Entrepreneurship and the Market Process

Edited by Arielle John · Diana W. Thomas

Mercatus Studies in Political and Social Economy

Political economy is a robust field of study that examines the economic and political institutions that shape our interactions with one another. Likewise, social economy focuses on the social interactions, networks, and communities that embody our daily lives. Together, these fields of study seek to understand the historical and contemporary world around us by examining market, political, and social institutions. Through these sectors of life, people come together to exchange goods and services, solve collective problems, and build communities to live better together.

Scholarship in this tradition is alive and thriving today. By using the lens of political and social economy, books in this series will examine complex social problems, the institutions that attempt to solve these problems, and the consequences of action within such institutions. Further, this approach lends itself to a variety of methods, including fieldwork, case studies, and experimental economics. Such analysis allows for deeper understanding of social phenomena, detailing the context, incentives, and interactions that shape our lives. This series provides a much-needed space for interdisciplinary research on contemporary topics on political and social economy. In much of academia today, scholars are encouraged to work independently and within the strict boundaries of their disciplines. However, the pursuit of understanding our society requires social scientists to collaborate across disciplines, using multiple methods. This series provides such an opportunity for scholars interested in breaking down the boundaries of disciplines in order to better understand the world around us.

More information about this series at
http://www.palgrave.com/gp/series/15998

Arielle John · Diana W. Thomas
Editors

Entrepreneurship and the Market Process

palgrave
macmillan

Editors
Arielle John
Mercatus Center
George Mason University
Fairfax, VA, USA

Diana W. Thomas
Institute of Economic Inquiry
Creighton University
Omaha, NE, USA

CONTENTS

Notes on Contributors

Simon Bilo is Independent Economist in the USA. His current research centers on questions of monetary non-neutrality, also known as "Cantillon Effects" after the eighteenth-century economist Richard Cantillon. Bilo is interested in Business Cycle Theory, History of Economic Thought, International Economics, Austrian Economics, and Monetary Economics.

John A. Dove is Manuel H. Johnson Professor of Economics in the Sorrell College of Business at Troy University, USA. He received his Ph.D. from West Virginia University in 2012. Prior to joining the faculty at Troy University, Dove was an Assistant Professor of Economics at Mercer University. His main areas of research include public economics and political economy. Dove's academic work has appeared in such scholarly outlets as The Journal of Comparative Economics, The Journal of Macroeconomics, Public Choice, Economics of Governance, Business & Politics, and The Journal of Institutional Economics, among others.

Keith Jakee is Associate Professor at the Wilkes Honors College of Florida Atlantic University, USA. His research tends to fall into one of three areas, political economy, industrial organization, and entrepreneurship. Before coming to the Honors College, he held tenured appointments at Monash University and in the Business School of the Royal Melbourne Institute of Technology (RMIT University), both in Melbourne, Australia. Jakee received his Ph.D. and MA at George Mason University, where his dissertation research was supervised by Tyler

Cowen, Richard Wagner, Tom R. Burns, and the Nobel Laureate, James Buchanan.

Arielle John is Senior Research Fellow, Associate Director of Academic and Student Programs, and Senior Fellow for the F. A. Hayek Program for Advanced Study in Philosophy, Politics and Economics at the Mercatus Center at George Mason University, USA. Prior to joining the Mercatus Center, she was an Assistant Professor of Economics at Beloit College from 2014–2015, and then worked as the advisor to the Minister of Public Administration and Communications in the Government of the Republic of Trinidad and Tobago.

Stephen M. Jones-Young is Economist at the Coast Guard, USA. Prior to joining the Coast Guard, Jones-Young earned his MA in Economics at George Mason University and a Bachelor's Degree in Economics at the Harriet L. Wilkes Honors College at Florida Atlantic University.

Stephane Kouassi is Graduate Student in sociology at Goethe University, Germany. Kouassi is also an Adam Smith Fellow with the Mercatus Center at George Mason University.

David S. Lucas is Assistant Professor in the Department of Entrepreneurship and Emerging Enterprises at the Whitman School of Management at Syracuse University, USA. His research interests include entrepreneurship, institutions, organizations, and strategy, with an emphasis on social issues like poverty and homelessness.

Olga Nicoara is Assistant Professor of Economics in the Department of Business and Economics at Ursinus College, USA. She earned her Ph.D. and MA degrees in economics from George Mason University and her BSc degree in International Economics and Business from Bucharest University of Economics. Nicoara's scholarly interests are in the fields of Economic Development, Political Economy, Austrian Economics, Cultural Economics, Institutional Economics, and Entrepreneurship Economics.

Liya Palagashvili is Assistant Professor of Economics at State University of New York—Purchase, USA. She is also a research fellow with NYU Law. For the 2018–2019 academic year, she was a Visiting Scholar in the Department of Political Economy at King's College London. Palagashvili's research is on political economy and applied public policy. She focuses on two main research areas: investigating the regulatory

and public policy environment for technology startups and questions of governance, polycentricity, and the role of external influence and aid on institutions.

Diana W. Thomas is Associate Professor of Economics at Creighton University's Heider College of Business, USA. She is also Director of the Institute for Economic Inquiry at Creighton University. She was previously an Assistant Professor of economics at the Jon M. Huntsman School of Business at Utah State University.

LIST OF FIGURES

List of Tables

Entrepreneurship and the Market Process

Diana W. Thomas and Arielle John

WHY ENTREPRENEURSHIP IS IMPORTANT

In his 1964 presidential address to the Southern Economic Association membership, James Buchanan famously asked the provocative question "What should economists do?" Buchanan's question was explicitly motivated by his assessment that the discipline had gotten lost in doing "what economists do" without consideration of what would constitute scientific progress. More specifically, James Buchanan was advocating for an economics that would place the "theory of markets" rather than the "'theory of resource allocation' at center stage" (1964, p. 13) and return to Adam Smith's observation that there is a propensity in human nature to "truck, barter, and exchange one thing for another" (Smith 1776, p. 25).

The orthodoxy Buchanan was constructively critiquing was neoclassical price theory, which examines the patterns of equilibrium prices, costs,

D. W. Thomas (✉)
Institute of Economic Inquiry, Creighton University, Omaha, NE, USA
e-mail: dianathomas@creighton.edu

A. John
Mercatus Center, George Mason University, Fairfax, VA, USA
e-mail: ajohn@mercatus.gmu.edu

and output in different markets with specific emphasis on the allocation of resources in equilibrium. The goal of the price theoretical apparatus is to understand the requirements of general equilibrium, identify the paths toward equilibrium that price and quantity may take, and state the price and quantity combinations that will satisfy equilibrium conditions across different markets. In investigating the effects of government policy, price theory focuses on the changes in equilibrium price and quantity that changes in policy will bring about.

Lacking from orthodox price theory, in Buchanan's assessment, was a focus on "man's behavior in the market relationship […] and the manifold variations in the structure that this relationship can take" (Buchanan 1964, p. 214). The alternative approach to studying economic behavior he proposed was explicitly focused on exchange relationships and the various forms they could take in both markets and politics. Buchanan's extension of this analytical focus to include spheres other than markets, and specifically politics, always assumed that individual behavior and cooperative relationships individuals engaged in depend on the rules of the game or the institutional structure in place to constrain individual behavior.

Buchanan was, of course, not alone in his critique of the path modern economics had taken throughout the beginning of the twentieth century. Israel Kirzner similarly argued that price theory was missing a description of how the actions of individual market participants interact to bring about changes in prices, quantities, and in the manner resources are allocated to competing uses (Kirzner 1973, p. 6). Price theory notoriously stresses that there are but three factors of production—land, labor, capital—to be optimized when making production decisions, but seems to take for granted who exactly is meant to do the optimizing. In Kirzner's own words, an analytical framework devoid of entrepreneurs "completely lacks the power to explain how prices, quantities and qualities of inputs and outputs are systematically changed during the market process" (1973, p. 42) and so cannot explain how the market equilibrates. Kirzner argued that in order for such considerations to enter the analysis, the analyst would have to shift her focus toward the competitive process and the role of the entrepreneur in perpetuating the competitive process. Crucially, entrepreneurship was the fourth factor of production missing from the neoclassical price theory.

Put differently and using the language of orthodox price theory, rather than focusing on the slope of the production possibilities frontier and

its intersection with individual indifference curves, this market process perspective advocated by Buchanan and Kirzner (among others) analyzes how movements of the curve and pivots in its slope come about over time, what the institutional determinants of human action in markets and in politics are, and how exchange relationships change when institutions evolve.

Israel Kirzner specifically contributed to market process theory by introducing a theory of entrepreneurship that accounts for the differential alertness and awareness of entrepreneurs. More specifically, in Kirzner's model, entrepreneurs bring about the process of equilibration of market relationships by acquiring "more and more accurate and complete mutual knowledge of potential demand and supply attitudes" through entrepreneurial discovery (Kirzner 1997, p. 62). This discovery of information is the essential function entrepreneurs supply in the market process. They are alert to opportunities for arbitrage across space—as is the more traditional understanding of arbitrage—and time, and by acting upon those opportunities bring about changes in existing exchange relationships in the market. In doing so, they can, of course, commit errors, but the insistence upon the integration of an entrepreneurial perspective into the analysis of market relationships ensures a description of systemic adjustments to new and ever-changing information and constraints.

For Kirzner, incomplete and imperfect knowledge are facts of human life that lead to errors in decision-making in the market context all the time. For example, an entrepreneur may believe that her potential customers want to purchase her red shoes for $20 each, when in fact for the quantity she is producing, price should be closer to $30. Therefore, she may erroneously under charge for her shoes. However, alert market participants are able to recognize these sorts of errors with time. According to Kirzner, another person would likely notice the profit opportunity that emerges from the discrepancy between what she is charging and what her customers are willing to pay. That person may buy her shoes at the lower price she is charging and sell them at the higher price somewhere else. Processes like these drive markets toward equilibrium prices and quantities. In Kirzner's own words, writes, "the entrepreneurial element in the economic behavior of market participants consists … in their alertness to previously unnoticed changes in circumstances which may make it possible to get far more in exchange for whatever they have to offer than was hitherto possible" (1973, pp. 15–16).

While Kirzner develops his theory of entrepreneurship in the context of markets, the individual entrepreneur's alertness to differential opportunities for profit is essential in driving the process of entrepreneurial discovery not only in markets, but across different institutional settings. All cooperative and collective human endeavors, whether in the context of markets, politics, or society more generally require adjustment to and incorporation of new information into the institutional context in order to allow individuals that operate within this context to cooperate with each other successfully and go about the satisfaction of their individual wants and desires more effectively. The existing literature on entrepreneurship in politics and social organization more generally is multi-faceted and vast, but an entrepreneurial perspective has been applied to culture (Storr 2008; Storr and John 2011; John and Storr 2018), policy change and rent-seeking activities (Simmons et al. 2011; Coyne et al. 2010; DiLorenzo 1988; Holcombe 2002) institutional change in politics (Martin and Thomas 2013), non-profits (Haeffele and Storr 2019), how communities rebuild and revive following natural disasters (Chamlee-Wright and Storr 2010; Storr et al. 2016), and economic development (Chamlee-Wright 2002; Haeffele and Hobson 2019).

Economists of the Austrian school in particular have advanced Kirznerian ideas of entrepreneurship into studies of culture, community recovery, and politics. The driving question provided by Kirzner in many of these treatments is: What types of opportunities will entrepreneurs in various contexts be alert to? For example, Storr and John (2011), use Kirznerian theory to demonstrate how culture can shape entrepreneurial gaze. They posit that "culture will direct an entrepreneur's gaze as well as her ability to recognize certain opportunities as in fact opportunities" (p. 89). To demonstrate how entrepreneurs with different cultural backgrounds can be alert to different opportunities, the authors provide accounts of different of flavors entrepreneurship in Bahamas and in Trinidad and Tobago, and they connect these different flavors of contemporary entrepreneurship to each island's economic history. Based on prior experiences under slavery and colonial rule, today's Bahamian entrepreneurs have a "master pirate" side that is ever ready to hustle, trick, and swindle to make money, but also an "enterprising slave" side, that words diligently and honestly to attract business. In Trinidad and Tobago, where different ethnic groups had dissimilar experiences in the economy

pre-and post-independence, some appear to be more alert to opportunities for commercial enterprise, while others tend to look to politics and the bureaucracy for economic advancement.

John and Storr (2018) also consider the role of culture through another popular notion of entrepreneurship discussed in Austrian theory—the Schumpeterian view. They argue that while alertness to/identification of a profit opportunity is the essential moment of entrepreneurship for Kirzner, for Schumpeter, it is the actual acting upon the opportunity that constitutes entrepreneurship. According to Schumpeter (1961, p. 66), the crucial entrepreneurial role is the carrying out of new "combinations" of the means of production, that is: creating new goods, improving the quality of existing goods, creating new methods of production, opening new markets, finding new supplies of resources, or discovering new ways to organize an industry. The authors contend that focusing on both the Kirznerian (seeing) and Schumpeterian (doing) views of entrepreneurship enables more fine-grained analysis of entrepreneurship. They observe that certain aspects of the cultural context and institutional environment in Trinidad and Tobago promote people's alertness to entrepreneurial opportunities there, while other cultural and institutional aspects dampen this alertness. The same is true for opportunity exploitation.

Regarding community recovery, again, a focus on the entrepreneur helps us to understand who will take up the charge of rebuilding communities, and what methods will or will not work for them. Chamlee-Wright and Storr (2010) examined the Vietnamese community in New Orleans following the devastation of Hurricane Katrina, finding that social entrepreneurship played an integral part in that community's ability to recover following the hurricane. Entrepreneurs steeped in the local context needed to be alert to needs of their fellow community members in order to "coordinate recovery efforts, lobby for essential government assistance and provide key information and services to help displaced residents return and rebuild their communities" (p. 154). One such social entrepreneur was the pastor of the Mary Queen of Vietnam Catholic Church, Father Vien, who provided leadership by continuing to hold mass, checking up on his congregants at evacuation sites, persuading them to return to the community, and facilitating their return.

An important question in political economy is whether the political domain is like the market domain in terms of its ability to use and generate knowledge, and to coordinate productive activity with efficiency.

Thomas and Thomas (2014) consider the limits of the application of insights from entrepreneurial process theory to politics, arguing that the absence of price signals in politics prevents the entrepreneurship theory from being fully applicable. However, the authors harness insights from James Buchanan to demonstrate that at the constitutional level of politics, where general rules of the political game must be selected, political entrepreneurship is certainly possible and may even be efficient. Salter and Wagner (2018) argue that one way in which political entrepreneurship may manifest is through competition or contestation over alternative interpretations of constitutional rules.

Applied Research in Political Economy: Entrepreneurship

The contributions to this edited volume all share in common a focus on this Kirznerian market process perspective. Contributions in Part I focus on theoretical extensions and critiques. Simon Bilo offers an extension of the Kirznerian theory of entrepreneurship, with particular application to conditions of economic recessions. Bilo argues that the systematic re-valuation of previously malinvested capital during a recession has significant effects on the relative alertness of entrepreneurs to different productive and unproductive investment entrepreneurial ventures and can result in either a re-allocation of the re-valued assets of a focus on relatively unproductive entrepreneurial opportunities in case of political intervention and targeted stimulus spending.

Keith Jakee and Stephen Jones provide a critique of the Kirznerian conception of entrepreneurship based on its reliance on neoclassical, marginal analysis, which, as they argue, is founded on several unrealistic assumptions and therefore not representative of true entrepreneurial choice. Jakee and Jones suggest that rather than using marginal analysis based on twice-differentiable isoquant and isocost curves, the study of entrepreneurial decision-making requires a focus on total costs and corner-solutions to adequately deal with the problems of indivisibility, static knowledge problems, radical uncertainty, and transaction costs.

Stephane Kouassi's chapter titled Conceptualization of a Kirznerian-Ethnic-Entrepreneur in Market Sociology offers an extension of the Kirznerian framework of entrepreneurship into the domain of culture, taking into consideration insights from contemporary sociology regarding the "cultural determinants of the process of identification, evaluation and

exploitation of entrepreneurial opportunities." Kouassi's chapter offers a theoretical model for how cultural factors may systematically promote or hinder certain types of entrepreneurial discovery.

In his chapter titled Non-market Competition as a Discovery Procedure, David Lucas synthesizes the existing literature applying Austrian market process theory to non-market contexts. In doing so, Lucas is able to identify shared theoretical insights and shortcomings in this literature and point to potential areas for fruitful future inquiry, as well as potential stumbling blocks for the systematic application of the market process perspective to non-market contexts like politics, institutional development, cultural norms, and crime.

Part II offers various applied perspectives on entrepreneurship. Olga Nicoara provides an analysis of how an understanding of the quality of formal institutions along with cultural attitudes toward entrepreneurship influence the entrepreneurial decisions of immigrants. She argues that immigrants from countries with lower overall institutional quality and cultural attitudes that are less supportive of entrepreneurial ventures will be more likely to become innovative entrepreneurs once they migrate to countries with institutions and cultural attitudes more supportive of entrepreneurship generally.

John Dove's chapter, "Productive Entrepreneurship, Unproductive Entrepreneurship, and Public Sector Economic Development Restrictions: Understanding the Connections", offers an empirical analysis of Baumol's (1990) prediction of the institutional variability of the relative prevalence of the types of entrepreneurship that can be observed in a particular society at a given point in time. Baumol famously suggests that institutions can change the relative profitability and therefore the relative prevalence of productive market entrepreneurship as compared to unproductive and even destructive types of extractive political (rent-seeking) entrepreneurship. Dove's analysis uses several indices measuring the relative profitability of productive and unproductive entrepreneurship in different states from Sobel (2008) as well as an index measuring the extent to which states provide non-tax economic development incentives from Patrick (2014). His results confirm Baumol's theoretical prediction that institutional environments that offer greater rewards for non-productive entrepreneurship will generate more unproductive entrepreneurial activity.

Finally, examining the impact of regulatory policy on entrepreneurship, Liya Palagashvili, provides a potential theoretical explanation for

the variability in new business starts across different industries, and more specifically for the concurrent empirical decline in new firm starts among main-street businesses and increase in new business starts among tech-startups.

Across and between the different contributions to this edited volume, the authors provide a rigorous and thorough assessment of both the limitations and the benefits of the entrepreneurial perspective to analysis of markets. We are grateful for their work and the synergies and overlaps that have developed across the different chapters over the last two years since they were first presented at a conference sponsored and organized by the Mercatus Center at George Mason University.

References

Baumol, William J. 1990. Entrepreneurship: Productive, Unproductive, and Destructive. *Journal of Political Economy* 98 (5): 893–921.

Buchanan, James M. 1964. What Should Economists Do? *Southern Economic Journal* 30 (3): 213–222.

Chamlee-Wright, Emily. 2002. *The Cultural Foundations of Economic Development: Urban Female Entrepreneurship in Ghana*. New York: Routledge.

Chamlee-Wright, E., and V. Storr. 2010. The Role of Social Entrepreneurship in Post-Katrina Community Recovery. In *The Political Economy of Hurricane Katrina and Community Rebound*, ed. E. Chamlee-Wright and V. Storr, 87–106. Cheltenham, UK: Edward Elgar.

Coyne, Christopher J., Russell S. Sobel, and John A. Dove. 2010. The Non-Productive Entrepreneurial Process. *Review of Austrian Economics* 23 (4): 333–346.

DiLorenzo, Thomas J. 1988. Competition and Political Entrepreneurship: Austrian Insights into Public-Choice Theory. *The Review of Austrian Economics* 2 (1): 59–71.

Haeffele, Stefanie, and Anne Hobson. 2019. The Role of Entrepreneurs in Facilitating Remittances in Cuba. In *Lessons on Foreign Aid and Economic Development*, ed. Nabamita Dutta and Claudia Williamson. New York: Palgrave Macmillan.

Haeffele, Stefanie, and Virgil H. Storr. 2019. Understanding Nonprofit Social Enterprises: Lessons from Austrian Economics. *The Review of Austrian Economics* 32 (3): 229–249.

Holcombe, Randall G. 2002. Political Entrepreneurship and the Democratic Allocation of Economic Resources. *The Review of Austrian Economics* 15 (2–3): 143–159.

John, Arielle, and Virgil Henry Storr. 2018. Kirznerian and Schumpeterian Entrepreneurship in Trinidad and Tobago. *Journal of Enterprising Communities: People and Places in the Global Economy* 12 (5): 582–610.

Kirzner, Israel. 1973. *Competition and Entrepreneurship*. Chicago: University of Chicago Press.

Kirzner, Israel. 1997. Entrepreneurial Discovery and the Competitive Market Process: An Austrian Approach. *Journal of Economic Literature* 35 (1): 60–85.

Martin, Adam, and Diana W. Thomas. 2013. Two-tiered Political Entrepreneurship and the Congressional Committee System. *Public Choice* 154 (1–2): 21–37.

Patrick, Carlianne E. 2014. Does Increasing Available Non-Tax Economic Development Incentives Result in More Jobs? *National Tax Journal* 67 (2): 351–386.

Salter, Alexander, and Richard E. Wagner. 2018. Political Entrepreneurship, Emergent Dynamics, and Constitutional Politics. *Review of Social Economy* 76 (3): 281–301.

Schumpeter, Joseph A. 1961. *The Theory of Economic Development*. New York: Oxford University Press.

Simmons, Randy T., Ryan M. Yonk, and Diana W. Thomas. 2011. Bootleggers, Baptists, and Political Entrepreneurs: Key Players in the Rational Game and Morality Play of Regulatory Politics. *The Independent Review* 15 (3): 367–381.

Smith, Adam. 1776. *An Inquiry into the Nature and the Causes of the Wealth of Nations*. London: Methuen & Co., Ltd.

