

The Political Economy of Venture Creation

Gregory M. Dempster
Midlothian, Virginia

Ph.D., Economics, Auburn University, 1998
M.B.A., Louisiana State University, 1993

A dissertation presented to the Graduate Faculty of the Darden School of
Business, University of Virginia, in candidacy for the degree of Doctor
of Philosophy in Management

Darden School of Business

University of Virginia
May, 2017

Introduction

The relationship between political, social and legal institutions and the activities of entrepreneurs in the creation of value and wealth has long been an area of interest and scholarship. One could make a case that this relationship formed the very basis for the development of economics as a discipline, as indicated in the works of classical thinkers such as Smith (1757, 1776) and Mill (1848). As late as the early 20th century, prominent economists such as Knight (1921), Schumpeter (1934) and Hayek (1945, 1948) were focusing on the combinations of economic, political and social conditions necessary for entrepreneurial capitalism to flourish. Although ignored by mainstream economics for much of the last century, entrepreneurship research has undergone a revival in the last two-plus decades, in the form of both renewed interest by economics and the forming of its own, unique disciplinary boundaries within the management field (Venkataraman, 1997). Of special importance is the renewed attention given to the institutional conditions that are necessary and sufficient for entrepreneurship to thrive and make positive contributions to the well-being of members of broader society.

Baumol (1990) and Murphy et al. (1991) were among the first to focus on a particular aspect of this relationship: The connection between the structure and quality of political, social and legal institutions, on the one hand, and the allocation or direction of entrepreneurial talent and effort, on the other. This institutional quality argument can take many forms, but basically revolves around the ultimate consequences *for society* of the systematic efforts of entrepreneurs to earn a residual profit, or entrepreneurial rents (Rumelt, 1987), above and beyond the explicit and implicit costs of land, labor and capital. Baumol (1990) notes that entrepreneurs are not necessarily in the business of creating new value—what he describes as productive entrepreneurship—but in the business of appropriating more value than they give up in resource

costs. There are often a number of ways in which entrepreneurs can accomplish this, some of which are productive in the sense Baumol (1990) uses the term, but others of which might be called unproductive or even socially destructive. Examples of such unproductive, and ultimately welfare-reducing, activities include political rent-seeking, corruption, illegal (underground) exchange, and the like (see, e.g., Tullock, 1967; Shleifer and Vishny, 1993; Mauro, 1995; Knack and Keefer, 1995; and Olson, 2000). As Baumol and others explain, there is no inherent tendency for entrepreneurs to necessarily engage in value-creating activities that entail positive contributions to social well-being; rather, if this happens, it is itself an artifact of the contextual institutional conditions under which entrepreneurial activity takes place. Welfare-enhancing properties of entrepreneurship are contingent (Drazin and Van de Ven, 1985) upon a set of political, legal and social conditions that may vary significantly both across societies and over time.

A number of other researchers have picked up on the cues provided by Baumol (1990) and Murphy, et al., (1991) to forge unique avenues of research. Olson (1996), building on years of research on collective action and political institutions, brought the idea to the forefront in his 1996 AEA Presidential Address, indicating that understanding the relationship between institutions and entrepreneurial incentives could explain the phenomenon of “big bills left on the sidewalk”—in other words, why in some societies and contexts entrepreneurs systematically recognize and exploit opportunities that spillover into welfare enhancements for the entire society, while in others those opportunities are overlooked or ignored in favor of activities that have tend to reduce social welfare. Recent research on the link between institutions, growth and development (Knack and Keefer, 1995; Acemoglu, Johnson and Robinson, 2005; Hall, Sobel and Crowley, 2010) as well as between institutions and specific measures of productive and

unproductive activity (Sobel, 2008) has begun to illuminate the mechanisms by which individual-level outcomes are converted into those manifested at the societal level.

In particular, Acemoglu and his coauthors (Acemoglu and Johnson, 2005; Acemoglu, et al., 2001, 2002, 2005; Acemoglu and Robinson, 2012) have explicitly explored the institutional quality argument in regard to economic growth, consistently finding that institutional context matters for sustained development. Acemoglu and Robinson (2012) make the distinction between “inclusive” and “extractive” institutions: The former refers to institutions that are developed through a pluralistic process in which many actors have a say, while the latter refers to institutions developed by a relatively small elite that fashions them to their own interests. Inclusive institutions promote the entrepreneurial discovery and “creative destruction” (Schumpeter, 1934) that fosters growth because they provide incentive structures that reward the creative application of talents and ideas, while extractive institutions stifle innovation because it would threaten the position of the elites whose interests they are designed to serve. While not perfectly analogous to Baumol’s productive vs. unproductive distinction, in that Acemoglu and his colleagues focus on the purpose of institutional designs rather than on the allocative outcomes of those designs, the inclusive vs. extractive distinction sheds additional light on the trade-off by providing a theory of where productive and unproductive institutional structures originate.

Furthermore, the Acemoglu, et al., framework allows for an investigation of feedback in institutional systems. Entrepreneurial decision processes begin with a set of both individual and societal values, beliefs, and attitudes (i.e., preferences) about acceptable or legitimate actions in pursuit of subjective profit. Individuals’ own preferences are influenced by, but not entirely a function of, those of the greater societal environment (culture) in which they operate. In addition,

their decisions take place in the context of formal institutions, or rules of the game, that both guide and constrain their behavior (North, 1990). These institutions are, like the individuals themselves, influenced by, but not entirely a function of, the underlying values, attitudes and beliefs of the societies in which they operate. Therefore, informal norms and values of society, or its culture, will impact decision-making at both the individual and institutional level.

The result of entrepreneurial decisions in the context of personal preferences and both formal and informal institutional norms and constraints, and given existing endowments of physical, human, and social capital, might be designated Net Entrepreneurial Productivity, or NEP (Sobel, 2008). NEP refers to the welfare impact of productive, value-enhancing actions net of (or relative to) those of unproductive, value-dissipating actions; it can be positive or negative, depending net effects of the various incentive structures that frame entrepreneurial decisions. This balance of productive-to-unproductive impacts is, thus, the result of a complex array of influences that form the basis for the individual cost-benefit analysis that determines not only whether to act entrepreneurially, but also what means to employ and what ends to pursue.

Once such decisions have been made, however, there is the matter of enacting them in a way that accomplishes entrepreneurial objectives. This set of actions results in what can be called the “architecture” for entrepreneurial decisions, or the set of procedures for attaining an end. This idea is somewhat analogous to the decision to build a road from A to B—once the decision has been made to employ certain means to forge a certain path, and the construction of the path takes place, the cost-benefit ratio for future decision-makers about how to get from A to B is affected. Even decision-makers that would have been otherwise inclined to another path or another set of means will have an incentive to use the existing “architecture” to make the journey. Economists often refer to this effect as path dependence, and it applies to decisions

about productive and unproductive means of profit-seeking as well: Once a set of productive (unproductive) means are chosen in a certain institutional context, the architecture for accomplishing entrepreneurial objectives by employing these means is put into place, and it subsequently lowers the cost-benefit ratio for employing similar productive (unproductive) means in the future. Institutional systems, therefore, should be expected to exhibit some degree of isomorphism (DiMaggio and Powell, 1983).

However, as will be argued in the first of three essays that follow this introduction, the entrepreneurial process is not a closed system. Institutional entrepreneurs (DiMaggio, 1988) evaluate the results of decisions made under existing institutional constraints, and may discover opportunities for altering existing institutions in order to incentivize a new architecture for entrepreneurial profit seeking. These innovations could be of either the productive or unproductive variety—thus, an existing architecture could be transformed into either a more value-enhancing one, or a more value-dissipating one, over time as the relative influence of competing interests changes over time. For this reason, public choice theorists such as Ostrom (2009) suggest that polycentric processes for balancing competing interests are likely to produce the best (i.e., most productive) results, because they will do the best at ensuring that institutional innovation is in the direction of norms and rules that benefit a wide variety of interests, rather than those of a few.

The three essays presented in this dissertation relate specifically to the trade-off inherent in the institutional quality argument as it pertains to entrepreneurship: How do both formal and informal institutions affect entrepreneurial decisions to engage in either productive or unproductive forms of entrepreneurial activity? The first essay, “Institutions, opportunities, and the strategy of entrepreneurship,” provides an analysis of the conceptual issues that an

exploration of the trade-off entails, and produces a framework for empirical investigation of institutional impacts on entrepreneurial actions. The premise of this essay is that entrepreneurial decisions actually take place in conceptually distinct stages of a greater entrepreneurial process, and that the differential impacts of both formal and informal institutions on these decisions will depend on the relation of those institutions to the particular time, place, and context in which decisions are being made. Institutions that have a certain impact in one context may have a very different one in another context because the nature or type of decisions may differ. For example, institutions that incentivize venture creation in a context where formal employment opportunities are scarce might disincentivize it in a context where those opportunities are plentiful; likewise, institutions that promote productive entrepreneurial discovery in contexts where information is plentiful and reliable might disincentivize it in contexts where information is scarce or unreliable.

The second essay, entitled “Intra-Industry Entrepreneurship: Productive, Unproductive and Destructive,” presents an empirical application of institutional impacts on the trade-off between productive and unproductive entrepreneurship. Theory and evidence in entrepreneurship suggest that new venture creation often takes place within the context of knowledge spillovers that relate mostly to opportunities within, rather than across, industries (Shane, 2003; Acs and Audretsch, 2011). This essay makes a contribution to the literature by focusing on the spillover-induced nature of entrepreneurial opportunities in an intra-industry setting, and illuminating the extent to which the trade-off between productive and unproductive activities is influenced by industry-specific characteristics. The primary hypothesis is that decisions to engage in productive venture creation vs. unproductive rent seeking will be influenced by characteristics of the industry in which such decisions are being made. The research in this essay is centered on

the following two questions: (1) Do levels of rent-seeking activity within an industry affect the rate and/or success of productive entrepreneurial ventures within the industry, and (2) do industries where growth and/or productivity are falling tend to divert real resources from productive activities into unproductive ones? To test these hypotheses, we formulate a two-stage model in which levels of productive entrepreneurship (net business creation, investments in intellectual capital) are simultaneously determined with levels of unproductive rent seeking (political contributions, lobbying expenditures). Confirmation of our hypothetical priors, indicated by negative relationships between productive and unproductive measures of entrepreneurial activity, as well as a positive (negative) relationships between industry productivity and our measures of productive (unproductive) entrepreneurship, provide evidence for the trade-off between productive and unproductive activities, as well as for a feedback effect by which falling productivity translates into greater incentives for rent seeking behavior.

The third and final essay, “Institutions, Entrepreneurship, and Corruption,” examines another aspect of the trade-off between productive and unproductive entrepreneurship: The choice of means by which entrepreneurial objectives are attained. Corruption, defined as “the abuse of entrusted power for private gain” (Transparency International, 2016), is widely acknowledged as an impediment to productive, growth-enhancing activities (Shleifer and Vishny, 1993; Mauro, 1995, 2004). Within the framework developed by Baumol and other architects of the institutional quality argument, corruption is an example of unproductive entrepreneurship, although it can and sometimes does make positive contributions to social wealth in situations where institutional constraints on productive forms of entrepreneurship are pervasive. To the extent that corruption is an alternative to more productive forms of entrepreneurship, there should be an identifiable, negative relationship between corruption and

measures of productive activity. Likewise, efforts toward the control of corruption should positively affect the level of productive entrepreneurial activity within a society, *ceteris paribus*. Unfortunately, evidence concerning this trade-off is ambiguous due to a number of factors. First, institutional variation can alter the impact of corruption control on productive entrepreneurship. Robust institutions may moderate the relationship between corruption and productive activities much differently than weak institutions; in fact, as alluded to above, there may be cases in which corruption is employed to establish productive, value-enhancing ventures that otherwise could not have existed. Likewise, prior studies indicate that the relationship may be further moderated by levels of economic or political development, FDI, and other factors.

Our study utilizes data on economic development, FDI, labor and product market flexibility, access to domestic credit, and governance from the World Bank and the Fraser Institute's Economic Freedom of the World (EFW) in order to examine evidence of a trade-off between productive and unproductive forms of entrepreneurship. Two measures of corruption are employed: Transparency International's Corruption Perceptions Index (CPI) and the World Bank's Corruption Control Index (CCI). The data is further parsed on the basis of economic development by income level and OECD membership. Using data on both full and parsed samples, we find evidence for the hypothesis of a positive relationship between the corruption control indices and Global Entrepreneurship Monitor (GEM) survey indicators of nascent entrepreneurship. Moderating influences of economic development and institutional quality are also examined using the full and parsed data sets.

Each of the three proposed studies outlined above deal with particular applications of a specific trade-off of interest in entrepreneurship studies as well as business ethics: The allocation of resources and efforts toward productive, value-creating enterprise vs. that toward

unproductive, zero-sum activities associated with rent seeking and corruption. It is hoped that these preliminary investigations will inform a research program that illuminates the causes and consequences of unproductive entrepreneurial activity and assists in the formation of appropriate institutional reforms and policy prescriptions for maximizing the value-creating properties of capitalist enterprise across cultures, societies, and generations.

References

Acemoglu, D., and S. Johnson. 2005. Unbundling institutions. *Journal of Political Economy*, 113(5), 949–995.

Acemoglu, D., S. Johnson, and J. Robinson. 2001. The colonial origins of comparative development: An empirical investigation. *American Economic Review*, 91(5), 1369–1401.

_____. 2002. Reversal of fortunes: Geography and institutions in the making of the modern world income distribution. *Quarterly Journal of Economics*, 117(4), 1231–1294.

_____. 2005. Institutions as a fundamental cause of long-run growth. In the *Handbook of Economic Growth*, edited by P. Aghion and S. Durlauf, 386–472. Elsevier B.V.

Acemoglu, D. and J. Robinson. 2012. *Why Nations Fail: The Origins of Power, Prosperity, and Poverty*. Crown Business: New York.

Acs, Z. and D. B. Audretsch. 2011. Knowledge spillover entrepreneurship. In *Handbook of Entrepreneurship Research*, 273–301. Springer: New York.

Baumol, W. J. 1990. Entrepreneurship: Productive, unproductive and destructive. *Journal of Political Economy*, 98(5): 893–921.

DiMaggio, P. J. 1988. Interest and agency in institutional theory. In L. Zucker (editor), *Institutional Patterns and Culture*, 3–22. Ballinger: Cambridge, MA.

DiMaggio, P. J. and W. W. Powell. 1983. The iron cage revisited: Institutional isomorphism and collective rationality in organizational fields. *American Sociological Review*, 48(2), 147–60.

Drazin, R. and A. H. Van de Ven. 1985. Alternative forms of fit in contingency theory. *Administrative Science Quarterly*, 30(4): 514–539.

Hayek, F. A. 1945. The use of knowledge in society. *American Economic Review*, 35(4): 519–30.

_____. 1948. *Individualism and Economic Order*. Chicago: University of Chicago Press.

Hall, J., R. Sobel, and G. Crowley. 2010. Institutions, capital, and growth. *Southern Economic Journal*, 77(2), 385–405.

Mill, J. S. 1848 [1909]. *Principles of Political Economy with Some of their Applications to Social Philosophy*. W. J. Ashley, ed. Library of Economics and Liberty, 3 March 2017, <<http://www.econlib.org/library/Mill/mlP.html>>.

Murphy, K., A. Shleifer, and R. W. Vishny. 1991. The allocation of talent: Implications for growth. *Quarterly Journal of Economics*, 106(2), 503–530.

Knack, S. and P. Keefer. 1995. Institutions and economic performance: Cross-country tests using alternative measures. *Economics and Politics*, 7, 207-227.

Knight, F. H. 1921. *Risk, Uncertainty, and Profit*. Library of Economics and Liberty. 3 March 2017, <<http://www.econlib.org/library/Knight/knRUP.html>>.

Mauro, P. 1995. Corruption and growth. *Quarterly Journal of Economics*, 110(3), 681-712.

_____. 2004. The persistence of corruption and slow economic growth. *IMF Staff Papers*, 51(1), 1-18.

North, D. C. 1990. *Institutions, Institutional Change and Economic Performance*. Cambridge University Press, Cambridge.

Olson, M. 1996. Big bills left on the sidewalk: Why some nations are rich and others are poor. *Journal of Economic Perspectives*, 10, 3-24.

_____. 2000. *Power and Prosperity: Outgrowing Communist and Capitalist Dictatorships*. Basic Books: New York

Ostrom, E. 2009. Beyond markets and states: Polycentric governance of complex economic systems. In K. Grandin (editor), *Les Prix Nobel: The Nobel Prizes 2009*. Nobel Foundation: Stockholm.

Rumelt, R. P. 1987. Theory, strategy, and entrepreneurship. In D. Teece (editor), *The Competitive Challenge: Strategies for Industrial Innovation and Renewal*, 137-158. Ballinger: Cambridge, MA.

Schumpeter, J. A. 1934 [1955]. *The Theory of Economic Development: An Inquiry into Profits, Capital, Credit, Interest, and the Business Cycle*. Cambridge, MA: Harvard University Press.

Shane, S. 2003. *A General Theory of Entrepreneurship*. Edward Elgar Press: Northampton, MA.

Shleifer, A. and R. W. Vishny. 1993. Corruption. *Quarterly Journal of Economics*, 108(3), 599-617.

Smith, A. 1757 [1976]. *The Theory of Moral Sentiments*. Clarendon Press: Oxford.

_____. 1776 [1870]. *An Inquiry into the Nature and Causes of the Wealth of Nations*. London: Alex Murray & Son.

Sobel, R. S. 2008. Testing Baumol: Institutional quality and the productivity of entrepreneurship. *Journal of Business Venturing*, 23, 641-55.

Transparency International: The Global Coalition against Corruption. 2016. *What is Corruption?*
1 Aug 2016 <<http://www.transparency.org/what-is-corruption/>>.

Tullock, G. 1967. The welfare costs of tariffs, monopolies, and theft. *Western Economic Journal*, 5, 224-32.

Venkataraman, S. 1997. The distinctive domain of entrepreneurship research: An editor's perspective. In J. Katz and R. Brockhaus (editors), *Advances in Entrepreneurship, Firm Emergence, and Growth*, 3, 119-138.

Institutions, Opportunities, and the Strategy of Entrepreneurship

Dr. Gregory M. Dempster
Elliott Professor of Economics and Business
Hampden-Sydney College

ABSTRACT: This article attempts to tackle the questions concerning the impact of formal and informal institutions on the identification, evaluation and exploitation of entrepreneurial opportunities and the direction of entrepreneurial strategies. Entrepreneurship, whether within or without an existing firm, thrives in an uncertain environment characterized by widely dispersed knowledge, mutual interdependence of decision-making, and heterogeneity of both expectations and capital. This environment demands strategic actions that are unique to the entrepreneurial firm, and the resulting strategic orientation has implications for the entrepreneurial trade-off between productive (value-enhancing) and unproductive (rent seeking) activities. The article explores these implications and, in doing so, develops a framework for analyzing the impact of institutions on entrepreneurial action.

Keywords: Institutions, opportunity, entrepreneurial strategy, evolutionary models, market process theory

I. Introduction

Recent scholarship in entrepreneurship indicates a renewed interest in the institutional conditions that are necessary and/or sufficient for entrepreneurship to thrive and make positive contributions to the well-being of members of broader society. Baumol (1990) and Murphy et al. (1991) were among the first to focus on a particular aspect of this relationship: The connection between the structure and quality of political, social and legal institutions, on the one hand, and the allocation or direction of entrepreneurial talent and effort, on the other. This *institutional quality* argument can take many forms, but basically involves questions of (a) what the ultimate consequences of the systematic efforts of entrepreneurs to earn a residual profit are, and (b) in what contexts these consequences vary.

According to the IQ argument, human capital formation—or, for that matter, physical, financial and social capital formation—at the individual level alone does not automatically translate into positive macro-level outcomes, because the institutional (political, legal, and social) environment incentivizes and constrains the use of such capital in diverse, and sometimes *perverse*, ways. According to this view, there is no inherent tendency for entrepreneurs to necessarily engage in value-creating activities that entail positive contributions to social well-being; rather, if this happens, it is itself an artifact of the contextual institutional conditions under which entrepreneurial activity takes place. Welfare-enhancing properties of entrepreneurship are contingent (Drazin and Van de Ven, 1985) upon a set of political, legal and social conditions that may vary significantly both across societies and over time. As summarized by Hall, et al. (2000), “Societal payoffs to improvements in physical and human capital are likely dependent on the institutional environment in which those investments occur.” The structure and quality of institutions will matter for determining the societal consequences of entrepreneurial activities;

“good” or productive institutions will lead to better outcomes than “bad” or unproductive ones. Therefore, a theoretical basis for examining the outcomes associated with various institutional impacts is essential.

Venkataraman (1997) explicitly calls for an investigation of these aspects of productive vs. unproductive entrepreneurship and their relation to policies and institutions. The IQ thesis implies substitutability between forms of productive and unproductive entrepreneurship (see Shane, 2003, p. 145; Buchanan, 1980; Lu, 1994). A number of studies have explored ad hoc empirical aspects of this relationship between institutional and cultural contexts, on the one hand, and entrepreneurial choices about the direction or allocation of effort toward productive and unproductive activities, on the other. Few, however, have directly addressed the issue of substitutability between them. This paper explores the relationship between institutional quality and entrepreneurial decision-making and, in doing so, develops a framework for analyzing the impact of institutions on productive and unproductive entrepreneurial action in the broad framework of comparative political economy. It also addresses some ongoing debates about the nature of opportunities; the relevance of concepts such as discovery and creation, alertness and judgment, and path dependence in understanding the entrepreneurial process; and their implications for the study of interactions between institutions and entrepreneurial decision making.¹

The paper is structured as follows. Section 2 outlines some concepts that are to be employed for analyzing institutional impacts on entrepreneurial actions. Section 3 employs these concepts to define the role of entrepreneurial strategy, while Section 4 relates entrepreneurial

¹ For an outline of the discovery vs. creation debate, see Alvarez and Barney (2007), Alvarez et al. (2011), and Sarasvathy et al. (2011). Critical discussions of alertness and judgment can be found in Klein (2008), Koppl and Minniti (2011), McCaffrey (2014), and Sarasvathy et al. (2013). On path dependence, see Slack and Gartland (2003) and Garud et al. (2010).

strategy to choices concerning productive and unproductive entrepreneurship, and provides causal models and hypotheses of how institutions impact entrepreneurial actions based on the preceding discussions. Section 5 provides a discussion of implications for empirical research in strategy and institutions. Finally, Section 6 concludes with a summary of the findings.

