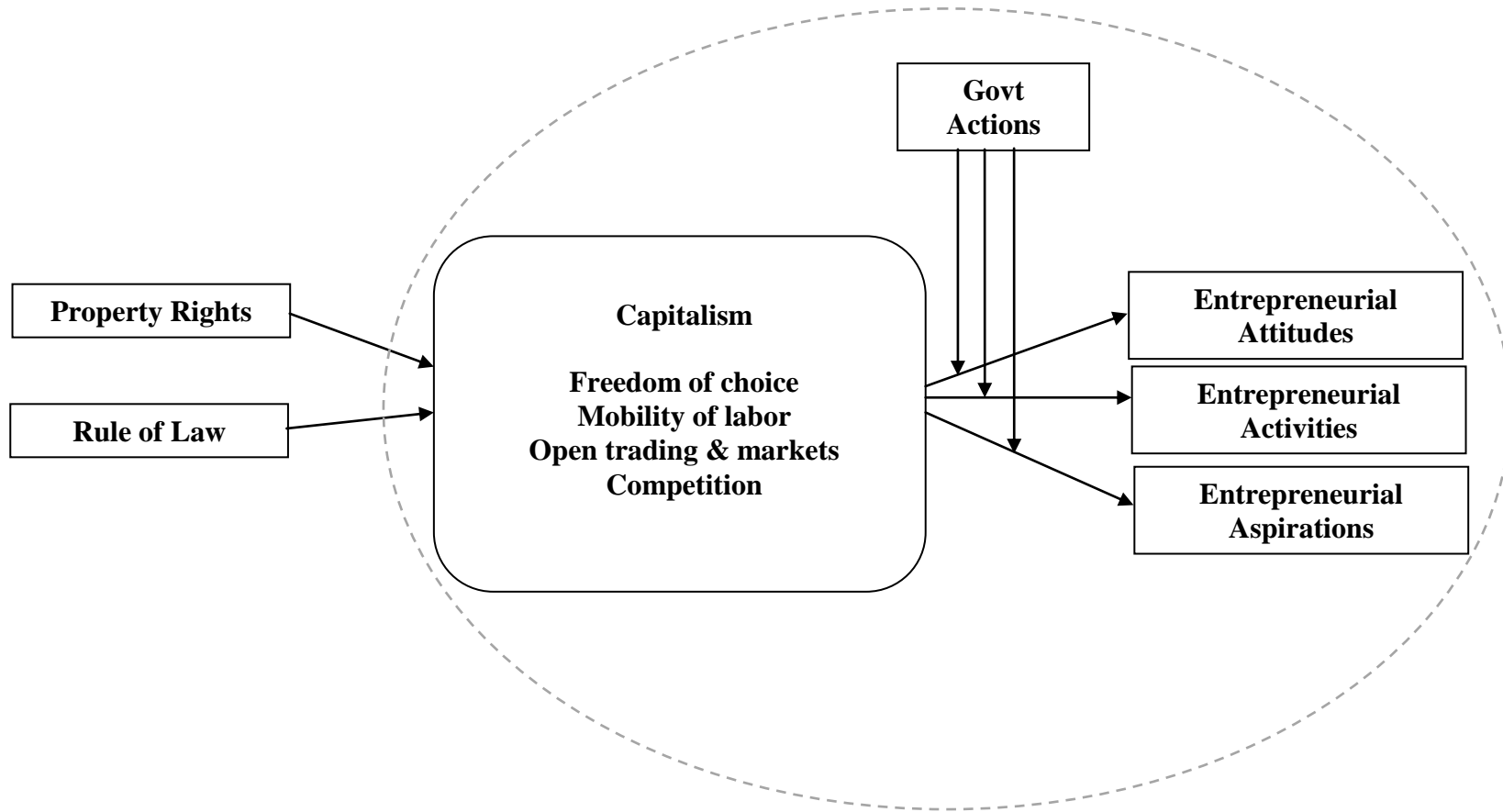


Table 1
Descriptive Statistics and Correlations

	Mean	Std Dev	1	2	3	4	5	6	7	8	9	10	11	12
1 Attitude	20.00	3.22	1.00	0.70**	-0.16	-0.27	-0.37	-0.15	-0.31*	0.16	0.24	-0.27	-0.03	-0.37*
2 Activity	14.83	2.54		1.00	-0.24	-0.16	-0.50	-0.15	-0.14	0.28	0.47**	0.01	0.04	-0.19
3 Aspiration	12.08	2.35			1.00	0.08	-0.03	0.21	0.08	0.03	-0.27	0.01	0.08	-0.05
4 Business freedom	71.43	11.38				1.00	0.54**	0.48**	0.60**	-0.21	-0.27	0.45**	0.55**	-0.20
5 Trade freedom	74.20	9.65					1.00	0.41**	0.18	-0.36*	-0.36*	0.32*	0.40**	-0.18
6 Investment freedom	60.95	19.85						1.00	0.19	-0.42**	-0.47**	0.32*	0.73**	-0.22
7 Labor freedom	65.65	15.51							1.00	0.16	0.11	0.39*	0.29	0.11
8 Fiscal freedom	68.30	15.92								1.00	0.69**	-0.20	-0.46**	-0.12
9 Government spending	54.41	24.16									1.00	-0.22	-0.46**	0.16
10 Monetary freedom	81.30	7.67										1.00	0.44**	0.02
11 Financial freedom	59.76	22.14											1.00	-0.23
12 Size of government	4.67	1.04												1.00

** Significant at the 0.01 level (2-tailed)

* Significant at the 0.05 level (2-tailed)

Table 2
Results of Regression Analyses (t-scores and significance reported)

Dependent Variable	Entrepreneurial Attitude		Entrepreneurial Activity		Entrepreneurial Aspiration	
	2005	2004	2005	2004	2005	2004
Source Year for Independent Variables						
Control						
Economy size	-3.06***	-3.90***	-1.67	-2.00*	0.66	0.81
Moderators						
Fiscal freedom	-1.11	-1.38	-0.93	-1.24	1.87*	1.99*
Government spending	2.15**	1.91*	3.23***	5.52***	-2.61**	-2.47**
Monetary freedom	-0.55	-0.54	1.00	1.51	-0.43	-0.95
Financial freedom	1.58	1.44	2.06*	2.45**	-0.45	-0.21
Independent Variables						
Business freedom	-0.44	-1.03	0.12	-0.06	0.37	0.98
Trade freedom	-2.15**	-2.84***	-2.85***	-4.17***	-0.76	-1.37
Investment freedom	-0.75	-0.84	-0.56	-0.78	0.99	1.06
Labor freedom	-0.93		-0.74		0.18	
F	3.35	4.15	4.08	7.25	1.11	1.20
df	35, 5	35, 5	27, 5	27, 5	34, 5	34, 5
R2	0.49***	.51***	0.62***	0.71***	0.25	0.24
F chg	2.85**	4.40**	3.72**	8.07***	0.43	1.15

* < .10
** < .05
*** < .01

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