Sobel, Russell S. 2008. Testing Baumol: Institutional Quality and the Productivity of Entrepreneurship. *Journal of Business Venturing* 23 (6): 641–655.

Storr, Virgil Henry. 2008. The Market as a Social Space: On the Meaningful Extraeconomic Conversations That Can Occur in Markets. *The Review of Austrian Economics* 21 (2–3):135–150

Storr, Virgil Henry, and Arielle John. 2011. The Determinants of Entrepreneurial Alertness and the Characteristics of Successful Entrepreneurs. In *Annual Proceedings of the Wealth and Well-Being of Nations, Vol. 2*, ed. Emily Chamlee-Wright. Beloit College Press.

Storr, Virgil Henry, Stefanie Haeffele-Balch, and Laura E. Grube. 2016. *Community Revival in the Wake of Disaster: Lessons in Local Entrepreneurship*. New York: Springer.

Thomas, Diana, and Michael Thomas. 2014. Entrepreneurship: Catallactic and Constitutional Perspectives. *The Review of Austrian Economics* 27 (1): 11–22.

Entrepreneurship in Theory

Diverted Attention During Recessions

Simon Bilo

Introduction

Human attention has limits, and people, at least to some extent, choose what they pay attention to. I explore how limited, or scarce, attention might matter during recessions, when entrepreneurs suddenly face a cluster of opportunities resulting from previous misallocations of factors of production. Entrepreneurs' alertness is, at that point, suddenly divided between the profit opportunities from fixing the existing production processes and the opportunities for brand-new investment projects. As a result, entrepreneurs decide to postpone or discard some of the possible new projects. This discussion of the limits of entrepreneurial alertness is useful for two reasons. First, it provides an additional—and to my knowledge novel—framework to understand the procyclical character of aggregate investment that, for example, Stock and Watson (1998, 13) document. Of course, the framework is a complement to rather than a substitute for the existing theories that account for that procyclical character because the procyclicality is a generally accepted stylized fact. In one way or another, business cycle models therefore incorporate this fact as,

S. Bilo (✉)
Arlington, VA, USA

for example, Plosser (1989) exemplifies for real business cycle theory and Lucas (1977) for new classical theory.

Second, it leads to an analytic framework that captures the allocation of entrepreneurship during recessions. I later enhance the baseline framework with an extension that includes unproductive entrepreneurship, such as rent-seeking associated with fiscal expansion, as such entrepreneurship can aggravate recessions.

My discussion of the allocation of entrepreneurship during a recession lies at the intersection of three sets of literature. First, it builds on the stylized fact that recessions tend to reveal clusters of errors, as suggested by Hayek in his Copenhagen lecture ([1939] 1975, 141), meaning that recessions are associated with a large number of entrepreneurs realizing that their projects are unprofitable. This fact can be observed indirectly—for example, through increases in the number of bankruptcies during recessions, as documented by Altman (1983) and Platt and Platt (1994), through procyclical employment and countercyclical unemployment (Stock and Watson 1998, 15), or through higher dispersion of total-factor-productivity growth rates across industries (Eisfeldt and Rampini 2006). I link the first two observations with what seems to be a reasonable assumption: that companies usually do not plan to go out of business and people usually do not plan to become unemployed. The dispersion of total-factor-productivity growth is also consistent with the existence of suddenly revealed mistakes that slow output growth in certain industries.

The higher incidence of recognized errors during the recession matters because it implies that the existing allocations of factors of production—both capital and labor—might be inefficient, requiring their repurposing, which is costly and requires imagination. In other words, investments are to some extent irreversible because of the specificity and heterogeneity of factors of production, which connects my discussion with a second stream of literature. Some of the works on the irreversibility of investment under uncertainty—including Bernanke (1983), Majd and Pindyck (1987), and Pindyck (1993)—emphasize the irreversibility of deployed factors of production from an ex ante perspective (that is, before investment). My discussion instead focuses on what to do with already-existing capital goods ex post, as emphasized by the Austrians, including Hayek ([1935] 1967), Mises ([1949] 1966, 503–514), Lachmann ([1956] 1978), and Garrison (2001). The ex post emphasis is the appropriate one in the context of recessions: during recessions entrepreneurs face the problem

of the misallocation of existing irreversible investment. Witnessing a large number of specific factors of production employed in unprofitable production processes, they have to decide which ones to repurpose and which ones to discard. The rearranging of such factors is not a trivial problem; it resembles that of a five-thousand-piece jigsaw puzzle that was designed to portray the painting of Mona Lisa and has to be reassembled into a picture of Mickey Mouse after some kids lost or disfigured many of the pieces. Such reassembly is costly, and for the same reason is that of factors of production. While reassembling the factors of production represents new possible profit opportunities, it also imposes a demand on the limited attention, or alertness, of entrepreneurs. Their attention is more diverted than it otherwise would be and thereby must be spread more thinly across other competing demands.

My discussion on how these limits on entrepreneurs' alertness play out during the recession builds on a third stream of literature: the works of Kirzner, Baumol, and Gifford, where Kirzner ([1973] 1978) represents the methodological base for thinking about entrepreneurship, Gifford (1992) highlights the importance of limited attention of entrepreneurs, and Baumol (1990) illustrates how changing incentives change entrepreneurial outcomes. Kirzner's ([1973] 1978) key insight is that entrepreneurial alertness, which can be described as "knowing where to look for knowledge" (68), is an essential part of the market process. Markets cannot work unless people are alert to and perceive profit opportunities. This means, Kirzner [1973] 1978, 225–231) argues, that even the absence of transactions costs, which include information costs, is not enough for markets to equilibrate. Entrepreneurs, according to Kirzner, also have to perceive the importance of available information regarding potential profit opportunities.

I continue with what hopefully is a reasonable assumption: that Kirznerian alertness has limits and that if entrepreneurs ponder a certain set of information, they are not able to do so with some other information set. This follows along the lines of Gifford (1992), who recognizes the limited attention of entrepreneurs, although, unlike Gifford, I do not distinguish between the attention entrepreneurs give to "current operations" and that given to "prospective projects," because such a distinction does not fully capture the decisions entrepreneurs have to make about misallocated factors of production during recessions. Under the assumption of alertness with limits, I turn to Baumol's (1968, 1990) general idea that different structures of incentives determine the "allocation of

entrepreneurial inputs" (1990, 897), understanding the term "input" as Kirzner's "alertness."

Using this connection of Baumol's, Gifford's, and Kirzner's ideas, I apply Baumol's conceptual description to a framework with microfoundations. However, unlike Baumol (1990), I do not consider the allocation of entrepreneurship in the context of long-run economic growth, but, instead, in the context of a recession, when it turns out that many factors of production, both capital and labor, cannot remain employed as initially intended. Entrepreneurs' production costs (in the case of capital) and costs of acquiring human capital, hiring, and training (in the case of labor) are already sunk and do not matter when considering factor reallocation. Remaining quasi-rents associated with the factors then represent potential new profit opportunities, thereby incentivizing the entrepreneurs to turn their alertness from investing in brand-new production processes toward salvaging existing factors of production. The necessary assumption is that the existing factors of production are substitutes for rather than complements to new investments. Accordingly, the resulting decrease in new investment is in line with the stylized fact of procyclical investment.

As I suggested before, this model of allocation between the two types of entrepreneurial activities—new investment and fixing the old allocations of capital and labor—can also be extended to include the reallocation of entrepreneurial alertness into unproductive and destructive activities, as Baumol (1990) explores in the context of economic growth. This extension makes it possible to analyze the consequences of a possible fiscal-stimulus response to a recession, where new, unproductive rent-seeking opportunities associated with the stimulus divert entrepreneurial alertness from productive activities, including new investment. Such diversion then makes aggregate investment even more procyclical. This extension relates to Takii (2008), who also discusses the interrelationship of entrepreneurship and fiscal policy, although in a different context, in which fiscal expansion tends to crowd out private consumption. As government then plays a larger role in the market and it is, by assumption, less capable of identifying changes in the tastes of consumers than entrepreneurial firms, overall output decreases.

Alertness and the Metaphor of Allocative Choice

Whenever one talks about an allocation, one tends to think of standardized factors of production with well-defined units. The production

decision regarding the factors is then a technological problem that Kirzner ([1973] 1978) somewhat pejoratively calls Robbinsian maximizing because it is mechanical and therefore does not encapsulate the discovery aspect of the market process. Talking about the allocation of entrepreneurship and entrepreneurial alertness, as I do, thus raises red flags, particularly if one at the same time claims to be building on Kirzner's insights. These concerns become even more pressing with the realization that Kirzner [1973] 1978, 66) does not view entrepreneurship as a factor of production. After all, entrepreneurship is not an ingredient that one simply adds to a well-defined production function to get predictable output levels. It might be for this reason that there is no market for entrepreneurial alertness, while, at the same time, markets work because of the alertness.

To reconcile my representation of entrepreneurship with Kirzner's, I follow the approach outlined by Storr and John (2011), who consider Kirzner's model of entrepreneurship in light of the objection that it does not account for a number of important factors possibly impacting entrepreneurship, including cultural and psychological factors. Storr and John (Storr and John 2011, 88–89) argue that one does not necessarily have to view Kirzner's model as deficient; instead, it should be viewed as a baseline model pinpointing the nature of entrepreneurship, which invites additional extensions, such as cultural influences.

My own extension starts with the consideration that it would be unreasonable to say that entrepreneurial alertness manifests at random and that entrepreneurs have no say over the industries and types of products on which they want to focus. As long as we accept that people have some freedom to choose, it is reasonable to say that they choose, even though not entirely, what to think about. This is not just a philosophical insight, but also practical one: if our attention is limited, being able to focus on priorities is a matter of evolutionary survival.

Of course, as long as the matter of limited attention is not important for an analytic framework, it is reasonable to assume it away. Such assuming is not appropriate in the present case, however. The attention of entrepreneurs during a recession might get overwhelmed with competing demands, forcing them to choose what to pay attention to. It is the need to capture such a choice that constitutes my rationale for looking at entrepreneurial alertness as if it was a factor of production.

This emphasis on the incentives of entrepreneurs is very much in line with Baumol's (1968, 69–70) view on how economists should approach

the topic of entrepreneurship. He points out that it is perhaps impossible to have a full understanding of the determinants of the supply of entrepreneurship and its quality, but it might be possible to analyze the incentives shaping entrepreneurs' activity. For example, he suggests that different tax structures might have an effect on entrepreneurs' risk-taking and their involvement with research and development.

The metaphor of allocation of alertness can take one only so far, however. It does convey both the limits to alertness and the profit-motivated choice over what one is alert to, but it cannot capture all aspects of entrepreneurship, notably acting in an uncertain world. It is with this caveat that I approach the discussion that follows.

Quasi-Rents and Profit Opportunities

When entrepreneurs allocate their alertness during a recession, their choice has some specific characteristics. Recessions reveal many previous mistakes, embodied in misallocated factors of production. This might, for example, mean that factories built and equipped during the boom are unprofitable in their intended uses, that they have to be shut down, and that the workers who were trained to operate the factory equipment have to find new employments. Awareness of these factors allows entrepreneurs to see new, related profit opportunities, channeling their alertness toward corresponding factor reallocations.

The argument that entrepreneurs shift alertness during the recession, however, rests on the assumption that reallocation of the existing factors is more profitable than, let's say, creation of brand-new factors of production. This higher profitability comes with the sunk-cost character of the previously misallocated factors. While the factors employed in unprofitable production processes do not make enough revenues to cover their own amortization, they are still useful, even though it does not pay to replace them once they wear out (in the case of capital) or to train new workers (in the case of labor). What matters is whether the difference between the return of the factors and the variable cost is sufficient to attract an owner or employer. This difference is also known as quasi-rent, which Alchian (2006, 577) defines as "the portion of the revenue from the use of some equipment in excess of current operating cost and which covers at least some of the initial, past investment cost of having produced that equipment."

How much of this quasi-rent the prospective owner or employer has to pay for a capital good or for hiring labor is, of course, negotiable, and it is somewhere between zero and the quasi-rent. But the negotiability also means that the profit coming from hiring the labor or owning the capital is also flexible and might stretch—within the given quasi-rent constraint—enough for the project to compete with the alternative entrepreneurial projects. It is this flexibility that incentivizes entrepreneurs during a recession to be more alert to exploring new uses of the existing misallocated factors rather than to producing new factors of production.[1]

Let me illustrate with an example of a machine that makes rubber soles for shoes. Assume the same machine can be repurposed to make chewing gum. Let's say the owner built the machine at a cost of $1000, expecting the present value of the variable costs to be $100 and the present value of the revenues to be $1100. While he could use the machine for making chewing gum, the fixed and variable costs would be the same but the present value of the revenues would drop to $500.

Let's say that contrary to the owner's expectations, nobody wants new shoes and the expected revenues from selling shoes drop to zero. The owner goes out of business and puts the machine up for sale. Since it can still produce chewing gum and the expected demand for the gum is unchanged, the machine is going to sell at a positive price. The quasi-rent associated with chewing gum production is $400, and the price of the machine can thus range between one cent and $400. It will end up being low enough within the range to attract an entrepreneur with sufficient profit to divert her attention from other activities.

Can one say that all entrepreneurial attention will be diverted from starting new projects that include brand-new factors of production during the recession? Of course not, but entrepreneurs have an incentive to divert their attention more than they otherwise would have. Again, the necessary underlying assumption is that the existing capital goods and existing employees with their human capital are substitutes for rather than complements to new investments.

---

[1] Note that the repurposing of the factors can happen within a company, though the repurposing is less visible to external observers.
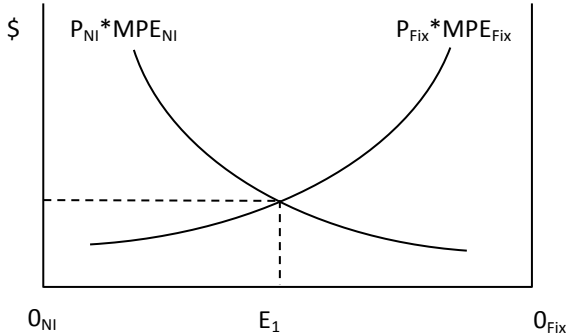
Fig. 2.1 The initial equilibrium, E_1, shows the allocation of entrepreneurial alertness between new investment and restructuring of the existing factors of production (*Source* Author's creation)

ALLOCATION OF ALERTNESS DURING RECESSION: THE BASELINE MODEL

My model is a metaphor that conveys the idea of entrepreneurs choosing the focus of their alertness. The expected relative profitability of the different opportunities is the criterion of such choice, and more profitable opportunities therefore tend to attract more alertness.

Entrepreneurial alertness in my model[2] is a factor of production whose production function has the standard property of diminishing marginal returns. I assume that there is a fixed amount of alertness and that this alertness can be allocated to two types of projects. One type predominantly pertains to new investment, for which I use the corresponding subscript of "NI." The projects associated with subscript "Fix" pertain to rearranging the existing factors of production into more efficient allocations.

Figure 2.1 shows an initial equilibrium, in which the product of the price (P) of output and the marginal product of entrepreneurial alertness (MPE) is the same for the two types of projects. Note that the amount of entrepreneurial alertness is in this model given, which is why the horizontal axis is boxed in from both sides. The more to the

---

[2] This model is inspired by Feenstra and Taylor's (2014, 69) model, which they use in the context of the labor market's responses to international trade shocks.

right the equilibrium point (E) moves along the axis, the more alertness entrepreneurs direct toward new investment projects.

Now the recessionary shock hits the economy. To keep things simple, I assume that the profitability of the prospective new projects does not change. The rearranging of the existing factors of production will compete for entrepreneurs' attention, and portions of the quasi-rents are in this competition offered to the entrepreneurs to incentivize them to use the existing factors of production instead of focusing on other projects. The higher profitability of rearranging does not mean there are new possibilities for using the existing factors, so the marginal product of the entrepreneurial input itself does not change. Instead, it is the price of the given marginal product that increases thanks to the higher fraction of the quasi-rent captured by the entrepreneurs. Figure 2.2 illustrates my reasoning and shows how the recessionary shock and related need to reallocate existing factors of production also changes the allocation of entrepreneurial alertness. Of course, if less alertness goes toward new investment, the amount of new investment decreases, alertness being one of the inputs.
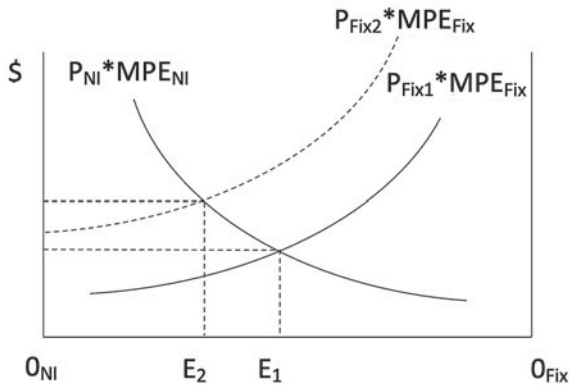
Fig. 2.2 The new equilibrium, E_2, illustrates a change in the allocation of entrepreneurial alertness from new investment toward restructuring the existing factors of production (*Source* Author's creation)

Allocation of Alertness During Recession: An Extension

I now extend my model to account for the government's fiscal expansion, which is often characteristic of governments facing recessions. I treat the fiscal expansion as a shock, or an unanticipated event, as with the recession itself.

The additional government expenditures are potential rents that people compete for, along the lines discussed by Tullock (1967) and Krueger (1974). Rents are therefore profit opportunities that incentivize rent-seeking and distract entrepreneurs from other activities—in this model, investing in new projects or reconfiguring existing factors. Entrepreneurs then have another reason to divert alertness from possible new investment, which tends to drop even further compared to the previous model.

My revised model reflects the increase in the number of possible allocations of entrepreneurial alertness to three possible sectors. Instead of a two-dimensional box diagram with the total amount of alertness unchanged, the updated model therefore shows the tendencies of the allocations of alertness in response to shocks. I proceed in three steps: After starting in equilibrium (step one), step two shows how the higher rents associated with the stimulus affect the allocation of alertness. Step three combines the effects of these new rents with the insights about the allocation of entrepreneurship during the recession from the prior section.

The initial equilibrium in Fig. 2.3 represents the allocation of entrepreneurial alertness among the three types of activities: creating new
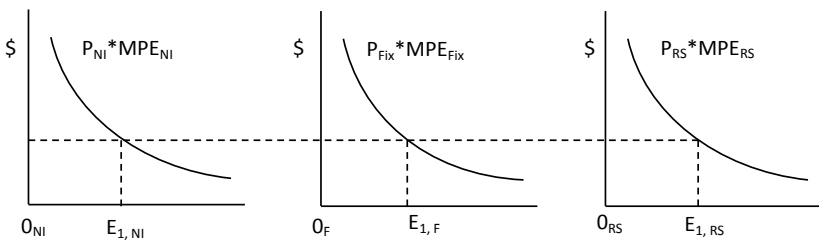
Fig. 2.3 The allocation of entrepreneurial alertness into the three types of activities: new investment (NI), fixing the allocations of existing factors of production (Fix), and rent-seeking (RS) (*Source* Author's creation)

investment ("NI" subscript), fixing the allocations of existing factors of production ("Fix" subscript), and securing profits through rent-seeking ("RS" subscript). Entrepreneurs are in equilibrium when a marginal unit of entrepreneurial alertness in each of the three activities leads to an equal dollar reward.

In the next step of the analysis, I assume a positive shock in the form of government expenditures that increases the rents available to entrepreneurs through the policy arena. In the model, the shock likely increases both the marginal product of entrepreneurship and the price of the marginal product. The marginal product increases because the additional government expenditures likely pertain to new projects and lead to brand-new rent-seeking opportunities. But additional resources also likely flow into the already-existing rent-seeking opportunities and therefore increase the price rewarding entrepreneurial alertness in the political arena.

As Fig. 2.4 illustrates, increases of the two variables—the marginal product and the price—pushes the $P_{RS}*MPE_{RS}$ curve up and to the right. This increase in the demand for rent-seeking alertness increases the opportunity cost for entrepreneurs in the other two allocations. In the resulting equilibrium, the return on entrepreneurship in all three possible allocations then has to increase. The equilibration also means that the allocation of entrepreneurial alertness to rent-seeking increases and it decreases in the other two sectors, keeping in mind the ceteris paribus assumption. The sector that matters here is, of course, that of the new investment projects. With the decline in alertness toward new investment projects, the number of such projects will decline and so will the investment, making (new) investment procyclical. The reallocation of
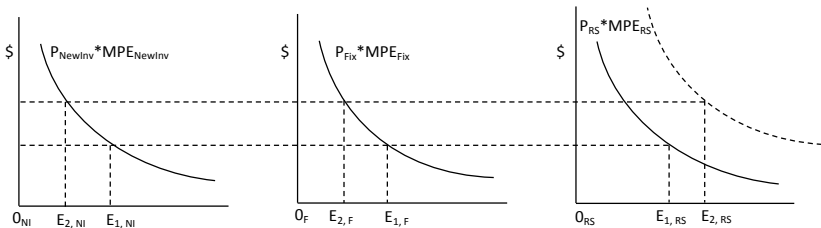
Fig. 2.4 The allocation of entrepreneurship into the three types of activities with an increase in the demand for rent-seeking (*Source* Author's creation)
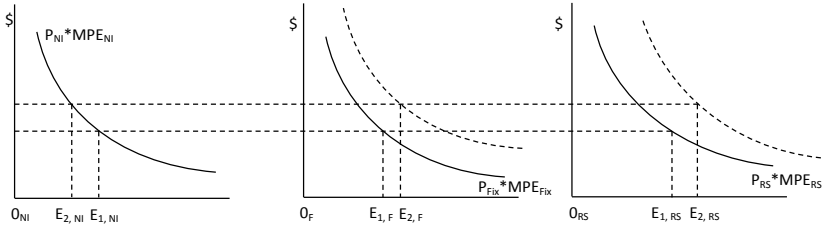
Fig. 2.5 The allocation of entrepreneurship into the three types of activities with an increase in the demand for rent-seeking and fixing the allocations of the existing factors of production during recession (*Source* Author's creation)

entrepreneurship to rent-seeking is analogous to Baumol's (1990) unproductive entrepreneurship, just applied to the context of business cycles rather than to that of economic growth.