II. What is an Entrepreneurial Opportunity?

Following the foundational description of entrepreneurship studies supplied by Shane and Venkataraman (2000), researchers have tended to focus on the concept of opportunity as the essential motivating factor behind entrepreneurial action: Entrepreneurs are those that identify, evaluate and exploit profitable opportunities to provide future goods and services. This definition simultaneously narrows and deepens the field of entrepreneurial action by defining entrepreneurship as a function, rather than an occupation (small business ownership or self-employment), while opening the scope of entrepreneurial activity to include corporate, institutional, public and social entrepreneurship within the “distinctive domain” (Venkataraman, 1997). In the context of Baumol’s thesis, the concept of opportunity suggests that the institutional factors that “provide incentives for rent seeking entrepreneurial activities (for example, crime and corruption) as opposed to socially productive entrepreneurial activities (for example, founding new organizations)” are those that affect the relative benefits and costs of alternative strategies for seeking and obtaining profits (Shane, 2003, p. 145). Organization around opportunity implies the existence of some form of entrepreneurial strategy, because actions intended to identify, evaluate and exploit opportunities presume *a process by which opportunities can be identified, evaluated and exploited*. In short, purposeful actions presume beliefs about the relation of processes to outcomes. Therefore, institutions impact

entrepreneurship not only in terms of how entrepreneurs organize to exploit opportunities, but also in how opportunities are objectified and evaluated in the first place.

One impediment to understanding this relationship, however, is ambiguity with respect to its object, the entrepreneurial opportunity. Several attempts have been made to better illuminate the concept of opportunity in entrepreneurship. We follow Shane (2003) in conceiving of opportunities as conditions that provide the possibility of ex-post profit. By conditions, we mean either external or internal characteristics of the environment, the firm, or the entrepreneur that are favorable to the likelihood of value creation in excess of opportunity cost. This preserves the common sense meaning of the term opportunity as something that can be developed or uncovered, as well as squandered or missed.

Shane (2003) further expresses the standard view of opportunities as objective phenomena that entrepreneurs identify and exploit through superior alertness, judgment, or skill. Alertness refers to the ability of an entrepreneur to recognize an opportunity for profit and an action that potentially exploit it. Kirzner (1973, 1979, 1985) was the first to explore the idea that alertness is the means by which entrepreneurs discover opportunities and bring them to fruition. Realizing that an unknown (and, ex-ante, unknowable) profit by itself could not account for the motivation to search for the opportunity that leads to that profit, Kirzner posits that alertness is a mental characteristic by which some people recognize opportunities without search (and, thus, without calculations of opportunity cost that characterize search). Thus, alertness acts as the motivating factor for discovery of opportunities; it is, as McCaffrey (2014) points out, a “theory of entrepreneurial incentives” (p. 2). This theory of incentives is, for Kirzner, very different from the standard theory of economic incentives in which a decision maker selects from among a particular set of “already perceived alternatives” (Kirzner, 1985, pp. 94-95). Instead,

entrepreneurial alertness refers to “the ability to notice without search opportunities that have been hitherto overlooked” (Kirzner, 1979, p. 148).

An alternative view, focusing on the concept of judgment as the defining feature of entrepreneurship, derives from a research stream stemming from the work of Cantillon (1931 [1755]), Knight (1921), Mises (1949), and Casson (1982). Judgment refers to the role of the entrepreneur in making “decisions about the coordination of scarce resources” (Casson, 2011). According to High (1982), “*alertness* is the mental quality of being on the lookout for something new; *judgment* is the mental process of assigning relevance to those things we already know” (p. 167, emphasis mine). In the judgment view, the role of the entrepreneur is to “combine heterogeneous assets, which differ in their attributes, and deploy these assets within a firm to the production of new offerings that *may* satisfy customer wants at a profit” (Foss and Klein, 2016, p. 587, emphasis mine). Since opportunities in this context are purely ex post phenomena, this view is mostly agnostic concerning questions of their existence, suggesting the concept itself is “redundant at best, misleading at worst” (ibid.). The judgment view places the entrepreneur in the role of resource allocator under uncertainty.

Another alternative, looking back to the work of Schumpeter (1934) and focusing on the innovative aspect of entrepreneurship (Buchanan and Vanberg, 1991), conceives of opportunities as phenomena that are created by the actions of entrepreneurs themselves. Schumpeter (1934) emphasized the importance of innovation in entrepreneurship, describing the entrepreneur as one who assimilates new or existing knowledge and puts it to a use hitherto unutilized; the entrepreneur, thus, creates a new means-ends framework or production function (Hebert and Link, 1982, pp. 78-79). Schumpeter’s entrepreneur is one who disrupts existing patterns and ways of doing things by introducing something novel. Entrepreneurship, in this view, is more

akin to skills of creativity and leadership than to abilities associated with superior alertness or judgment. Extensions of this approach have been grouped under the category of “creation” views of entrepreneurship, as distinguished from Kirznerian “discovery” views and Knightian “judgment” views (Alvarez and Barney, 2007, 2010; Alvarez, et al., 2014).

Although presented as alternative views of entrepreneurship, it can be argued that these views all represent separate components of the entrepreneurial process, one referring to the ability of the entrepreneur to discover potential external conditions that might exist as a “result of changes in technology, regulation, and other factors [that] generate new information about how resources might be recombined into more valuable forms” (Eckhardt and Shane, 2011, p. 56), another referring to their ability to creatively conceive of how their actions might bring about an opportunity to profit from these potential conditions, and a third to describe the ability of entrepreneurs to make the appropriate investments in heterogeneous assets in order to achieve a profitable outcome. Thus, alertness, judgment, creativity (or imagination) and leadership skills might be considered different components of the same underlying process of opportunity identification, evaluation, and exploitation.

Re-conceptualizing these aspects of entrepreneurship as part of the same process opens the door to more fully understanding the importance of entrepreneurial strategies in the direction of efforts toward productive or unproductive forms of activity. However, it also means recognizing that they are interdependent modes, rather than defining and/or motivating features of entrepreneurial activity. For example, Schumpeterian innovation cannot occur without previous actions relating to the discovery and evaluation of new knowledge (or re-evaluation of existing knowledge), and so cannot explain why entrepreneurs engage in processes of discovery and evaluation in the first place. To argue that the defining features of entrepreneurship are

imagination and leadership is to ignore the fact that some level of purposeful action is often necessary to acquire the knowledge that imagination and leadership can operate on. As Duggan (2007) illustrates, the raw material for a creative breakthrough almost always involves deliberate action in the face of ambiguous, often quickly-changing goals and objectives. Innovative thinking is a result, not an antecedent, of entrepreneurial action.

Likewise, judgment in the form of assigning relevance to new knowledge cannot occur without previous actions relating to the accumulation and integration of information that comprises the new knowledge, and so cannot explain the motivation behind entrepreneurial decisions to acquire knowledge. After all, judgment is an evaluative concept, and one cannot be expected to evaluate the relevance of knowledge that one has not yet accumulated. Obviously, since judgment involves assigning relevance (i.e. value) to acquired knowledge in producing new means-ends frameworks, the ex-ante value of executing judgment itself cannot rest on the ex-post valuation that judgment produces. In other words, if entrepreneurial judgment involves “evaluating opportunities and deciding on which resources need to be assembled to realize an opportunity” (Foss and Klein, 2012, p. 79), then one is still faced with the question of how an opportunity is identified, or objectified, in the first place.

The inability of entrepreneurial innovation and judgment to explain their own cost-benefit analysis is, in a sense, the heart of the problem as originally conceived by Kirzner (1973, 1985). However, although it was proposed as a description of the entrepreneurial incentive to identify opportunities, innate alertness lacks support in this regard on both theoretical and empirical grounds. McCaffrey (2014) notes that the few experimental or empirical investigations of alertness either fail to find evidence of “notice without search” (Demmert and Klein, 2003; Kitmann and Schiereck, 2005) or re-conceptualize it to include search or

previously-acquired knowledge (see, e.g., Jacobsen, 1992; Busenitz, 1996; and Shane, 2000). More problematically, Kirzner's theory rests on a logical premise that is hard to justify, namely that an opportunity for something unknown and previously unlooked for can somehow "attract the attention" of an entrepreneur. As expressed by Kirzner (1985), how can "an unnoticed potential outcome, no matter how attractive, affect behavior" (p. 109)? Kirzner's own answer leaves the question open:

"We do not know...precisely how human beings are inspired by the attractiveness of unknown opportunities...[y]et we know that the driving force behind this energy and this alertness is firmly rooted in the nature of the unknown—precisely the opposite of the economic motivations that govern non-entrepreneurial endeavor" (p. 109).

Thus, alertness, while functioning as an important "explanation of the attention phase" of entrepreneurial action (McMullen and Shepherd, 2006), cannot by itself explain the *motivation* to explore opportunities, particularly those that are ultimately the result of entrepreneurial actions in the first place. A comprehensive perspective on entrepreneurial action must acknowledge that, while judgment precedes innovation and alertness precedes judgment, a theory of entrepreneurial motivation must precede alertness.

One might wonder why a theory of entrepreneurial motivation is even necessary. After all, is not the profit motive enough to account for attempts to discover, evaluate and exploit conditions that might lead to returns in excess of cost? The answer suggested by the present paper is a resounding no. At issue is the concept of cost itself in the entrepreneurial setting: What could possibly indicate the possibility of "profit" without a corresponding evaluation of cost? This goes to the very heart of the problem Kirzner (1973) attempted to address, however unsatisfactorily his notion of alertness actually did so. The theoretical framework presented here is based on the idea that assessments of opportunity cost are an important part of an

entrepreneurial strategy for discovering, evaluating and exploiting conditions for profitable enterprise, and that not only decisions about *whether* to engage in entrepreneurial action, but also decisions about *how* to engage in entrepreneurial action, and *what* entrepreneurial actions to undertake (and not undertake), are based on the differentials in opportunity cost among competing alternatives. Thus, the proposed framework provides a basis for evaluating the decisions potential entrepreneurs make about whether to become actual entrepreneurs, as well as decisions about what kinds of activities they employ in doing so. It also provides a means for analyzing how institutions not only affect the abilities of entrepreneurs to correctly evaluate conditions for profit, but also their strategies for identifying and exploiting those conditions.

III. An Integrated Approach to Opportunity Emergence

The importance of the preceding discussion can be summarized as follows: Notions of opportunity that emphasize only one aspect of the entrepreneurial process, whether it be alertness, judgment, creativity, leadership or any other concept, are insufficient for analyzing the impact of institutions on the strategies and decision of entrepreneurs. Instead, this paper proposes an integrated model of entrepreneurship where each of these represent conceptually distinct, but nonetheless mutually reinforcing, facets of the broader process by which entrepreneurial ideas are transformed by entrepreneurial actions into projects designed to secure net gains in excess of opportunity cost. In the absence of any singular factor that defines entrepreneurship, we must address the question of what motivates, and thus begins, the process in the first place.

One approach that may be useful for understanding what motivates the strategies employed by entrepreneurs in identifying, evaluating and exploiting conditions for profit is the effectuation approach pioneered by Sarasvathy (2001, 2008) and subsequently developed by a

number of researchers. According to this approach, entrepreneurship consists of the emergence of goals and objectives through an enactment of plans generated from the integration of knowledge dispersed interdependently among entrepreneurs and the stakeholders whose future demands he or she intends to serve. The motivation for entrepreneurial action is the formulation of goals and plans on the basis of trial-and-error learning procedures. Thus, the rationality with which entrepreneurs operate is a procedural, not a predictive, one (Sarasvathy and Dew, 2013). This procedural rationality is experimental, iterative, and inductive; and, rather than conceiving of opportunities being first discovered or created and then exploited, instead has them emerge endogenously as part of the process of incremental goal formation and adjustment to the learning achieved as entrepreneurs receive feedback from the actions and decisions they enact in the marketplace.²

The effectuation framework has important implications for how institutions, policies, and culture interact with the entrepreneurial process. Entrepreneurs will be particularly sensitive to the quality of the knowledge about others' preferences, ideas, and motivations that they receive via their exploratory venturing, and how this knowledge relates to the task of forming goals and objectives that can further the aspirations of the entrepreneur and both actual and potential stakeholders. To the extent that this knowledge about others' preferences, ideas, and motivations is thought reliable, it can be employed as the basis for productive, value-enhancing activity. When the institutional or cultural context distorts this knowledge-integration process, however, entrepreneurs will direct their efforts elsewhere, toward more fruitful, less distorted venues of profit creation. These venues might include speculation, corruption, or rent seeking through political and legal connectedness. As Baumol (1990) clearly points out, entrepreneurs will find

² In contrast to the traditional manner of strategy formation, entrepreneurial strategies are a result of this process, rather than a starting point. See, e.g., Jacobsen (1992), Grant (1995), and Harper (1996).

ways to discover and exploit profit opportunities; the extent to which those opportunities benefit society through welfare-enhancing value creation, or diminish society through wasteful, zero-sum redistribution, is more likely to be a matter of institutional context rather than personal or moral inclinations.

The effectuation literature suggests that the process of opportunity development may be the result of more fundamental decision processes by which available means and aspirations are developed into concrete goals and objectives. In the effectuation framework, one can think of the entrepreneurial opportunity as something that emerges from goal formation; that is, opportunities come into existence as (intended or unintended) consequences of methods of problem recognition and goal discovery. The incentives at play are those relating to the formation of goals in response to newly-recognized aspirations or newly-identified means, and only when opportunities emerge from this larger process can they be identified or meaningfully evaluated.

To better understand the implications of this approach, it is helpful to view the entrepreneurial process as having two conceptually-distinct levels. At the micro-level, the entrepreneurial process consists of the emergence of goals and objectives generated from the integration of knowledge, dispersed interdependently among entrepreneurs and the stakeholders whose values they can serve or enhance. Entrepreneurs succeed by choosing the most cost-effective procedures for the accurate and effective integration of dispersed knowledge, and by making the most cost-effective, asset-specific investments implied by interdependent decisions (Schelling, 1960) under a future framework envisioned from the newly acquired knowledge. Entrepreneurial strategies are designed to identify new, previously unidentified sources of value that emerge from this process of problem recognition and goal formation; appraise these sources

of value by employing procedures to discover their benefits for a potential set of stakeholders (“third-person” opportunities); select from among appraised alternatives (means and ends) on the basis of evaluations, feedback, and commitments from stakeholders in order to create a unique value-creating path; and, finally, make the appropriate asset-specific investments deemed necessary to achieve the newly-identified goals (“first-person” opportunity). Figure 1 highlights the evolutionary nature of opportunity formation and enactment in the entrepreneurial framework.

[Insert Figure 1 here]

Thus, there are four distinct aspects of the entrepreneurial process at the micro-level: An attention or recognition phase in which entrepreneurs become aware of a state of affairs where they believe change would be beneficial; a discovery phase in which information is gathered and processed concerning exactly how it can be changed; an evaluation phase during which the entrepreneur assesses the relative costs and benefits of each alternative set of actions identified during the discovery phase; and, finally, an exploitation phases in which asset-specific investments are made in order to submit the chosen alternative to tests of objective feasibility.³

At the macro-level, the results of the entrepreneurial process just described are inputs into a similar process that is broadly referred to as competition (Hayek, 1948; Kirzner, 1973). This process, unlike the micro-level one, is essentially blind in the sense that its operations are not directed by a mind or set of minds; rather, it is the relative success or failure of the micro-level

³ McMullen and Shepherd (2006) suggest two stages of entrepreneurial action, an attention phase and an evaluation phase, in which third-person opportunities (the result of attention) and first-person ones (the result of evaluation) can be distinguished. In present paper, the identification of third-person opportunities is divided into two phases, recognition (which involves attentiveness to a problem situation) and discovery (which matches a set of possible means-ends frameworks to the problem). Likewise, the McMullen and Shepherd evaluation stage is divided into evaluation (in which means-ends frameworks are assessed and selected) and exploitation (where particular asset investments are made in an attempt to achieve a profitable outcome).

investment decisions in the marketplace that determines its evolutionary path. This is where the micro-level process of path creation is transformed into the macro-level phenomenon of path dependence. Markets evaluate the investment decisions produced by the micro-level process in the broader context of competitive exchange, and determine the relative *extent* to which those decisions represent benefits in excess of opportunity costs. Micro-level investment decisions that offer greater relative net benefits will tend to produce greater and/or longer-lived returns (in a present value sense) than those that offer less. It is this macro-level process that produces the social outcomes associated with entrepreneurial decision making. Figure 2 illustrates this view.

[Insert Figure 2 here]

Thus, at the micro-level, the entrepreneur (or entrepreneurial firm) attempts to place itself in the position of an arbitrageur of a new set of expectations the macro-level—with regard to possible futures and current asset values implied—revealed by the process of goal discovery and enactment (Weick, 1979), in the hope of obtaining rents that materialize out of the convergence of those expectations to a new reality. Entrepreneurial strategy identifies and develops opportunities by effectively acquiring and integrating localized, tacit knowledge (Hayek, 1945) and assessing its value under a future market scenario envisioned under newly-formed goals and objectives; entrepreneurial organization exploits them by arranging capital in the manner most conducive to transforming the acquired knowledge into a mutually-beneficial collage of stakeholder relations that will bring about that future market arrangement.

Effectuation suggests that the motivation for opportunity emergence, contra Kirzner, is primarily a matter of problem recognition, or what Mises once referred to as “felt uneasiness” (Mises, 1949). A number of illuminating examples of this can be drawn from the literature.

For example, Sarasvathy (2008) recounts the experience of IBM as told by Olegario (1997), in which the strategy that eventually resulted in the System/360 project involved proceeding

“...without a clearly pre-existing market with well-defined streams of future cash flows and psychologically comforting projections of profit margins. Instead, it leveraged its established customer base and network of relationships to shape and create the market for revolutionary new product lines. The company used prediction not to predict what the market for its new products would be, but to predicting and carrying out the extinction of its current product” (p. 174).

In other words, IBM arrived at an innovative new strategy by re-assessing its goals and objective in light of the information that its previous goals and objectives, including protecting the “financial health” and marketing position of the company, would not be sufficient to maintain the success it had achieved at data processing.

In this integrated model of entrepreneurial strategy, opportunities—or conditions under which profits might be obtained—emerge spontaneously as a result of the process of goal formation, as do alternative paths for evaluating and exploiting them. The entrepreneurial process not only establishes the existence of opportunities, but also evaluates the alternative means by which they can be taken advantage of. Nonetheless, the entrepreneurial process does not imply the successful exploitation of opportunities. Entrepreneurs’ attention can be drawn to the wrong stimuli, so that they miss opportunities that exist or believe opportunities to exist that, in fact, do not; they can be misinformed about internal and external conditions, and therefore fail to properly identify (discover) the nature of an opportunity; they can misjudge the value of alternative means and ends, and thus fail to evaluate alternatives properly; or they can organize ineffectively, and thus fail to exploit the opportunity with cost-effective investments. There is the possibility of error at all four phases of the entrepreneurial process outlined in Figure 1: recognition, discovery, evaluation, and exploitation. We explore these four phases further, and

examine the impact of institutional frameworks on the direction of activities within them, in the next section.

IV. From Entrepreneurial Strategies to Entrepreneurial Actions

An entrepreneurial rent exists only when a venture's ex post benefit stream exceeds the ex ante value of all resources necessary to produce that stream (Rumelt, 1987, p. 143). Therefore, in expectational equilibrium, entrepreneurial rent is zero. Of course, the nature of dispersed knowledge and heterogeneous expectations posited in the entrepreneurial context negates the possibility of expectational equilibrium, and thus creates the conditions of fundamental uncertainty necessary for entrepreneurial rents (Rumelt, 1987; Dew, et al., 2004). These conditions, as elucidated in the micro-level model above, suggest that there are four distinct stages within which entrepreneurial decisions may be impacted by institutional incentives directing activity toward either productive or unproductive forms of opportunity exploitation: (1) The recognition phase, during which attention is drawn to the possibilities of matching goal development with cost-effective entrepreneurial actions; (2) the discovery phase, during which the entrepreneur generates information about the menu of alternatives strategies and organizational constructs available to achieve ends deemed congruent with subjective goals and objectives; (3) the evaluation phase, during which the entrepreneur engages in actions of judgment under uncertainty and makes crucial decisions about resource allocation in order to bring about a preferred outcome, and (4) the exploitation phase, where actual investments in various forms of capital are made and their results measured against implicit and explicit opportunity costs in a market test. More simply stated, entrepreneurs recognize a subjective problem to be solved, discover a set of means and ends consistent with a solution to the problem,

evaluate alternatives in order to choose a unique solution, and make the asset investments suggested by the chosen path. Of course, these functions can be divided among many entrepreneurs, including the division of labor between the exploratory activities of problem recognition and opportunity appraisal by entrepreneur-promoters and the funding activities of formal evaluation and investment by entrepreneur-fanciers.⁴

Exactly how, then, should we expect formal and informal institutions to impact entrepreneurial effort, and how can differentials in institutions explain observable differences in the scope and direction of entrepreneurial profit-seeking? First, it is important to realize that institutions can both impact and be impacted by entrepreneurial decisions. Institutions are constraints that affect the opportunity costs of alternative actions, but are not necessarily fixed in their effects or static in their nature. Entrepreneurial actions can change institutions or alter their relation to outcomes. Nonetheless, at any point in time, institutions represent an architecture that must be accounted for in all phases of the entrepreneurial process.

Both formal institutions, like laws and governance mechanisms, and informal institutions, like norms, customs, and legitimacy, impact opportunity cost and direct entrepreneurial choices. We adopt Williamson's (2000) "hierarchy of levels of social analysis" to provide insight into how formal and informal institutions relate to economic decision making. Table 1 illustrates this hierarchy. Williamson's hierarchy suggests that, the higher the level of social analysis, the more permanent the associated characteristics. Furthermore, each level imposes constraints on the levels below it, so that the effects at lower levels are conditioned by the context imposed at the higher levels. For example, a society's embedded informal institutions (Level 1), which can take from 100-1,000 years to change, will not only constrain the nature of the formal "rules of the game" (Level 2), but also contextualize the effects those rules have on economic behavior. The

⁴ On this distinction, see Klein (2008, 2010).

formal rules, in turn, will constrain structures and policies that govern economic interactions and impact economic growth and political stability (Level 3). These governance structures will ultimately affect the allocation of resources via supply and demand (Level 4).

Employing Williamson's hierarchy, one can better understand Baumol's hypothesis that institutions contextualize the impact of entrepreneurial decision making. The relative permanence of inherited cultural traits and values enables us to make use of heterogeneity of attitudes and beliefs across countries (Level 1) to analyze differentials in the rule of law and the polity (Level 2), contextualizing the effects of the latter on decision making and contracting (Level 3) and, eventually, on actual resource allocation within societies (Level 4). It follows from this general concept that, while differences in the more permanent institutions (Levels 1 & 2) play a role in the persistence and survival of less permanent governance structures and policies (Level 3 & 4), there is nonetheless short-term independence between levels, so that the observable impacts (on resource allocation) of the attitudes and beliefs indicated at higher levels are contingent upon how those attitudes and beliefs are intermediated by the formal institutions and governance structures introduced at the lower levels. In other words, formal institutions and policies matter, though they are constrained in their effects by attitudes and beliefs that are relatively fixed in the short term.

[Insert Table 1 here]

Integrating our earlier discussion on the phases of the micro-level entrepreneurial process with Williamson's hierarchy yields some interesting insights. First, it suggests two different types of institutional impacts at each stage of the entrepreneurial process: (1) An impact dealing with the accuracy or credibility of information about the internal and external environment generated by the entrepreneurial process, and, (2) an impact dealing with differentials in relative

opportunity costs implied by alternative courses of action conditioned on the credibility of the information obtained. So, for example, at the recognition phase, formal and informal institutions will determine what is noticed by entrepreneurs and what is not; they will impact the perceived legitimacy of some courses of action relative to others; and they will impact the perceived opportunity costs of searching for new means-ends frameworks versus the status quo. This can work in both positive and negative ways. For example, individuals operating in an institutional environment that legitimizes authority and conformity above individual autonomy and differentiation are less likely to notice information about opportunities that arise in regard to the latter; nor are they likely to act on such information, even if noticed, to the extent that the activities suggested by it are considered dangerous, anti-social, or otherwise illegitimate, because this raises the perceived opportunity cost of engaging in the discovery, evaluation, and implementation of alternative courses of action. Furthermore, to the extent that institutions distort or constrain information that would legitimize these activities, the entrepreneur faces a signal extraction problem that impedes the accuracy or reliability of the information, making the barriers to legitimacy even greater. On the more positive side, individuals operating in an institutional environment that provides high levels of opportunity and reward for formal employment relative to self-employment are less likely to notice information about opportunities that suggest alternatives related to the latter. Either type of impact represents an increase in the opportunity cost of recognizing entrepreneurial alternatives. A similar dichotomy of impacts can be described for the discovery, evaluation, and implementation phases of the entrepreneurial process.

Therefore, in each phase of the entrepreneurial process, institutions condition both the credibility of the information received and the incentives for using it. This is true not only for

decisions that affect whether someone will act entrepreneurially, but also the manner in which they will do so, i.e., productively, by developing value-enhancing innovations that increase social welfare, or unproductively, by developing means for transferring rents from other, productive activities to themselves. Formal and informal institutions can affect whether goal formation leads individuals to notice conditions for profit from productive or unproductive activities; whether discovery leads individuals to evaluate productive or unproductive forms of entrepreneurship more effectively; whether, among alternatives evaluated, productive or unproductive forms of entrepreneurship are deemed more profitable relative to opportunity cost; and, finally, the extent to which the alternatives implemented end up actually enhancing value or merely re-allocating it from a productive source to an unproductive one.

We can now express the impact of institutions on the allocation of entrepreneurial talent, and skill (or effort) across productive and unproductive activities in the form of two general propositions and a set of correlates:

Proposition 1: Both formal and informal institutions will impact the division of entrepreneurial effort among productive and unproductive activities by affecting (a) the quality and/or quantity of information available for making entrepreneurial decisions, (b) entrepreneurial perceptions of the relative benefits and costs of engaging in entrepreneurial actions at various stages of the entrepreneurial process, or (c) both.

Proposition 2: Both formal and informal institutions will impact the division of entrepreneurial effort among productive and unproductive activities by affecting informational quality and/or quantity, entrepreneurial perceptions of benefit relative to cost, or both, at four conceptually distinct phases: Recognition, discovery, evaluation, and investment.

Proposition 2a: Institutional impacts at the recognition phase will influence what entrepreneurs view as potential opportunities by drawing attention toward certain problems or goals and away from others.

Proposition 2b: Institutional impacts at the discovery phase will influence what potential opportunities are identified by affecting the relative costs and benefits of obtaining information about alternate courses of action recognized by the entrepreneur.

Proposition 2c: Institutional impacts at the evaluation phase will influence what potential opportunities are selected by affecting entrepreneurial perceptions of the relative costs and benefits of alternate courses of action identified by the entrepreneur.

Proposition 2d: Institutional impacts at the investment phase will influence what potential opportunities are exploited by affecting the ability of the entrepreneur to match particular investments selected with conditions that emerge in the market setting where they are made.

Furthermore, one can think of at least three general models relating institutions to entrepreneurial decisions. A mediating model (Figure 3) would suggest that more informal institutions like culture, norms, and legitimate modes of behavior have a causal relationship to more formal ones like policies and rules of exchange. In this scenario, formal rules are ultimately derivative of the underlying norms and values of the society that employs them. A moderating model (Figure 4) would suggest that informal institutions interact with more formal policies and regulatory frameworks to produce a unique set of entrepreneurial incentives that may direct entrepreneurial efforts in one direction (or multiplicity of directions) versus another. Finally, an independent model (Figure 5) would suggest that formal and informal institutions have their own individual impacts on entrepreneurial activity, sometime in mutually reinforcing directions and other times in contrasting ones.

[Insert Figures 3-5 here]

The view of entrepreneurial strategies as goal-formation procedures, out of which opportunities emerge as intended or unintended consequences, has important implications for hypothesis testing in the context of these models of institutional impacts on entrepreneurial activity. If, for example, the mediating model predominates, then it would seem that the direction of entrepreneurial actions toward productive or unproductive activities is primarily one of culture and values; to the extent that this is the case, then the kinds of goals and objectives that will be considered in the goal-formation process, and therefore the opportunities that emerge from it, will be primarily culturally-determined. This means that it is the recognition, or attentiveness, stage (i.e., at the level of variation) at which most differentiation in entrepreneurial activity takes place across cultures and societies; what is seen as a legitimate outlet for achieving goals and objectives in one society could be very different from that in another.

On the other hand, if the moderating model predominates, then the impact of particular formal institutions is contingent upon the informal cultural and normative context. This means that, strategically, the primary role of institutions is to assist entrepreneurs in the discovery of knowledge about norms, values, and other important aspects of stakeholder relations. As recognized by Kirzner (1979), this “[e]ntrepreneurial knowledge is a rarified, abstract knowledge—the knowledge of where to obtain information (or other resources) and how to deploy it” (p. 8). In this context, it is the ability of entrepreneurs to engage in cost-effective knowledge integration capable of producing sound judgments—informative evaluations—that will be the primary indicator of which opportunities are objectified and exploited. Institutions are likely to have their impact at the discovery and evaluation stages of the micro-level process, where judgments are being made about (a) the usefulness of information and (b) the opportunity costs of alternative action paths.

Finally, if formal and informal institutions exhibit independent impacts, then there could be some degree of differentials introduced at all four stages of the micro-level process. Furthermore, there should be no evidence that interaction between formal and informal institutions has any effect on the scope or direction of entrepreneurial efforts; causation should run unambiguously and independently from particular norms, values, laws, policies, and regulatory rules to entrepreneurial actions.

In light of these general models of institutional impacts, we can form three additional propositions concerning the relationship between formal and informal institutions and the allocation of entrepreneurial talent or efforts toward productive and unproductive activities:

Proposition 3: If there is a mediating relationship between formal institutions and policies, on the one hand, and informal institutions of norms, values and culture, on the other, then formal and informal institutions will exhibit mutually exclusive (substitutable) impacts, if any, on measures of productive and unproductive entrepreneurship.

Proposition 4: If there is a moderating relationship between formal institutions and policies, on the one hand, and informal institutions of norms, values and culture, on the other, then formal and informal institutions will exhibit mutually interactive (complementary) impacts, if any, on measures of productive and unproductive entrepreneurship.

Proposition 5: If there is an independent relationship between formal institutions and policies, on the one hand, and informal institutions of norms, values and culture, on the other, then formal and informal institutions will exhibit independent impacts, if any, on measures of productive and unproductive entrepreneurship.

V. Implications for Research in Strategy and Institutions

There are a number of theoretical implications of this view for the relationship between entrepreneurship and strategy. First, entrepreneurial strategies involve a very different logic from those based on a set of actions designed to produce sustained competitive advantage under a set of external conditions *predicted* by the firm and/or a set of internal capabilities *identifiable* in the context of the firm's current goals and objectives (Grant, 1995, 1996). Rather, as evidence from Sarasvathy (2001, 2008) and others suggests, successful entrepreneurs conduct trial-and-error, inductive "learning experiments" (Harper, 1996) by following the logic of procedural rather than predictive judgment (Sarasvathy and Dew, 2013), in order to objectify previously unformulated goals and objectives. Thus, the main problem of entrepreneurial strategy is not how to organize to take advantage of an opportunity, but *how to figure out what comprises an organizational opportunity in the first place*. To be sure, organizational structure may not effectively process and transmit entrepreneurial strategies into actual practice (Cyert and March, 1963; Grossman and Hart, 1983; Milgrom and Roberts, 1992); but, since strategies and organizational structure evolve as part of the same process, the problems of entrepreneurial strategy and organization are rarely as separable as they are when goals and objectives are given, as in a standard management-theory context.

Second, this view of entrepreneurial strategy formation shares much with other views that emphasize the evolutionary, adaptive nature of the strategy process in the context of complex

systems. Much of this work points back as far the work of Barnard (1938) and was later explored in both the management and economics literatures (see, e.g., Boulding, 1956; Thompson, 1967; Anderson, Arrow and Pines, 1988; and Arthur, 1994). The idea behind the open systems framework is that all forms of complex organization are made of interdependent parts that contribute to and receive something from the organization, which is in turn an interdependent part of a larger environment (Thompson, 1967, p. 6). The relations between the interdependent parts within an open system are driven primarily by evolutionary processes, which spontaneously govern the system and its activities (ibid., p. 7). An open system describes processes “related to choice of courses of action in an environment which does not fully disclose the alternatives available or the consequences of those alternatives” (ibid., p. 9). As such, the organization must develop searching and learning capabilities, in addition to decision-making ones, in order to survive.

The open systems approach resembles the description of procedural rationality under fundamental uncertainty developed in this paper. Of particular importance in this context is the role of the entrepreneur with respect to an open system. Entrepreneurs, acting on the basis of imperfect information about both the alternatives available and the consequences thereof, are faced with the task of mediating between the “intrusion of variables penetrating the organization from the outside,” on the one hand, and the requirements of uncertainty-reducing rationalization, on the other (ibid., p. 10). A form of this mediating role for managers is explored by Thompson (1964), and it would seem that a fruitful extension would apply even more directly to the role of the entrepreneur, who deals with the interplay between planning and control in the face of a fundamentally uncertain future as a matter of course.

Research by Beinhocker (1999), Williamson (1999), and Duggan (2007) has extended this evolutionary approach more directly to the problem of strategy formation. Williamson (1999) notes the overwhelming evidence that human beings are notoriously poor at forecasting basic long-term economic and financial variables like economic output and stock market values. The reason is that these variables are subject to a high degree of chaotic, or complex, behavior along with a high degree of persistence, or path dependence. Complex systems are characterized by interdependencies that can magnify small changes in initial conditions into large changes in the overall system. Persistence means that there is a significant amount of irreversibility built into the system. Thus, financial and economic systems tend to be characterized by long, stable periods punctuated by massive dislocations (regime changes, or in a biologist's terminology, punctuated equilibria). Correctly forecasting key long-term variables in such a complex path-dependent system is, thus, quite problematic.

Strategy, in this context, is best thought of as a way of securing real options on future (contingent) states of the world. That is, it should be pursued not to preserve a competitive advantage in the world we expect, but to establish competitive advantage in the world we can't fully anticipate. Thus, strategy is seen as an exercise in portfolio experimentation or evolutionary search, with the goal of producing variation, selection, and retention of profitable business models in an uncertain world. Variation in possible routes toward competitive advantage in the future is achieved by pursuing a number of different long-term strategies in a parallel fashion. Selection of the most advantageous and potentially profitable routes is achieved by analysis of the success with which particular strategies translate into valuable opportunities in future states, or of the knowledge and capabilities obtained by means of those strategies. Finally,

retention of newly-created competitive advantages is maintained by building on the new core competencies and opportunities created by the dynamic strategy portfolio process.

Strategy experts of the Boston Consulting group have recently suggested that single, over-arching strategies no longer fit many of the fast-moving, diverse business environments of the 21st century (Reeves, Haanaes and Sinha, 2012). They identify four alternative strategy frameworks to the traditional method in which a “company sets a goal, targeting the most favorable market position it can attain by capitalizing on its particular capabilities and resources, and then tries to build and fortify that position through orderly, successive rounds of planning” (p. 78). This “classical” method of strategy formation is contrasted with three alternatives: Adaptive, shaping, and visionary. Adaptive strategies are those where “plans take the form not of carefully specified blueprints but of rough hypotheses based on the best available data” (p. 79). Shaping strategies “focus beyond the boundaries of their own company, often by rallying a formidable ecosystem of customers, suppliers, and/or complementors to their cause by defining attractive new markets, standards, technology platforms, and business practices” where “the goal is to shape the unpredictable environment to its own advantage before someone else does” (p. 80). Visionary strategies are referred to as “the kind entrepreneurs use to create entirely new markets..., or corporate leaders use to revitalize a company with a wholly new vision” (ibid.). Interestingly, all three of these alternatives to classical strategy have characteristics of the entrepreneurial method of strategy formation presented here. Strategy in an entrepreneurial environment must be adaptive in its approach to choosing among alternate paths; it must engineer stakeholder involvement in order to control the parameters of the emerging environment; and it must allow for a substantive, visionary commitment to the first-person

opportunities that are eventually chosen for exploitation “so that the vision doesn’t fall victim to poor execution” (ibid.).

It is interesting, perhaps, to compare and contrast this view of entrepreneurial strategy with more well-established perspectives. In particular, at the micro-level, the view of entrepreneurial strategy as a goal formation process can be differentiated from both individual entrepreneurial strategies that focus on particular outcomes of the process (adaptation, shaping, or vision), and the strategic entrepreneurship perspective (SEP), which focuses on the creation and exploitation of competitive advantage by means of an entrepreneurial mindset (Hitt, et al., 2001) or orientation (Lumpkin and Dess, 1996). If *strategic entrepreneurship* involves “entrepreneurial action that is taken with a strategic perspective” (Hitt, et al. 2002), then an *entrepreneurial strategy* involves strategic actions that are taken with an entrepreneurial perspective. In other words, while the SEP illuminates the ways in which acting entrepreneurially can enhance a venture’s strategic success in achieving a sustainable competitive advantage, the framework presented here illuminates the ways in which strategy is employed to *define* the venture and its objectives in the first place. It is, properly speaking, a precursor to strategic pursuit of competitive advantage, although it may form an important part of a firm’s overall strategy for employing an entrepreneurial mindset or perspective to maintain competitive advantage.

At the macro-level, entrepreneurial strategy is the means by which future (contingent) states of the world come into existence.⁵ In recognizing some of the infinite number of third-person opportunities that might exist, discovering the peculiar circumstances of time and place that are necessary to transform them into first-person ones, and then creating the organizational

⁵ Campbell (1965) was among the first to apply the evolutionary model employed here to questions of social and cultural development.

structures required to exploit them, entrepreneurs provide the macro-level variation necessary for economic, social and cultural evolution to take place. Newly-identified market structures compete with older, more established ones in a meta-market for legitimacy and utility among individuals and groups. Over time, these market structures must be modified in response to stakeholder demands that increase legitimacy and/or utility, or else be competed out of the marketplace by more legitimate and/or useful structures. Path dependency, thus, is a double-edged sword; as an indicator of first-mover advantage, it can serve as the means of uniqueness and non-imitability necessary to minimize the impact of competitive pressures, but as a consequence of lock-in, it can impede the ability of the firm to make important business model changes in response to the inevitable evolutionary pressures of market competition.

Among the important implications of the process-oriented view of entrepreneurship involve the ways in which entrepreneurial alertness, judgment and innovation are re-conceptualized as outputs of rather prerequisites to entrepreneurial action. For example, if alertness (or attentiveness) is thought of as an output of a process intended to produce goals and objectives, then the idea that it involves “search without opportunity cost” (Kirzner, 1973) is no longer valid. In fact, entrepreneurs can be expected to account for the costs of identifying third-person opportunities just as surely as they will do for methods of judgment and evaluation that eventually define and exploit first-person opportunities. Of course, since the benefits and costs of an unidentified opportunity are unknowable, these opportunity cost calculations will be made on a very different basis from standard maximizing decisions: They will involve heuristic judgments about the extent to which one would prefer an entrepreneurial lifestyle to other alternatives; the amount of time, effort and social capital necessary to uncover potential opportunities; the quality of information that can be expected to be obtained about opportunities;

the social, cultural and moral values that motivate the search for opportunities; and the perceived likelihood of success in identifying a value-enhancing opportunity.

Calculations of this sort will affect not only whether someone chooses to invest resources of time, effort and social capital in an effort to identify third-person opportunities via goal formation, but also exactly what types of opportunities can be identified. In a highly-controlled environment where political or social connections are the best means for assessing the achievability of goals, entrepreneurs will allocate considerable resources toward finding, establishing and maintaining such relationships, missing opportunities that may be more innovative and value-enhancing but offer less probability of success. Thus, the quality of political, legal, social and economic institutions will be a major factor in both the scope and direction of entrepreneurial activity. To the extent that rent-seeking, zero sum opportunities are generally considered more profitable and/or easier to analyze than value-adding, positive sum ones, entrepreneurs will be incentivized to direct scarce resources of time, effort and social capital toward the former at the expense of the latter.

Likewise, an important aspect of entrepreneurial judgment and evaluation may concern the conditions under which entrepreneurs and firms find the opportunity costs of knowledge discovery prohibitively high, and respond by approaching strategy in a more traditional, predictive manner. For example, if the information gathered via an entrepreneurial discovery process is subject to a high degree of noise or arbitrariness due to regime uncertainty (Higgs, 1997; Baker et al., 2014), entrepreneurs will be less likely to consider it valid, and will severely discount its value. In this situation, it might be more profitable to rely on tried-and-true business models centered on relatively stable goals, at the expense of more innovative strategies that rely on the ability of the entrepreneurial process to appropriately evaluate alternative paths of action.

This has been offered on some occasions as an explanation for the slow recovery of investments in innovation following recent economic downturns (see, e.g., Higgs, 2012).

Finally, the process-oriented view has implications for the relationship between innovative activity designed to organize around first-person opportunities thought to have been identified, and the characteristics of institutional and cultural frameworks that determine the costliness and forms of organization within the community. Particular social and cultural contexts may correlate strongly with specific methods of strategic search as well as with specific ways of organizing around opportunities. Not only might institutions of exchange be more or less conducive to successful organization, they may also be context-dependent in their relation to culture and norms, so that certain institutions match better or worse with certain norms and values, and thus exhibit differentials in their effects on entrepreneurial direction based on how well they reflect the cultural norms and values of the communities they operate within. This would mean that formal institutions and informal, culturally-based norms co-determine the effectiveness and direction of entrepreneurial efforts to identify, evaluate and exploit opportunities.

VI. Conclusions and Further Directions

In summary, this paper has proposed a theoretical framework for understanding the impact of formal and informal institutions in light of how entrepreneurs identify, develop and exploit opportunities, and has explored the strategic foundations of entrepreneurial attentiveness, judgment, and creation in the pursuit of rents. It has developed a view of entrepreneurial strategy formation in which the notions of path dependence, uncertainty, and the heterogeneity of both capital and expectations play a vital role in explaining the manner in which we should expect distinctively entrepreneurial strategy to occur. Most importantly, this paper has argued that an

integrated view of entrepreneurial strategy, in which alertness, judgment, creativity and leadership are considered emergent properties of the entrepreneurial process, has implications for the study of institutions and their impact on entrepreneurial decisions to engage in both productive (value creating) and unproductive (rent seeking) activities. This view, it is hoped, will provide a comprehensive and useful starting point for the study of evolutionary, emergent processes as unique strategic governance structures within the market system.

The models developed here suggest that entrepreneurial strategy, properly understood, is the fundamental process of developing and leveraging knowledge integration structures designed to align stakeholder interests through trial-and-error, inductive procedures of goal discovery, rather than a result of a deliberate process of establishing competitive advantage on the basis of known goals and capabilities, as it is in traditional expositions of strategy. Due to the unique context of entrepreneurial strategy formation, where the prospects for developing competitive advantage on the basis of accurate predictions concerning future 'states of the world' are untenable, entrepreneurial strategies seek to leverage the contingencies of developing states of the world without full (or even sufficient) information of what the range of contingencies might be; thus, entrepreneurial strategies are, by definition, contingent strategies that seek to capitalize on the interdependent, path-creating decision contexts in which future entrepreneurial actions will take place.