The recession causes the allocation of entrepreneurial alertness into rent-seeking projects and the repurposing of previously misallocated factors of production to more highly valued uses. The alertness allocated to new investment projects then declines, leading to a decline in new investment, which, together with other causes not included in the analysis, makes aggregate investment procyclical. What happens to alertness to profit opportunities from rent-seeking and from reallocation of factors depends on the specific data. Even though the demand for alertness shifts out in both, it might be the case that only one of the two attracts more overall entrepreneurial alertness. Figure 2.5 illustrates the example where both see increased alertness.

Conclusion

The topic of the dynamics of recessions, discussed here, relates to a fundamental methodological question of how economies equilibrate. While under normal circumstances it seems reasonable to simply assume equilibrium, as economists routinely tend to do, this is not a plausible assumption for a situation, such as a recession, in which it is hard to ignore pervasive disequilibria. If equilibrium is not re-established immediately, it makes sense to look for the reasons, and it seems reasonable to assume, as I did in this paper, that equilibration itself is subject to the

scarcity of resources—not because such scarcity is present only in recessions, but because it is more binding during recessions than under normal circumstances.

Even though my discussion focuses on recessions, its conclusions are applicable, although empirically less visible, outside of recessions, and it addresses the methodological question of the mechanism of equilibration from the perspective of Kirznerian entrepreneurial alertness. Entrepreneurial alertness has its limits, and this is more evident when the demands on alertness suddenly increase. Entrepreneurs under such circumstances cannot be figuratively at two places at once, and they tend to focus on the activities they expect to be more profitable.

References

Alchian, Armen A. 2006. Words: Musical or Meaningful? In *The Collected Works of Armen A. Alchian*, vol. 1, 549–585. Indianapolis: Liberty Fund.

Altman, Edward I. 1983. Why Businesses Fail. *Journal of Business Strategy* 3: 15–21.

Baumol, William J. 1968. Entrepreneurship in Economic Theory. *American Economic Review* 58: 64–71.

Baumol, William J. 1990. Entrepreneurship: Productive, Unproductive, and Destructive. *Journal of Political Economy* 98: 893–921.

Bernanke, Ben S. 1983. Irreversibility, Uncertainty, and Cyclical Investment. *Quarterly Journal of Economics* 98: 85–106.

Eisfeldt, Andrea L., and Adriano A. Rampini. 2006. Capital Reallocation and Liquidity. *Journal of Monetary Economics* 53: 369–399.

Feenstra, Robert C., and Alan M. Taylor. 2014. *Essentials of International Economics*, 3rd ed. New York: Worth Publishers.

Garrison, Roger W. 2001. *Time and Money: The Macroeconomics of Capital Structure*. New York: Routledge.

Gifford, Sharon. 1992. Allocation of Entrepreneurial Attention. *Journal of Economic Behavior & Organization* 19: 265–284.

Hayek, Friedrich A. von. [1935] 1967. Prices and Production. 2nd ed. New York: Augustus M. Kelley.

Hayek, Friedrich A. von. [1939] 1975. Price Expectations, Monetary Disturbances and Malinvestment. In *Profits, Interest, and Investment and Other Essays on the Theory of Industrial Fluctuations*, 135–156. Clifton: Augustus.

Kirzner, Israel M. [1973] 1978. *Competition and Entrepreneurship*. Chicago and London: University of Chicago press.

Krueger, Anne O. 1974. The Political Economy of the Rent-Seeking Society. *The American Economic Review* 64: 291–303.

Lachmann, Ludwig M. [1956] 1978. *Capital and Its Structure*. Kansas City: Sheed Andrews and McMeel.

Lucas, Robert E. 1977. Understanding Business Cycles. *Carnegie-Rochester Conference Series on Public Policy* 5: 7–29.

Majd, Saman, and Robert S. Pindyck. 1987. Time to Build, Option Value, and Investment Decisions. *Journal of Financial Economics* 18: 7–27.

Mises, Ludwig von. [1949] 1966. *Human Action: A Treatise on Economics*, 3rd ed. Chicago: Contemporary Books.

Pindyck, Robert S. 1993. Investment of Uncertain Cost. *Journal of Financial Economics* 34: 53–76.

Platt, Harlan D., and Marjorie B. Platt. 1994. Business Cycle Effects on State Corporate Failure Rates. *Journal of Economics and Business* 46: 113–127.

Plosser, Charles I. 1989. Understanding Real Business Cycles. *Journal of Economic Perspectives* 3: 51–77.

Stock, James H., and Mark W. Watson. (1998). Business Cycle Fluctuations in U.S. Macroeconomic Time Series. NBER Working Paper 6528.

Storr, Virgil Henry, and Arielle John. 2011. The Determinants of Entrepreneurial Alertness and the Characteristics of Successful Entrepreneurs. *Annual Proceedings of the Wealth and Well-Being of Nations* 3: 87–107.

Takii, Katsuya. 2008. Fiscal Policy and Entrepreneurship. *Journal of Economic Behavior & Organization* 65: 592–608.

Tullock, Gordon. 1967. The Welfare Costs of Tariffs, Monopolies, and Theft. *Economic Inquiry* 5: 224–232.

Entrepreneurship as Complex, Bundled Decisions: An Inframarginal Analysis

Keith Jakee and Stephen M. Jones-Young

Introduction

The "theory of the firm" in modern economics is essentially an optimization exercise within an equilibrium framework. It suggests a firm's decisions concerning inputs depend exclusively upon a given production function and the given relative prices of those inputs. This approach has allowed the widespread application of the familiar tools of marginal analysis and, as such, has yielded a number of insights into aspects of firm input choices, particularly as input parameters are changed exogenously. It does, however, have an important shortcoming: it largely assumes away more fundamental production decisions, such as which inputs to use or even which good to produce in the first place. Its simplicity also tends to require an elementary production function (typically Cobb–Douglas)

K. Jakee (✉)
Florida Atlantic University, Boca Raton, FL, USA
e-mail: kjakee@fau.edu

S. M. Jones-Young
United States Coast Guard, Department of Homeland Security, Washington, DC, USA

27

and technology that is given and monolithic; the latter assumption rules out problems of deciding which one of potentially multiple technologies would be optimal. In other words, even though the moniker "theory of the firm" evokes a predictive framework of considerable generality, it largely ignores choices associated with the notion of "entrepreneurship," including firm creation, innovation of products and production processes, and even what the firm should produce in the first place.

In contrast to the standard maximizing approach, we contend that entrepreneurial choices are, first, choices over *bundles* of subsidiary or co-requisite decisions that are not easily disentangled. Effectively, then, the entrepreneur commits resources to one imagined "big-picture" state-of-the world when she makes her entrepreneurial choice, to the exclusion of other, imagined states-of-the world. We assert these big-picture decisions are discrete, nonmarginal choices.

The second aspect of entrepreneurial decision-making follows from the first: entrepreneurial choices necessarily involve significant computational complexity because they subsume many other underlying choices. It is, in other words, difficult to determine the bundled decision that represents the very best decision possible. In sum, if entrepreneurial decisions— including what types of goods to produce, what production process to use, where to locate and so on—are highly complex bundles, then the standard microeconomic framework based on marginal conditions is inadequate for the task.

While we contend the lumpiness and multidimensional nature of entrepreneurial decisions make marginal tools maladapted to the task of analyzing them, marginal analysis can be valuable in other applications. Its usefulness can be appreciated if we divide firm decision-making into two stages, one involving entrepreneurial decisions and the other involving the day-to-day running of the firm. It is the second stage, when basic decisions about what to produce and how to do it *have already been made*, that constitutes the traditional "theory of the firm." In this second stage, the "mere manager"—the term used by Schumpeter ([1912] 1983, 83)— fine-tunes a production process already in place. Such fine-tuning cannot, by definition, change the production function, but can change the input mix into the production function. The well-known marginal conditions might therefore be helpful in this second stage.

The first stage, by contrast, involves an agent creating some new production process or transforming an existing one. Since the agent does not have a production process already in place, she must decide

"what" and "how" to produce in discrete, mutually exclusive ways. In other words, deciding to produce one good forecloses the possibility of producing other goods. Similarly, deciding upon a method of production forecloses other potential methods of production. Consistent with Schumpeter ([1912] 1983), Buchanan and Vanberg (1991), Jakee and Spong (2003a, b, 2011), and O'Driscoll and Rizzo (2015), we characterize these kinds of "big picture" entrepreneurial choices—involving highly complex bundles of interrelated decisions—as creative leaps. And, such a creative leap necessarily means deviating from the status quo since the agent must confront the world in novel ways. Indeed, by rejecting the status quo, the agent must be rejecting its implied marginal conditions, a point consistent with Buchanan and Vanberg's (1991) insistence that true, creative entrepreneurship must be understood as a nondeterministic process.

In fact, while this paper largely focuses on two dimensions—bundled decisions and the inherent complexity of those bundled decisions—we want to acknowledge that our approach is consistent with a nondeterministic, dynamic process of creative entrepreneurship. Furthermore, it is important to recognize that nondeterministic processes are intrinsically tied to the notion of "radical uncertainty." Radical uncertainty is an epistemic position that claims individuals necessarily make decisions and carry out tasks without knowing, *ex ante*, all the precise consequences of those decisions (see, i.e., Shackle 1958, 1972; Lachmann 1986). Radical uncertainty is implied in models that take the passage of time seriously, or what O'Driscoll and Rizzo (2015, 106) call "real time." Real time is best understood in contrast to what they call "Newtonian time." The problem with the latter concept is that it "spatializes" time, meaning it represents the flow of time as mere "'movements' along a line" (106). This view, which they argue has been "uncritically adopted" across neoclassical theory, implies the flow of time can be treated, mechanistically, like any other parameter.

In contrast, real time suggests that, as time passes, the physical world changes, but more importantly the social world does too: individuals—both inside and outside of firms—pose competitive challenges, change course in their purchases, adapt to changing circumstances, improve their performance on tasks, reformulate mental models of the world, and work out creative solutions to an untold number of problems; in other words, their subjective view of the world, which informs their decision-making framework, changes (see O'Driscoll and Rizzo, 2015, 110–118).

Crucially, learning and discovery occur with the passage of real time and these imply *knowledge* about the world must evolve as time passes. From this perspective, individuals clearly cannot know all the future implications of their actions today. As such, real time is inherently coupled with real uncertainty, which describes, in essence, the better-known concept of "unintended consequences." While the notion of unintended consequences is frequently referenced by economists to offer caution in the context of state interventions, these fundamental relationships between time and uncertainty remind us the concept has much broader relevance in the social sphere. Indeed, the inability to fully predict the future is, we believe, particularly applicable to entrepreneurial processes, if those processes are set in motion by the imaginations of entrepreneurs.

While the approach we take in this paper is entirely consistent with one that relies on radical uncertainty, we focus particularly on the discrete and complex nature of entrepreneurial decision-making and argue these two characteristics can be analyzed independently of radical uncertainty. As a result, much of our argument is unrelated to the issues raised by real-time, although we do return to considering the passage of time in the Section entitled "Inframarginal Choice Plus Time: Path Dependence," which analyzes problems arising from path dependence in entrepreneurial decision-making.[1]

In what may seem unusual for a paper on entrepreneurship, we largely sidestep the two titans of entrepreneurial theory, Joseph Schumpeter and Israel Kirzner. Instead, we take our greatest inspiration from Coase's (1937, 1972, 1992) calls to explain why firms (and individuals) organize some activities and not others. We focus explicitly on entrepreneurs and the micro-level decision-making process concerning what and how to produce. As we explain in the next section, we feel neither Kirzner nor Schumpeter carefully analyzes this micro-level decision-making environment confronting entrepreneurs as they decide to undertake certain activities and not others. In addition, neither author uses methods that inform our own.

---

[1] Admittedly, our treatment of the time dimension is simplistic in the section, "Inframarginal Choice Plus Time: Path Dependence," and it might therefore be characterized as Newtonian time. We do this because a more complex approach to time is not necessary for our purposes there, even though our argument is completely consistent with an assumption of real-time. In other words, we think our use of basic, Newtonian time as a more parsimonious condition: if our arguments hold under Newtonian time, they should hold—and be exacerbated—under real time.

Despite our nontraditional intellectual footings, we feel it necessary to emphasize that our approach is unequivocally process-oriented. We are consistent with Hayek's project on the knowledge problem, Buchanan's (1969) and Coase's (1981) emphasis on the subjectivity of costs, and radical-subjectivist insights on uncertainty, learning, and creativity, among other themes. Indeed, we hope that, as the paper unfolds, our compatibility with a number of these market-process themes will clearly emerge, and that our broader argument will contribute to better understanding the process of organizing production.

We briefly explain our position on Schumpeter and Kirzner in the next section. Section "Characterizing Entrepreneurs" presents our view of the nature of entrepreneurship and how standard neoclassical economics has failed to interpret it adequately. The section, "Corner Solutions and Totals," presents a novel, *infra*marginal approach to entrepreneurship. The section, "Inframarginal Choice Plus Time: Path Dependence," argues that, once time is brought back into the model, the transaction costs involved in acquiring and liquidating complex, bundled assets, combined with the fact that the entrepreneur will be relatively more productive over time in her current activities imply that path dependence will arise in entrepreneurial processes.

Our Relationship to Schumpeter and to Kirzner

As suggested in the introduction, our approach focuses on the decision-making environment confronting entrepreneurs. We take broad inspiration from Coasian insights on transaction costs, but also Hayek's (1948) and Simon's (1979) assertion that individuals are unable to optimize as traditional approaches suggest, and O'Driscoll and Rizzo's (2015) insights on learning through time; our technical apparatus comes from Yang (2001) and his colleagues (i.e., Yang and Ng 1993; Yang and Liu 2009). As such, our approach is not directly influenced by Schumpeter or Kirzner, although we are considerably closer in overall perspective to the former than the latter, which we explain in the remainder of this section.

To begin, our methodology is highly compatible with Schumpeter's evolutionary emphasis on "creative destruction." For example, we concur with Schumpeter that "… the fundamental impulse that sets and keeps the capitalist engine in motion comes from the new consumers' goods, the new methods of production or transportation, the new markets, the new forms of industrial organization that capitalist enterprise creates" (1950,

83). To state the obvious, his emphasis on "new" and his nomenclature that emphasizes the "creative" aspect of the entrepreneurial process is very much aligned with our approach, as we hope will be made clear in the remainder of the paper. At the micro-level, we agree with him that a broad, workable definition of entrepreneurial action is the "carrying out of new combinations" ([1912] 1983, 74). Moreover, the feature that makes entrepreneurship a "special kind of 'function'" (79)—separate from the "manager"—is that entrepreneurs cannot rely on established routines: "What was a familiar datum becomes an unknown. Where the boundaries of routine stop, many people go no further… Therefore … entrepreneurs are a special type" (80–83). He also insists "…*the new combinations are not, as one would expect according to general principles of probability, evenly distributed through time … but appear, if at all, discontinuously in groups or swarms*" (223, emphasis in original). We are thus also sympathetic to his notion of "discontinuity," although he uses it in a macro sense and we will use it, later in the paper, in a micro sense.

On these broad contours—and many other lesser points—we agree with Schumpeter. However, while he provides an occasional glimpse into the decision-making environment for entrepreneurs, he is largely unconcerned with analyzing this level of the problem but rather with the macroeconomic dynamics in a world where entrepreneurs are the instigators of change.[2] As such, he does not explore how or why entrepreneurs do some things and not others. In contrast, our attention to the micro-level aspects of entrepreneurial decision-making means we largely avoid the macro-level dynamics upon which Schumpeter focuses.

With Kirzner, we have fundamental methodological disagreements (see, for example, Kirzner 1971, 1973). Before we outline those, we acknowledge that he solved a conundrum in mainstream theory: if all

[2] Writing in the first decade of the twentieth century, it is important to recognize that Schumpeter is trying to reconcile his insights into entrepreneurial upheaval with the Walrasian equilibrium paradigm. As such, his model should be understood as one that (1) assumes a settled equilibrium—what he calls the "circular flow" (see his chapter 1, [1912] 1983)—that is (2) upended by some "new combination" of productive factors created by the entrepreneur. The new combinations induce a disequilibrium where revenues exceed the costs of all the standard inputs (e.g., capital, labor, etc.): the profits thus created are a special return to the entrepreneur for her ability to create novel combinations. Finally, once the entrepreneur's methods have been copied and generally diffused throughout the economy, (3) entrepreneurial profits are dissipated and the system finds itself in a new "continuous flow" or equilibrium.

agents are, by definition, price-takers in perfectly competitive markets, who, in the model, would notice and act upon price discrepancies across different markets? Kirzner calls that agent the "entrepreneur" and so his theory is best understood as devising the agent who "perceives" and acts upon price differentials across markets (1973, 14). However, this characterization—which can be summed up as *entrepreneurship-as-price-arbitrage*—gives rise to a range of problems that are discussed in considerably greater detail in Buchanan and Vanberg (1991), Jakee and Spong (2003b, 2011), and Klein and Briggeman (2010).[3] We highlight those points that are especially problematic for our approach here.

Kirzner claims throughout his work to be repudiating "equilibrium analysis" (Kirzner 1973, 1, 26–29), but he depends steadfastly upon neoclassical scaffolding because he accepts its general tenets. For example, defining the function of his entrepreneur as moving markets from some state of disequilibrium (where price discrepancies exist between markets) to equilibrium (where those price discrepancies have been alleviated by entrepreneurial arbitrage) relies wholly on the equilibrium framework. In other words, his conception of both equilibrium and disequilibrium is entirely consistent with that in mainstream theory, as are his attendant corollaries, such as the insistence it is only (pecuniary) profits that drive entrepreneurs, that price discrepancies and abnormal profits only exist in disequilibrium, and that competition between entrepreneurs "pushes prices in directions which gradually squeeze out opportunities for further profit-making" (1973, 15). Kirzner's entrepreneurs therefore necessarily move markets back to some settled, equilibrium state. In fact, Kirznerian profit must come from the arbitrage opportunities inherent in price

---

[3] Both Buchanan and Vanberg (1991) and Jakee and Spong (2003b, 2011) are critical of Kirzner's approach to entrepreneurship from the perspective of radical uncertainty. Some commenters have suggested that Kirzner's so-called "middle-ground" thesis (see, i.e., Kirzner 1982, 1985, 1992)—developed in response to the radical subjectivist critiques of Lachmann and others some years after the works we cite (i.e., 1971, 1973)—solves the problems that we detail here. We disagree but cannot detail those disagreements here, as that is an entirely different project. Buchanan and Vanberg (1991) thoroughly critique Kirzner's attempt to integrate the notion of creativity within his equilibrating schema and Jakee and Spong (2003b) outline broader inconsistencies between the "early" and "later" Kirzner.

differentials, a view that forms his entrepreneurship-as-arbitrage definition of the entrepreneurial function.[4]

Kirzner is, moreover, very clearly concerned with the optimal allocation of resources, just as traditional micro theorists are. For example, in contrasting the differences between Schumpeter's theory of creatively-destructive entrepreneurship and his own, Kirzner criticizes Schumpeter for his inability to "ensure that this best course of action—which can be carried out—will be carried out" (1971, 119). His theory is therefore not one of disequilibria that jettisons the notion of equilibrium altogether, as it is, for example, in Shackle's (1972) or Lachmann's (1986) approach, but one that preserves equilibrium and depends upon it.[5]

---

[4] Note, for example, "The pure entrepreneur… proceeds by his alertness to discover and exploit situations in which he is able to sell for high prices that which he can buy for low prices. Pure entrepreneurial profit is the difference between the two sets of prices. It is not yielded by exchanging something the entrepreneur values less for something he values more highly" (Kirzner 1973, 48).

[5] Much of Kirzner's approach is captured in the following (lengthy) quote.

> We may present our dissatisfaction with the Schumpeterian scheme as follows. At all levels of human action, whether in the market economy or the centrally planned economy, we must distinguish two separate problems associated with *ensuring that the best possible course of action will be adopted*. The first concerns the discovery of the best available course of action, and is essentially a matter of calculation from the relevant data. The second problem is how to ensure that this best course of action—which can be carried out—will be carried out. … [A]s soon as one recognizes the problem of ensuring that the individual "sees" the optimum course of action, the importance of this entrepreneurial element, of *ensuring alertness to and awareness of "the data," becomes apparent*. … No matter the form of economic organization, laissez-faire or central planning or some attempted mixture, the second problem must be faced: what can ensure that the opportunities that exist be "seen" and embraced? It is here—in the market case—that the entrepreneurial element comes in.
>
> In the market system *the existence of opportunities is signaled by profit opportunities in the form of price differentials*. Now signals may not always be seen—but the kernel of market theory is that a tendency exists for them to be seen. The profit incentive is viewed as the attractive force. It is a force which not only provides the incentive to grasp the opportunities once perceived, but which ensures a tendency for these opportunities to be perceived. *Entrepreneurship is seen as the responding agency; the alertness of the entrepreneur to profit possibilities is seen as the social mechanism ensuring the capture by society of the possibilities available to it*. … All this is missing in the Schumpeterian scheme (Kirzner [1979] 1971, 119, emphasis added).

This account leads Kirzner (1973) down some unusual paths. First, he insists "entrepreneurship is necessarily open to all" (20) and "anyone else could have done what he did" (22), but such a definition seems to contradict his assertion that entrepreneurs enjoy a special "alertness." The entrepreneur, he also tells us, "needs no assets to engage in profitable market participation" (15) and therefore, "The discovery of a profit opportunity *means the discovery of something obtainable for nothing at all*. ... the free ten-dollar bill is discovered to be already within one's grasp" (48, emphasis in original). And, while briefly raising the issue of the decision over what products to make, he provides no micro-level insight into that process, but instead assures us "... in the long run quality competition always involves the attempt to offer a better product, *without commitment to any one commodity class*, at a lower price" (Kirzner 1973, 24, emphasis added). In other words, this explanation for why an entrepreneur produces x rather than y reduces to the fact that the entrepreneur was alert to profit opportunities in x rather than y, a position we do not feel is terribly insightful for understanding micro-level decision-making among entrepreneurs.[6] Indeed, the entire notion of the creative aspect—which we discussed in the context of Schumpeter—is difficult to reconcile with Kirzner's methodology.[7]

---

[6] Consider the profound difference between Kirzner's approach and Schumpeter's. Consider Schumpeter on the matter of price competition:

> ...the problem that is usually being visualized [by the "usual" theorists] is how capitalism administers existing structures, whereas the relevant problem is how it creates and destroys them. ... Economists are at long last emerging from the stage in which price competition was all they saw. As soon as quality competition and sales effort are admitted into the sacred precincts of theory, the price variable is ousted from its dominant position. ... But in capitalist reality as distinguished from its textbook picture, it is not that kind of competition which counts but the competition from the new commodity, the new technology, the new source of supply, the new type of organization (the largest-scale unit of control for instance)—competition which commands a decisive cost or quality advantage and which strikes not at the margins of the profits and the outputs of the existing firms but at their foundations and their very lives (1950, 84).

This passage from Schumpeter, it should be noted, was written roughly 30 years before the quotes we take from Kirzner in this section.

[7] See Buchanan and Vanberg (1991) and Jakee and Spong (2003b, 2011) for detailed arguments on this point.

In contrast, our entrepreneurs are not driven solely—or perhaps even principally—by profit or a special alertness to a discrepancy in prices because our entrepreneurs cannot reduce the multiple decisions required to start an entrepreneurial venture into simple comparisons of prices and costs or even into manageable price vectors.[8] On this point, we diverge from much of Schumpeter's emphasis on the profit motivation as well. Neither can our entrepreneurs have anything approaching perfect *ex ante* expectations of profit, which means our approach clearly integrates a mechanism for entrepreneurial failure. Our entrepreneurs are likely directed much more by their own tastes, preexisting knowledge, and skills than their "alertness" to a preexisting "ten-dollar bill."

Do our entrepreneurs attempt to calculate costs and benefits and attempt to anticipate the uncertainties of the future? Of course they do, but they are also much more prone to insurmountable ignorance, some luck, and failure, all things Kirzner seems loath to acknowledge. Moreover, while we are unable to predict, *ex ante*, who will become an entrepreneur—and thus it might appear that anyone could be an entrepreneur—we agree with Schumpeter that "Innumerable resistances of a social and political character work against [entrepreneurial innovation]. And the organization itself, still unknown, requires special aptitude…" ([1912] 1983, 133). We therefore fundamentally disagree with Kirzner on this point. Finally, we differ with both Schumpeter and Kirzner on the claim that entrepreneurial activity requires no assets; for Kirzner, this is an assumption that inevitably follows from his definition that entrepreneurship is essentially an arbitrage exercise. Our approach to entrepreneurs-as-business-owners or entrepreneurs-as-start-ups suggests they are indeed saddled with assets, which can include investments in one career trajectory and not another. Should the process of entrepreneurship involve assets, decisions concerning those assets are likely to be consequential—to the entrepreneur.

---

[8] Contrast this position with Kirzner's, which unequivocally states that entrepreneurial acts cannot be based on the entrepreneur's own internal calculations, but must be driven by an external discrepancy in prices: "[Entrepreneurial profit] is not yielded by exchanging something the entrepreneur values less for something he values more highly" (1973, 48).

Characterizing Entrepreneurs

In this section, we hope to articulate how standard microeconomics tends to mischaracterize entrepreneurship by ignoring key features of the decision-making environment. The features we discuss necessitate a different analytical model, which we explore further in the next section. We begin by defining entrepreneurs—much as Schumpeter does—as those agents who confront (i) decisions concerning the origination of a firm or a new production process, (ii) the reorganization or integration of some production process, and/or (iii) the development, production, marketing and sale of a new product.

Consider an individual who is contemplating opening a restaurant. What does the decision process look like? While we assume for simplicity that the business is a restaurant, there is no reason to think this decision is unproblematic: many individuals contemplating opening a business consider several types of businesses before settling on one. Moreover, if our potential owner already has a specialized skill, say cooking, there may be a (probably large) differential in opportunity costs between remaining in the food industry versus leaving it. These cost differentials suggest some "path dependence"—i.e., subsequent business or career decisions are influenced by preceding ones—something we discuss in more detail in the section "Inframarginal Choice Plus Time: Path Dependence." In any case, let us assume our potential entrepreneur has decided to open a restaurant. What next?

An array of additional factors must be decided: exactly what type of restaurant will it be? Will it specialize in ethnic cuisine or feature a "family style" mix of dishes? Will it be formal or casual? If casual, will it feature waiters or counter ordering? The mere decision concerning location is not so simple, as it also bundles together many facets, such as traffic, size and duration of leasing payments, parking, the proximity of competitors, the age and layout of the building, etc. Suppose our owner decides on an Indian restaurant because of some previous skills and experience. Even then, she confronts additional decisions over precisely which dishes to offer, exactly how to cook them, whom to hire, which suppliers to use, and a multitude of other factors too numerous to list.

Approaching the startup process in this way compels us to focus on two features that are ignored in the standard framework: many (if not most) decisions confronting the entrepreneur—as opposed to the manager—involve (i) bundled choices and (ii) computational complexities.

Bundled Choices

We define bundled choices as some meta-decision that necessarily bundles several other subsidiary decisions and we assume that each bundle of decisions constitutes what we have called some "big-picture" state-of-the-world that differs non-marginally from some other decision bundle representing some other big-picture state-of-the-world. A fine Indian restaurant cannot also be a burger shack. The equipment used, requirements for fixed buildings, and even types of workers in a burger shack are all different from those used in the Indian restaurant. Choosing the type of restaurant is not a little more or a little less of some single, continuously variable input, but all-or-nothing, or either-or, and such a choice requires numerous subdecisions about location, types of kitchen equipment purchased, layout of the restaurant, and recipes used.[9]

The bundling of decisions is apparent in other contexts. Consider a manufacturer who attempts to establish a new product line. If she completes only a fraction of the bundled tasks—for example, acquiring a new machine but not the skilled technician to run it—the firm will have outlaid resources without any increase in output; in fact, output might fall if regular production was disrupted during the period the new machine was being introduced or integrated into the production process. In this case, the firm might experience negative returns, at least during the period that the entire bundle of tasks (that is, changing from one production process to another) remains incomplete. And, the longer it takes her to complete the set of tasks, the more the firm loses, either outright or in potential profit.

Another key implication emerges from both the manufacturing and restaurant examples: entrepreneurs must be unusually committed to

---

[9] On this point, some might suggest that some hybrid restaurant—an Indian-burger stand—might be considered "marginally close" to either the Indian restaurant or the burger stand. The problem with this view is that imagining a series of restaurant types along some (infinitely continuous) range of restaurant types is an unrealistic level of abstraction *from the perspective of the entrepreneur*. A hybrid Indian restaurant is, in reality, sufficiently different from a traditional Indian restaurant due to the degree of adjustments that must be made. For the entrepreneur, it is not a marginally small increase in some single input that transforms her restaurant from the one type to the other. The types of dishes offered, the tablecloths, the décor, how the staff are dressed, etc. will differ in the two cases: one state-of-the-world is still fundamentally different from the other state-of-the-world. Therefore, from the entrepreneur's perspective, we argue that "hybrid" is, itself, a distinct and non-marginal category.

their venture and expend considerable effort, at least in part, because entrepreneurial decisions involve a network of actions to be carried out. Leaving work half-done or partially completed (*viz.* "marginal" adjustments) can lead to *worse* outcomes than not starting or changing production techniques at all. In other words, once entrepreneurs take the first steps toward developing their businesses, they are likely to confront a series of bundled "all or nothing" choices in terms of their own efforts. If any of these tasks are left unfinished—like our manufacturer or restaurateur—the venture will remain incomplete. Accomplishing only some of the functions could mean the restaurant never opens its doors at all or the new machine is left gathering dust in the factory's corner. Such an outcome is almost surely worse than never having started down the entrepreneurial path in the first place, which might offer some explanation for the long work hours of entrepreneurs.[10]

Computational Complexity

We now turn to the second dimension largely ignored in the standard framework: computational complexity. We claim individuals have neither sufficient data nor the cognitive capacity to optimize objective functions in the manner assumed by traditional theory. While we could draw on a long line of scholars from different subdisciplines—including, of course, Hayek (1948)—our approach to this issue of data availability and cognitive processing seems to be most compatible with Herbert Simon's "bounded rationality."[11] For Simon, bounded rationality is a collection of

---

[10] This claim is supported, indirectly, by a Gallup survey (2009, n.p.) that finds "self-employed Americans stand out as those most likely to work atypically long hours, in many cases upwards of 60 hours per week." It is also consistent with the academic literature suggesting the self-employed work longer hours than salaried employees (Naughton 1987; Duchesneau and Gartner 1990; Chandler and Jansen 1992).

[11] The issues we raise concerning the problems of "data" and its processing are also consistent with a number of other traditions in economics. Behavioral economics, for example, focuses on many of the same themes (i.e., that agents frequently depend on heuristics when making complex decisions). And, long before behavioral economics became fashionable, Hayek (1948) criticized the kinds of cognitive assumptions made by mainstream neoclassical theory: "the whole economic system must be assumed to be one perfect market in which everybody knows everything. The assumption of a perfect market, then, means nothing less than that all the members of the community, even if they are not supposed to be strictly omniscient, are at least supposed to know automatically all that is relevant for their decisions" (Hayek 1948, 45).

"theories of *how* to decide rather than theories of *what* to decide" (1979, 498, emphasis in original), the latter, of course, being highly descriptive of the mainstream economic approach. In a quote highly reminiscent of Hayek (1948, 45), Simon explains that "rationality is bounded when it falls short of omniscience. And the failures of omniscience are largely failures of knowing all the alternatives, uncertainty about relevant exogenous events, and inability to calculate consequences" (1979, 502).

Simon is also deeply skeptical that individuals are able to calculate on the margin (a point we develop more rigorously below): "… [the] assumptions [of bounded rationality] about human capabilities are far weaker than those of the [neo]classical theory. Thus, … [*bounded* rationality makes] modest and realistic demands on the knowledge and computational abilities of the human agents, but [it] also fail[s] to predict that those agents will equate costs and returns at the margin" (1979, 496). Indeed, Simon doubts both that individuals can adequately process the data if they had it, and that they have the data to begin with.[12]

Later, in the same paper, he provides greater insight into his monumental critique of neoclassical assumptions and his attempt to replace them with something more realistic:

> … The [neo]classical model calls for knowledge of all the alternatives that are open to choice. It calls for complete knowledge of, or ability to compute, the consequences that will follow on each of the alternatives. It calls for certainty in the decision maker's present and future evaluation of these consequences. It calls for the ability to compare consequences, no matter how diverse and heterogeneous, in terms of some consistent measure of utility. The task, then, was to replace the [neo]classical model

---

[12] For example, while doing a field study of the administration of public recreational facilities in Milwaukee in the 1930s—which led to the development of his theory—Simon was puzzled as to why the administrative heads

> … [did] not, as my economics books suggested, simply balance off the marginal return of the one activity against that of the other… Further exploration made it apparent that they didn't equate expenditures at the margin because, intellectually, they couldn't. There was no measurable production function from which quantitative inferences about marginal productivities could be drawn; and such qualitative notions of a production function as the two managers possessed were mutually incompatible. … How can human beings make rational decisions in circumstances like these? How are they to apply the marginal calculus? (1979, 500)

with one that would describe how decisions could be (and probably actually were) made when the alternatives of search had to be sought out, the consequences of choosing particular alternatives were only very imperfectly known both because of limited computational power and because of uncertainty in the external world, and the decision maker did not possess a general and consistent utility function for comparing heterogeneous alternatives. (1979, 500–501)

Our approach is clearly sympathetic to each of these criticisms of the standard model, but we want to emphasize how the problem is exacerbated in an entrepreneurial setting as opposed to a simple utility-maximizing one with a small number of already-determined inputs with readily available prices. Our focus on the bundled, or networked aspect of decisions confronting the entrepreneur suggests there are, quite simply, no easily calculable margins to equate: many decisions that must be made by our imaginary restaurateur—i.e., the type of establishment, location, recipes, input sourcing, décor, etc.—are so complex that there is no "reduced form" equation that would allow for an optimal solution based on equating margins.

A story from Amazon illustrates how certain decisions—at the margin—are ignored, sometimes for years, and how easy it is, in retrospect, to conclude the decision was likely "suboptimal" if taken in isolation from the many other (bundled) decisions of which it was a part. Amazon's long-term effort to eliminate shipping fees is well known, but Wei (2018) documents that, early on, the company had no effective process to determine whether consumers demanding refunds had actually purchased the item from Amazon. Apparently, at least one enterprising woman returned boxes of books over time, which she had not purchased from Amazon, in order to receive refunds; her refunds were presumably greater than her costs. Despite his leadership team clamoring for an institutional solution to prevent such scams, Amazon's CEO, Jeff Bezos, consciously ignored the problem for some time. While Amazon undoubtedly lost thousands of dollars to this one woman alone, Bezos presumably considered it too difficult to deal with that specific problem because the resources (including, for example, cognitive demands) necessary to solve it would have been too great or would have jeopardized other aspects of the company's shipping and returns strategy.

This process underscores an additional challenge that confronts entrepreneurs: they are likely to face nearly constant pressure to make

decisions as quickly as possible. The cost of leaving some productive resources idle—as in the case of Amazon or the above entrepreneur intro- ducing a new machine—is often traded off against spending more time analyzing the situation to make a better decision. Decisions must often be made quickly with a globally inferior choice because the quicker deci- sion involves idling fewer resources over time. Making decisions in less time than it requires to fully analyze some problem should be seen as part-and-parcel of the problem of computational complexity.

There are two additional nuances of the computational problem. First, even if our business owner had all the relevant data, she would not have the cognitive capacity to utilize that data optimally. This point implies the decision-making problem is always more complex than simply a "data" problem: whatever data are available must be cognitively processed.[13] Second, even if she desired to obtain either more data or better cogni- tive processing, our entrepreneur will always confront transaction costs of obtaining more of either; in other words, the decision-maker constantly faces a nontrivial, second-order problem of deciding whether it is worth it to collect more data or develop better skills or education in the pursuit of optimal (or even merely "better") decisions.

For example, if our restaurateur is trying to decide whether to buy equipment *A* or equipment *B*, can she know the optimal level of effort required to research the differences in machines, including searching for reviews, speaking with existing owners of both *A* and *B*, and then making third-order calculations about which reviews or owners to weigh more heavily and which to discount? Like Simon (1979), we assert the obvious answer is "no."[14] In sum, these three factors—data availability, limits to cognition, and the transaction costs of obtaining more of either—are likely to assure our owner will be unable to truly optimize over the kinds of bundled decisions she faces.

We now return to our earlier point that computational complexity is an important feature of the entrepreneurial setting even if we assume away radical uncertainty. In other words, it is not the uncertainty of how the future will unfold through time that gives rise to the problem of compu- tational complexity in the sense that we describe it here, although the

---

[13] See, for example, Hayek (1948), who discusses the fact that utilizing "data" in decision-making is more complex than is commonly appreciated.

[14] Incidentally, see Simon (1979, 502–504) for a critique of Stigler's informational "search" models.

passage of time will most certainly further complicate the complexity problem. It is a problem that exists in a time-invariant (static) environment and arises because no individual can gather all the data that would be necessary to make the kinds of optimal decisions implied by standard theory.

We thus conclude that, in a nontrivial sense, the role of the entrepreneur is overwhelmingly concerned with the choice among a complex set of bundled inputs, such as types of equipment, restaurant layout, raw materials, and an array of additional factors. It is not concerned with a-little-more-or-a-little-less of a single, divisible input, after the choice of input types has already been made. Our approach provides, we would argue, additional microeconomic underpinning for Schumpeter's notion that it is creative "new combinations" that distinguish the entrepreneurial function. Further, because the choice between inputs includes many potential options with many interconnected decisions, optimizing—that is finding the very best of all possible decisions—as suggested by mainstream theory must be beyond the capacity of entrepreneurs.

Corner Solutions and Totals

While non-marginal analysis is unusual for microeconomists, relevant tools do exist. In fact, Xiaokai Yang's pathbreaking research agenda—which aimed to endogenize the productive choices of all individuals in an economy with specialization and division of labor—develops a highly complex set of non-marginal tools.[15] We thus draw on Yang and several of his colleagues for our approach to the bundled, non-marginal nature of entrepreneurial decision-making, even though he never considers

[15] There do exist some limited number of models that incorporate non-marginal or discrete choice events and some even include specialization and exchange like Yang. For example, Diamond's (1982) model can be interpreted as a model of specialization and exchange. However, we rely on Yang for two reasons: first, Yang's work is generally more comprehensive than the other literature; second, his focus on specialization and the division of labor leads him to adopt more unconventional modeling practices that better fit the nature of entrepreneurial choices. For example, his incorporation of both consumption and production in the decision confronting agents is highly congenial to our general approach.

entrepreneurship explicitly as far as we are aware.[16] In definitional terms, non-marginal decisions should be understood as *inframarginal*, or binary decisions; they are, as we have been suggesting, decisions over which activities to engage in or not engage in (Yang and Liu 2009, 1).

Before we apply the analysis to entrepreneurial decisions, we briefly review Yang's general approach. To begin, a key feature of what he calls his "new classical model" (2001, 133) assumes individuals are *both* consumers and producers, which means they produce some good to both consume *and* sell on the market, and they buy other goods on the market to consume. As such, Yang's decision problem confronting the individual is based, unremarkably, on her utility derived from consuming goods and her budget constraint. What is unusual in his framework, however, is the decision facing the agent also depends upon the agent's production function (Yang 2001, 135). This complex functional form gives rise to multiple possible optima and since the "local optimum decisions are discontinuous across the profiles, there is no method that can be used to solve for the optimum decision in one step" (134).

In other words, because the choice confronting Yang's agent is discontinuous, optimality cannot be determined using the traditional marginal conditions. It is the existence of these multiple, discontinuous local optima that is the basis for classifying the analysis as inframarginal. Yang then develops a complex multistep process to solve across discontinuous choices on the inframargin: "the local maximum values of the objective function are compared across the candidates to identify the globally optimum decision" (134). In effect, his method involves calculating the global maximum by comparing the *total* net benefits of each possible corner solution and choosing the solution with the highest net total benefits (Yang 2001, 75; 2003).

According to Yang, a key result—the "Wen Theorem" (1998)—proves that the optimal "…decision does not involve selling more than one good, does not involve selling and buying the same good, and does not involve buying and producing the same good" (Yang 2001, 134). Intuitively, this means "[s]elling and buying the same good involves unnecessary transaction costs and therefore is inefficient. Selling two goods is also inefficient since it prevents the full exploitation of the economies of specialization"

---

[16] Yang was instead attempting to account for a range of economic phenomena in a general equilibrium framework where specialization and the division of labor drive production-consumption choices and the size and pattern of market networks.

(2001, 135).[17] In other words, an individual produces only one type of good or is engaged in one specific type of occupation for returns that are sold to purchase all other goods (Yang 2001, 136); her production of that particular good also entails some self-consumption of that same good.[18]

We now return to integrating Yang's inframarginal approach with our analysis of the entrepreneur. With Yang's help, the question of what entrepreneurs produce can be understood as a problem involving not just production functions, but also utility functions (the "tastes" of producer–consumers) and constraints (budgets and relative prices). Because of the Wen Theorem, production choices are *corner solutions* in this inframarginal world. This means the producer–consumer agent specializes in the production of only one good and produces zero of all other goods. While we forgo illustrating this result, it can be visualized in a production possibility framework as the individual producing at one of the corners: production is *either $x = 0$, or $y = 0$*, where x and y are both consumption and production goods (Yang 2001, 74, 135).

Of course, a key difference between corner solutions and traditional interior optimization solutions is that traditional solutions involve an infinitely divisible continuum that allows infinitely fine adjustments in decisions as the parametric conditions change. Corner solutions, on the other hand, imply that decision variables attain either a lower or upper bound (Yang 2001, 8) and will be invariant to a potentially wide range of parametric changes. In our example, the potential entrepreneur's only choice is "0 or 1" to build a restaurant or "0 or 1" to, for example, remain in a salaried job. Our entrepreneur cannot open half an Indian restaurant and work half-time at a salaried job (or any other fraction thereof). In such a world, not only will decisions be invariant to wide swings in parameters,

---

[17] In Yang's words, "economies of specialization are individual-specific and activity-specific. They cannot extend beyond an individual's maximum available working time. In other words, economies of specialization are localized increasing returns" (Yang 2001, 46). In technical terms, the average labor cost of some good x monotonically decreases with the individual's level of specialization in producing that good.