Finally, this paper has noted the congruence between the approach developed here and other theoretical frameworks that have attempted to bridge the gaps between organization theory, entrepreneurship, and strategy. What has been added is the notion that the constructs we assign to entrepreneurship, such as innovativeness, alertness, and judgment, are best thought of as emergent outcomes of something more fundamental: A path-creating, knowledge-integrating,

and evolutionary goal discovery process. The building blocks for a theory of strategic action that encompasses institutions, dynamic systems, and purpose-driven agency constrained by bounded rationality and interdependent decision making processes are visible in the dual-level (micro-macro) view of entrepreneurial strategy, where micro-level actions by entrepreneurs in the context of the circumstances of time and place become inputs into the blind process of market variation, selection and retention that determines social outcomes. Detailed case studies of both emerging organizations and corporate strategy-generating procedures, and their macro-level effects, might reveal further principles that will help us understand the underlying mechanisms of economic and social change in the capitalist system which support and/or undermine its stability and its prospects for increasing collective well-being.

References

- Alvarez, S. and J. Barney. 2007. Discovery and creation: alternative theories of entrepreneurial action. *Strategic Entrepreneurship Journal*, 1, 11–26.
- Alvarez, S., J. Barney and S. Young. 2011. Debates in entrepreneurship: Opportunity formation and implications for the field of entrepreneurship. In Acs, Z. and D. Audretsch (editors), *Handbook of Entrepreneurship*, 2nd edition. Boston: Kluwer Academic Press, 23-45.
- Alvarez, S., J. Barney, R. McBride, and R. Wuebker. 2014. Realism in the Study of Entrepreneurship. *Academy of Management Review*, 39(2), 227-231.
- Anderson, P., K. Arrow and D. Pines (editors). 1988. *The Economy as an Evolving Complex System*. Redwood City, CA: Addison-Wesley.
- Arthur, W. 1994. *Increasing Returns and Path Dependence in the Economy*. Ann Arbor: University of Michigan Press.
- Baker, S., N. Bloom, B. Canes-Wrone, S. J. Davis and J. Rodden, 2014. Why has US policy uncertainty risen since 1960? *American Economic Review*, 104(5), 56-60.
- Barnard, C. 1938. *The Functions of the Executive*. Cambridge, MA: Harvard University Press.
- Barney, J. 1991. Firm resources and sustained competitive advantage. *Journal of Management*, 17(1), 99-120.
- Baron, R. 2007. Entrepreneurship: A process perspective. In Baum, J. R., M. Freese and R. Baron (editors), *The Psychology of Entrepreneurship*. London: Lawrence Erlbaum Assoc., 19-39.
- Baumol, W. J. 1990. Entrepreneurship: Productive, unproductive and destructive. *Journal of Political Economy*, 98(5), 893-921.
- Beinhocker, E. 1999. Robust adaptive strategies. *Sloan Management Review*, Spring, 95-106.
- Boulding, K. E. 1956. General systems theory: The skeleton of science. *Management Science*, 2(3), 197-208.
- Buchanan, J. M. 1980. Rent seeking and profit seeking. In J. M. Buchanan, and G. Tollison (editors), *Toward a Theory of the Rent-Seeking Society*. College Station: Texas A&M University Press.
- Buchanan, J. M. and V. J. Vanberg. 1991. The Market as a creative process. *Economics and Philosophy* 7(2), 167-186.
- Busenitz, L. W. 1996. Research on entrepreneurial alertness: Sampling, measurement and theoretical issues. *Journal of Small Business Management*, 34(4), 35-44.

- Cantillon, R. 1931. *Essay on the Nature of Trade in General*. London: MacMillan and Co.
- Casson, M. C. 1982. *The Entrepreneur: An Economic Theory*. Oxford: Martin Robertson.
- _____. 2005. Entrepreneurship and the theory of the firm. *Journal of Economic Behavior and Organization*, 58, 327-48.
- _____. 2011. Entrepreneurship, business culture and the theory of the firm. In Acs, Z. and D. Audretsch (editors), *Handbook of Entrepreneurship*, 2nd edition. Boston: Kluwer Academic Press, 223-246.
- Cyert, R. and J. March. 1963. *A Behavioral Theory of the Firm*. Englewood Cliffs, NJ: Prentice-Hall.
- Campbell, D. 1965. Variation and selective retention in socio-cultural evolution. In Barringer, G., Blanksten and R. Mack (editors), *Social Change in Developing Areas: A Reinterpretation of Evolutionary Theory*. Cambridge, MA: Schenkman.
- Demmert, H. and D. B. Klein. 2003. Experiment on entrepreneurial discovery: An attempt to demonstrate the conjecture of Hayek and Kirzner. *Journal of Economic Behavior and Organization*, 50, 295–310.
- Dew, N., R. Velamuri and S. Venkataraman. 2004. Dispersed knowledge and an entrepreneurial theory of the firm. *Journal of Business Venturing*, 19(5), 659-680.
- Drazin, R. and A. H. Van de Ven. 1985. Alternative forms of fit in contingency theory. *Administrative Science Quarterly*, 30(4), 514-539.
- Duggan, W. 2007. *Strategic Intuition*. New York: Columbia Business School.
- Eckhardt, J. and S. Shane. 2003. Opportunities and entrepreneurship. *Journal of Management*, 29(3), 333-349.
- Foss, N. and P. Klein. 2012. *Organizing Entrepreneurial Judgment A New Approach to the Firm*. Cambridge, U. K.: Cambridge University Press.
- _____. 2016. Entrepreneurial discovery or creation? In search of the middle ground. *Academy of Management Review*, forthcoming.
- Garud, R., A. Kumaraswamy and P. Karnøe. 2010. Path dependence or path creation? *Journal of Management Studies*, 47, 760–74.
- Grant, R. 1995. Analyzing resources and capabilities (Chapter 5). *Contemporary Strategy Analysis*, 2nd edition. Oxford: Blackwell.

_____. 1996. Prospering in dynamically-competitive environments: Organizational capability as knowledge integration. *Organization Science*, 7(4), 375-87.

Grossman S. and O. Hart. 1983. An analysis of the principle-agent problem. *Econometrica*, 51(1), 7-45.

Hall, J C., R. S. Sobel, and G. R. Crowley. 2010. Institutions, capital, and growth. *Southern Economic Journal*, 77(2), 385–405.

Harper, D. 1996. *Entrepreneurship and the Market Process: An Enquiry into the Growth of Knowledge*. London: Routledge.

Hayek, F. A. 1945. The use of knowledge in society. *American Economic Review*, 35(4), 519-30.

_____. 1948. *Individualism and Economic Order*. Chicago: University of Chicago Press.

Hebert, R. and A. Link. 1982. *The Entrepreneur*. New York: Praeger.

Higgs, R. 1997. Regime uncertainty: Why the Great Depression lasted so long and why prosperity resumed after the war. *The Independent Review*, 1(4), 561-90.

_____. 2012. Regime uncertainty: Some clarifications. *Mises Daily*, November 19. <https://mises.org/library/regime-uncertainty-some-clarifications>. 11 June, 2015.

High, J. 1982. Alertness and judgment: Comment on Kirzner. In Kirzner, I. (editor). *Method, Process, and Austrian Economics: Essays in Honor of Ludwig von Mises*. Lexington, MA: D. C. Heath.

Hitt, M. A., R. D. Ireland, S. M. Camp, and D. L. Sexton. 2001. Strategic entrepreneurship: Entrepreneurial strategies for wealth creation. *Strategic Management Journal*, 22(Special Issue), 479–491.

_____. 2002. Strategic entrepreneurship: Integrating entrepreneurial and strategic management perspectives. In M. A. Hitt, R. D. Ireland, S. M. Camp, and D. L. Sexton (editors), *Strategic Entrepreneurship: Creating a New Mindset*, 1–16. Oxford: Blackwell Publishers.

Jacobsen, R. 1992. The ‘Austrian’ view of strategy. *Academy of Management Review*, 17(4), 782-807.

Kitzmann, J. and D. Schiereck. 2005. Entrepreneurial discovery and the Demmert/Klein experiment: Another attempt at creating the proper context. *Review of Austrian Economics*, 18(2), 169-178.

- Klein, P. 2008. Opportunity discovery, entrepreneurial action, and economic organization. *Strategic Entrepreneurship Journal*, 2, 175-90.
- _____. 2010. *The Capitalist and the Entrepreneur*. Auburn, AL: Ludwig von Mises Institute.
- Kirzner, I. M. 1973. *Competition and Entrepreneurship*. Chicago: University of Chicago Press.
- _____. 1979. *Perception, Opportunity, and Profit: Studies in the Theory of Entrepreneurship*. Chicago: University of Chicago Press.
- _____. 1985. *Discovery and the Capitalist Process*. Chicago: University of Chicago Press.
- _____. 1997. Entrepreneurial discovery and the competitive market process: An Austrian approach. *Journal of Economic Literature*, 35, 60-85.
- Knight, F. H. 1921. *Risk, Uncertainty, and Profit*. Hart, New York: Schaffner and Marx.
- Koppl, R. and M. Minniti. 2011. Market processes and entrepreneurial studies. In Acs, Z. and D. Audretsch (editors), *Handbook of Entrepreneurship*, 2nd edition. Boston: Kluwer Academic Press, 217-48.
- Lu, C. 1994. *Entrepreneurship in Suppressed Markets: Private-Sector Experience in China*. New York: Garland.
- Lumpkin, G. and G. Dess. 1996. Clarifying the entrepreneurial orientation construct and linking it to performance. *Academy of Management Review*, 21(1), 135-172.
- McCaffrey, M. 2014. On the theory of entrepreneurial incentives and alertness. *Entrepreneurship Theory and Practice*, 38, 891–911.
- McMullen, J. and D. Shepherd. 2006. Entrepreneurial action and the role of uncertainty in the theory of the entrepreneur. *Academy of Management Review*, 31(1), 132-52.
- Mises, L. 1949. *Human Action: A Treatise on Economics*. Scholar's Edition (1998). Auburn, AL: Ludwig von Mises Institute.
- Milgrom, P. and J. Roberts. 1992. *Economics, Organization and Management*. Prentice-Hall,
- Murphy, K., A. Shleifer, and R. W. Vishny. 1991. The allocation of talent: Implications for growth. *Quarterly Journal of Economics*, 106(2), 503-530.
- Reeves, M., K. Haanes, and J. Sinha. 2015. *Your Strategy Needs a Strategy: How to Choose and Execute the Right Approach*. Boston: Harvard Business Review Press.

Rumelt, R. P. 1987. Theory, strategy, and entrepreneurship. In Teece, D. (Ed.), *The Competitive Challenge: Strategies for Industrial Innovation and Renewal*, 137-158. Cambridge, MA: Ballinger.

Sarasvathy, S. 2001. Causation and effectuation: Toward a theoretical shift from economic inevitability to entrepreneurial contingency. *Academy of Management Review*, 26(2), 243-263.

_____. 2008. *Effectuation*. Northampton, MA: Edward Elgar.

Sarasvathy, S. and N. Dew. 2013. Without judgment: An empirically-based entrepreneurial theory of the firm. *Review of Austrian Economics* (in press).

Sarasvathy S., N. Dew, R. Velamuri and S. Venkataraman. 2011. Three views of entrepreneurial opportunity. In Acs, Z. and D. Audretsch (editors), *Handbook of Entrepreneurship*, 2nd edition. Boston: Kluwer Academic Press, 77-96.

Schelling, T. 1960. *The Strategy of Conflict*. Cambridge, MA: Harvard University Press.

Schumpeter, J. 1934. *The Theory of Economic Development*. Oxford University Press: Oxford, U.K.

Shane, S. 2000. Prior knowledge and the discovery of opportunities. *Organization Science*, 11(4), 448-469.

_____. 2003. *A General Theory of Entrepreneurship: The Individual-Opportunity Nexus*. Edward Elgar: Cheltenham, U.K.

Shane, S. and S. Venkataraman. 2000. The promise of entrepreneurship as a field of research. *Academy of Management Review*, 25(1), 217-226.

Slack, M. and M. Gartland. 2003. Path creation, path dependency and alternative theories of the firm. *Journal of Economic Issues*, 37(2), 487-94.

Thompson, J. D. 1964. Decision-making, the firm, and the market. In Cooper, W., H. Leavitt, and M. Shelly II (editors), *New Perspectives in Organization Research*. New York: Wiley and Sons.

_____. 1967. *Organizations in Action*. New York: McGraw-Hill.

Venkataraman, S. 1997. The distinctive domain of entrepreneurship research: An editor's perspective. In J. Katz and R. Brockhaus (editors), *Advances in Entrepreneurship, Firm Emergence, and Growth*, 3, 119-138.

Weick, K. 1979. *The Social Psychology of Organizing*. Reading, MA: Addison-Wesley.

Williamson, O. 2000. The new institutional economics: Taking stock, looking ahead. *Journal of Economic Literature*, 38(3), 595-613.

Williamson, P. 1999. Strategy as options on the future. *Sloan Management Review*, Spring, 117-126.

Table I: Williamson's Hierarchy of Social Analysis

Level Description/Time Frame

- 1 Embeddedness: informal institutions, customs, traditions, norms, and religion ; 100–1,000 years
- 2 Institutional environment: formal rules of the game, especially property (polity, judiciary, and bureaucracy); 10–100 years
- 3 Governance: play of the game, especially contracting (aligning governance structure with transactions); 1–10 years
- 4 Resource allocation (prices and quantities, incentive alignment); Continuous

Figure 1. Micro-level evolution of an entrepreneurial strategy.

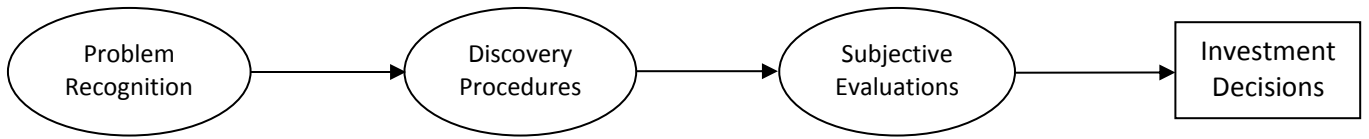


Figure 2. Macro-level evolution of market competition.

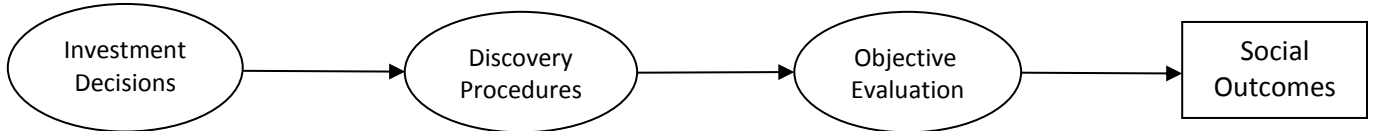


Figure 3. Mediated model of institutional impacts on resource allocation.

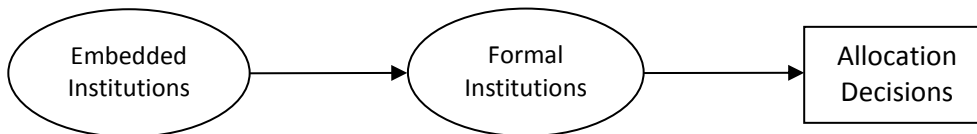


Figure 4. Moderated model of institutional impacts on resource allocation.

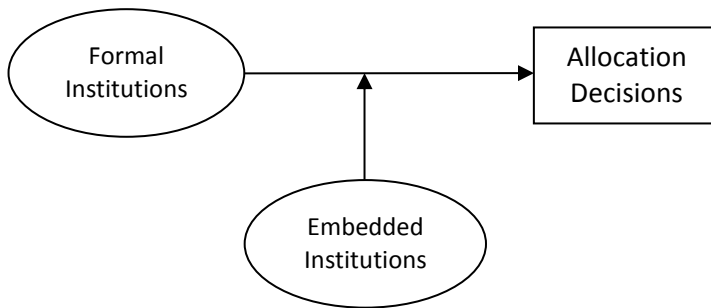
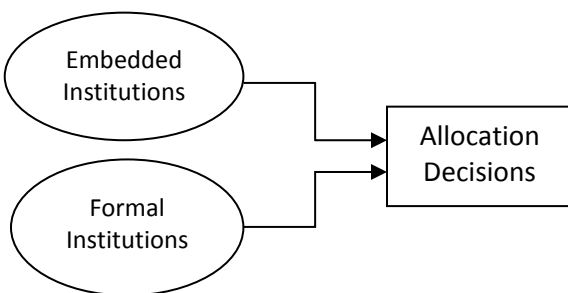


Figure 5. Independent model of institutional impacts on resource allocation.



Intra-Industry Entrepreneurship: Productive, Unproductive, and Destructive

Dr. Gregory M. Dempster
Elliott Professor of Economics and Business
Hampden-Sydney College

ABSTRACT: Baumol (1990) introduced the distinction between productive entrepreneurial activity, which is focused on the creation and exploitation of value-adding innovations within the market sphere, and unproductive activity, in which entrepreneurs seek rents by expropriating valuable assets and property rights from others in the context of a zero-sum, extra-market process. Although originally framed as a theory about profit-seeking choices entrepreneurs make, Baumol's hypothesis has been primarily used as a way to explain differences in economic performance. We extend Baumol's analysis with the additional insight, derived from theory and evidence in entrepreneurship, that much of the trade-off between productive and unproductive activities will be industry-specific due to the predominant role of knowledge spillovers in generating entrepreneurial opportunities, and that this will affect the relative tendencies of industries to generate new ventures by influencing entrepreneurial choices and impacting organizational performance. We support our hypothesis with empirical tests designed to isolate the industry-specific effects of these entrepreneurial trade-offs and determine their impacts on measures of both productive and unproductive entrepreneurship.

Keywords: Entrepreneurship, Institutions, Industry Effects, Net Business Creation, Intellectual Capital, Rent Seeking

I. Introduction

Baumol (1990) introduced the distinction between productive entrepreneurial activity, which is focused on the creation and exploitation of value-adding innovations within the market sphere, and unproductive activity, in which entrepreneurs seek rents by expropriating valuable assets and property rights from others in the context of a zero-sum, extra-market process. This now classic distinction—independently derived and extended by Murphy, Shleifer, and Vishny (1991, 1993) to explain how the allocation of entrepreneurial talent between productive and unproductive occupations, and between private and public forms of rent seeking—has profound implications for innovation and economic growth in modern society. Indeed, an increasing amount of research is focusing on the implications of institutional variation for the economic impact of entrepreneurship. Research has explored the relationship between the quality of institutions and economic growth (Barro, 1997; Gwartney, Lawson, and Holcombe 1999; Aron, 2000; Acemoglu, Johnson, and Robinson 2001, 2002; Glaeser et al. 2004; Rodrik, Subramanian, and Trebbi 2004; Acemoglu and Johnson 2005), measures of productive and unproductive entrepreneurship (Sobel, 2008; Coyne, Sobel, and Dove, 2010), and indications of social progress (Temple and Johnson, 1998; Whitely, 2000; Sobel, Clark, and Lee 2007; Vachris and Isaacs, forthcoming). However, although originally framed as a theory about profit-seeking choices entrepreneurs make, applications of Baumol’s hypothesis have mostly been limited to explaining differences in economic performance. Little research has attempted to address the implications of the productive-unproductive distinction for entrepreneurial choices to engage in new venture creation versus other, unproductive forms of entrepreneurial profit-seeking, such as engaging in political rent seeking or using political influence to increase monopoly power and constrain competition.

We seek to make a contribution to the literature by focusing on the spillover-induced nature of entrepreneurial opportunities in an intra-industry setting, and to illuminate the extent to which the trade-off between productive and unproductive activities is influenced by industry-specific characteristics as opposed to the “rules of the game” that constitute the rent seeking framework within the overall economic environment. In other words, we are interested in the effect of industry-specific institutional structure on the decision of industry insiders to engage in productive new venture creation versus unproductive rent seeking activities. We base this emphasis on theory and evidence in entrepreneurship that much new venture creation takes place within the context of knowledge spillovers that relate mostly to opportunities within, rather than across, industries (Shane, 2003; Acs, et al., 2009; Acs and Audretsch, 2011). This further claim requires justification in both theoretical and empirical terms, which we attempt to provide in this paper. Specifically, we support our hypothesis on the logic of industry-specific spillovers as the basis for many entrepreneurial opportunities, and provide evidence from empirical tests designed to isolate the effects of entrepreneurial trade-offs within industries.

In focusing on the industry-level effects of rent seeking, we do not mean to imply that the overall institutional environment is peripheral to an understanding of the trade-off between productive and unproductive entrepreneurial activities. To the contrary, our hypothesis assumes the validity of the claims made by Baumol (1990), Murphy et al. (1991, 1993), and others. Rather, we are making the additional claim that, once an industry rent seeking architecture is in place, the differential returns to unproductive entrepreneurship (vis-à-vis those to the productive variety) will follow logical, identifiable patterns that depend, in part, on industry-specific characteristics. Thus, our research should be viewed as supportive of the importance of economic

institutions, and further as an extension of the institutional environment to include industry-specific settings in which entrepreneurial decision-making takes place.

Rent seeking refers to the use of real resources in an attempt to gain zero-sum (as opposed to value-added) monopoly profits above opportunity cost (Krueger, 1974). Rent seeking in the form of industry-specific lobbying expenditures and political contributions is a well-recognized and controversial part of the political process in many democracies. Some researchers assert that expenditures of this sort have a harmful effect on the democratic process, claiming evidence that money buys influence and votes.⁶ The distinction between the pursuit of zero-sum monopoly rents and value-adding entrepreneurial profits has proven to be an increasingly useful one in the current literature in entrepreneurship studies. Not only is this distinction an important aspect of overall economic development, as in Baumol (1990), but at the level of the firm or industry, it is also the basis for what differentiates innovative, positive-sum *market-growth* strategies from protectionist, zero-sum *market-share* strategies (Lado, Boyd, and Hanlon, 1997). Thus, we posit a link between long-term success at the level of the firm or industry with that of the overall economic system as considered by Baumol (1999) and Murphy, et al. (1991, 1993). Our paper is, thus, an attempt to identify some of the institutional characteristics that undermine productive enterprise and incentivize the “rent-seeking society” by impacting both entrepreneurial choice and performance.

The nature of the research in this paper is centered on the following two questions:

1. Does the level of rent-seeking activity within an industry affect the rate and/or success of productive entrepreneurial ventures within the industry as evidenced by net business creation and/or investments in research and development and other forms of intellectual capital?

⁶ See, e.g., Welch (1982), Wilhite and Paul (1989), Schroedel (1986), Snyder (1992), and Stratmann (1992, 1995).

2. Do industries where growth and/or productivity are falling tend to divert real resources into unproductive activities, further dampening prospects for productive investments in venture development and innovation?

The remainder of the paper is divided into a review of the background literature, an outline of the basic economic theory and econometric model, a description of empirical tests designed to explore the implications of the model, and a discussion of the results. We conclude with a summary and suggestions for further directions in research.

II. Background

Researchers going back to Schumpeter (1934) have recognized the importance of industry-specific factors for entrepreneurship. For Schumpeter, the important characteristics of industry had to do with the general incentives for a process of “creative-destruction” that produces new products, technologies, methods of production and organization, sources of supply, and markets. Later researchers, influenced by the insights of endogenous growth theory and the new regional economics, expanded Schumpeter’s analysis to include industry structure (Lucas 1978; Evans 1987), geography (Krugman 1991, 1993), knowledge spillovers and human capital (Lucas 1988; Audretsch and Feldman 1996), urbanization and clusters (Glaeser et al., 1992; Ciccone and Hall 1996; Porter 1998), and the institutional environment (Baumol 1990; Lu 1994; Olson 1996). More recent work has focused on the areas of trust and social capital as further extensions of the institutional framework (see, e.g., Fukuyama 1995; Knack and Keefer 1997; and Glaeser et al., 2000; Burt, 1997, 2005; Kim and Aldrich, 2005).

Shane (2003) presents list of industry-specific factors that appear to affect the discovery, creation, and exploitation of entrepreneurial opportunities. Among these industry-specific

factors are knowledge conditions such as research and development intensity, locus of innovation, and the level of uncertainty; demand conditions such as market size, segmentation and growth; life cycle conditions such as age and firm density; appropriability conditions such as patent strength and complementarity of assets; and structural conditions such as profitability, cost, capital intensity, concentration, and average firm size (Shane 2003, pp. 118-43). Acs and Audretsch (2011) confirm the importance of knowledge spillover in promoting entrepreneurial activity in economies experiencing technological change, and summarize the empirical implications of knowledge spillovers for innovation within industries. Importantly, they note a significant amount of evidence that industry concentration “exerts a negative influence on the number of innovations made within an industry” (p. 286). Differences in rates of innovation between industries are also at least partially determined by the “extent to which an industry is comprised of small firms” (ibid.). All of this research lends credence to the idea that different industries will face different incentives in regard to decisions about whether to expend resources on productive, value-creating activities versus zero-sum rent seeking ones.

Likewise, researchers in public choice, constitutional political economy, and political science have produced a rich literature investigating industry rent seeking in the form of lobbying expenditures, political contributions, etc, and their impacts on public policy. The bulk of this literature focuses on the use of contributions to industry-related Political Action Committees (PACs) and on the actions of the ultimate recipients of the contributed funds (the politicians), exploring questions about who is chosen for contributions, the effectiveness of contributions in producing desired behavior, etc. Effectiveness studies in terms of electoral and floor-voting outcomes suggest that industry participants (suppliers) perceive some benefit from making large contributions to representatives (Grier and Munger 1993; Stratmann 1992). While

the literature on such effectiveness is extensive, there has been far less research conducted into the motivation behind engaging in rent seeking behavior in the first place. Given that rent seeking requires the use of real resources with their own associated opportunity costs (Tullock 1967), why would entrepreneurs divert resources from the pursuit of productive opportunities in favor of unproductive, zero-sum opportunities? Olson (1965) hints that this motivation can be found where individuals look to further their own gains at the expense of others in contexts where they are working with (relatively) fixed resource levels. Thus, situations involving slow-growth or even declining resource bases are prime candidates for motivating entrepreneurs to engage in rent seeking behavior. In assuming immobile resources, Olson (1965) sets up a context where all parties are fighting for a piece of the same pie—if one party makes his or her piece larger, another’s piece must be smaller as a result. This type of situation is not universal, but is quite descriptive of a mature or declining industry where entrepreneurs with industry-specific capital are making decisions about whether to pursue productive or unproductive activities.

Thus, the industry-level issues raised by the macro-level analysis of Olson (1965) and others are complex and intriguing. However, very little research has investigated the micro-level influence of PAC contributions, lobbying expenditures, and other rent seeking activities on the entrepreneurial decision to engage in new venture creation, new product development, and other productive, value-enhancing activities, or on the impacts on productivity and success rates for new ventures. If even some resources are highly specific to industry context, then rent seeking must come at the expense of investment in technologies and innovations that will lead to productivity improvements. There is theory and evidence to establish that this is plausible. Lumpkin and Dess (1996) identify five aspects of a firm’s or an industry’s “entrepreneurial orientation” (p. 137): Autonomy, innovativeness, risk taking, proactiveness, and competitive

aggressiveness. Schollhammer (1982) uses an alternative taxonomy for types of entrepreneurial action: acquisitive, administrative, opportunistic, incubative, and imitative. Other taxonomies exist and are employed throughout the literature. Regardless of the characterization used, however, almost all researchers agree that there are systematic differences between firms and industries in regard to the types and intensities of entrepreneurial activity displayed.

Of particular import to the notion of industry differentiation is the existence of “knowledge corridors” by which “existing firms often become the entrepreneurial party in the discovery and creation of new markets by invisibly extending their existing residual contract structure to new entrepreneurial opportunities” (Dew, et al., 2004, p. 672). Penrose (1995) suggests that firms and industries seek endogenous growth on the basis of their superior knowledge base concerning their own product markets, factor markets, and incentive structures. Thus, to the extent that knowledge corridors drive entrepreneurial activity within industries, we would expect even different firms within the same industry to form similar expectations about the appropriate (i.e. most profitable) entrepreneurial actions given a current knowledge base and institutional structure. These common expectations will thus be channeled, to use Baumol’s language, toward some combination of productive and unproductive entrepreneurial activity within the industry framework.

Another micro-level issue to be considered is the extent to which managers of firms within an industry are thought to have a viable exit strategy. Economic theory suggests that firms with residual claims that can no longer be increased in value by way of productive endogenous growth should liquidate so that resources can be moved to other, more highly valued uses. Part of the function of the competitive process in economic theory is to force such liquidations where necessary. Indeed, private companies often “liquidate” when their owners

decide that the firm's value has been maximized. However, owing in part to the separation of ownership and control (Berle and Means, 1935), such liquidation options do not appear to exist in the modern, public firm. Since this means that the primary goals of a firm now involve continuity as a going concern, rather than maximum residual value to the owners, the incentives for employing valuable resources toward unproductive rent seeking are probably greater than the standard theory suggests.

III. Theory and Empirical Model

The theoretical framework for our investigation follows from two basic assumptions. First, intra-industry resource endowments, particularly those associated with industry-specific knowledge spillovers, are perceived to be at least somewhat immobile in the short-run (Olson, 1965; Acs et al., 2009). Second, rent seeking in the form of lobbying expenditures and/or PAC contributions is considered by entrepreneurs with industry-specific capital as an effective avenue for deriving profit from those resources (Baumol, 1990; Murphy et al., 1991; Venkataraman, 1997). Given these assumptions, resources used for the purpose of rent seeking must reduce the amount of resources available in the industry for the production of goods and services and, more importantly, new firms, products, and processes that can be employed for the purpose of productive enterprise. Simply put, using resources to seek rents reduces the ability of the industry to conduct research and development, create new products, modify production techniques, etc. Tullock (1967) suggests the benefits from effective rent seeking and the benefits from being the only firm that sells a specific product, or that uses a particular process, are equivalent. Entrepreneurs, therefore, face an interesting decision: they can use resources to seek political rents, thereby hoping to obtain monopoly profits; or, they can use resources for productive activities such as research and development, thereby hoping to obtain rents from

value creation. In either case, the profit obtained can be thought of as an entrepreneurial rent, as long as its acquisition depends on the industry-specific skill (capital) of the entrepreneur (Rumelt, 1984). A hypothesis one can, thus, formulate is that industries with little or no existing potential to develop new products or new markets will increasingly use their fixed (or decreasing) resource base to seek rents. As the intensity of competition for fixed resources increases, so should the proportion of current resources spent on protecting current profits. For example, declining and slow growth industries may be more likely to expend resources on rent seeking when compared to high growth industries with greater potential to develop new products and new markets.

The other side of this coin is where Baumol's distinction becomes most relevant. In contexts where the pay-offs from rent seeking are high, entrepreneurs will be less inclined to risk valuable resources on risky ventures such as product creation and new venture development. This will be true whether those entrepreneurs are operating mostly within existing firms—in which case the risk is that resources will be used in ways that do not maximize overall firm value—or from without. In the latter case, the significant pay-offs to an existing rent seeking architecture will discourage new entrants, who will find themselves unable to compete with the ability of existing firms to maintain monopoly rents and constrain competitive pressures via the use of political capital.

We propose four hypotheses to examine these implications of Baumol's theory in the context of intra-industry tendencies toward productive or unproductive activities, roughly corresponding to aspects of our two primary research questions above. The first two hypotheses recall our first research question, namely addressing the question of the effects of rent seeking on productive entrepreneurship:

Hypothesis 1: Industries that exhibit a higher degree of rent seeking activity in the form of political contributions and lobbying expenses will experience a lower venture creation and/or success rate than industries that exhibit lower levels of rent seeking.

Hypothesis 2: Industries that exhibit a higher degree of rent seeking activity in the form of political contributions and lobbying expenses will contribute less to research and development (R&D) and other forms of intellectual capital than industries that engage in lower levels of rent seeking.

The rationale behind our primary hypotheses is straightforward: To the extent that there is an intra-industry trade-off between productive and unproductive entrepreneurial activities, industries that contribute more to politically-oriented, zero-sum activities will do so at the expense of productive investments in positive-sum, value-creating ventures. Evidence of this trade-off might be found in either the output of industry venture-creation efforts (net venture creation) or the input into those efforts (intellectual capital investments).

Our second primary research question refers to the consequences of the first, although not strictly conditional upon the initial hypotheses. To the extent that rent seeking is increasingly relied on by entrepreneurs in mature and declining industries, a feedback mechanism can be posited that leads to further decreases in the productive capacity of the industry. This feedback is what transforms the “unproductive” (i.e. zero-sum) aspect of rent seeking into a “destructive” (i.e. negative-sum) process at the industry and societal level. Industries that invest valuable resources in the pursuit of gains by rent seeking will make fewer productive investments in research and development, etc, and thus suffer productivity losses; in other words, efforts toward productive research and development and/or venture creation will be de-emphasized in favor of resource expenditures toward rent creation and acquisition. Thus, less productive industries will engage in higher levels of rent seeking activities, dampening prospects for productive investment and increasing the industry bias toward rent seeking. This leads to at least two additional, second-stage hypotheses linking industry-level productivity and performance to rent seeking:

Hypothesis 3: Mature and declining industries, as indicated by low growth prospects and limited productive capacity, will invest more in the development of capabilities related to rent seeking, and will thus exhibit a higher degree of rent seeking activity in the form of political contributions and lobbying expenses than expanding industries.

Hypothesis 4: Industry concentration, average firm size, government influence on industry profits, and the capital intensity of firms in an industry will have systematic effects on the level of rent seeking in the industry. In particular, more concentrated industries, those with greater flows to or from government via taxes and subsidies, and those with larger (less entrepreneurial, more bureaucratic) and/or more capital-dependent firms will exhibit a greater tendency toward rent seeking.

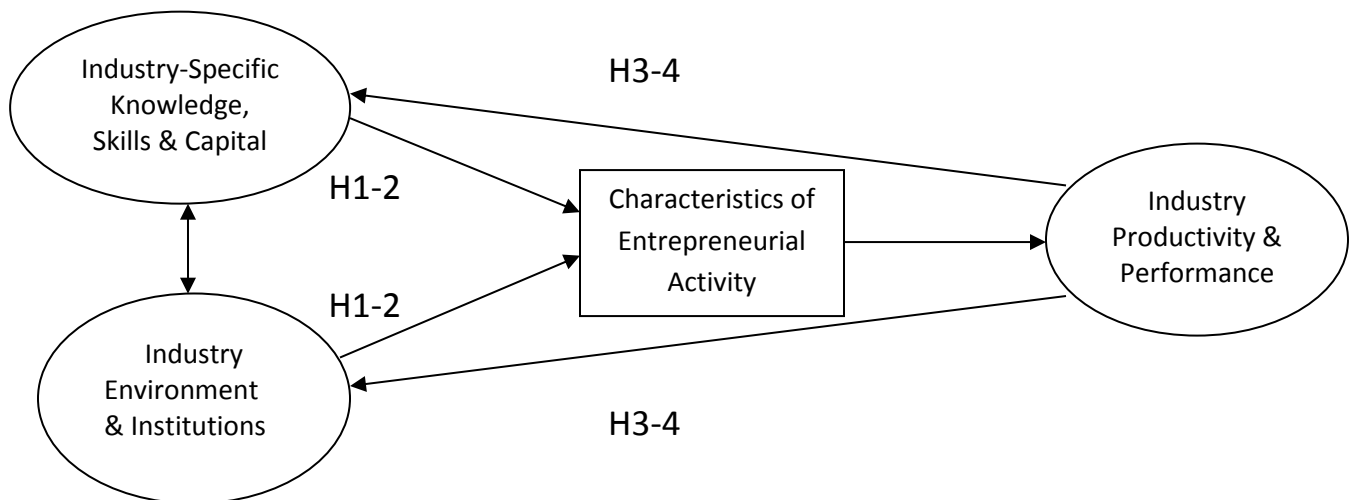
Hypothesis 3 frames the question of feedback as one of increasing tendencies toward productive or unproductive activities as industries construct an internal architecture conducive to the type of profit-seeking that predominates within the industry. It suggests the presence of self-reinforcing “virtuous” and “vicious” cycles of entrepreneurial activity, and thus provides a complete picture of the productive, unproductive, and destructive trichotomy. Evidence of this feedback mechanism may be found in examining the relationships between indicators of industry growth and productivity, on the one hand, and the levels of rent seeking activity employed in testing Hypotheses 1-2. Since growth and productivity are functions of productive entrepreneurial activity, these hypotheses collectively form a two-stage, endogenous model of rent-seeking and its effects within industries where it is evident.

Hypothesis 4 also contains important potential inferences about the nature and relationship of industry-level characteristics, rent seeking, and productivity. For example, one issue concerning the relationship between industry-specific characteristics and unproductive entrepreneurship is whether industries dominated by a few large firms or many small ones are more conducive to rent seeking behavior. There are reasonable theoretical arguments from both sides: One might argue that the managerial discretion associated with high industry concentration and bureaucratic organization is more likely to lead to rent seeking behavior, but an equally plausible argument is that high levels of competition between small (entrepreneurial) firms with

low market share will do the same. Other controls, such as net industry subsidies and capital intensity, may also have systematic effects on the level of rent seeking in the industry.

We form our hypotheses in such a way as to emphasize the endogenous element; i.e., the thesis that a commitment of resources to rent seeking has implications for long run growth and development in an industry and vice versa. However, our empirical specification allows for a number of possible combinations. For example, we can individually model each of the first two hypotheses, relying only on the second-stage equations to account for the feedback effects on rent-seeking activity posited in the last two. Or, we can model all hypotheses separately while using second-stage equations to account for endogeneity in each; in other words, we can produce a two-stage model for every dependent variable we want to analyze: New firm creation, investments in intellectual capital, and rent-seeking activity. This latter method holds the most promise because it allows us to independently model both input (intellectual capital, rent-seeking activities) and output (net firm creation) measures of productive and unproductive entrepreneurship separately, using a common set of industry controls and instruments.

Figure 1. A model of industry-specific entrepreneurial activity.



Our theoretical construct can be illustrated as follows (see Figure 1 above). Entrepreneurs with industry-specific, path dependent knowledge seek the most profitable outlets for their “entrepreneurial expertise” within the industry framework and institutional environment where that particular expertise is relevant. Those outlets must be (*ex ante*) profitable in the individual sense of $MB > MC$ for the entrepreneur, but need not be collectively so for the industry. Furthermore, while the individual entrepreneur retains the option to exit the industry (at the cost of forfeiting the value of their industry-specific capital), firms within the industry are constrained in their ability to transfer resources out of intra-industry employment. Thus, levels of productivity and rent seeking are co-determined within the context of industry organization.

IV. Econometric Data, Tests and Results

For the empirical model, we propose a set of simultaneous, two-stage regressions using the Arellano-Bond (1991) difference generalized method of moments (GMM), where industry-specific levels of entrepreneurial activity are endogenously and jointly determined with measures of industry productivity, other industry characteristics, and the total level of industry PAC contributions and lobbying expenditures, a proxy for rent seeking activities (RSA). This technique is appropriate for our model because we (a) posit bidirectional causality between productive entrepreneurial activity and rent-seeking, and (b) have a relatively large number of cross-sections relative to our time-period length. Further, this technique includes the lagged levels of the dependent variables as instruments, guaranteeing that our endogenous variables are not correlated with the error terms in any of the three structural equations. Finally, by first differencing the variables, we are removing any fixed industry-specific effects because they do not vary with time.

We estimate the econometric model using industry data from the U.S. Census Bureau (www.census.gov/econ), the Bureau of Economic Analysis (www.bea.gov), and the Center for Responsive Politics (www.opensecrets.org) for the years 1998-2012. NAICS industry codes are used to classify industries by type (industries and codes are available on request). Because U.S. Census data is available only in five-year increments from 1997-2012, and the other data is available either annually (BEA) or bi-annually (CRP), we segment the data into four panel increments as of 1998, 2002, 2008, and 2012. Full data descriptions and statistics are contained in Appendix 1. Net Firm Creation and Industry R&D are measured as two-year changes in the number of firms and the level of real intellectual productive capital stock for the industry, respectively.⁷ PAC contributions and lobbying expenses (Industry RSA) are measured in dollars for each bi-annual election cycle. 8-Firm Concentration Ratios and Net Import Subsidy (defined on an inverse scale as net taxes on production and imports less subsidies) are values the observation year; industry productivity on capital is proxied using bi-annual Industry Gross Operating Surplus (GOS), which represents the share of industry income earned on capital; total industry employment divided by the number of firms in the industry is used to measure Average Firm Size; and capital intensity is measured by the Industry Capital-to-Labor Ratio in the observation year.

The first-stage of our econometric model is presented in Equations 1(a)-(b):

$$\text{Equation 1(a): Net Firm Creation}_{it} = \delta_i + \delta_1 * 8\text{-Firm Concentration Ratio}_{it} + \delta_2 * \text{Net Industry Subsidy}_{it} + \delta_3 * \text{Average Firm Size}_{it} + \delta_4 * \text{Industry GOS}_{it} + \delta_5 * \text{Industry Capital-to-Labor Ratio}_{it} + \delta_6 * \text{Industry R\&D}_{it} + \delta_7 * \text{Industry RSA}_{it} + \mu_{it},$$

⁷ There are potentially numerous effects that have to be controlled for in estimating the hypothesized relationships between entrepreneurial activity and current levels of rent seeking activity; however, since we are only interested in the impact of industry-level characteristics on new entrepreneurial decisions, estimating the relationships on the basis of flows limits the impact of omitted variables. We are, thus, able to abstract from concerns with firm age, demand segmentation, and the like.

Equation 1(b): $\text{Industry R\&D}_{it} = \delta_i + \delta_1 * \text{8-Firm Concentration Ratio}_{it} + \delta_2 * \text{Net Import Subsidy}_{it} + \delta_3 * \text{Average Firm Size}_{it} + \delta_4 * \text{Industry GOS}_{it} + \delta_5 * \text{Industry Capital-to-Labor Ratio}_{it} + \delta_6 * \text{Net Firm Creation}_{it} + \delta_7 * \text{Industry RSA}_{it} + \mu_{it}$,

where i =industry, t =time (year), δ_j refers to the sensitivity of productive or unproductive entrepreneurial activity to a one unit change in the independent variable, and ϵ is a random error term distributed normally with zero mean and constant variance. Our dependent variables refer to the change in the number of firms in the industry (Net Firm Creation) by 3-digit industry code, and the change in the index of intellectual capital investment for the industry (Industry R&D). Thus, our input measure includes more than just standard R&D expense; it is a more comprehensive measure of intellectual capital investment. The primary independent variable of interest is Industry Rent Seeking Activity (RSA), which is the sum of industry Political Action Committee (PAC) contributions and lobbying expenses by 3-digit industry code. Controls include measures of industry concentration (8-Firm Concentration Ratio), industry import taxes and subsidies (Net Import Subsidy), number of employees per firm (Average Firm Size), industry productivity (Industry GOS), and industry capital intensity (Industry Capital-Labor Ratio).