[18] The intuition becomes clearer if we recall that all goods in a multi-good model are assumed to figure positively in the consumption function. Thus, as a consumer, the individual wants diversity in consumption, but, as a producer, specialization and transaction costs of buying and selling suggest specializing in the production of one good.

but once choice variables do change they will change dramatically, from 0 to 1, or from 1 to 0.[19]

The implications of considering these producer–consumer decisions as binary are profound. Take, for example, a point that is rarely made explicit in Yang: his models imply *individuals have preferences over which productive activities they would like to be engaged in and which activities they would not*. Consider the following:

> As your career develops, you will see that your peers will have very different lives according to their different occupations. To choose an occupation, and a level of specialization in that chosen occupation (that relates to how many activities and subactivities a person does not engage in) *is to choose a configuration*. This choice of configuration usually has much more important consequences on a person's future life than does the degree of commitment to a given occupation. (Yang and Liu 2009, 41, emphasis added)

Notice how this choice of a *configuration* of a future life parallels our emphasis on the bundled nature of the decision. And, importantly, it also includes more than just the simple monetary returns to an occupation. It includes countless nonpecuniary aspects, such as the type of people worked with, time away from home, passion for work, among many others. Thus, the entrepreneur—who we would classify as a literal consumer–producer—would have arguments in her utility function encapsulating both the pecuniary returns to work and nonpecuniary utilities and dis-utilities arising from different types of activities. From this perspective, it should become clear that decisions to produce one type of good or another—to build an Indian restaurant or remain in salaried employment—must be driven in part by the existing constraints, just as

---

[19] At this level, our approach may appear similar to the models of dynamic and non-marginal entry-exit decisions faced by firms in papers such as Hopenhayn's (1992), which was brought to our attention by Garett Jones. However, there are some key distinctions between our work and this genre. For example, this literature is broadly macroeconomic in orientation in that it is designed to explain the patterns and frequency of entry and exit by firms in an industry. As such, it makes the typical kinds of assumptions necessary to be tractable in an equilibrium framework (in Hopenhayn's case, firms produce a single, homogeneous product under price taking conditions). Our approach, by contrast, is distinctly focused on the decision-making processes at the level of the entrepreneur. We are thus interested in modeling a different set of questions that center on why entrepreneurs choose the way they do, and why they undertake some activities and not others.

traditional models like Kirzner's would suggest. These include relative prices and the expected financial returns to the activity. But such decisions must also be driven in part by preferences over many nonpecuniary aspects of work. As such, the entrepreneur's *tastes* surely play an important role: the entrepreneur might well prefer to be "answering to no one," even if it means lower pecuniary returns.[20]

Thus, unlike most other approaches to entrepreneurship—particularly Kirzner's—we argue the pecuniary (and nonpecuniary) bundle the individual would like to consume–produce influences what Yang calls her "future life" decisions, and what we have been calling "big picture" decisions. Such a perspective underscores that monetary profit is likely not the only force driving entrepreneurs, and, in fact, may not even be the primary driving force.[21] Enjoyment derived from a type of work, or a desire to consume the product of the work itself must certainly be additional motivations behind entrepreneurial decisions. This implication is consistent with results across many empirical studies. For example, Hamilton (2000), a highly cited article in the empirical literature on self-employment, reports that the

> empirical results suggest that the nonpecuniary benefits of self-employment are substantial: Most entrepreneurs enter and persist in business despite the fact that they have both lower initial earnings and lower earnings growth than in paid employment, implying a median earnings differential of 35 percent for individuals in business for 10 years. … Furthermore, the

---

[20] For example, a friend makes furniture for a living and we inquired as to why he chose furniture making as a career. He described why he liked the process of woodworking, making something with his hands, and producing aesthetically beautiful things for others as pivotal to his choice over his alternatives. He is planning to open a furniture-making business in the future but not because he believes he will be inordinately profitable; in fact, he can easily list many other occupations in which he would earn more. We would ask: how would Kirzner's view of entrepreneurship account for such potentially "unprofitable" entrepreneurial decisions? These issues are all highly consistent with Buchanan's argument in *Cost and Choice* (1969).

[21] Schumpeter seems to have recognized this point, himself, when he noted that many entrepreneurs could have been paid considerably less to perform the same entrepreneurial act because they are often chasing nonpecuniary returns ([1912] 1983, 155).

estimated earnings differentials may understate the differences in compensation across sectors since fringe benefits are not included. (Hamilton 2000, 604)[22]

Moreover, a substantial empirical literature on this issue supports Hamilton's fundamental results and suggests, directly or indirectly, that nonpecuniary considerations must be significant for entrepreneurs.[23]

Production–consumption decisions will also depend on the entrepreneur's actual production function, which is to say her existing skill set. An entrepreneur who is already specialized is someone who has devoted time and resources, *in the past*, to gaining that specialization. Her current production function—the representation of what she is good at—is thus a function of past decisions and experience. Indeed, asymmetries across all these factors, including constraints, preferences, and skills will combine to account for the variety of ventures that entrepreneurs enter, or whether they decide to enter entrepreneurship at all.

From our perspective, shortcomings do, however, arise in Yang's approach. Recall that the optimization of net total benefits across all possible decisions means Yang's agents must maximize across many potential corner solutions, which necessarily involves a complex, second-order

---

[22] It is important to note, moreover, that the "differential cannot be explained by the selection of low ability employees into self-employment and is similar for three alternative measures of self-employment earnings and across industries" (Hamilton 2000, 604).

[23] For example, Moskovitz and Vissing-Jorgensen (2002) find the self-employed earn lower risk-adjusted returns; Carrington et al. (1996) and Rees and Shah (1986) find the self-employed experience higher income variation; Parasuraman and Simmers (2001) and Blanchflower (2004) observe more family conflicts among the self-employed; Benz and Frey (2008a, b) and Hundley (2001) suggest that nonpecuniary benefits, such as greater levels of autonomy, may explain the lower monetary compensation for the self-employed. We are, incidentally, familiar with the mainstream argument that the financial return to each occupation should compensate for the differences in *both* pecuniary and nonpecuniary net benefits across career choices. These so-called compensating differentials, of course, assume the existence of shadow prices for each nonpecuniary benefit (or cost). However, indivisibility and computational complexity make it highly unlikely that clear and accurate shadow prices will emerge for every possible nonpecuniary margin. Indivisibility means that one state-of-the-world, with one (potentially complex) set of nonpecuniary benefits and costs, is chosen against some other state-of-the-world, with a different set of (potentially complex) nonpecuniary benefits and costs. And, computational complexity limits how much individuals can cognitively process. If our agents do not have clear and precise values for each subcomponent of a decision, it is unlikely they are making optimal decisions.

optimization process. The presumption that agents can optimize in such a way ignores two dimensions that are important to our analysis. The first is the bundling problem: each "big picture" corner solution—say producing Indian food instead of burgers—can potentially nest tens, hundreds, or even thousands of other decisions: optimizing over each of these dimensions is clearly unrealistic.

Second, any bundled corner solution is likely to involve a range of nonpecuniary costs and benefits. For instance, in deciding between opening an Indian restaurant and staying in salaried employment, the entrepreneur would have to compare the net benefits of each. Suppose our restaurateur intends to eat the food at her restaurant frequently and, further, that she prefers Indian food to what she normally eats at her salaried job. Clearly, such a scenario tilts the scale in the favor of opening an Indian restaurant, *ceteris paribus*. But suppose the salaried work is located closer to her home than the Indian restaurant would be, a scenario favoring the salaried work, *ceteris paribus*. While our entrepreneur might have some way of comparing the extra time traveling to the restaurant with the greater enjoyment of food at the Indian restaurant, these types of nonpecuniary comparisons become massively more complex as more dimensions are added. Very quickly, the difficulty of calculating the optimal net benefits, on the margin, across the many possible choices—each involving scores of nonpecuniary considerations—becomes too great for anyone. Indeed, it would be astonishing if she could calculate exactly what she has given up to consume these meals in her restaurant. Truly nonpecuniary costs and benefits imply the absence of a robust tradable market and therefore a lack of clear price signals, one of the key conditions for models as incongruous as Yang's and Kirzner's.[24]

Third and most profoundly, Buchanan (1969) argues that while the profession has internalized the notion that benefits are subjective, it has not appreciated that *costs* are too: the argument is that opportunity costs, from the perspective of the individual, are subjective costs. Throughout mainstream economics—and Kirzner's approach, we might add—it is assumed that costs and prices are proxies for the opportunity costs of different options. However, the true subjective opportunity cost

---

[24] It is worth pointing out that while Yang's union of consumption to production comes close to integrating nonpecuniary costs and benefits, it is not exactly the same thing: his model effectively relies on consuming goods for which there exists a tradable market; by definition, there will not exist robust markets for many nonpecuniary costs and benefits.

disappears after each choice is made because, once a decision is made, its once-attendant options disappear; in other words, once a decision is made, the agent confronts a new set of opportunity costs (Buchanan 1969). Opportunity costs are therefore never realized and, as such, outlays cannot be relied upon as proxies for whether the chosen option was optimal at the time. In sum, Buchanan argues there can be no basis—even at the individual level—to judge optimality because the necessary data have disappeared and cannot be recovered. The implications for social optimality should be clear.

Thus, while Yang's corner-solution models provide a useful framework with which to analyze inframarginal decisions, we argue that he overlooks the computational requirements inherent in the second-order optimization necessary to determine global optimal quantities of nonpecuniary costs and benefits. Indeed, he places considerably higher computational demands on his agents than even traditional microeconomics does, which raises our earlier point that information is neither perfect nor costless. The computational complexities we outlined above are, moreover, ever present, even for those making decisions over highly local production (i.e., small local business startups).

In sum, our argument, thus far, implies potential entrepreneurs confront complex (discontinuous) sets of decisions for which there are no simple optimization rules. Since our producer–consumer entrepreneurs cannot optimize, we posit that their decision process looks something like "satisficing"—which implies our agents merely aim to meet some acceptable threshold—as Simon has suggested in other contexts.[25] When comparing states-of-the-world, entrepreneurs are likely to evaluate the *total* net benefits of just a few of the options available and ignore many other plausible ones. Then, within those highlighted options, they will likely compare just a few of the sub-features (at most) and ignore many other potentially relevant features.

[25] Simon (1979) includes a useful summary of his notion of satisficing and it also includes an informative account of the role "aspiration" plays in the process of developing such thresholds (1979, 503). While we are not interested in detailing the psychological underpinnings of entrepreneurial decisions here, our approach to the process of forming one's "big picture" view of one life path is perfectly compatible with Simon's analysis of aspiration.

Inframarginal Choice Plus Time: Path Dependence

Traditional marginal analysis relies on continuously-divisible decisions that imply finely tuned marginal adjustments as external parameters change. As a result, the problem of being locked-in to a decision rarely arises.[26] A lock-in or path-dependent process, in simplest terms, is one in which it is costly or impossible to alter one's current path of decisions. For those scholars who do acknowledge the existence of path dependence (i.e., David 1985; Arthur 1989; North 1990; Krugman 1994), two key features emerge: first, the process must involve the passage of time so that a sequential path of decisions exists; second, the individual or group under consideration is frequently assumed to be locked-in to inferior or suboptimal outcomes relative to some idealized outcome or outcomes that might have been.[27] In what follows, we bring the dimension of time back into our model of entrepreneurship and show that it implies some form of path dependence. However, we do not agree with the tenor of much of the literature that path dependence, *prima facie*, implies inferior outcomes because, in our view, optimality was never in reach for our agents.

An entrepreneur cannot merely command an Indian restaurant into existence but must instead take many and varied steps to sequentially "assemble" such a restaurant. As mentioned above, she must decide on where to locate, which equipment to purchase, what items to list on the menu, and so on. Each of these subsidiary decisions generally involves three stages. The first is a search or decision-making process wherein

---

[26] In standard microeconomic analysis, the exception is the case of fixed inputs in production theory. Definitionally, certain production decisions can be locked-in during the period that the firm cannot adjust its fixed inputs. However, once the firm can adjust its fixed inputs, it is back to a "marginal" world that allows for complete and optimal adjustment to any new circumstance.

[27] Liebowitz and Margolis (1998) call this condition "third degree path dependence." Perhaps the most famous example of both of these features of path dependence in the economics literature comes from Paul David's (1985) argument that modern typing technology has become inefficiently locked-in to the QWERTY keyboard because of mere historical accident. This inefficiency is manifested, according to David, in lower typing speeds relative to a more modern keyboard, the Dvorak Simplified Keyboard (DSK). It should be noted that Liebowitz and Margolis (1998) strongly disagree that the DSK is more efficient than the QWERTY keyboard. Liebowitz and Margolis (2013) provide a good overview of their long-running argument against path dependence and the responses to it.

the entrepreneur gathers information and decides upon specific inputs. Second, some production input is purchased or contracted for. Third, once the input is obtained, she must integrate it into her production process.

For example, before a Tandoori oven can be purchased for this Indian restaurant, our entrepreneur must travel to an equipment supplier or, at the very least, visit a website and decide which of multiple ovens she should purchase. When she pays for it (or perhaps secures a loan for it, which of course entails further searching), it becomes hers, but this step quite likely involves either additional costs of getting the oven to the restaurant (if purchased from a store) or waiting time for the asset to arrive in the mail; it might also need to be unpacked and possibly assembled. Finally, the entrepreneur can situate the oven in her kitchen.

We break out the multiple stages of acquiring an oven because standard marginal analysis tends to assume away these other, niggling stages and their associated costs, which most will recognize as transaction costs.[28] Normally, economists ignore these costs for one of two reasons: either it is presumed the costs of these other stages are not sufficiently important to register them independently, or it is assumed the decision-maker has taken account of them before purchasing the input of interest; the latter implies the transaction costs can be simply wrapped into the traditional cost functions.

Contrary to the standard treatment, we do not believe the transaction costs of deciding upon, acquiring, and integrating capital assets into the production process are trivial for entrepreneurial processes; moreover, simply adding them to the standard cost of the input is analytically misleading because their costs cannot be recouped like that of the asset itself, as we hope to show.[29]

To begin, we want to emphasize that these costs are borne across each decision the entrepreneur must make. Cumulatively, transaction costs can be a significant factor in production, particularly for entrepreneurs who

[28] Yang's (2001) work is an outlier in this regard. He includes transaction costs throughout his work, even in the utility functions of his agents. Nonetheless, we would argue he makes overly simplifying assumptions regarding the functional form transaction costs can take so that a general equilibrium model can be obtained. For a more generalized treatment of transaction costs and how they frustrate the emergence of a general equilibrium see Jakee and Jones-Young (2020).

[29] And, in fact, much of the same can be said of determining and acquiring variable inputs, but we leave this analysis for another discussion.

are combining or recombining assets. Indeed, we can think of *the cost of the entire process of combining assets in some new way, or for some new venture, as transaction costs*, since they are costs that are incurred in the actual process of combining inputs and not part of the input itself; they cannot be recouped like the value of the asset can potentially be.[30] We argue these transaction costs create a wedge between the value of the current path of decisions, in which prior transaction costs have been sunk, and alternative paths of decisions, in which transaction costs have yet to be experienced. We provide a heuristic example to explain this contention.

When the entrepreneur wishes to buy a capital good, she must suffer transaction costs in addition to the purchase price. These transaction costs plus the purchase price constitute the full outlay to acquire the good. Notice that even if there were no transaction costs for reselling—nor any deterioration in the quality of the capital good, defined as depreciation— she would not be able to recoup the transaction costs outlaid to acquire the asset in the first place.

There are, of course, also transaction costs in reselling a capital good. Were the entrepreneur to resell her capital goods, she must figure out where to sell them, how much to sell them for, and she will have to deal with the potential buyers who are interested in purchasing the capital good. Potential buyers may want to test or inspect the capital good for quality, requiring the entrepreneur to spend time showcasing it. There may then be transaction costs in the form of "bargaining costs" over the price and exchange conditions. Finally, the new owner will have to take possession, potentially inflicting yet further transaction costs should the assets require special services or equipment to move. Taken together, the entrepreneur simply cannot liquidate her capital goods in the ways often assumed in standard microeconomics: transaction costs form a wedge between the *status quo* and either acquiring or dispensing of assets.

This argument may be clearer with a very simple one-period example of the choice to become an entrepreneur. In choosing between her current occupation and starting a business, our potential entrepreneur is expected to consider her possible paths before beginning down a new one. One path is her current job where she earns a salary, *s*. In previous periods, she suffered the transaction costs of finding and acquiring that job, but

---

[30] It is true that the value of the "combining" might possibly be recouped in the future value of the entire enterprise—if successful—but they cannot be, if the enterprise is unsuccessful.

those transaction costs are sunk, and we ignore them. Her alternative path involves a very simple business startup that requires only one capital good or asset, A, to function successfully. We convert the asset value, A, to a periodic cost, a. There are also transaction costs to buy this capital good, denoted t_b. The expected returns to the startup, before she leaves her job, can be expressed as her expected profit (π_i), which is revenue (R) minus the costs of her capital good, the transaction costs of acquiring that capital good, and the variable costs (v), yielding $\pi_0 = R - a - t_b - v$.[31] For now, we ignore nonpecuniary costs and returns for simplicity.

Traditional analysis suggests that, as long as our entrepreneur expects $\pi_0 > s$, she will prefer to become an entrepreneur over staying on her current job path. Critical to our analysis, however, expected returns must be higher than her salary *by at least* t_b to induce her to leave her current job. This is how t_b acts as a wedge between her expected profit from the business and her current earnings.

Now, we add a second period after our decision-maker has begun down her entrepreneurial path. She would have already outlaid resources, t_b, to pay for the transaction costs of acquiring the asset. If she continues to make payments on the asset, her new profit equation will be $\pi_1 = R - a - v$. Even if she owns the asset outright and her balance sheet reflects that ownership, she cannot resell it at zero cost. To do so requires the kinds of transaction costs we suggested above, such as marketing and any other costs of liquidating it. The aggregate costs of each of the steps can be designated as the transaction costs of sale, or t_s. In other words, she only recoups the value of the asset less the transaction costs of the sale. Thus, the opportunity costs of remaining on her current entrepreneurial path ($s - t_s$) is less than they were before becoming an entrepreneur (s).[32] It is also true that $\pi_0 = R - a - t_b - v < \pi_1 = R - a - v$, and $\pi_1/(s - t_s) > \pi_0/s$, meaning the expected *relative returns to entrepreneurship have increased* once she starts down her entrepreneurial path.

---

[31] Of course, each term is an expectation, so profit should be understood as *expected* profit; we ignore the expectation operator for simplicity.

[32] To simplify the analysis, we assume that our agent's previous employer will allow her to return to her original job any time she wants. We therefore assume away any transaction costs to finding a new job if her entrepreneurial path does not work out. Relaxing this highly unrealistic assumption creates an even greater wedge than the one we describe here.

Reconsider the decision problem in the initial period. The then-*potential* entrepreneur wondered what it would cost her to start the business, which was the forgone salary *plus* the transaction costs of acquiring the necessary asset. By contrast, if the entrepreneur considers returning to her salaried position after the second period, she must sell the asset. Both comparisons entail transaction costs, and therefore transaction costs encourage the individual to stay on her current path because transaction costs create a wedge that raise the relative cost of the alternative path. In broader terms, transaction costs on both the acquisition and disposal side of assets associated with starting a business create a wedge between any given existing path and her imagined paths.

Our model is intentionally simple, as it comprises only one capital good and we assume away any potential transaction costs of making decisions over variable inputs. However, as we repeatedly mentioned above, following an entrepreneurial path requires hundreds or thousands of decisions on the path toward forming a business: entrepreneurship is a choice between bundles of decisions. Consider how the model changes with hundreds of capital goods and transaction costs associated with securing variable inputs. Scores of transaction costs will be incurred to launch the venture and thus the entrepreneur's expectation of benefits (pecuniary and nonpecuniary) from the enterprise will have to be greater than the sum of these transaction costs in order to choose the entrepreneurial path. Similarly, were the already-established entrepreneur to want to close the business, she would suffer transaction costs of selling the business and/or the specific assets of the business. It is almost certainly true, moreover, that the transaction costs of selling a business or its assets will be greater than the transaction costs of finding salaried employment.

In anticipating the expected net benefits from staying in her current employment versus opening a restaurant, our potential entrepreneur should consider the possibility the venture will not succeed or that she might want to exit someday. If so, we would expect her to consider all the potential transaction costs before commencing. In other words, before moving to the entrepreneurial path, her initial profit expectation must be $\pi_0' = R - a - t_b - t_s - v$, which is similar to π_0, except for the additional cost of t_s. Forward-looking entrepreneurs must acquire numerous capital goods and know that any potential exit from the startup will entail

transaction costs of both buying *and* selling those assets, increasing the potential wedge between current salary and expected profits.[33]

A simple inequality illustrates that forward-looking entrepreneurs will likely face greater "lock-in" to whatever path they are currently on. A traditional cost-benefit comparison of whether to leave one's salaried job to start a business would ask the following question: are revenues minus costs greater than the alternative employment, or is $R - C \geq s$ (where $C \equiv a + v$)? In other words, the would-be entrepreneur is expected to leave her current salaried job when she expects profit to exceed her salary. However, with a little algebra, our equation π_0', above, suggests the forward-looking potential entrepreneur would need $R - C \geq s + [t_b + t_s]$, meaning the wedge, or "hurdle" to leave one's current career path is higher—by the amount of both the purchasing and selling transaction costs—than the simple "profit versus salary" comparison suggests. This higher hurdle will tend to lock-in would-be entrepreneurs to their current career paths: we should expect fewer people to overcome these hurdles—to become entrepreneurs—than in simpler models that ignore the transaction costs associated with these kinds of decisions.

As time passes, a second key facet of entrepreneurship leads to path dependence: learning. Over time, agents learn, which means that once our entrepreneur sets up and runs her restaurant, she is likely to get better at it. In short, over time she becomes more productive at that particular function. Her improved entrepreneurial skills mean she will be able to produce more for a given hour of work effort than when she first started.[34]

Entrepreneurial learning is, however, unlikely to lead to improvements in skills not related to her current entrepreneurial position. Even if the

---

[33] Recall, above, that Kirzner claims entrepreneurs do not need to acquire capital. In our view, by contrast, entrepreneurs-as-start-ups are only defined as "entrepreneurs" once they begin to acquire capital and undergo the steps of starting a business.