Equations 1(a)-(b) represent alternative specifications of the first-stage equations based on Hypotheses 1-2 above. In each case, a measure of productive entrepreneurship is modeled as a function of underlying industry characteristics and a measure of rent seeking activity (Industry RSA) in the industry. Our expectations are that Industry RSA will be inversely related to the two productive measures of entrepreneurial activity. Importantly, we employ both an input and an

output measure of productive entrepreneurship, in order to account for the fact that the effects of rent-seeking on inputs and outputs might not be uniform.⁸

These first stage equations, however, do not account for the endogeneity we introduce in Hypothesis 3. Specifically, we posit that our main variable of interest, Industry RSA, is likely to be a function of the productive v. unproductive entrepreneurial architectures of the respective industries. Furthermore, it is also likely to be a function of the other independent variables such as industry concentration, productivity and the average size of firms. Therefore, our generalized method of moments approach allows for a two-stage modeling format in which Industry RSA is determined endogenously by the other independent variables and a set of instruments that proxy for previous, productivity-induced decisions about rent seeking. Our instruments include initial industry GOS, initial average firm size within the industry, initial number of firms within the industry, and initial industry investment in intellectual capital, along with lagged versions of our differenced dependent and independent variables.

In co-determining rent seeking activity and productivity measures endogenously, we are accounting for the effects referred to in our third and fourth primary research questions, namely that industry stagnation (i.e. low growth in the share of output) encourages rent seeking which, in turn, lowers productive entrepreneurial activity in the industry. The hypothesized result is, thus, a feedback loop in which stagnating or declining industries gradually shift resources into rent seeking activities, further undermining industry growth prospects. As Tullock (1967) points out, this is ultimately a negative-sum game, as valuable resources are used up protecting declining profits and sub-optimal asset allocations. Our tests of Hypotheses 3-4 could be accomplished by

⁸ It should be noted that our output measure, Net Firm Creation, is an indicator of both the likelihood that resources are employed to create new ventures (because it includes the number of ventures formed) and the success rate of those ventures (because it includes the demise of older ventures).

examining the second-stage relationships of our productivity instrument, and the relationships of industry concentration, rivalry (number of firms), and average firm size, to Industry RSA in our second stage equations. However, to ensure that our first-stage relationships are not overly-dependent on our choice of instruments, we choose instead to model the entire two-stage process in reverse; i.e., using Industry RSA as our first-stage dependent variable with the two measures of productive entrepreneurship (net firm creation, investments in intellectual capital) endogenously determined in a corresponding set of second-stage equations. Thus, our feedback equation, in Equation (2) below, is the same for both models in 1(a)-(b):

$$\text{Equation 2: Industry RSA}_{it} = \delta_i + \delta_1 * 8\text{-Firm Concentration Ratio}_{it} + \delta_2 * \text{Net Import Subsidy}_{it} + \delta_3 * \text{Net Firm Creation}_{it} + \delta_4 * \text{Industry R\&D}_{it} + \delta_5 * \text{Industry GOS}_{it} + \delta_6 * \text{Average Firm Size} + \delta_7 * \text{Industry Capital-Labor Ratio}_{it} + \mu_{it},$$

where i =industry, t =time (year), δ_j refers to the sensitivity of rent seeking activity to a one unit change in the independent variable, and ϵ is a random error term distributed normally with zero mean and constant variance. Instruments for estimating our two measures of productive entrepreneurship are identical to those used in the second-stage equations for 1(a)-(b).

Our expectations in regard to the primary hypotheses are as follows: If Baumol's thesis applies in the context of intra-industry activity as we think it should, both Net Firm Creation and Industry R&D should be negatively impacted by Industry RSA in Equations 1(a)-(b). For the feedback equation, a negative impact from our measures of industry productivity (Industry GOS) and productive entrepreneurship (Net Firm Creation, Investments in R&D) on the dependent variable, Industry RSA, would be a further indication that the process is endogenous and self-reinforcing over time. Finally, although we expect at least some of the industry controls to exhibit significant statistical effects on entrepreneurial activity, we do not have firm expectations about which are most likely to be important, nor do we have firm expectations about their

direction. For example, there is evidence that some level of industry concentration is conducive to innovation and development, because it allows for the managerial discretion necessary to enact major investments in long-term productivity like R&D, but that excessive concentration negates this effect as monopolistic firms turn to rent seeking to maintain their industry positions. Thus, theoretical relationships between industry controls, such as concentration ratios, and our variables of interest are somewhat ambiguous.

The results are presented in Tables 1-3 below.⁹ Tables 1-2 contain the coefficients, standard errors, and t-statistics (in absolute value) for the regression of the Equations 1(a)-(b) above, while Table 3 contains the results of the estimation for Industry RSA in Equation (2).

[Insert Tables 1-3 here]

Results presented in Tables 1-2 offer strong support for Hypotheses 1-2 concerning the effect of rent seeking on productive forms of entrepreneurial activity. There is a negative correlation between both Net Firm Creation and Industry R&D and the 2-year change in PAC contributions and lobbying expenses (Industry RSA) by industry participants, suggesting that firms engaging in high levels of rent-seeking activity make fewer productive contributions to venture creation and development, *ceteris paribus*. This is evidence of the shifting of entrepreneurial attention and resources away from productive activity into unproductive rent seeking in order to protect declining market share, establish barriers to entry, and otherwise use political (as opposed to market) mechanisms to acquire rents.¹⁰ Probability levels suggest a high likelihood that the results are statistically relevant. In terms of magnitudes, the results in Table 1 indicate that, for every \$1 million spent on rent seeking activity in a two-year cycle, there will be

⁹ All standard errors reflect White's adjustment for cross-sectional heteroskedasticity. See White (1980).

¹⁰ These relationships are robust to changes in the instrument list employed to estimate Industry RSA.

around 827 fewer net firms added to the industry. This could be because rent seeking activity is discouraging investments in new firms, because it is hindering investment in existing ones and, thus, quickening their demise, or both.¹¹

Likewise, support for the feedback effects of decisions to pursue rent-seeking profits (Hypothesis 3), as opposed to productive venture creation, is shown to be fairly strong in Table 3. More productive industries, as evidenced by Industry GOS, contribute less to rent seeking activity when controlling for industry concentration, average firm size, industry subsidization, capital intensity, and the like. Furthermore, both instrumental measures of productive entrepreneurship retain strong negative relationships with RSA. Industries where productive investment outlets are limited are more likely to devote resources to rent seeking activities. We interpret this to be evidence of *destructive* entrepreneurial activity in the form of resource waste. To use Tullock's (1967) terminology, this goes beyond the well known "dead weight loss" attributed to a misalignment between industry production and efficient output; instead, it is a negative-sum activity that employs valuable resources for the purpose of attaining non-productive rents from consumers and other firms.

Results in Table 3 also relate to impacts explored in Hypothesis 4. An industry's level of import taxes and subsidies is found to be negatively correlated rent seeking. Since Net Import Subsidy is an inverse measure, i.e. higher values actually refer to net taxation, and lower ones to net subsidization, this suggests that one of the primary reasons firms resort to rent seeking is to influence protect subsidies to the industry.¹² Average Firm Size also appears to positively

¹¹ Since our measure of contributions to intellectual capital is based on an index, it is not useful to translate the results from Table 2 into marginal impacts.

¹² This could result in a transitional gains trap, whereby firms expend resources to protect subsidies originally intended to promote venture creation in the first place. See, e.g., Tullock (1975).

impact Industry RSA, indicating that larger, more bureaucratic firms with high numbers of employees contribute more resources to rent seeking than their smaller competitors. None of the other controls employed appears to have a statistically relevant impact on either Industry RSA or our measures of productive entrepreneurship. However, one more result bears mentioning in light of Hypothesis 4. In addition to its inverse impact on Industry RSA, Net Import Subsidy appears to also positively impact productive entrepreneurship via Net Firm Creation (Table 1). This result has been explored before—subsidies are well-established means of promoting venture creation in certain industries—but it also suggests an interesting correlate: Some productive venture creation may be intended to economize on heavily taxed industries in ways that reduce or avoid taxes, perhaps by making use of technical advances to avoid regulatory assessments designed to reduce environmental or other impacts, by organizing in ways that avoid high corporate rates, or by taking advantage of incentive programs that employ subsidies to offset regulatory burdens. More research would be necessary to establish the nature and causes of this relationship, should it prove robust to further estimation.

V. Summary and Conclusions

Many avenues regarding Baumol's (1990) distinction between productive and unproductive entrepreneurship remain ripe for investigation. Following Venkataraman's (1997) definition of entrepreneurship studies as a field of inquiry into "how opportunities to bring into existence 'future' goods and services are discovered, created, and exploited, by whom, and with what consequences" (p. 120), the productive-unproductive distinction bears importantly on some of the major questions of entrepreneurial activity: Who are those most likely to search for entrepreneurial opportunities, how do they go about searching for and discovering those opportunities, and what are the consequences of their entrepreneurial search and discovery? This

paper makes a case that, due to the prominence of industry-specific knowledge spillovers in generating entrepreneurial insights, much of the trade-off between productive and unproductive entrepreneurship needs to be examined on the level of the industry in which the entrepreneur operates. Furthermore, we provide some econometric tests designed to explore these industry-specific trade-offs and to answer some questions about the nature of the relationship between particular industry characteristics and entrepreneurial activity.

Our findings indicate evidence of entrepreneurial trade-offs between productive, value-adding forms (new products, markets, organizational structures, technologies, etc) of profit seeking and unproductive forms of rent appropriation (political contributions, lobbying, regulatory capture, etc). Our results, derived from four full periods of data over the years 1998-2012, represent a significant step toward answering important questions about the relationship between knowledge spillovers and the trade-off between productive and unproductive activities. Specifically, we have identified an intra-industry feedback process by which unproductive, zero-sum investments in rent seeking activities substitute for investments in productive forms of entrepreneurship like venture creation and intellectual capital, and eventually translate into destructive, negative-sum impacts on industry productivity, even when controlling for other political factors like subsidies. This is strong evidence in favor of viewing rent seeking as a “negative sum game” (Tullock, 1967). Further extensions could involve a more comprehensive theory of the relationship between entrepreneurial discovery and the nature of intra-industry knowledge transfer, as well as an improved data set with multiple measures of productivity and rent seeking activity.

Our methodology necessarily focuses on aggregated data to support the overall thesis that industry-specific institutional factors impact entrepreneurial choices and the outcomes of those

choices. We acknowledge that this implies we could also search for this impact at the level of the entrepreneur in a controlled choice setting as well. One interesting extension of this research would be to focus on the micro-level decision making of entrepreneurs under differentials in institutional, social and cultural structure. Perhaps social norms and customs have a role to play in either mitigating or amplifying the impacts identified here.

Table 1: Results of GMM regression for Industry Net Business Creation

<i>Variable</i>	<i>Coefficient</i>	<i>Std. Error</i>	<i>T-stat (Prob. Level)</i>
RSA	-0.000827	0.000390	-2.119907 (.0398)
Industry GOS	-0.300249	0.119898	-2.504207 (.0161)
Capital-Labor Ratio	18.97669	280.5579	0.067639 (.9464)
Net Subsidy	2.576008	0.949821	2.712097 (.0096)
Avg. Firm Size	-431.4705	935.4246	-0.461256 (.6469)
Concentration Ratio	-1.826093	293.0878	-0.006231 (.9951)
Industry R&D	-3018.779	2076.364	-1.453877 (.1532)

J-stat = .60

J-stat (Prob. Level) = .44

Table 2: Results of GMM regression for Industry Investment in Intellectual Capital

<i>Variable</i>	<i>Coefficient</i>	<i>Std. Error</i>	<i>T-stat (Prob. Level)</i>
RSA	-2.28E-07	1.43E-07	-1.591775 (.1188)
Industry GOS	-7.73E-05	6.01E-05	-1.285229 (.2056)
Capital-Labor Ratio	0.002263	0.077009	0.029382 (.9767)
Net Subsidy	-0.110695	0.266184	-0.415859 (.6796)
Avg. Firm Size	0.000664	0.000503	1.319807 (.1939)
Concentration Ratio	-0.002103	0.080156	-0.026234 (.9792)
Net Business Creation	-0.000258	0.000166	-1.553485 (.1276)

J-stat = .69

J-stat (Prob. Level) = .41

Table 3: Results of GMM regression for Industry Rent Seeking Activity (RSA)

<i>Variable</i>	<i>Coefficient</i>	<i>Std. Error</i>	<i>T-stat (prob.-level)</i>
Industry GOS	-331.6273	174.3579	-1.901992 (.0639)
Capital-Labor Ratio	32315.93	323145.7	0.100004 (.9208)
Net Subsidy	-510163.9	1066612.	-0.478303 (.6349)
Avg. Firm Size	2850.028	1407.666	2.024648 (.0491)
Concentration Ratio	-26687.43	337383.6	-0.079101 (.9373)
Net Business Creation	-1067.417	512.7741	-2.081651 (.0434)
Industry R&D	-3448772.	2357605.	-1.462829 (.1508)

J-stat = .58

J-stat (Prob. Level) = .45

Appendix: Variable Descriptions

Variable Name	Definition	Years	Source
<i>Net Business Creation</i>	Change in the Number of Firms by Industry	1997, 2002, 2007, 2012	U.S. Economic Census, U.S. Census Bureau
<i>Industry R & D</i>	Research & Development in Productive Capital Stock (Direct Aggregate-Billions of 2009 Dollars)	1998, 2002, 2008, 20012	KLEMS Intellectual Property Products Capital and Related Measures , Bureau of Labor Statistics
<i>RSA</i>	Sum of Industry PAC and Lobbying Expenditures, Bi-Annual Election Cycle	1998, 2002, 2008, 20012	Opensecrets.com, Center for Responsible Politics
<i>Industry GOS</i>	Gross Operating Surplus by Industry	1998, 2002, 2008, 2012	National Income Product Accounts, Bureau of Economic Analysis
<i>Capital-Labor Ratio</i>	Level of Capital Hours Divided by the Level of Labor Hours	1998, 2002, 2008, 2012	KLEMS Multi-Factor Productivity Tables, Bureau of Labor Statistics
<i>Net Subsidy`</i>	Taxes on Production and Imports Less Subsidies	1998, 2002, 2008, 2012	National Income Product Accounts, Bureau of Economic Analysis
<i>Avg. Firm Size</i>	Average Number of Employees in a Firm by Industry	1997, 2002, 2007, 2012	U.S. Economic Census, U.S. Census Bureau
<i>Concentration Ratio</i>	8-Firm Concentration Ratio	1997, 2002, 2007, 2012	U.S. Economic Census, U.S. Census Bureau

References

- Acs, Z. and D. B. Audretsch. 2011. Knowledge spillover entrepreneurship. In *Handbook of Entrepreneurship Research*, 273-301. Springer: New York.
- Acs, Z., P. Braunerhjelm, D. B. Audretsch, and B. Carlsson. 2009. The Knowledge Spillover Theory of entrepreneurship. *Small Business Economics*, 32 (1), 15-30.
- Acemoglu, Daron, and Simon Johnson. 2005. Unbundling institutions. *Journal of Political Economy*, 113(5): 949–995.
- Acemoglu, Daron, Simon Johnson, and James Robinson. 2001. The colonial origins of comparative development: An empirical investigation. *American Economic Review*, 91(5), 1369–1401.
- Arellano, M. and S. Bond. 1991. Some tests of specification for panel data: Monte Carlo evidence and an application to employment equations. *Review of Economic Studies*, 58, 277-97.
- Aron, Janine. 2000. Growth and institutions: A review of the evidence. *The World Bank Research Observer*, 15(1): 99-135.
- Audretsch, D. B. and M. P. Feldman. 1996. R&D spillovers and the geography of innovation and production. *American Economic Review*, 86 (3), 630-40.
- Barro, R. J. 1997. *Determinants of Economic Growth: A Cross-Country Empirical Study*. The MIT Press: Cambridge.
- Baumol, W. J. 1990. Entrepreneurship: Productive, unproductive, and destructive. *Journal of Political Economy*, 98 (5), 893-921.
- Berle, A. and G. Means. 1932. *The Modern Corporation and Private Property*. Macmillan: New York.
- Ciccone, A. and R. Hall. 1996. Productivity and the density of economic activity. *American Economic Review*, 86 (1), 54-70.
- Coyne, Christopher, R. Sobel and J. Dove. 2010. The non-productive entrepreneurial process. *Review of Austrian Economics*, 23 (4), 333-46.
- Dew, N., Velamuri, S. R., and Venkataraman, S. 2004. Dispersed knowledge and an entrepreneurial theory of the firm. *Journal of Business Venturing*, 19(5), 659-79.
- Evans, David S. 1987. The relationship between firm growth, size, and age: Estimates for 100 manufacturing industries (in competition in the long run). *Journal of Industrial*

Economics, 35 (4), 567-81.

Fukuyama, F. 1995. *Trust*. Simon and Schuster: New York, NY.

Glaeser, E. L., H. Kallal, J. Scheinkman, and A. Schleifer. 1992. Growth in cities. *Journal of Political Economy*, 100 (6), 1126-52.

Glaeser, E. L., D. Laibson, J. Scheinkman, and C. Souter. 2000. Measuring trust. *Quarterly Journal of Economics*, 115, 811-41.

Glaeser, E. L., R. La Porta, F. Lopez-De-Silanes, and A. Shleifer. 2004. Do institutions cause growth? *Journal of Economic Growth*, 9, 271-303.

Gwartney, J., R. Lawson, and R. Holcombe. 1999. Economic freedom and the environment for economic growth. *Journal of Institutional and Theoretical Economics*, 155 (4), 1-21.

Grier, K. B. and M. C. Munger. 1993. Comparing interest group PAC contributions to House and Senate incumbents, 1980-1986. *Journal of Politics*, 55 (3), 615-43.

Knack, S. and P. Keefer. 1997. Does social capital have an economic payoff? A cross-country investigation. *Quarterly Journal of Economics*, 112, 1251-88.

Krueger, Anne O. 1974. The political economy of the rent-reeking society. *American Economic Review*, 64 (3), 291-303

Krugman, P. 1991. Increasing returns and economic development. *Journal of Political Economy*, 99 (3), 483-

_____. 1993. *Geography and Trade*. MIT Press: Cambridge, MA.

Lado, A. A., Boyd, N. G., and Hanlon, S. C. 1997. Competition, cooperation, and the search for economic rents: A syncretic model. *Academy of Management Review*, 22(1), 110-141.

Lucas, R. E. 1978. On the size distribution of business firms. *Bell Journal of Economics*, 9 (2), 508-23.

_____. 1988. On the mechanics of economic development. *Journal of Monetary Economics*, 22 (1), pages 3-42.

Lumpkin, G. T., and Dess, G. G. 1996. Clarifying the entrepreneurial orientation construct and linking it to performance. *Academy of Management Review*, 21(1), 135-72.

Murphy, K. M., A. Shleifer, and R. W. Vishny. 1991. The allocation of talent: Implications for growth. *Quarterly Journal of Economics*, 106 (2), 503-30.

- _____. 1993. Why is rent-seeking so costly to growth? *American Economic Review*, 83 (2), 409-14.
- Olson, M. 1965. *The Logic of Collective Action: Public Goods and the Theory of Groups*. Harvard University Press: Cambridge, MA.
- _____. 1996. Big bills left on the sidewalk: Why some nations are rich and others are poor. *Journal of Economic Perspectives*, 10, 3-24.
- Penrose, E. T. 1959. *The Theory of the Growth of the Firm*. Oxford: Blackwell.
- Porter, M. E. 1985. *Competitive Advantage*. Free Press: New York, NY.
- _____. 1998. Clusters and the new economics of competition. *Harvard Business Review*, November-December, 77-90.
- Schumpeter, J. 1934. *The Theory of Economic Development*. Oxford University Press: Oxford, UK.
- Schollhammer, H. 1982. Internal corporate entrepreneurship. In Kent, C. A., D. L. Sexton, and K. H. Vesper (eds.), *Encyclopedia of Entrepreneurship*. Prentice-Hall: Englewood Cliffs, N.J., 209-23.
- Schroedel, J. R. 1986. Campaign contributions and legislative outcomes. *Western Political Quarterly*, 39, 371-89.
- Shane, S. 2003. *A General Theory of Entrepreneurship*. Edward Elgar Press: Northampton, MA.
- Snyder, J. M. 1992. Long-term investing in politicians: Or, give early, give often. *Journal of Law and Economics*, 35, 15-43.
- Sobel, Russell S. 2008. Testing Baumol: Institutional quality and the productivity of entrepreneurship. *Journal of Business Venturing*, 23 (6), 641-55.
- Sobel, Russell S., J.R. Clark and Dwight R. Lee. 2007. Freedom, barriers to entry, entrepreneurship, and economic progress. *Review of Austrian Economics*, 20, 221-236.
- Stratmann, T. 1992. Are contributors rational? Untangling strategies of political action committees. *Journal of Political Economy*, 100 (3), 647-64.
- _____. 1995. Campaign contributions and congressional voting: Does the timing of contributions matter? *Review of Economics and Statistics*, 77, 127-36.

Temple, J., and P. A. Johnson. 1998. Social capability and economic growth. *Quarterly Journal of Economics*, 113(3), 965-990.

Tullock, G. 1967. The welfare costs of tariffs, monopolies, and theft. *Western Economic Journal*, 5, 224-32.

_____. 1975. *The Transitional Gains Trap*. Bell Journal of Economics, 6(2), 671-78.

Venkataraman, S. 1997. The distinctive domain of entrepreneurship research: An editor's perspective. In J. Katz and R. Brockhaus (eds.), *Advances in Entrepreneurship, Firm Emergence, and Growth*. Greenwich: JAI Press.

White, H. 1980. A heteroskedasticity-consistent covariance matrix estimator and a direct test for heteroskedasticity. *Econometrica*, 48 (4), 817-38.

Whiteley, P. F. 2000. Economic growth and social capital. *Political Studies*, 48(3), 443-66.

Welch, W. P. 1982. Campaign contributions and legislative voting: Milk money and dairy price supports. *Western Political Quarterly*, 35, 478-495.

Wilhite, A. and C. Paul. 1989. Corporate campaign contributions and legislative voting. *Quarterly Review of Economics and Business*, 29, 73-85.

Institutions, Entrepreneurship, and Corruption

Gregory M. Dempster
Elliott Professor of Economics and Business
Hampden-Sydney College

ABSTRACT: Cross country data on corruption, regulation, and entrepreneurship are employed to determine whether a relationship exists between particular market institutions and unproductive (rent seeking) entrepreneurship as defined by Baumol (1990). We employ data from the Global Entrepreneurship Monitor, the World Bank, and the Economic Freedom of the World Report to examine the relationship between perceived corruption levels, formal institutions, and entrepreneurial activity for 88 countries. Our results indicate evidence of a trade-off between productive, value-creating activities and unproductive, extra-legal uses of public resources for private gain. This trade-off, and the institutions that incentivize it, appear to be especially important in low-to-middle income countries with weak governance mechanisms and limited access to financial resources.

Keywords: Entrepreneurship, Corruption, Institutions, Regulation, Economic Freedom

I. Introduction

Literature on the relationship between institutional frameworks, entrepreneurial activity, and cultural norms and values has become increasingly common in both economics and management. Numerous studies have explored the relationship between institutions and economic performance, affirming the importance of institutions for growth and development (see, e.g., North, 1990; Knack and Keefer, 1995; Acemoglu, et al., 2001, 2002, 2005; and, Acemoglu and Johnson, 2005). Likewise, literature that examines the link between the development of cultural norms and values and economic activity has also multiplied (see, e.g., Swank, 1996; Granato, Inglehart and Leblang, 1996; La Porta, et al., 1997; Knack and Keefer, 1997; Whitely, 2000; and, Alesina and La Ferrara, 2002). More recently, this literature has been extended more directly to the study of entrepreneurship. For example, Guiso, Sapienza, and Zingales (2006) show that people's beliefs that others are trustworthy has a significant impact on the probability of becoming an entrepreneur in the United States, while Kwan and Arenius (2008) find a positive relationship between people's perceptions of trust and civic responsibility and the number of new business starts, the status of being an entrepreneur, and the willingness of individuals to contribute funds to new ventures.

We seek to make a contribution to this expanding literature by focusing on one aspect of the relationship between institutions, norms and entrepreneurship: The link between corruption and entrepreneurial activity. Corruption is widely acknowledged as a major impediment to sustained growth and development (Shleifer and Vishny, 1993; Mauro, 1995, 2004), and recently this relationship has been confirmed specifically for the types of innovation-based growth ascribed to entrepreneurial activity (Anokhin and Shulze, 2009). However, both theory and evidence for these relationships is somewhat ambiguous; for example, some studies have

indicated that the relationship between corruption and growth may be positive, or at very least that the relationship depends crucially on other characteristics of the nations studied, such as stage of development or prevailing governance structure. Likewise, influenced by the public interest theory of government regulation, many theoretical approaches to corruption and entrepreneurship in the business ethics literature suggest a positive relationship between entrepreneurship and corruption on the basis of a supposed link between profit-seeking and rule-breaking (see, for example, Karemann, et al., 2016). Even Anokhin and Shulze (2009) indicate that the negative relationship between corruption and entrepreneurship is, importantly, moderated by the amount of foreign direct investment, being much stronger in high FDI countries than in low FDI ones.

The current paper re-examines the link between entrepreneurship and corruption in light of theory and evidence on the role of institutional stability. Our thesis is that much of the ambiguity in the relationship between entrepreneurship and corruption can be explained by a failure to account for the institutional structure that moderates this relationship, including those institutions that impact decisions about (a) whether to engage in entrepreneurship vs. formal employment and (b) what kinds of entrepreneurship represent genuine opportunities. In the presence of stable institutions that promote secure property rights, rule of law, ease of executing transactions (i.e. low transactions costs), and freedom from arbitrary takings, the incentives for using corruption to “grease the wheels” of commerce are reduced, and thus, entrepreneurs should be more likely to engage in productive, legal activities such as starting new business and developing new markets, products, and services. On the other hand, institutional stability also increases opportunities for employment in the formal sector, and thus also represents a cost of entrepreneurship. We jointly test these hypotheses by incorporating measures of institutional

quality from the Fraser Institute's Economic Freedom of the World (EFW) Index into a model of international entrepreneurial activity. The results indicate that not only is institutional quality a major determinant of the level of entrepreneurial activity across countries, but that it also clears up many of the ambiguities previously identified in the literature regarding employment vs. self-employment and productive vs. unproductive entrepreneurship.

II. Background Literature

The primary thesis behind the analysis performed in this paper is that institutions contextualize entrepreneurial actions by influencing the decision to engage in entrepreneurship and by directing subsequent entrepreneurial efforts toward either productive or unproductive activities based on the expectations of costs and benefits under prevailing legal, regulatory, cultural, and social norms (Baumol, 1990; Murphy et al., 1991; Hall et al., 2010). Regarding the decision to engage in entrepreneurship, institutions affect the benefit-to-cost ratio of self-employment relative to seeking and accepting offers of formal employment. Regarding the opportunities entrepreneurs choose to pursue, activity will be directed into productive activities such as new venture creation, investments in physical, intellectual, and social capital, and the like, to the extent that the expected benefit-to-cost ratio of productive activity is greater than for alternative activities. Under certain institutional frameworks, the expected benefit-to-cost ratio of less productive activities might be larger, thus incentivizing decisions that are welfare-reducing at the societal level, though not for the entrepreneurs themselves. One such alternative is corruption, which is the use of public power for private gain (World Bank, 2016).¹³

¹³ Transparency International (2016) uses a similar definition.

The relationship between corruption and economic activity is not a simple one. On the one hand, corruption can be seen as an impediment to the types of productive activities that promote growth and development (Shleifer and Vishny, 1993; Mauro, 1995, 2004; Ovaska and Sobel 2005; Boudreaux 2014; Bologna and Ross, 2015). Thus, corruption and entrepreneurship can be thought of as substitutable means for achieving welfare gains at the individual level, with negative societal implications for those institutional regimes where corrupt activities are incentivized at the expense productive ones. On the other hand, there is evidence that some types of “extra-legal” practices are used in contexts of institutional instability to assist in executing productive, value-enhancing activities (Leff, 1964; Dreher and Gassebner, 2013) that lead to economic growth. This so-called “grease the wheels” hypothesis suggests an important mediating role for institutions with respect to entrepreneurship and growth (Baumol, 1990; Kreft and Sobel, 2005; Sobel, et al., 2007; Bjornskov and Foss, 2008; Wiseman and Young, 2013), although the exact nature of this role has been somewhat difficult to fully define. In some cases, corruption has been found to be more detrimental to growth where institutions are robust (Heckelman and Powell, 2010), while others have found that corruption has more detrimental effects on growth when institutional quality is low, and may, in fact, increase growth when institutions are robust and stable (Swaleheen and Stansel, 2007). Clearly, however, as Dutta and Sobel indicate, “the impact of corruption on entrepreneurship may depend on other factors, such as the quality of existing institutions” (p. 181).

Complicating matters further is the fact that the relationship between corruption and productive economic activity may not be direct, but moderated by other factors such as foreign direct investment (Podobnik, et al., 2007), political regime (Drury, et al., 2006), and/or stage of development (Freckleton, et al., 2011). The fact that these different moderating influences are

likely to be highly correlated with one another makes the task of isolating the exact cause of differential effects on growth and entrepreneurship problematic. Perhaps a bit less intractable is the relationship between innovation and corruption, although Anokhin and Shulze (2009) find evidence that the relationship between corruption and innovative activity is also moderated by the amount of foreign direct investment. Specifically, in addition to identifying a general negative relationship between corruption and innovation, they find that the higher the level of FDI, the more detrimental the effect of high levels of corruption on innovative activity.

Harris, et al. (2009) provide an extensive overview of the literature connecting ethics and entrepreneurship, including the research that relates corruption to entrepreneurial activities. They note that empirical links between corruption and entrepreneurial innovation are important because they have “implications for the relationship between entrepreneurship and economic development” explored in previous studies (p. 412). For example, this relationship may depend crucially on both the formal and informal institutional framework that links the actions of entrepreneurs to either socially-productive or socially-unproductive outcomes in terms of development and well-being (Baumol, 1990; Davidson and Ekelund, 1994; Minniti, 2008; Sobel, 2008). Along these same lines, Davidsson and Wicklund (2001) refer to “robber enterprises” that impose social welfare losses while in pursuit of private gains. Indeed, the long-standing public interest theory of government regulation (see, e.g., Pigou, 1934; Posner, 1974) rests on the assumption that private decision-makers, if unmonitored, will often impose such losses on society as a result of pursuing their private interests. It is, therefore, of considerable importance that researchers uncover how, and under what conditions, entrepreneurship and corruption are either complementary or substitutable activities, so that appropriate policies can be designed to promote the welfare-enhancing activities of entrepreneurs while limiting welfare-reducing ones.

One way of framing decisions about whether to pursue opportunities and what kinds of opportunities to pursue is on the basis of a simple two-dimensional matrix (see Figure 1). Some institutional frameworks incentivize formal employment and productive entrepreneurial activities, resulting in an economic system that abounds in opportunities to employ talents, skills, human capital, and ingenuity in a variety of ways. Others dis-incentivize both types of decisions, resulting in highly corrupt, dysfunctional social systems where rent seeking is the only viable means of individual welfare enhancement. Of course, many institutional frameworks fall between these extremes. For example, formal institutions under communism incentivized rent seeking and corruption directly by penalizing almost all legitimate forms of productive entrepreneurship, but also indirectly by making the state the sole arbiter of property rights, thus incentivizing formal employment over entrepreneurship. Furthermore, these formal institutions eroded underlying, informal institutions, like social networks and general levels of trust, thereby reinforcing incentives toward the use of public power for personal gain, to the extent that once the formal institutions were altered, economic agents continued to operate in ways that emphasized the use of public power over innovation and value-creation. Even nominally free property rights regimes may incentivize such behavior if the rules of the game are ambiguous, unclear, or subject to arbitrary exceptions. This can be described as a form of institutional instability, where the security of property rights and other legal protections is suspect and, therefore, the return to rent seeking and corruption is higher than would otherwise be the case.

[Insert Figure 1 here]

We return to this two-dimensional trade-off below in the discussion of our empirical results. For now, a few brief implications are worth mentioning. First, productive returns to good governance will be subject to differentials on the basis of whether viable alternatives in formal

employment exist. Improvements in governance where those alternatives are scarce are likely to improve conditions for formal employment to develop and, thus, might negatively affect productive entrepreneurship by moving labor from the informal sector, where property rights protections are less stable, into the formal sector. Second, the implied trade-off suggests that, where formal employment options are widely available, the ease of entry and exit into and out of the formal sector will be a factor influencing decisions to create productive ventures, as formal employment represents a substitute for venture creation in that environment. By contrast, labor market conditions are largely irrelevant where formal employment options are very scarce. Finally, the greatest net rewards to unproductive entrepreneurship (corruption) overall are to be expected in environments where the opportunity costs of productive entrepreneurship are already high, i.e., where the formal employment sector is already well-developed. This suggests that the use of corruption to “grease-the wheels” of productive activity might be most likely in developed economies, where formal employment options raise the opportunity cost of productive entrepreneurship.

III. Data and Methods

Our data covers the period 2001-2011 in five-year increments and is compiled from a variety of sources. Data for each period always refers to the latest observation available for that period. Our primary measure of entrepreneurial activity is drawn from the Global Entrepreneurship Monitor (GEM), which has administered survey questions on aspects of entrepreneurial behavior and attitudes across over 100 nations for over 17 years. These survey questions include self-reports on whether individuals consider themselves nascent entrepreneurs or owner/managers of small businesses. We take the rate of affirmative answers to these questions, known as Total Entrepreneurial Activity (TEA), to represent a measure of both formal and informal entrepreneurship for a particular country. Thus, our dependent variable is a measure of the extent of entrepreneurialism at a point in time, and changes in this variable over time will capture both interest and success in establishing and maintaining entrepreneurial ventures in a specific socio-cultural context.

Causal characteristics for this rate of entrepreneurial activity are derived from a comprehensive World Bank study by Klapper, Amit, and Guillen (2010) that explores entrepreneurial entry rates as a function of initial wealth, labor market regulations, domestic credit conditions, the number of entry procedures necessary to start a business venture, and governance mechanisms that influence economic stability. Our study retains these primary causal characteristics, but we substitute equivalent measures of labor market regulations, domestic credit, ease of entry, and governance from the EFW database for the World Bank measures. Each of these measures is an index constructed to be higher where economic freedom is enhanced; i.e., they report higher values for less labor market regulation, easier credit conditions, fewer entry procedures, and more sound governance structures. The governance

measure, in particular, is adjusted to net out sub-components that relate directly to corruption control.¹⁴ Finally, in light of evidence from Anokhin and Shulze (2009) and others, we include a measure of foreign direct investment (FDI) among the independent variables that determine entrepreneurial activity. FDI is measured in terms of annual inflows and drawn from World Bank data.

The primary independent variable of interest, corruption, is measured on an inverse scale using two different indexes, meaning that the highest scores on the indexes correspond to the lowest levels of corruption. We choose to employ both Transparency International's Corruption Perceptions Index (CPI) and the World Bank's Corruption Control Index (CCI). We base this decision on a number of factors. First, the indexes are available for a relatively large number of countries during our time period of study. Second, they have been used extensively in other studies on both the causes and consequences of corruption in the economic sphere. Finally, we expect that it is primarily people's perceptions of corruption, rather than any actual figures in terms of dollar values, fraud convictions, etc., that will tend to exert the greatest influence on individual decisions to engage in entrepreneurial activity. The CPI and CCI are the most credible and comprehensive measures to date that gauge these perceptions across countries and over time.

Our full data set consists of 56 countries over two, five-year time periods, treated as a pooled regression with random country effects by period. This allows us to abstract from both cross sectional and time series differences between countries in terms of cultural and other non-economic factors that determine entrepreneurial activity. Missing data for particular periods or countries is treated as non-systematic, and those data points are dropped entirely from the

¹⁴ Specifically, the Business Cost of Crime subcomponent is excluded.

sample. This limits our full sample to 88 observations, with a little over half (47) consisting of high-income countries with annual per capita GDP in excess of \$12,500. The basic empirical model can be expressed as follows,

$$(1) TEA_{it} = \alpha_{it} + \beta_1 * \text{Log of Per Capita GDP}_{it} + \beta_2 * \text{Ease of Entry}_{it} + \beta_3 * \text{Labor Market Regulation}_{it} + \beta_4 * \text{Domestic Credit}_{it} + \beta_5 * \text{Governance Quality}_{it} + \beta_6 * \text{FDI}_{it} + \beta_7 * \text{Corruption}_{it},$$

where TEA refers to our measure of entrepreneurial activity for country i in time period t, independent variables are measured as previously described, α is a unique intercept term, and β refers to the marginal impact of a one unit change in the independent variable on TEA.

Given the finding that FDI may moderate the influence of corruption on entrepreneurship and growth, we produce an alternative equation that is almost identical to (1) except that it includes an interactive term for the aforementioned influence,

$$(2) TEA_{it} = \alpha + \beta_1 * \text{Log of Per Capita GDP}_{it} + \beta_2 * \text{Ease of Entry}_{it} + \beta_3 * \text{Labor Market Regulation}_{it} + \beta_4 * \text{Domestic Credit}_{it} + \beta_5 * \text{Governance Quality}_{it} + \beta_6 * \text{FDI}_{it} + \beta_7 * \text{Corruption}_{it} + \beta_8 * \text{FDI} * \text{Corruption}_{it},$$

where all variables are defined as above. Furthermore, in addition to estimating these relationships for the full sample, we also produce separate estimates for high-income (per capita GDP > \$12,500) and low-income countries, as well as for OECD and non-OECD countries (as an alternative development dichotomy). This is intended to give us a clear picture about how the complex relationship between corruption, development and foreign investment should best be understood. Estimates are derived using both the CPI and CCI measures of corruption perceptions.

IV. Results

Our first set of results focuses on the impact of corruption on entrepreneurial activity, considering foreign direct investment (FDI) only as an independent influence on the relationship. These results are presented in Tables 1-2 below. All standard errors are consistent via White's (1980) adjustment for heteroscedasticity. Table 1 contains results for our baseline equation (1), using the CPI as the measure of corruption, run on the full sample of countries as well as on subsamples segmented on the basis of income using the World Bank cutoff of \$12,500 for high-income countries and, alternately, OECD membership. The full sample results indicate that corruption has a marginally significant (Prob. Level < .10) correlation to entrepreneurship with a moderate magnitude; each additional unit of corruption (on a 0-10 scale) reduces the probability of a respondent identifying as an entrepreneur by about .67 percent. The primary determinants of this likelihood, according to the full sample, are initial development (inversely related to entrepreneurship), ease of entry procedures (positively related), and governance (inversely related). The first two of these relationships fit well with expectations, the latter less so on the surface; however, we posit that this inverse relationship between governance and entrepreneurship is capturing the effects of opportunity cost to work in the formal sector, which will be higher in countries where governance structures are well-established and stable. Thus, stable governance improves economic opportunity so much that it eliminates the type of informal "necessity" entrepreneurship that becomes prominent when sound institutions are lacking (DeSoto, 2000). Financial factors (domestic credit, FDI) also matter, though the magnitude of their impacts is small, while there is no evidence that labor market regulation impacts entrepreneurship at all.

Our baseline results portray a clear and intuitive picture about the determinants of productive entrepreneurial activity. Convergence appears to be important as important in explaining entrepreneurship as it is in explaining economic growth, and probably for the same reasons. The direct costs of entrepreneurship are reflected in a positive relationship between ease of entry (low numbers of entry procedures) and entrepreneurial activity. More importantly, implicit (opportunity) costs are also reflected in the fact that sound governance (property rights, rule of law, etc.) is negatively correlated with entrepreneurship. We take this result to indicate that these institutions incentivize formal employment over self-employment, holding other factors constant. Financial access (domestic credit) also matters, as does the presence of FDI; both indicate a small, positive impact on the level of entrepreneurial activity. The latter two impacts fit well with the previous literature.

[Insert Table 1 here]

The picture becomes even clearer when we segment the sample into high and low income countries. For the low income subsamples, the impacts of entry procedures, governance, domestic credit, and corruption become much more prominent, lending credence to the thesis that unsound institutional frameworks in these low income countries are among the most important factors in limiting economic progress. By contrast, apart from entry procedures, few of our independent variables exhibit large impacts on entrepreneurship for the high income countries, with initial wealth and governance becoming statistically insignificant, and CPI exhibiting a negative impact on entrepreneurship in the estimation with the World Bank income segmentation measure. This is an indication that, in higher income countries with firmly-established governance structures, it is primarily ease of entry that matters for the decision to establish new ventures; furthermore, in some cases corruption may be employed by entrepreneurs to

get around burdensome restrictions and, thus, might have a positive impact on their ability to establish such ventures. Finally, less labor market regulation also exhibits a positive, statistically-significant impact on entrepreneurship in high income countries, suggesting that entrepreneurial decision-making in these countries is also influenced by the extent to which labor markets offer the opportunity to return to regular employment in the future (barriers to exit) and/or ease with which entrepreneurs can add and remove employees. Thus, the opportunity cost of entrepreneurship vis-à-vis formal employment is captured more directly in the high income subsample by the level of labor market regulation. Overall, this evidence is consistent with the idea that the primary impediments to effective entrepreneurship in rich-world countries are the barriers to entry, exit, and growth that characterize overly-burdensome regulatory regimes.

[Insert Table 2 here]

Table 2 presents essentially the same set of estimates for equation (1) using the World Bank corruption measure (CCI). For the most part, the results in Table 2 hold to form as they did in Table 1. For example, ease of entry seems to matter regardless of income levels, while labor market regulations exhibit an important impact in the case of high income countries only. Segmenting on the basis of OECD membership rather than income level further demonstrates that financial access (domestic credit, FDI) is primarily an explanatory factor in low and middle income countries. Most importantly, using the CCI as the corruption indicator, regardless of whether we are segmenting on the basis of income level or OECD membership, confirms that corruption is highly and inversely correlated with entrepreneurship overall and for low income countries, but fails to establish any significant impact in high income countries; the positive relationship between corruption levels and entrepreneurship for rich countries in Table 1 disappears, and even becomes negative with a low impact when income is segmented on the

basis of the World Bank definition. Since the only difference between these estimates and those in Table 1 is the corruption measure, this result suggests that the “grease the wheels” phenomenon we see in one Table 1 specification is not overly robust to alternative specifications of corruption. In fact, based on the entirety of the analysis, a small, negative impact of corruption on entrepreneurship at high income levels seems as likely as a positive impact. One must conclude from these results that corruption control efforts are productive from an entrepreneurial perspective regardless of income level, although it is quite obviously more important for low and medium income countries than for rich ones.

Foreign Direct Investment as a Moderating Influence

All of the aforementioned estimates are derived from equation (1) assume that the effects of FDI and corruption are independent of each other. However, as noted previously, there is evidence that the effects of corruption on innovative activity are conditional on levels of FDI. Therefore, equation (2) is utilized to obtain estimates under the conditions of interactivity between FDI and our corruption measures. Results from these estimations are provided in Table 3 below.

[Insert Table 3 here]

Table 3 contains estimates derived using CCI as the corruption measure for the full sample as well as subsamples segmented on the World Bank high and low income classifications and OECD membership. For the full sample, the estimates are very much in line with those derived from equation (1), with entry procedures, governance, domestic credit, FDI, and corruption all exhibiting significant effects on entrepreneurship in the same directions as before. The interactive term for FDI and corruption is also statistically significant, although inversely

related to entrepreneurship and small in magnitude compared to the independent impact of corruption. Nonetheless, the overall effect of lower levels of corruption is clearly positive, just somewhat less so at higher levels of FDI. The segmented samples provide further evidence on the differences between high income countries and others; as before, domestic credit and FDI are relatively more important as determinants of entrepreneurship for low-income countries, while labor market regulation is more important for the high income ones. Interestingly, the importance of the interaction between FDI and corruption identified by Anokhin and Shulze (2009) is found to be sensitive to income level, with higher levels of FDI being associated with a greater impact of corruption on entrepreneurship only for lower income countries. By contrast, for high income countries, the relationship between corruption and entrepreneurship appears to be entirely independent of FDI, with no statistically significant impact from the interaction term. These results are not altered in any meaningful way by using the OECD classification in place of the World Bank high and low income classifications. Overall, the results emphasize the important role of financial intermediation in determining impacts on entrepreneurship for low and middle income countries, with domestic credit and FDI consistently exhibiting strong independent impacts as well as, in the case of FDI, moderating the influence of corruption control on entrepreneurial activity. The presence of foreign investment in these low and medium income countries apparently results in additional monitoring and compliance efforts that increase the positive impact of corruption control on entrepreneurship.