[34] The careful observer will note that our multi-period model, here, does not incorporate the richness we attributed to real time in our Introduction. As such, our use of multiple periods in this section is really an application of Newtonian time and we simply assume, for the purposes of this simple asset model, that time is linear and increased learning (or productivity) is a positive function of that linear time. Nonetheless, the implications here are consistent with real time. In other words, while real time is not necessary for our conclusions to hold, real time will exacerbate the problem of computational complexity that runs throughout our argument.

knowledge and skills from her previous salaried position do not deteriorate, she will be relatively more productive at her current position because her productivity as an entrepreneur will increase while her productivity at her old job will, at best, remain idle. Indeed, we can think of the time our restaurateur spends on her entrepreneurial path, itself, as an asset (or her time is effectively transformed into an asset through learning) that she cannot easily sell.[35] Learning to set up and run an Indian restaurant is unlikely to have considerable value outside of running restaurants. The entrepreneur's skills at running an Indian restaurant cannot be sold or transferred to someone else without incurring additional transaction costs.[36] Thus, if she exits her current business, she loses the productivity growth that resulted from her time spent as an entrepreneur. As such, an additional wedge between continuing with the present path or switching paths can be attributable to learning.[37]

Consider, furthermore, how much more the relative net benefits of staying on her current path would increase (versus moving back to her previous job) if her formerly-used skills deteriorate during the time that she is an entrepreneur. If her previous skills do deteriorate—and we expect they generally do—then the increased productivity from time spent learning in the new entrepreneurial path presents an even greater

---

[35] Prescott and Visscher (1980) call information acquired by the firm that makes it more productive "organizational capital." Indeed, our discussion can be rephrased as the entrepreneur acquiring organizational capital embodied in her own human capital. For Prescott and Visscher, organizational capital raises the productivity of a firm; whereas, we place emphasis on how organizational capital raises the relative return to a current occupation. Acquiring firm-specific human capital makes the agent more productive in her current firm *and* it makes the firm more productive. Prescott and Visscher stress the latter, while we stress the former.

[36] In other words, she could sell her labor containing the acquired human capital but could not do so without additional transaction costs. She cannot sell her human capital directly.

[37] Our discussion here may appear similar to the asset-specificity literature that deals with human capital (see, for example, Milgrom and Roberts 1992, 363). However, we are not interested in what would cause workers to invest in acquiring firm-specific human capital rather than other types of human capital; neither are we interested in discussing how the employer might induce the employee to acquire firm-specific human capital. We further treat a substantial part of human capital as both specific to the industry or occupation in which it is acquired and as a byproduct of working in that industry or occupation. In contrast, Milgrom and Roberts (1992, 363) seem to imply that such byproducts are not that common or substantial in scope.

wedge compared with her declining productivity in her previous employment. We would expect it will be even more difficult for her to get a job—even at her old position—at a similar salary level, the more time she spends as an entrepreneur. This theoretical point would seem to be supported amply by the stylized fact that those who spend time outside their profession receive lower wages than those who do not.

Because of these two wedges—one arising from the transaction costs of acquiring assets or assembling assets into a "firm," and the other arising from the entrepreneur's increased productivity in her new profession relative to her declining productivity in her previous profession—she is likely to be locked-in, at least to some degree, to her current path. In fact, consider the simple calculations to decide whether our entrepreneur should exit her venture, an exercise similar to the one above when she decided whether to leave her job to start a business. In this case, the simple, non-transaction cost model inequality would be: $R - C \leq s$, implying profits would have to fall below her salary in paid employment. Transaction costs, however, complicate the inequality: with transaction costs, profitability will be compared with her potential salary minus the transaction costs of selling the assets, or $R - C \leq s - t_s$. Thus, the entrepreneur is likely to stay in the business longer than most models without transaction costs would predict.[38] If we add in the deterioration in productivity in the old career—i.e., her returning salary, $s' < s$—the inequality is further exacerbated, and the individual is likely to remain with her business under even more unfavorable circumstances.

In sum, we hope we have shown that transaction costs involved in the buying and selling of assets and in "forming" the firm in the first place give rise to some degree of path dependence. Looking at a single decision, as marginal analysis typically does, transaction costs may not appear substantial. However, across bundled entrepreneurial choices, transaction costs might well be substantial and therefore substantially affect the relative opportunity costs of decisions confronting the entrepreneur or potential-entrepreneur. These transaction costs cannot, moreover, be

---

[38] *Kitchen Nightmares* is an American television series in which failing restaurateurs invite chef Gordon Ramsay to help rehabilitate their businesses. A common theme across many episodes is that owners frequently continue to run their businesses longer than most external observers would expect them to (from a purely financial standpoint). By the time Ramsay arrives, the businesses are often in substantial debt, are continuing to lose money, and the owners often express disgust with their business.

simply added to the asset cost itself, but the asset can, presumably, be resold less the transaction costs of resale. Additionally, entrepreneurs learn—which means they become more productive—and this increased productivity creates an additional wedge making path dependence more likely. The entrepreneur or would-be entrepreneur will find it more difficult to switch life and career paths than is suggested in more traditional models. This is another way of describing the discontinuous nature of decisions surrounding entrepreneurship.

While path dependence is likely under the conditions we specify, we want to be clear that we are not suggesting that path dependence is synonymous with inefficiency, as much of that literature presumes. On this matter, Demsetz's (1969, 1) foundational critique on the notion that "the relevant choice ...[is] between an ideal norm and an existing 'imperfect' institutional arrangement" still applies. He goes on to suggest,

> This *nirvana* approach differs considerably from a *comparative institution* approach in which the relevant choice is between alternative real institutional arrangements. In practice, those who adopt the nirvana viewpoint seek to discover discrepancies between the ideal and the real and if discrepancies are found, they deduce that the real is inefficient. Users of the comparative institution approach attempt to assess which alternative real institutional arrangement seems best able to cope with the economic problem. (1969, 1, emphasis in original)

In other words, it seems a pointless exercise to compare the real imperfect choices confronting entrepreneurs with some set of idealized choices that are unattainable. Furthermore, there is nothing in our approach that suggests any other entity has access to any better information or decision-making framework. Thus, while our entrepreneurs might be "locked in" to a given path that they themselves wish they could escape more easily, that option is no more real than wishing away the other difficult constraints they face, such as disappointingly low prices for their product.

Conclusion

We define entrepreneurship in terms of actions that involve some degree of novelty: entrepreneurs start a business, launch a new product, or transform some organization or production process. We argue the decisions of entrepreneurs are best understood as sets of bundled and subsidiary

decisions representing one "big picture" path—say, opening a restaurant—versus other "big picture" paths, such as staying in paid employment. These bundled sets will be highly complex because, among other things, these decisions will involve nonpecuniary elements in addition to the typically-modeled pecuniary ones. We then argue that Simon's grand critique of the maximization paradigm in economics applies with even greater force because of the complex, bundled nature of the decisions involved. The complexity of making decisions in such an environment suggests "the" optimal solution will be enormously complex to calculate and this complexity is only exacerbated if we consider entrepreneurs will never have the complete set of all relevant data and unlimited cognitive capacity with which to process any such set of data.

To conceptualize entrepreneurial decisions as discontinuous, we rely on Yang and his colleagues' inframarginal modeling of producer–consumers. Yang's inframarginal analysis emphasizes why traditional marginal apparatus is insufficient as the decisions, in this context, are corner solutions. As such, agents are presumed to compare *total* net benefits across the different choice sets.

While we employ Yang's insights into the inframarginal process, we also have qualms. Among his broad objectives was a focus on efficiency conditions in a general equilibrium framework. As a result, he presumes a level of agent optimization that is even more complex than we find in traditional micro theory. Again, we invoke Simon's critique of optimization assumptions: we take the position that—while we accept producer–consumer entrepreneurs likely compare totals across their decisions as Yang suggests—our agents are highly unlikely to be able to fully optimize over those complex-bundled sets. The process undoubtedly looks a lot more like Simon's "satisficing" than maximizing.

When time is added to complex-bundled decisions, entrepreneurs will find themselves locked into certain courses of action once they begin down a particular path because of the transaction costs of acquiring and liquidating assets and because learning through time will make the individual more productive on their current path than on alternative ones. This process suggests entrepreneurial decision-making involves at least some degree of path dependence. We do not, however, interpret path dependence as implying "inefficiency" because there is nothing in our approach that suggests alternative paths are realistically viable: we cannot "wish away" transaction costs or the change in relative productivities.

The implications of approaching entrepreneurship in this manner are manifold. First, it is considerably less misleading to approach the entrepreneurial environment as a highly complex one that involves multiple bundled decisions than one that assumes that entrepreneurs merely need to calculate *readily-apparent* input price ratios and marginal products. In other words, the realism of the approach suggests greater relevance to the actual context entrepreneurs will find themselves in. Approaching entrepreneurship as a highly complex, bundled, and nonoptimal process is a far cry from, for example, Kirzner's view that entrepreneurs are somehow more "alert" to a free ten-dollar bill.

We believe our model fits a number of stylized facts better than models that assume agents optimize margins or merely arbitrage price differentials across markets. These include work effort and the "all-or-none" nature of entrepreneurship. As such, the bundled nature of the decisions means the entire venture will remain incomplete (think "0" or "1") until some critical proportion of the bundled set has been accomplished: it is therefore critical to understand that entrepreneurial activities cannot be left partially completed as is implied by the marginal approach. We also concluded entrepreneurs are likely to consider more than pecuniary returns in their decisions, and there is substantial evidence entrepreneurs work more and probably sacrifice more, such as family life, than similarly situated salaried employees. In addition, our path-dependent result suggests the hurdle *to become* an entrepreneur and, in fact, *to leave* entrepreneurship is higher than traditional approaches admit: we should therefore expect fewer individuals to become entrepreneurs and that they will remain in their ventures longer than many traditional external observers would predict.

Another key implication of our approach is that *failure*—or at least something short of ringing entrepreneurial success—is likely to be part-and-parcel of the entrepreneurial process: indeed, from our perspective we should be surprised when ventures succeed at all, given the complexity of the decisions, the sheer number of subordinate decisions that must be made, the required effort and dedication, and the additional complications that real time entails.

necessary to add the caveat that we do not implicate our commenters or editors as endorsing the position we set out here as several of them disagreed with us, vigorously, at various turns in the argument.

References

Arthur, W. Brian. 1989. Competing Technologies, Increasing Returns, and Lock-In by Historical Events. *The Economic Journal* 99 (394): 116–131.

Benz, Matthias, and Bruno Frey. 2008a. Being Independent Is a Great Thing: Subjective Evaluations of Self-Employment and Hierarchy. *Economica* 75 (298): 362–383.

Benz, Matthias, and Bruno Frey. 2008b. The Value of Doing What You Like: Evidence from the Self-Employed in 23 Countries. *Journal of Economic Behavior and Organization* 68 (3–4): 445–455.

Blanchflower, David. 2004. Self-Employment: More May Not Be Better. *Swedish Economic Policy Review* 11 (2): 15–73.

Buchanan, James M. 1969. *Cost and Choice*. Chicago: Markham Publishing.

Buchanan, James M., and Viktor Vanberg. 1991. The Market as a Creative Process. *Economics and Philosophy* 7 (2): 167–186.

Carrington, William, Kristin McCue, and Brooks Pierce. 1996. The Role of Employer/Employee Interactions in Labor Market Cycles: Evidence from the Self-Employed. *Journal of Labor Economics* 14 (4): 571–602.

Chandler, Gaylen, and Erik Jansen. 1992. The Founder's Self-Assessed Competence and Venture Performance. *Journal of Business Venturing* 7 (3): 223–236.

Coase, Ronald. 1937. The Nature of the Firm. *Economica* 4 (16): 386–405.

Coase, Ronald. 1972. Industrial Organization: A Proposal for Research. In *Economic Research: Retrospect and Prospect, Volume 3, Policy Issues and Research Opportunities in Industrial Organization*, ed. Victor R. Fuchs. Cambridge: National Bureau of Economic Research.

Coase, Ronald. 1981. Business Organization and the Accountant. In *L.S.E. Essays on Cost*, ed. James M. Buchanan and G.F. Thirlby. New York: New York University Press.

Coase, Ronald. 1992. The Institutional Structure of Production. *American Economic Review* 82 (4): 713–719.

David, Paul A. 1985. Clio and the Economics of QWERTY. *The American Economic Review* 75 (2): 332–337.

Demsetz, Harold. 1969. Information and Efficiency: Another Viewpoint. *Journal of Law and Economics* 12 (1): 1–22.

Diamond, Peter A. 1982. Aggregate Demand Management in Search Equilibrium. *Journal of Political Economy* 90 (5): 881–894.

Duchesneau, Donald, and William Gartner. 1990. A Profile of New Venture Success and Failure in an Emerging Industry. *Journal of Business Venturing* 5 (5): 297–312.

Gallup Poll News Service. 2009. Self-Employed Workers Clock the Most Hours Each Week; Most Government Workers Stay Close to 40-Hour Work Week. General Reference Center GOLD, August 26. Retrieved September 2018 from: http://link.galegroup.com/apps/doc/A207126698/GRGM?u=gale15691&sid=GRGM&xid=bdc56223.

Hamilton, Barton. 2000. Does Entrepreneurship Pay? An Empirical Analysis of the Returns of Self-Employment. *Journal of Political Economy* 108 (3): 604–631.

Hayek, Friedrich. 1948. Economics and Knowledge. In *Individualism and Economic Order*. Chicago: University of Chicago Press.

Hopenhayn, Hugo A. 1992. Entry, Exit, and Firm Dynamics in Long Run Equilibrium. *Econometrica* 60 (5): 1127–1150.

Hundley, Greg. 2001. Why and When Are the Self-Employed More Satisfied with Their Work? *Industrial Relations* 40 (2): 293–316.

Jakee, Keith, and Heath Spong. 2003a. Uncertainty, Institutional Structure and the Entrepreneurial Process. In *Change, Transformation and Development*, ed. Stanley Metcalfe and Uwe Cantner. New York: Physica/Springer.

Jakee, Keith, and Heath Spong. 2003b. Praxeology, Entrepreneurship, and the Market Process: A Review of Kirzner's Contribution. *Journal of History of Economic Thought* 25 (4): 461–468.

Jakee, Keith, and Stephen M. Jones-Young. 2020. Rescuing Coase from the Margins: An Inframarginal Approach to Transaction Costs. Unpublished Manuscript.

Jakee, Keith, and Heath Spong. 2011. The Normative Bias in Entrepreneurial Theory. *Division of Labour and Transaction Costs* 3 (2): 81–105.

Kirzner, Israel. 1971. Entrepreneurship and the Market Approach to Development. In *Toward Liberty: Essays in Honor of Ludwig von Mises on the Occasion of his 90th Birthday*, vol. 2., ed. F.A. Hayek, Henry Hazlitt, Leonard R. Read, Gustavo Velasco, and F.A. Harper, September 29, 1971. Menlo Park: Institute for Humane Studies. Available at http://oll.libertyfund.org/titles/1663.

Kirzner, Israel. 1973. *Competition and Entrepreneurship*. Chicago: University of Chicago Press.

Kirzner, Israel. 1982. Uncertainty, Discovery, and Human Action: A Study of the Entrepreneurial Profile in the Misesian System. In *Method, Process, and Austrian Economics: Essays in Honor of Ludwig von Mises*, ed. Israel Kirzner. Lexington: Lexington Books.

Kirzner, Israel. 1985. Entrepreneurship, Economics, and Economists. In *Discovery and the Capitalist Process*. Chicago: University of Chicago Press.

Kirzner, Israel. 1992. *The Meaning of Market Process: Essays in the Developments of Modern Austrian Economics*. New York: Routledge.

Klein, Daniel B., and Jason Briggeman. 2010. Israel Kirzner on Coordination and Discovery. *The Journal of Private Enterprise* 25 (2): 1–53.

Krugman, Paul. 1994. *Peddling Prosperity*. New York: Norton.

Lachmann, Ludwig. 1986. *The Market as an Economic Process*. Oxford: Basil Blackwell.

Liebowitz, S.J., and Stephen Margolis. 1998. Path Dependence. In *The New Palgrave's Dictionary of Economics and the Law*. London: Macmillan.

Liebowitz, S.J., and Stephen Margolis. 2013. The Troubled Path of the Lock-In Movement. *Journal of Competition Law and Economics* 9 (1): 125–152.

Milgrom, Paul, and John Roberts. 1992. *Economics, Organization and Management*. Englewood Cliffs: Prentice Hall.

Moskovitz, Tobias J., and A. Vissing-Jorgensen. 2002. The Returns to Entrepreneurial Investment: A Private Equity Premium Puzzle? *American Economic Review* 92 (4): 745–778.

Naughton, Thomas. 1987. Quality of Working Life and the Self-Employed Manager. *American Journal of Small Business* 12 (2): 33–40.

North, Douglas. 1990. *Institutions, Institutional Change, and Economic Performance*. Cambridge: Cambridge University Press.

O'Driscoll, Gerald, and Mario Rizzo. 2015. *Austrian Economics Re-examined: The Economics of Time and Ignorance*. New York: Routledge.

Parasuraman, Saroj, and Claire Simmers. 2001. Type of Employment, Work-Family Conflict and Well-Being: A Comparative Study. *Journal of Organizational Behavior* 22 (5): 551–568.

Prescott, Edward C., and Michael Visscher. 1980. Organizational Capital. *The Journal of Political Economy* 88 (3): 446–461.

Rees, Hedley, and Anup Shah. 1986. An Empirical Analysis of Self-Employment in the U.K. *Journal of Applied Econometrics* 1 (1): 95–108.

Schumpeter, Joseph. [1912] 1983. *The Theory of Economic Development: An Inquiry into Profits, Capital, Credit, Interest, and the Business Cycle*. New Brunswick: Transaction Publishers.

Schumpeter, Joseph. 1950. *Capitalism, Socialism and Democracy*, 3rd ed. New York: Harper Row.

Shackle, George L.S. 1958. *Time in Economics*. Amsterdam: North-Holland Publishing Company.

Shackle, George. 1972. *Epistemics and Economics: A Critique of Economic Doctrines*. New Brunswick: Transaction Publishers.

Simon, Herbert. 1979. Rational Decision Making in Business Organizations. *American Economic Review* 69 (4): 493–513.

Wei, Eugene. 2018. Invisible Asymptotes. Remains of the Day, May 22. Retrieved October 2018 from: http://www.eugenewei.com/blog/2018/5/21/invisible-asymptotes.

Wen, Mei. 1998. An Analytical Framework of Consumer-Producers, Economies of Specialisation and Transaction Costs. In *Increasing Returns and Economic Analysis*, ed Kenneth Arrow, Yew-Kwang Ng, and Xiaokai Yang. London: Macmillan.

Yang, Xiaokai. 1988. A Microeconomic Approach to Modeling the Division of Labor Based on Increasing Returns to Specialization. Ph.D. Diss., Princeton University.

Yang, Xiaokai. 2001. *Economics: New Classical Versus Neoclassical Frameworks*. Malden: Blackwell.

Yang, Xiaokai. 2003. *Economic Development and the Division of Labor*. Malden: Blackwell.

Yang, Xiaokai, and Wai-Man Liu. 2009. *Inframarginal Economics in Increasing Returns and Inframarginal Economics*, vol. 4. Singapore: World Scientific Publishing.

Yang, Xiaokai, and Yew-Kwang Ng. 1993. *Specialization and Economic Organization: A New Classical Microeconomic Framework*. Amsterdam: North-Holland.

Conceptualization of a Kirznerian-Ethnic Entrepreneur in Market Sociology

Stephane Kouassi

Introduction

There is a growing sociological inquiry into the possible reasons as to why certain ethnic groups produce, on average, more entrepreneurs than others. Sociology has long explored the number and nature of entrepreneurial roles that exist in a society, as well as the objective structure that underlies economic opportunities and the social structure of entrepreneurial decision-making processes (Thornton 1999; Ruef and Lounsbury 2007). This approach takes into strong consideration embeddedness theory (Granovetter 2005; Krippner and Alvarez 2007). What has been missing in sociology, however, is the development of a theory of human action, especially entrepreneurial action, in the market. Starting with the Kirznerian conception of entrepreneurship and Austrian market process theory is an ideal approach. The Kirznerian model considers entrepreneurship as a process of alertness and discovery regarding opportunities for entrepreneurial profit (Kirzner 1973). This model is among the few conceptions of entrepreneurship that, under the

S. Kouassi (✉)
Goethe University, Frankfurt, Germany

opportunity-discovery nexus, found general agreement and application across disciplines over the last decades, and made key contributions to the understanding of the critical role entrepreneurship plays in markets (Shane and Venkataraman 2000; Alvarez and Barney 2007; Klein 2008).

The cognitive-behavioural aspect of the Kirznerian model presents an interesting object of study for sociology, particularly in terms of exploring the cultural determinants in the processes of identifying, evaluating and exploiting entrepreneurial opportunities. In that constellation, culture, for instance, shapes what individuals perceive as opportunities and, thereby, what they overlook (Kirzner 2006). The present work addresses the topic of culture and entrepreneurship and attempts to further develop the Austrian market and culture programme. This is accomplished by exploring how ethnic shared mental models play an important role in the alertness and opportunity discovery process, and developing a model that fits with said process; one which I call the Kirznerian-ethnic-entrepreneur. This work derives from, and evolves within, the established common ground between Austrian economics and mainline sociology. This common ground relies on a Weberian interpretive understanding of the meanings that individuals attach to their actions, their social environment and the cultural significance of economic phenomena, and embeddedness theory (Granovetter 1985; Lavoie 1991; Swedberg 1997; Langrill and Storr 2015; Chamlee-Wright and Storr 2015). In between Austrian economics and sociology lies a window of opportunity for finally understanding entrepreneurial behaviour and how entrepreneurship takes place. This window applies to sociology in particular because it has, until now, failed in its pursuits of such an understanding and the development of a cohesive theory of entrepreneurship (Schumpeter 1954; Swedberg 2009). Furthermore, sociology has been even less able to theorize the entrepreneur as the central actor and driver of the market. The state of the field being such, this work provides an opportunity to gain valuable insight into this under-researched area, while developing an extended and practical model of the Kirznerian entrepreneur. The developed model is based on two assumptions: first, it is based on the ubiquitous character of markets as they emerge everywhere, and second, it relies on the fact that market complexity is rooted in the history and culture of the respective societies. The model therefore responds to the need to further develop existing entrepreneurship theories, while also examining the specific local cultural contexts (Lavoie and Chamlee-Wright

2000: 54). Another shortage this model responds to is the lack of analytical perspectives in sociology, particularly on how actors concretely use culture, and how cultural elements constrain or facilitate patterns of action (Swidler 1986: 284).

In the present case, ethnicity is the most practical device to make sense of culture. The present model helps one to understand the pattern of meanings that shape the identification and assessment of opportunities, and the means by which these opportunities are exploited. It therefore contributes to the sociological literature by emphasizing how culture drives alertness in the process of coping with local market uncertainties and sheer ignorance, as well as emphasizing the manifestation of an embedded modus operandi about how to practically seize and exploit those opportunities. While introducing Bourdieu's (1977) sociological concept of the habitus in the present model, we have a much more complete action-scheme framework to make clearer sense of alertness and opportunity discovery, but also reconcile micro versus macro and subjective versus objective perspectives in sociology.

My model of the Kirznerian-ethnic-entrepreneur is similar to the "market-born-and-bred groups of men" (Geertz 1963: 26), highlighted some decades ago by Clifford Geertz while in Indonesia, but still observable in the bazaar-like-economies of many developing nations today. The present model theorizes also the so-called "informal economy" of those countries as a traditional market order; they are a product of the local cultural process (Ayittey 2006). The model has the potential for a better understanding of entrepreneurship in developing economies and goes through a realignment of ethnic entrepreneurship in general, and a discussion of entrepreneurial processes in the African traditional market order in particular. It addresses the nature of that market, past and present developments, and the possible challenges resulting from the entrepreneurial process it entails—a process characterized by the existence of formal economic institutions within a culture that did not necessarily create them.

ENTREPRENEURSHIP: A SOCIOLOGICAL STUDY OF ECONOMIC ACTION

The inadequate conceptualization and consensus on entrepreneurship in sociology renders it necessary to urgently develop a model of

entrepreneurial action in the market (Swedberg 2009: 24). Sociological scholarship surrounding entrepreneurship has focused merely on a descriptive approach, like for example how the supply and demand for entrepreneurship manifests across societies. The supply-side of entrepreneurship assumes that the possession of certain psychological traits by the individual increases the likeliness to become an entrepreneur within a society. The demand-side defends the argument according to which individuals' structural embeddedness in an entrepreneurial environment increases the likeliness to become an entrepreneur because they are encouraged by the availability of opportunities (Thornton 1999; Ruef and Lounsbury 2007; Ruef 2010, 2015). Mainstream sociological scholarship has largely avoided conceptualizing the actions of those entrepreneurs, much less their central role in the market. With Max Weber's crucial contribution of economic action, the first steps in the study of entrepreneurship have been taken, but have since plateaued. While situating economic action in a process of ends-means, Weber's theory of entrepreneurship frames economic action as the operation of modern business enterprise for profit, as opposed to a single individual's activity. Entrepreneurship, for Weber, is when an enterprise takes over part of an economy, in which people's needs are satisfied through exchange, to make profit while bearing risk (Weber 1978). While there are examples of insightful literature, such as The Protestant Ethic and The Spirit of Capitalism (Weber 1930 [1904]), that address how environment and culture fostered entrepreneurship across Western civilization, what remains relevant today—for individual entrepreneurs as well as patrons of firms—is the decision-making process and what influences it. Unfortunately, a practical understanding of entrepreneurs has remained less well addressed.

Building a coherent theory of entrepreneurship in sociology today requires going back to the fundamentals within the science of human action, especially individual economic action in the market. From there, the theory must have a clear understanding of what entrepreneurship is, what influences it, and how entrepreneurs operate. Sociology, through a well-elaborated conceptualization of markets and the actors' decision-making processes and action schemes, has a solid framework upon which to build a cohesive conception of entrepreneurship. Through these approaches, sociology can make sense of the dynamic and complex nature of entrepreneurship and its cognitive dimension. An exploration of the practical implications of entrepreneurship within that constellation undeniably follows the Weberian tradition of emphasizing the individual's

mind—the purposive character of action—and the meaning individuals attach to the plans and sources of this rationality (Lachmann 1971; Weber 1978). This framework of action takes a cognitive-sociological stance by considering the knowledge structure within individuals. It examines how action is adjusted in a dynamic process of knowledge acquisition and how individuals adapt to new knowledge (Lachmann 1971: 36).

Cognitive sociology emphasizes the social stock of knowledge and how culture, defined as the historically transmitted pattern of meanings embodied in symbols, forges the individual's perception and interpretation of the world (Berger and Luckmann 1966; Schütz 1967; Mauss 1973; Geertz 1973). Cultural traditions provide value-orientations and serve as standards when selecting between open and situation-based alternatives, directing human action to some ends rather than others (Parson 1951: 11–12). In this sense, culture helps define what people want, what they do, and their capacity to choose among alternative lines of action. Individuals generally select from various cultural values to construct lines of action. This explains why particular sensibilities and expertise are developed according to different circumstances. In this process, the individual acquires a singular biography via their subjective stock of knowledge. This store of knowledge, in turn, is made up of unique experiences, as well as learned tasks, capabilities and interpretations, which the individual draws from when faced with future decisions and situations, novel or otherwise (Schütz and Luckmann 1973: 100). The individual then acts, using this personal and collective biography, within the market, where sets of formal and informal rules govern relations among competitors, suppliers and customers. These rules structure actors' interests, thoughts and actions (DiMaggio and Ostrower 1990; Burt 1992; Steiner 2005; Foucarde 2007; Fligstein and McAdam 2015).

An individual's knowledge is important within the market as well. Market actors need certain cognitive capabilities that align with the logic of the market in order to interpret actions and expectations of others, and to cope with structural uncertainties. The ability to cope with and adapt to these endogenous market uncertainties allows one to find room for opportunities, profit and entrepreneurial action (Knight 1921; Fligstein 2015). Consequently, a conceptualization and analysis of entrepreneurship in the market is necessarily found through the study of the endogenous nature of the uncertainties actors face and the social resources they use (Beckert 2002, 2009). It is also a conception where the interaction between entrepreneurial cognition and social structures

is emphasized. In this constellation, a causal link between culture and action is established by conceptualizing culture as a "tool kit" that people may use in varying configurations to solve different kinds of problems. It is a causal relation wherein culture, instead of directly determining the end action, provides components that are used for the construction of strategies of action (Swidler 1986).

This approach raises the legitimate question of what sort of capacities particular cultural patterns give to those who hold them. Beyond that, this approach also investigates the kind of capabilities an individual will develop based on their social or ethnic group—in which all members share specific mental models (Denzau and North 1994)—particularly relating to their entrepreneurial and market endeavours. Cognitive sociology offers additional analytical frameworks for this exploration that help to explain how and why some social groups are supposedly more entrepreneurial than others. Furthermore, in the pursuit of incorporating a mainstream entrepreneurship theory—particularly the alertness and entrepreneurial opportunity discovery concept—into cognitive sociology, there is a real opportunity to shape a long-desired sophisticated theoretical model that addresses how culture shapes or constrains action, and how culture interacts with social structures (Swidler 1986: 273–284). Such an approach would continue strengthening the bridge between sociology and the theory of entrepreneurship put forth by the Austrian School of Economics, and advance the research on both sides regarding key tenets such as methodological individualism, and knowledge and its subjectivity (Langrill and Storr 2015; Chamlee-Wright and Storr 2015). This approach would also advance research on the division of knowledge among individuals and the processes by which relevant knowledge is acquired and expectations are formed in the economy (Hayek 1945). In addressing the under-researched central role of the entrepreneur in the market, the concept of alertness and opportunity discovery appears to be a strong model of entrepreneurial action in sociology.

CULTURE, ENTREPRENEURIAL ALERTNESS AND OPPORTUNITY DISCOVERY

The Austrian economics market process theory of entrepreneurship is the most elaborated theory of entrepreneurship, as it makes more sense of the role of knowledge and human agency and the context in which it occurs; Austrian economics walks thematically hand in hand with major

sociological concepts and methodologies. It explores empirical economic phenomena, which economics, despite its many well-elaborated models, fails to investigate correctly with quantitative models. The Austrian economics conception of markets is a helpful model to look at when investigating the subjective and interpretive nature of entrepreneurial opportunities and the socially embedded resources that are set in motion within that process. Furthermore, Austrian economics also addresses market exchanges as a key element of social cooperation and a central feature of economic life. It views market exchanges as grounded in the tendency of individuals to connect to each other via exchange and put resources together for the benefit of all (Kirzner 2009: 84).

Despite popular consensus, for Austrian economics, the market, far from being a place, thing, or collective entity, is rather a process actuated by the interplay of the actions of various individuals cooperating under the division of labour (Mises 1949). The successful operation of market exchange resides in the convergence of the actors' expectations. They react to different patterns of possible alternatives and form expectations regarding how to reach certain ends and satisfy their wants. Calling the entrepreneur central here is justified by their key attribute of being able to decide what resources to use, as well as which goods and services to produce. Thus, they make speculative production decisions in the face of an uncertain future (Kirzner 2011). This is grounded and rendered possible also by the ability of the actor's mind to understand and investigate causation, as well as the laws of economics. Furthermore, the purposive character of action is grounded in a rationality defined by cultural context and helps in anticipating the actions of other actors (Kirzner 2011: 5).

The decisive role of knowledge in the Austrian model emphasizes the indeterminate and unpredictable character of knowledge caused by the great variability in human preferences, expectations and experiences. This variation is a central economic problem every society faces, and is grounded in the fact that the sum of total knowledge available in an economy never exists in a concentrated or integrated form, but as dispersed bits of incomplete and frequently contradictory knowledge possessed by separate individuals (Hayek 1945). The resulting uncertainty renders it necessary to possess and reach an optimal level of information regarding the quantity and price of products—along with market knowledge—in order to make economic decisions (Kirzner 2015). Economic

decision-making and action within such an environment requires, therefore, the possession and mobilization of relevant knowledge in a way that overcomes the impossibility of a single mind aggregating such information (Hayek 1945). Making better use of dispersed knowledge of available resources, and exploiting the resulting opportunities, appears to be a precondition for acting efficiently within the market.

The Kirznerian entrepreneurial model of alertness and opportunity discovery delivers a framework that addresses the Hayekian knowledge problem as a case of imperfect knowledge and sheer ignorance that makes it possible to sell the same single good at different prices in a market, thus offering an arbitrage opportunity (Kirzner 1973: 37). The alert entrepreneur is able to seize this opportunity by buying the good that was cheaper in a certain place and selling it to another place at a higher price, thereby making profit. The entrepreneur demonstrates successful capitalization of dispersed market knowledge, and carries an attitude of receptiveness to available, but previously overlooked, opportunities (Kirzner 1979). Alertness also entails the ability to mobilize information concerning resource availability and consumer valuation. By doing this, the alert entrepreneur decides what to produce and therefore allocates resources (Kirzner 2015: 17). They demonstrate a special knowledge of circumstances like demand, consumer preference or the existence of suppliers. Nevertheless, while the model of entrepreneur as arbitrageur dealing between two worlds and requiring the possession and mobilization of knowledge remains clear, the cognitive dimensions and sources of alertness have remained unclear for decades.

The complexity of the cognitive dimension of alertness is summarized by Kirzner when he writes that alertness is "a fertile imagination and greater pre-science, residing in the unique entrepreneurial ability to independently size up a situation and correctly reach an imagined picture of a not yet determined future" (Kirzner 1992: 26). It is indeed a dimension that raises difficult questions on conceptual and methodological levels. This may explain the general occultation of alertness that is shared among researchers, rather than a view of it as the vital concept in the opportunity-discovery nexus, in the mainstream entrepreneurship literature (Shane and Venkataraman 2000; Alvarez and Barney 2007; Klein 2008). Unfortunately, the concept of opportunity discovery without alertness loses its strong cognitive substance and its individual and entrepreneurial consistency. Kirzner's earlier silence regarding the cognitive sources of this superior foresight that characterizes alertness—and the reasons why some

individuals discover local opportunities before others—did not help to reduce the number of sharp criticisms, and also reveals the complexity of alertness and its sources (Kirzner 2008: 1).

Reaching a position where one is able to independently size up a situation and evaluate prospective gains through the imagining of future realities requires a deeper mastery of local market logic and uncertainties, and their social foundations. Having the appropriate cultural stock of knowledge explains why certain individuals are alert to some opportunities, as well as why some profit opportunities are discovered and others are not. Don Lavoie (1991), a pioneer in this approach within the Austrian school, introduced the cultural aspect of the cognitive-sociological approach into Austrian economics by pointing out that the interpretive dimension of the process of identification is really just a directing of one's gaze towards certain opportunities. Culture structures the individuals' behaviour and allows them to interpret their own circumstances (Lavoie 1991; Lavoie and Chamlee-wright 2000; Storr and John 2011). This turn in the conceptualization and understanding of entrepreneurial alertness takes under consideration mental models constructed through culture and context. Each cultural context creates unique entrepreneurial patterns and wealth-generating activities, requiring the individual to possess the fitting cultural lenses in order to make a correct opportunity assessment and interpretation (Storr 2013: 33). Consequently, an assessment of the entrepreneurialism of an individual must necessarily be conducted in relation to the endogenous cultural environment, since each cultural context defines its own rationality and profit-making processes (Denzau and North 1994; Lavoie and Chamlee-Wright 2000).

Interestingly, even though the cognitive process of discovery and interpretation of opportunities has been addressed with general satisfaction and resonance within entrepreneurship scholarship over the last decade, less progress has been made in the literature exploring the relationship between cognition and the resulting practical entrepreneurial action. This is an important oversight in the literature because the process of alertness and opportunity discovery is incomplete without action; alertness to opportunities goes logically with the action of taking advantage of said discovered opportunities (Kirzner 1985: 22). It is assumed here that culture, while driving alertness in the process of coping with local market uncertainties and sheer ignorance, logically bears an embedded modus operandi to seize and exploit opportunities via strategy and practical action. This embedded modus operandi is what

matters most for the manifestation of entrepreneurship, but it is not addressed thematically and methodologically by the mainstream economic entrepreneurship literature. There is therefore a window of opportunity for mainstream and Austrian economics scholarship to construct a much more complete action-scheme framework for entrepreneurial alertness and opportunity discovery within sociology via the present conceptualization of the Kirznerian-ethnic-entrepreneur model, based on Bourdieu's habitus concept.

Bourdieu's Habitus: A Complementary and Practical Understanding of Alertness and Entrepreneurial Action

Bourdieu's concept of habitus shows the relation between social, market and mental structures in explaining how individuals form cultural and cognitive frames that inform their ability to interpret the action of other market participants, and engage in entrepreneurial activities—mainly in developing schemata of perception, classification and action leading to macro-structural social reproduction and change (Zerubavel 1997). Originally defined as all aspects of culture anchored in the body or daily practices of individuals, groups, societies and nations, the habitus includes all the learned habits and forms of non-discursive knowledge (Mauss 1973). Bourdieu developed it further as the internalization of the social world in the individual through socialization. The habitus is closely linked to a central notion known as the field, defined as "arena of struggle", where players occupy positions relative to one another with a shared sense of the socially constructed framework of meanings in which they compete for resources (Bourdieu 1977). This could align with the Austrian conception of market and competition.

Furthermore, like the Austrian tradition, Bourdieu's conception places knowledge at the centre. It is a conception derived from cognitive psychology that addresses the role of the mind in the structuring of reality, as well as the dialectical interaction between the individual and the environment, and how a pre-existing stock of knowledge is utilized (Piaget 1971). It is furthermore a conception that addresses the subjective nature of knowledge, and how it generates an action-scheme. Bourdieu defined the habitus as: "… a system of lasting, transposable dispositions which integrating past experiences, functions at every moment as a matrix

of perception, appreciation and actions and makes possible the achieve-
ment of infinitely diversified tasks, thanks to analogical transfer schemes
permitting the solution of similar shaped problems" (Bourdieu 1968:
XX). Indeed, via different layers of socialization such as family, school and
community, the individual incorporates rules—which determine a matrix
of representation—transposable to different contexts with infinite kinds
of content, producing an infinite number of behaviours that are put into
practice to solve problems (Hilgers 2009: 730–736).

The habitus copes with the dynamism of the social world by enabling
the perception and appreciation of events. It does this via a transfer of
scheme, through which previous experiences and their equivalents are
utilized and, when necessary, adapted—based on strategy-generating prin-
ciples—to cope with problems (Bourdieu 1977, 1980). Those strategy-
generating principles are based on the logic of practice and practical
logic, the former being concerned with the understanding of how things
work generally and the conditions and principles of operation in a certain
field. The practical logic embedded within the habitus attributes certain
dispositions, predispositions or inclinations to the actors behind certain
perceptions, judgements and actions that fit with the logic of practice of
the field (Schaefer 2009). The link between cognition and social struc-
ture addressed by the habitus relies on the compatibility it attributes to
the dispositions of the individual with the logic of the field. It is neces-
sary then that the economic habitus of the individual entrepreneur fits
closely with the economic structure of the society in order to operate
successfully (Bourdieu 2005; Swedberg 2011). Entrepreneurial success
linked to the possession of a fitting habitus sheds light on the possi-
bility that some individuals may have an economic habitus that does
not fit the economic realities of their environment. It also explains why
some people are entrepreneurs who discover opportunities and others
are not. Having the right economic habitus matters for entrepreneurship
because it impacts the future orientation, creativity and strategy of the
entrepreneur, all of which enable improvisation and adaptability to new
contexts and dynamic flows of events.

While adapting to present realities, the habitus inclines the individual
to act and actualize the probability of future events via their anticipation
and development of strategic action. The permanent adjustment, un-
adjustment and readjustment of action develops and sets free the creativity
necessary for successful and compatible actions with local dynamic realities
(Hilgers 2009: 734–740). It is obvious that Bourdieu's habitus integrates

not only alertness, but also the required strategies of action. Beyond that, the economic habitus, as described, is as much as alertness, a human power, which, according to Kirzner, has grounding in the nature of the person who has it (Kirzner 1985). This power takes different forms and may explain the fluctuating manifestations of alertness in Kirzner narratives, which have led many times to sharp criticisms, especially in the field of economics. Indeed, alertness is sometimes described as ability, sometimes as a position where one can independently size up situations and evaluate prospective gains through the imagining of future realities, sometimes a tendency, and other times as something that can be switched or trained (Mäki 1991: 158–159).

The compatibility between the habitus of the individual and the field creates a certain state of mind within the individual: a permanent openness and ability to notice or discover, without searching, opportunities that have been hitherto overlooked (Kirzner 1979). The notion of the compatibility between habitus and the field gives us a practical understanding of the mechanisms that allow spontaneous reflection and non-deliberate searches for information. With Bourdieu's habitus, new directions in the empirical and interdisciplinary exploration of alertness are set. Exploring alertness today, in this newly developed setup, should start with an investigation of the embodiment process of community, specifically of ethnicity. Ethnicity, in this case, refers to a set of connections and regular patterns of interaction among people sharing common national (ethnic) backgrounds (Portes 1987; Waldinger and McEvoy 1990; Light and Gold 2000). With ethnicity, we have a good and practical way of breaking down culture for an empirical exploration of the habitus and the socialization process of individuals in relation with the field. Developing a Kirznerian-ethnic-entrepreneur model requires crossing new theoretical boundaries with a necessary realignment of the concept of ethnic entrepreneurship. This conceptualization develops Kirzner´s theory further by addressing more narrowly the economic habitus of ethnic driven entrepreneurs.

Ethnic Entrepreneurship: A Necessary Realignment

Over the past few decades, there has been an increased interest in the concept of ethnic economy and entrepreneurship in the field of sociology. This interest is grounded in a general query regarding why some

groups within a national population are acknowledged to be more fierce and successful entrepreneurs than others. It is incidentally the desire within sociology to understand the determinants of why some people go into entrepreneurship, and the predictive factors of success. This desire explains, to some extent, the general speculation over the entrepreneurial talents of Armenian, Jewish, and Syrian-Lebanese diasporas, the Igbo and Yoruba of Nigeria or the Bamileke of Cameroon. The speculation is alternatively an attempt to understand the habitus of those socio-cultural groups. The very same groups are also widely discussed in ethnic entrepreneurship scholarship.

Ethnic entrepreneurship is a concept referring to a set of connections and regular patterns of interaction among people sharing common national (ethnic) backgrounds. The mainstream literature addresses it also as the process by which ethnic minorities create their own private economic sector as a response to exclusion from the formal system. Ethnic entrepreneurs are those who belong to minorities and who rely on the support and resources of their community for their business activities (Light 1972; Aldrich and Waldinger 1990; Light and Sabagh 1994; Light and Gold 2000). Consequently, ethnicity appears to be a form of social capital grounded in ethnic values such as solidarity and enforceable trust, both of which govern economic activities and give entrepreneurs and enterprises access to human and financial capital (Portes and Rumbaut 1996; Portes and Landolt 2000; Light 2010).