V. Discussion

The results presented in the previous section indicate that institutional frameworks moderate the relationship between corruption and entrepreneurship in important ways. First, it appears that

what little evidence there is for the “grease the wheels” hypothesis is highly sensitive to variation in the data employed in the estimation, most notably the measure of corruption, the income level of the countries represented, and the inclusion of moderating variables such as FDI. Our only evidence of a positive relationship between corruption and Total Entrepreneurial Activity (TEA) is a small impact indicated for high income countries where Transparency International’s CPI is the corruption measure and moderating impacts of FDI are excluded entirely. In the other 14 specifications we examined, the effect of corruption on TEA is either clearly negative (10 of the 14) or statistically insignificant (4 of 14) in its impact.

Second, the impact of corruption appears to be much more important, in magnitude, for developing countries than it is for developed ones. Of the six specifications where we segmented the data by income level (by reference to either World Bank income categories or OECD membership), the impact of corruption is negative and significant for developing countries in all six cases, and the magnitude of impact is greater for developing countries than developed ones as well. For developed countries, by contrast, the magnitude of impact is almost always small, and sometimes statistically insignificant. Thus, we can conclude that most of the impact of corruption on entrepreneurship and growth is likely to manifest itself in the developing world, where institutions are likely to be less stable and/or effective.

Third, the types of institutional arrangements that moderate the impact of corruption on entrepreneurship often differ on the basis of level of development. Entry procedures are uniformly important, with ease of entry exhibiting statistically significant impacts in all 15 specifications. However, other measures of institutional stability indicate differential effects on high and low income countries. Governance mechanisms such as the rule of law and stability of property rights are found to represent an opportunity cost of entrepreneurial activity, i.e., more

effective governance reduces incentives for informal self-employment by increasing opportunities for employment in the formal sector. Consistent with this interpretation is the finding that the impact of governance is greater and/or more significant in lower income countries, where the proportion of informal entrepreneurship is greater. Likewise, access to domestic credit has a positive and statistically-significant impact on entrepreneurial activity in all six specifications where only lower income countries are included, while no statistically-significant effect is found in any of the six specifications for high income countries alone. By contrast, labor market regulations matter only for high income countries, with all six specifications indicating that entrepreneurial activity is greater where labor markets are subject to lower levels of regulation. No such relationship is found for lower income countries.

Fourth, the level of FDI is confirmed to be an important moderator of the impact of corruption levels on entrepreneurship. When included as an independent determinant of entrepreneurial activity, FDI exhibits a very small, but statistically significant, impact for all but the highest (OECD-member) income countries. However, when FDI is interacted with corruption, a more complex picture appears. Again, developing countries are impacted more strongly than developed ones, with both the independent FDI measure and the interactive FDI-corruption term indicating small, positive impacts on entrepreneurship. By contrast, the statistically-significant impact of FDI disappears altogether for high income countries when the interactive term is included in the specification. This indicates that FDI is an important source of entrepreneurship in developing countries, and furthermore, that corruption control is even more important in these countries when large amounts of FDI are present than when they are not. The presence of FDI flows appears to be a disciplining mechanism that rewards entrepreneurship in countries where corruption is low, while penalizing it where corruption is high.

VI. Summary and Conclusions

The relationship between corruption control efforts and entrepreneurship is proving to be a fruitful and somewhat complex subject of research, with a number of diverse and sometimes contradictory conclusions being presented in the literature. We have attempted to bring the most current research efforts in this area together, and to examine some hypotheses using an expansive data set, in order to produce a clearer picture of the relationship between corruption and entrepreneurial activity. Our results indicate that there are a number of regularities identified in the previous literature that can be strongly supported, and others that require a more careful look at the peculiarities of data collection and empirical specification. Our results indicate, though there is strong support for the general importance of initial wealth, entry procedures, and corruption control for entrepreneurship across countries, corruption control is particularly important for less developed countries. Beyond that, entrepreneurship in high income countries appears to be strongly impacted by labor market regulation, while for low and middle income countries, access to domestic credit and financial flows from foreigners appear to be important. In line with this, we have confirmed a previously-identified moderating relationship between foreign flows of direct investment and corruption control efforts, at least for low and medium income countries. At higher levels of FDI in these countries, corruption control appears to be even more important for entrepreneurial activity than it is at lower levels of FDI. Finally, our results have confirmed the importance of accounting for the opportunity cost of entrepreneurship vis-à-vis formal employment in empirical models of entrepreneurial activity.

Table 1: Panel Least Squares Regression for Total Entrepreneurial Activity, 2001-2011.

Corruption = CPI

Variable Name	All Countries	World Bank Income Class		OECD	
	Coeff. (t-stat)	Developing Coeff. (t-stat)	High Income Coeff. (t-stat)	Developing Coeff. (t-stat)	Member Coeff. (t-stat)
C	28.562	23.844	8.728	15.524	20.204
LOG(GDPPC)	3.556	3.445	1.749	2.043	1.041
ENTPROC	-2.424	-2.654	-0.517	-1.155	-3.406
LABOR REG	-2.595	-5.604	-0.474	-0.691	-1.436
GOVERNANCE	1.613	1.872	1.327	1.681	2.787
DOM. CREDIT	7.488	3.388	3.546	3.000	5.788
FDI	0.235	-0.349	0.629	0.395	0.636
CORRUPT	1.265	-0.183	4.669	0.504	34.102
	-2.239	-2.813	-1.006	-3.637	-0.290
	-8.556	-1.825	-0.678	-4.556	-5.171
	0.357	1.147	0.171	1.462	0.016
	6.494	8.465	1.688	5.154	0.114
	1.14E-11	3.610E-11	3.76E-12	3.53E-11	3.30E-12
	2.224	38.105	1.967	21.007	0.965
	0.670	1.789	-0.429	0.319	0.283
	1.665	1.843	-3.296	2.310	0.547
Num. of Obs.	88	41	47	35	47
Adjusted R-squared	0.322	0.132	0.135	0.12881	0.189018
Log likelihood	-265.837	-132.860	-116.296	-114.4162	-116.2333

Table 2: Panel Least Squares Regression for Total Entrepreneurial Activity, 2001-2011.

Corruption = CCI

Variable Name	All Countries	World Bank Income Class		OECD	
	Coeff. (t-stat)	Developing Coeff. (t-stat)	High Income Coeff. (t-stat)	Developing Coeff. (t-stat)	Member Coeff. (t-stat)
C	36.036 4.569	37.767 39.222	11.632 1.974	26.557 14.437	29.657 1.231
LOG(GDPPC)	-2.785 -3.212	-3.344 -16.389	-0.562 -0.500	-1.824 -1.365	-3.597 -1.444
ENTPROC	1.620 7.854	2.002 3.652	1.362 3.257	1.624 2.145	2.589 5.871
LABOR REG	0.251 1.127	-0.304 -0.165	0.591 4.042	0.210 0.259	0.614 49.192
GOVERNANCE	-2.554 -26.447	-3.022 -1.857	-1.775 -1.307	-4.026 -9.010	-1.199 -3.594
DOM. CREDIT	0.357 6.870	1.069 5.718	0.172 1.536	1.453 5.778	-0.022 -0.146
FDI	1.22E-11 2.471	4.34E-11 234.731	3.48E-12 1.828	4.02E-11 13.326	2.99E-12 0.972
CORRUPT	2.315 3.828	4.875 2.421	0.151 2.666	3.084 2.396	2.191 1.276
Num. of Obs.	88	41	47	35	47
Adjusted R-sq	0.334	0.165	0.128	0.150	0.209
Log likelihood	-265.067	-132.054	-116.480	-113.978	-115.639

Table 3: Panel Least Squares Regression for Total Entrepreneurial Activity, 2001-2011.

Corruption = CCI

Variable Name	All Countries	World Bank Income Class		OECD	
	Coeff. (t-stat)	Developing Coeff. (t-stat)	High Income Coeff. (t-stat)	Developing Coeff. (t-stat)	Member Coeff. (t-stat)
C	36.794 4.946	23.797 10.019	9.399 0.911	19.499 4.290	31.092 1.198
LOG(GDPPC)	-2.739 -2.892	-2.199 -12.010	-0.283 -0.168	-0.957 -0.542	-3.721 -1.396
ENTPROC	1.726 11.002	1.762 3.374	1.373 3.063	1.104 1.281	2.489 7.155
LABOR REG	0.299 1.574	0.184 0.084	0.616 3.083	0.425 0.528	0.583 19.907
GOVERNANCE	-3.005 -27.961	-3.415 -1.587	-1.877 -1.188	-4.229 -5.705	-1.124 -4.742
DOM. CREDIT	0.365 8.152	1.490 2.481	0.169 1.593	1.649 3.423	-0.034 -0.203
FDI	3.10E-11 6.064	1.69E-10 3.191	-5.03E-12 -0.348	2.00E-10 179.481	1.09E-11 0.958
CORRUPT	3.214 11.113	1.224 0.675	0.089 2.130	0.061 0.314	2.304 1.268
FDI*CORRUPT	-1.38E-11 -6.019	2.32E-10 2.357	4.63E-12 0.522	2.91E-10 22.262	-4.29E-12 -0.966
Num. of Obs.	88	41	47	35	47
Adjusted R-sq	0.351	0.188	0.108	0.159	0.190
Log likelihood	-263.378	-130.845	-116.414	-113.135	-115.580

Figure 1. Relationship of Productive and Unproductive Institutions to Formal Employment Options

	Productive Institutions	Unproductive Institutions
Many Formal Employment Options	High Reward, High Opportunity Cost to Value-Creating Ventures	Low Reward, High Opportunity Cost to Value-Creating Ventures
Few Formal Employment Options	High Reward, Low Opportunity Cost to Value-Creating Ventures	Low Reward, Low Opportunity Cost to Value-Creating Ventures

References

- Acemoglu, Daron, and Simon Johnson. 2005. Unbundling institutions. *Journal of Political Economy*, 113(5), 949–995.
- Acemoglu, Daron, Simon Johnson, and James Robinson. 2001. The colonial origins of comparative development: An empirical investigation. *American Economic Review*, 91(5), 1369–1401.
- _____. 2002. Reversal of fortunes: Geography and institutions in the making of the modern world income distribution. *Quarterly Journal of Economics*, 117(4), 1231–1294.
- _____. 2005. Institutions as a fundamental cause of long-run growth. In the *Handbook of Economic Growth*, edited by P. Aghion and S. Durlauf, 386-472. Elsevier B.V.
- Alesina, A., and E. La Ferrara. 2002. Who trusts others? *Journal of Public Economics*, 85(2), 207-234.
- Anokhin, S. and W. S. Schulze. 2009. Entrepreneurship, innovation, and corruption. *Journal of Business Venturing*, 24(5), 465-476.
- Baumol, William J. 1990. Entrepreneurship: Productive, unproductive and destructive. *Journal of Political Economy*, 98(5), 893–921.
- Bjørnskov, C. and N. Foss. 2008. Economic freedom and entrepreneurial activity: Some cross-country evidence. *Public Choice*, 134(3), 307–328.
- Bologna, J. and A. Ross. 2015. Corruption and entrepreneurship: Evidence from Brazilian municipalities. *Public Choice*, 165(1), 59-77.
- Boudreaux, C. 2014. Jumping off The Great Gatsby Curve: How institutions facilitate entrepreneurship and intergenerational mobility. *Journal of Institutional Economics*, 10(2), 231–256.
- Davidson, A.B. and R. B. Ekelund. 1994. Can entrepreneurship be unproductive? Towards an evolutionary interpretation. *Review of Social Economy*, 52(4), pp.266-279.
- Davidsson, P. and J. Wicklund. 2001. Levels of analysis in entrepreneurship research: Current research practice and suggestions for the future. *Entrepreneurship Theory and Practice*, 25(4), 81-99.
- De Soto, H. 2000. *The Mystery of Capital: Why Capitalism Triumphs in the West and Fails Everywhere Else*. Basic Books.
- Dreher, A. and M. Gassebner. 2013. Greasing the wheels? The impact of regulations and corruption on firm entry. *Public Choice*, 155, 413-432.

Drury, A.C., J. Kriekhaus, and M. Lusztig. 2006. Corruption, democracy, and economic growth. *International Political Science Review*, 27(2), 121-136.

Dutta, N. and R. S. Sobel. 2016. Does corruption ever help entrepreneurship? *Small Business Economics*, 47, 179-99.

Freckleton, M., A. Wright, and R. Craigwell. 2012. Economic growth, foreign direct investment and corruption in developed and developing countries. *Journal of Economic Studies*, 39(6), pp.639-652.

Guiso, L., P. Sapienza, and L. Zingales. 2006. Does culture affect economic outcomes? *Journal of Economic Perspectives*, 20(2): 23-48.

Gwartney, J. R. Lawson and J. Hall. 2015. *Economic Freedom of the World: 2015 Annual Report*. Fraser Institute.

Granato, J., R. Inglehart, and D. Leblang. 1996. The effect of cultural values on economic development: Theory, hypotheses, and some empirical tests. *American Journal of Political Science*, 40(3), 607-631.

Hall, J., R. Sobel, and G. Crowley. 2010. Institutions, capital, and growth. *Southern Economic Journal* 77(2), 385-405.

Harris, J., H. Sapienza, and N. Bowie. Ethics and entrepreneurship. *Journal of Business Venturing*, 24, 407-418.

Heckelman, J. C. and B. Powell. 2010. Corruption and the institutional environment for growth. *Comparative Economic Studies*, 52(3), 351-378.

Karemann, T., R. Mauer, T. Flatten, and M. Brettel. 2016. Entrepreneurial orientation and corruption. *Journal of Business Ethics*, 133, 223-234.

Klapper, L., R. Amit, and M. F. Guillén. 2010. Entrepreneurship and firm formation across countries. In *International Differences in Entrepreneurship*, 129-158. University of Chicago Press.

Knack, S. and P. Keefer. 1995. Institutions and economic performance: Cross-country tests using alternative measures. *Economics and Politics* 7, 207-227.

_____. 1997. Does social capital have an economic payoff? A cross-country investigation. *Quarterly Journal of Economics*, 112(4), 1251-1288.

Kreft, S. F. and R. S. Sobel. 2005. Public policy, entrepreneurship, and economic freedom. *Cato Journal*, 25(3), 595-616.

Kwan, S. and P. Arenius. 2010. Nations of entrepreneurs: A social capital perspective. *Journal of Business Venturing*, 25(3), 315-330.

- LaPorta, R., F. Lopez-de-Silanes, A. Shleifer, and R. W. Vishny. 1997. Trust in large organizations. *American Economic Review*, 87(2), 333-338.
- Leff, N. H. 1964. Economic development through bureaucratic corruption. *American Behavioral Scientist*, 8(3), 8–14.
- Mauro, P. 1995. Corruption and growth. *Quarterly Journal of Economics*, 110(3), 681-712.
- _____. 2004. The persistence of corruption and slow economic growth. *IMF Staff Papers*, 51(1), 1-18.
- Minniti, M. 2008. The role of government policy on entrepreneurial activity: Productive, unproductive, or destructive? *Entrepreneurship Theory and Practice*, 32, 779–790.
- Murphy, K., A. Shleifer and R. W. Vishney. 1991. The allocation of talent: Implications for growth. *Quarterly Journal of Economics*, 106(2), 503-530.
- North, D C. 1990. *Institutions, Institutional Change and Economic Performance*. Cambridge University Press, Cambridge.
- Ovaska, T. and R. S. Sobel. 2005. Entrepreneurship in post-socialist economies. *Journal of Private Enterprise*, 21(1): 8-28.
- Pigou, A. C. 1938. *The Economics of Welfare*, 4th ed. London: Macmillan and Co.
- Podobnik, B., J. Shao, D. Njavro, P. C. Ivanov, and H. E. Stanley. 2008. Influence of corruption on economic growth rates and foreign investment. *The European Physical Journal B*, 63(4), 547-550.
- Posner, R. A. 1974. Theories of economic regulation. *Bell Journal of Economics*, 5(2), 335-358.
- Shleifer, A. and R. W. Vishny. 1993. Corruption. *Quarterly Journal of Economics*, 108(3), 599-617.
- Sobel, R. S. 2008. Testing Baumol: Institutional quality and the productivity of entrepreneurship. *Journal of Business Venturing*, 23, 641-55.
- Sobel, R. S., Clark, J. R., and Lee, D. R. 2007. Freedom, barriers to entry, entrepreneurship, and economic progress. *Review of Austrian Economics*, 20(4), 221–236.
- Swaleheen, M. and D. Stansel. 2007. Economic freedom, corruption and growth. *Cato Journal*, 27(3), 343-358.
- Swank, D. 1996. Culture, institutions, and economic growth: Theory, recent evidence, and the role of communitarian polities. *American Journal of Political Science*, 40(3), 660-679.

Transparency International: The Global Coalition against Corruption. 2016. *What is Corruption?* 1 Aug 2016 <<http://www.transparency.org/what-is-corruption/>>.

Wiseman, T. and A. T. Young. 2013. Economic freedom, entrepreneurship, and income levels: Some U.S. state-level empirics. *American Journal of Entrepreneurship*, 6(1), 100–119.

Whiteley, P. F. 2000. Economic growth and social capital. *Political Studies*, 48(3), 443-466.

World Bank. 2016. *Corruption and Economic Development*. 1 October, 2016 <<http://www1.worldbank.org/publicsector/anticorrupt/corruptn/cor02.htm>>.

Conclusions

The research presented in the preceding pages of this dissertation has focused on issues relating to the theory and evidence on the social welfare implications of entrepreneurial actions in pursuit of profit, and specifically on the implied trade-off between productive and unproductive entrepreneurship, its causes, and its consequences. The empirical research conducted and reported here examined three related questions concerning this trade-off:

- (1) Are productive and unproductive entrepreneurial activities substitutes, complements, or independent processes?
- (2) Are productive and unproductive activities related to measurable differentials in aggregate outcomes?
- (3) Do formal and informal institutions contextualize (moderate) the relationship between productive and unproductive activities?

In short, the answers to all three questions are affirmative. Measures of productive and unproductive activity appear to be strongly, negatively correlated across countries and industries over time. Aggregate outcomes measures, such as capital productivity and levels of development, are also strongly related to levels of productive and unproductive entrepreneurship. Finally, the relationship between productive and unproductive entrepreneurship is highly contextual in relation to the institutional environment. While institutional arrangements that impact the ease of entry into markets appear important in all contexts, particular labor market institutions tend to matter more for highly-developed economies, while institutions impacting access to credit matter more for less-developed ones. Thus, when it comes to incentivizing productive entrepreneurship, the priorities for institutional development may be different for some countries than for others.

While these results confirm prior expectations expressed in the three essays presented above, there were some illuminating results that were not anticipated. Most prominently, both empirical applications demonstrated an important role for opportunity cost when assessing the impact of institutional development on productive entrepreneurship. For example, capital productivity exhibits a negative relationship with new business creation at the industry level, while strong governance procedures exhibit a negative relationship with productive entrepreneurship across countries. These results are taken to indicate an opportunity cost factor previously unidentified in the literature—as economic conditions and governance procedures improve, the prospects for all productive activity increase, but since entrepreneurship is but one aspect of productive economic activity, there is a substitution effect that may well draw talent and resources toward other productive forms of enterprise (business growth, formal employment, etc.) and away from strictly entrepreneurial pursuits. Thus, researchers should pay more attention to the substitution effects when developing theories of entrepreneurial action.

An important issue, mentioned in the introduction to this dissertation but left unresolved, is the operationalization and employment of the architecture concept. As expressed earlier, architecture refers to the investments that enact entrepreneurial decisions to pursue profit by either productive or unproductive means; it represents the particular procedures, standards, and capital that are employed to objectify an entrepreneurial venture. In the model presented in the introduction, architecture represents the means by which prior decisions about productive and unproductive avenues for profit seeking feed back into the cost-benefit analysis of future entrepreneurs. Given that the entrepreneurial process is essentially an open system, architecture also represents the means by which institutional entrepreneurs might introduce innovations into the institutional framework itself, by affecting informal norms, values, and ways of doing at the

societal level, or by introducing a particular development of formal institutions that would incentivize behavior in a different way.

Thus, architecture represents the factor by which both institutional isomorphism and institutional change are introduced into the entrepreneurial process. The key factor left unresolved here is the operationalization of the architecture concept. Examples of institutional change that ended up having considerable spillover benefits (i.e. productive institutional entrepreneurship) are plentiful; for example, market reforms made by the Chinese government in the late-70's to mid-80's are clear examples of institutional changes that spurred productive entrepreneurship, as are developments in the rule of law in England that trace to the establishment of the Magna Carta Libertatum ("Great Charter of the Liberties") in the early 13th-century. Likewise, there are almost certainly numerous examples of negative innovations in institutional development that can be identified. Architecture, according to the theory introduced here, can be thought of as the particular ways that institutional innovation are introduced: Mechanisms of monitoring and enforcement, standards of language and measurement developed, proscribed rules of contracting and conflict resolution, codes of behavior, and investments in infrastructure that allow people to adopt the new institutional framework. A useful extension of this theory of institutional innovation would be to employ historical event studies that focus on distinct changes in institutional mechanisms and trace the effects of these changes relative to a pre-established historical benchmark. Another way of operationalizing architecture could employ conjoint experiments, where experienced entrepreneurs are presented with hypothetical changes in institutional mechanisms and their changes in behavior established via self-reported hypothetical reactions. Clearly, this is an open field of inquiry that could go a long way toward "closing the circle" of institutional impacts and feedback within the entrepreneurial process.