Belonging to certain ethnic networks can provide access to the market and thus to opportunities, as well as the means to exploit them. This may include information concerning consumers, suppliers, competitors, access to security, commercial networks and financial resources such as traditional saving channels (Lautier 2004; Servet 2006). However, the word "ethnic" has come to be framed as a generic word referring to foreign, non-Caucasian minorities and immigrant groups owning shops and businesses in North America or Europe, where most of the research regarding ethnic entrepreneurship is produced (Urban 2011). Mainstream ethnic entrepreneurship scholarship has framed ethnic entrepreneurship as a form of strategy used by newly arrived migrants' during their quest for socio-economic mobility and integration into their host country. This is a good example of a possible strategy and mobilization of means, but not fully sufficient. In fact, very few studies have explored the economic habitus of those groups or the strategies developed by ethnic entrepreneurs in a purely market context.

The Kirznerian-ethnic-entrepreneur model reveals its relevance here. It sets a new direction by focusing practically on the economic habitus of ethnic groups and new geographies in order to make more sense of culture and context. In no other place of the world is the ethnic dimension of entrepreneurship as visible and challenging as in developing nations, especially African nations, which, despite immense potential provided by natural and human resources and opportunities, fail to drive major economic growth (Lofchie 1994; Coyne and Leeson 2004). Indeed, where many voices even within academia would see an absence of market institution and entrepreneurship, the Kirznerian-ethnic-entrepreneur model, as a research programme, deconstructs certain narratives that would try to resolve the issue by "bringing" either market or entrepreneurship to those places. The Kirznerian-ethnic-entrepreneur model is an approach that seeks to understand the cultural processes at work in those countries in order to tap into their potential (Lavoie and Chamlee-Wright 2000). An understanding of the cultural processes at work in those countries can be found by assessing how compatible are the different economic habitus with local fields, and how different ethnic groups in those countries conceptualize entrepreneurship. Furthermore, this approach is concerned with how the habitus helps individuals cope with market uncertainties. The Kirznerian-ethnic-entrepreneur model is an analytical model best used in exploring entrepreneurship in specific African nations. It will also improve our scientific understanding and interpretation of entrepreneurial processes according to local realities and their impact on economic processes.

The Kirznerian-Ethnic-Entrepreneurship Model: A Double Arbitrageur

The Kirznerian-ethnic-entrepreneurship model, in the present conceptualization, is inspired by what Clifford Geertz called the "market-born-and-bred-group of men" during his exploration of enterprising and economic development in the early 1950s in Indonesia. The observation of entrepreneurs belonging to Islamic business groups revealed how local culture and Islamic rules such as frugality and autonomy played a part in the embodiment of industrious and enterprising skills and market-spirit in entrepreneurs and contributed to their success in the market (Geertz 1963: 26–28). These entrepreneurs had a habitus compatible to their context; they resided in a market order with a bazaar where the total flow

of commerce was fragmented into a large number of unrelated person-to-person transactions, opposed to the firm-oriented Western economies wherein trade and industry are organized by a set of impersonally defined social institutions. That order is characterized by the independent activities of competitive commodity traders related to one another by a huge volume of ad hoc exchanges (Geertz 1963: 29). The bazaar based on its tendency of turning local entrepreneurs into petty speculators driven by short-term opportunism may for good reason be considered as one which enables the emergence of mere arbitrage rather than other forms of entrepreneurial practice. On the other hand, it appears also that the Hayekian problem finds profound validity in the bazaar economy, where the level of ignorance regarding the quality and prices of products is accentuated by poor, scarce, maldistributed, inefficiently communicated and intensely valued information (Geertz 1978: 29). In this context, bargaining has proven itself to be an embedded discovery mechanism applied between buyers and sellers to determine the right price. Finally, the challenging search for, and circulation of, reliable information in bazaar-style economies is solved through network approaches like clientelization and ethnic networks (Geertz 1973, 1978). Today, the bazaar economy, or what one could call the bazaar-like economy, could be used as an interesting and better generic word to describe the market order of many developing nations than informal sector or economy (Hart 1971, 1973, 1988), which in the current situation should be distinguished from shadow or illegal economy.

Talking about informal economy in the context of developing nations is different from how one would approach similar institutional dynamics such as shadow or illegal economies in the Western world. Addressing the informal economy, as opposed to the formal economy, in the sub-Saharan African context means addressing an economic field that has resulted from a cultural process and which bears attributes of a traditional African market order (Ayittey 1986, 2006). While ostensibly close to a bazaar economy, this order is much more complex and therefore requires its own research programme involving the dynamics of entrepreneurship. Seen under an institutional and development economics perspective, the dichotomous relationship between the traditional order and a formal institutional order, mostly inherited from colonialism, creates an institutional disequilibrium, as the formal institutions, legal environment and bureaucratic system do not adhere to the informal institutions of the concerned society (Granovetter 1995; Boettke et al. 2008; Douhan

and Henrekson 2008). May it be via colonialism, modern bureaucratic and multilateral donors' interventions, exogenous top down institutional interventions are grounded in the belief of "fixing" local institutions which otherwise will not experience development. From that mind-set has emerged a planning approach to economic development as an ideal recipe for economic growth over recent decades to make markets work in many African countries via SME promotion projects to push these economies and reduce poverty (Easterly 2002). The ambitions to bring entrepreneurship and market economy in those places failed for many reasons. They failed not only for having read the institutional and contextual dynamic of those countries with the wrong lenses, but also because of the refusal to consider the possibility of alternative economic rationality relying on more complex political and social realities that make market planning and top down interventions illusory (Easterly 2007). The necessity to consider cultural process and the singularity of each system is here reinforced. A focus on individuals shared mental models and the endogenous historical and cultural development driving their habits and practices opposes top down interventions whose failures generate unforeseeable long-term consequences (Shughart et al. 2020). Furthermore, the inability of mainstream development economics to understand and address the endogenous mental models that support the individuals decision-making and practices on the ground and the real challenges they face do not contribute to creating the necessary trust and social capital to match informal institutions in order to succeed (Boettke et al. 2008). As a matter of fact people find refuge in the institutional order that better fits their values, culture and historical development. This explains why the traditional market order remains the driver of private entrepreneurial activities in major sub-Saharan African countries, showing the sustainable character of an economic process embedded in culture.

Exploring entrepreneurship in developing countries while ignoring these aspects is a difficult exercise. In contrast, though, the fact that the African traditional economy consistently fails to reach the next level of development, which includes, for example, the mobilization of financial resources for long-term investments in larger scale productive activities, highlights the real challenge of finding the appropriate mechanisms to canalize this enterprising spirit toward more economic development (Servet 2006). A clear reading of the current evolution within the cultural context is necessary in order to identify the dynamics blocking that process and how to circumvent them. In contrast, instead of canalizing or

directing that potential, several governments have tried without success to "absorb" or to "regulate" the traditional market order. In another context, India's attempts to regulate its own "informal economy" by forcing a cashless society programme via demonetisation has reached mitigated success, requiring more reflection in regards to the complexity of that task. The measure aiming to reduce black money and corruption, but also increase tax revenue and lead to economic growth did not take into consideration customary practices and the practical and psychological importance of cash in a society with a very large traditional economy highly dependent on cash money (Sharma and Fernandez 2018).

Observed closely, the present institutional dichotomies, and the resulting institutional disequilibrium, create additional uncertainties for entrepreneurs. Indeed, entrepreneurial opportunities exist and are tapped by those who align with this disequilibrium and operate at the boundaries of these two orders. The compatibility between economic habitus and the field as guarantee for entrepreneurial success brings fundamental questions to the fore. The fact that fewer firms—the mainstream visible barometers for a successful enterprise—are operating in the formal economy reveals the inability of this order to shape an environment that allows the emergence of more entrepreneurs and opportunities. On the other hand, an observation of the current entrepreneurial environment in several African countries shows that entrepreneurs with "formally" trained cognitive lenses who operate with "formalized" type of enterprising, have, on average, difficulties in finding orientation and fit within the formal institutional order and much fewer chances in the traditional market order. The trigger of this inability is grounded not only in the institutional inconsistencies but also in the weakness of those formal institutions, which fail to provide solid institutional foundations for a market economy, such as free competition, contract enforcement, information dissemination or formal property rights which are based on local customary practices to ensure legitimacy and enforcement by the greater number of people (Soto 2000, Golub and Hansen-Lewis 2012). In contrast, dynamic business operations are perpetuated within the traditional market order, which creates a bond of trust via social networks and de facto contract enforcement, access to finance, and dissemination of paperless information outside the official sphere (Greif 1993; Putnam 1995).

A relevant challenge of addressing the issue of the formal–informal economy dichotomy is not whether they may be considered as diametrically separated spheres, since they form the economy, but when "informality" tends to be the norm. It can be interpreted as a reverse scenario with a bottom-up institutional development during which the primacy of informal institutions as foundations of formal institutions is made visible (North 1990). Addressing that reality from a sociological and institutional economics perspective requires exploring the feasibility of any bottom-up institutional change and re-design. However, the growing proportion and ability of the traditional economy to capture and respond to the needs of a greater number of people in articulating local patterns of interaction and consumption has resulted in certain impositions. Namely, for entrepreneurs, the necessity to operate at the boundary between two worlds in filling the gap created by those institutional inconsistencies, therefore transforming entrepreneurs into agents of institutional change. It is their actions that shape the present trends. This dynamic re-joins Denzau and North (1994) to some extent as they address similarly the process of organic institutional change and development in pointing out the crucial role played in that process by shared mental models. In that model of development, gradual changes in the shared understanding of concepts and paradigms are punctuated by discrete jumps to new equilibrium. It is assumed here that the entrepreneur plays a major role in that equilibrium via representational redescriptions and the adoption of new shared mental models by pointing out the logical inconsistencies between what Denzau and North call "ideological beliefs" and "common parlance" (Denzau and North 1994; Shughart et al. 2020).

Applied to the case of the Kirznerian-ethnic-entrepreneur, one may argue that the entrepreneurs have identified the inconsistencies between formal and traditional economy, for instance, the questions regarding which rules should govern the economy and regulate the pattern of economic transaction and production. Furthermore, it appears that filling this gap conditions entrepreneurial success, which results from a discovery and learning process during which the fitting habitus helps the entrepreneur identify the problems and gap between the reality of the traditional order and the exigencies of the formal rules and the inconsistencies they bear in regard to local market logic and dynamic. With this discovery, the entrepreneurs also find the modi operandi to fix or adapt entrepreneurial practice in one sense or other. Therefore, it is an arbitrage operated by the entrepreneurs between those spheres, which brings

the entire system to equilibrium and to function. The practice resulting from that process also gives birth to a new shared understanding about economic processes and shared mental models that one needs to understand in order to interpret market dynamics, either as an entrepreneur or a customer.

In the practice, the alignment of entrepreneurs with their contexts has enabled the emergence of mobile banking and payment services like M-Pesa in Eastern Africa with a pioneering and disruptive impact on the banking, insurance and financial transaction industry in Africa and the world, where conventional banking had difficulties to tap into this potential. Indeed, people use mostly products with which they can identify easily and meet their practices; entrepreneurship has for role to bring this to happen. It is in that context that, Nollywood, the Nigerian film industry, has emerged among the top of the world with several billion USD in revenue and thousands of movies produced yearly by local movies entrepreneurs with a proven level of productivity, agility and cost effectiveness that responds to the entertainment needs and budget of hundreds of millions of households across Africa and the diaspora (Bisschoff and Overbergh 2012; Lobato 2010). These trends are quite revealing about certain aspects of the enterprising practice in many of those countries as one which is exercised via a hybrid form at the intersection between individual entrepreneur and firm. Empirical observations unveil how with a firm-like form of enterprise, in major cases even officially registered, entrepreneurs conduct transaction volumes and activities like a firm but with the agility of an individual, and practices solidly grounded in the traditional market order with particular ethnic groups expressing a singularity in the mastery of entrepreneurship.

The last decades have seen an accrued interest for the phenomenon of ethnic entrepreneurship in Africa since social groups seem to demonstrate a proven entrepreneurial and business acumen translated into a recognizable entrepreneurial practice, mastered and transmitted within those groups. The interest for the embodiment process of entrepreneurial habitus may find good application using the developed model to explain this acumen and the resulting entrepreneurial praxis. The Murids, an ethnic Muslim brotherhood of Senegal, the Yoruba and Igbo ethnic entrepreneurs of Nigeria, are all well-acknowledged poster children for the described challenges and entrepreneurial acumen of their respective countries (Sudarkasa 1985; Diouf 2000). They are visible examples of the described relation between habitus and structures. The embodiment

process of entrepreneurial spirit (habitus) occurs often via ethnic networks and various education mechanisms focusing on building and transferring traditional entrepreneurial values and practices to the individuals.

The Murids show devotion to their religious guides, the "Sheikhs," hard work, and self-deprivation. They are bound together through a tradition of mutual obligation and sense of family. These values are cemented and continuously nourished over many years at the Dahira, a central institution of their community in charge of promoting spiritual nurturing, community solidarity and economic success. These informal meetings, present in all Murid communities from urban Senegal to New York, Paris and Beijing, serve as places of exchange of information, assistance regarding business opportunities, and incubation for individual enterprising endeavours (O'Brien 1971; Salem 1981; Ebin 1993). For almost a century, the Dahiras have been what is today trending all around the world: incubators or other impact hubs providing mentors, capital and networking events to their members who will, in turn, sustain the institution.

While the Murid model strongly emphasizes networks, the Igbo and Yoruba have an apprenticeship-oriented approach wherein young individuals are educated to be entrepreneurs. The Yoruba, especially those of the Republic of Benin, transmit entrepreneurial skills from mother to daughter. Entrepreneurship is a women phenomenon and the embodiment process of entrepreneurial habitus is one through which girls help, starting at a very young age through young adulthood, the mothers on the marketplace and experience in vivo the art and practice of trading, which goes sometimes across national boundaries (Igué 2003). This exposure to entrepreneurship involves learning how to buy and sell while developing a real sense for pricing and accrued sensory and interpretation of market dynamic by knowing where to buy cheaper and how and where to sell at higher price while making profit. The Igbo in Nigeria follow a similar but more structured and systematic process via the "Imu-Ahia", their traditional Business school system, which literally means to learn how to do marketing or to trade (Olutayo 1999). Through that system, which has occasionally priority over formal schools, the young apprentice learns at the feet of a mentor and manages the mentor's business operations at different degrees over the years until they are granted autonomy once the habitus is formed within them. This stage is followed by several financial and venture mechanisms that aim to help the accomplished

entrepreneur to begin a personal entrepreneurial endeavour (Orugun and Nafiu 2014; Obunike 2016).

In light of the exposed challenges and dynamics, it seems obvious that the more an ethnic entrepreneur is embedded in the traditional market order, the greater are the chances to develop compatible strategies and successfully navigate within the overall economy. How good and sustainable the described institutional dynamic may be is another issue that cannot be addressed at the present stage. It was rather important to provide, through the lenses of culture, a more coherent and sophisticated theoretical construct allowing the exploration and interpretation of entrepreneurial process as it appears and is experienced by the entrepreneurs, and not how one thinks it should be. Furthermore, the unintended public and institutional economic consequences of that conceptualization show the usefulness of the Kirznerian ethnic entrepreneur model as an analytical device to explore entrepreneurship in the sub-Saharan context. However, the discussions still remain open as to whether or not it may lead to a methodological conception of a coherent bottom-up strategy for institutional intervention and re-design, further leading to change in major African nations. For now, it is relevant to admit that while the Kirznerian alert entrepreneur is an arbitrageur, the Kirznerian ethnic entrepreneur in many sub-Saharan African countries is revealed as double arbitrageur, who, in addition to usual marketplace arbitrage, taps into the opportunities resulting from the institutional disequilibrium between the formal economy and the traditional market order.

Conclusion

This work is conceptual in nature and attempts to clarify how the incorporation of practical knowledge in the analysis of entrepreneurship helps in the understanding of how socially embedded entrepreneurs locate and exploit opportunities. While building upon Bourdieu's habitus concept without necessarily taking the same ideological colours and applications, a more practical understanding of Kirzner's concept of alertness and opportunity discovery has been provided. A concept positioned as a sophisticated entrepreneurship theory in sociology, wherein individuals´ cognition, market and action interrelate. The contextual nature of entrepreneurship and market uncertainties was emphasized via an exploration of culture and how it shapes or constrains action and interacts

with social structures. Therefore, judging the entrepreneurialism of individuals must be done by first taking into consideration the context the individual lives within. To the same extent that each context or culture defines the division of knowledge among individuals and the process by which relevant knowledge is acquired and expectations are formed in the economy, it also supplies socio-cultural embedded mechanisms that help the individual to cope with uncertainties and exploit market opportunities. This process is translated into entrepreneurial alertness, or a compatible economic habitus conferring a state of mind to the individual, which then makes spontaneous reflection and non-deliberate searches for information possible. This reality is observable via the "natural" propensity of the individual entrepreneur to interpret opportunities and develop strategies and practical entrepreneurial actions that work. The multidimensional manifestations and actions of a compatible habitus or alert entrepreneurial mind remind us of the absolute necessity of holding a dynamic state of mind to face a dynamic market and society. These conclusions have pointed to new interdisciplinary theoretical and methodological directions with strong empirical implications. The habitus embodiment process made it necessary to view ethnicity as a unit of culture, and to form a realignment in the narrow body of research of ethnic entrepreneurship.

The Kirznerian ethnic entrepreneur comprises the economic habitus of ethnic driven entrepreneurs, the compatibility of that habitus within the context of the individual, and the deriving practices. Such a conception goes far beyond the folklorically addressed social capital or social mobility strategies of migrants in the western world. It is therefore necessary to focus on context in order to understand the entrepreneurship process as a manifestation of a cultural process. The developed academic lenses applied, even superficially, to the Sub-Saharan African context led to interesting premises opening a new field of research. Indeed, the apparent primacy and legitimacy of the traditional market order over formal economic institutions undeniably requires an alternative approach in the quest for faster economic development within those countries, while fostering an environment allowing the emergence of more dynamic entrepreneurial ecosystems and the exploitation of economic opportunities by a greater number of people. This quest hides yet another as well, which, in opposition to the still unsuccessful mainstream approach aiming at structuring or formalizing the traditional market order, would alternatively aim at structuring legal and bureaucratic institutions around

the traditional order instead. Such a solution may require following the steps of the Kirznerian Ethnic Entrepreneur in learning from the process of filing and fixing institutional inconsistencies as alternative strategy for bottom-up institutional re-design. The role of the academic is therefore to structure the discussion and develop theoretical and methodological elements in order to understand and test these insights; this is what has been done with the analytical application of the present concept. The Kirznerian ethnic entrepreneur is a concept that can be helpful in understanding the dynamic of operating between two institutional dimensions characterizing major Sub-Saharan African nations.

Bibliography

Aldrich, Howard, and Roger Waldinger. 1990. Ethnicity and Entrepreneurship. *Annual Review of Sociology* 16: 111–135.

Alvarez, Sharon, and Jay Barney. 2007. Discovery and Creation: Alternative Theories of Entrepreneurial Action. *Strategic Entrepreneurship Journal* 1: 11–26.

Aspers, Patrik, and Jens Beckert. 2011. Value in Markets. In *The Worth of Goods: Valuation and Pricing in the Economy*, ed. Jens Beckert and Patrik Aspers. Oxford: Oxford University Press.

Ayittey, George. 1986. The Lessons of Africa's Market Tradition. *Economic Affairs*, October–November.

Ayittey, George. 2006. *Indigenous African Institutions*. New York: Transnational Publishers.

Barth, Frederik. 2002. An Anthropology of Knowledge. *Current Anthropology* 43 (1): 1–18.

———. 2009. Economic Spheres in Darfur. In *Entrepreneurship: The Social Science View*, ed. R. Swedberg. Oxford Management Readers. Oxford: Oxford University Press.

Beckert, Jens. 2002. Beyond the Market. The Social Foundations of Economic Efficiency. Princeton: Princeton University Press.

———. 2009. The Social Order of Markets. *Theory and Society* 38: 245–269.

Berger, Peter, and Thomas Luckmann. 1966. *The Social Construction of Reality. A Treatise in Sociology of Knowledge*. Garden City: Penguin Books.

Bisschoff, Lizelle, and Ann Overbergh. 2012. Digital as the New Popular in African Cinema? Case Studies from the Continent. *Research In African Literatures* 43 (4): 112–127.

Boettke, Peter. 2014. Entrepreneurship, and the Entrepreneurial Market Process: Israel M. Kirzner and the Two Levels of Analysis in Spontaneous Order

Studies. *The Review of Austrian Economics* 27 (3): 233–247. https://doi.org/10.1007/s11138-014-0252-1.

———, Christopher Coyne, and Peter Leeson. 2008. Institutional Stickiness and the New Development Economics. *American Journal of Economics and Sociology* 67 (2): 331–358.

Bohannan, Paul, and George Dalton. 1965. *Markets in Africa*. New York: Doubleday.

Bourdieu, Pierre. 1968. Intellectual Field and Creative Project. *Social Science Information* 8: 89–119.

———. 1977. *Outline of a Theory of Practice*. Cambridge: Cambridge University Press.

———. 1980. The Production of Belief: Contributions to an Economy of Symbolic Goods. *Media, Culture and Society* 2: 261–293.

———. 2005. *The Social Structures of the Economy*. Cambridge: Polity Press.

Bryant, Peter. 2007. Self-Regulation and Decision Heuristics in Entrepreneurial Opportunity Evaluation and Exploitation. *Management Decision* 45 (4): 732–748.

Burt, Ronald. 1992. *Structural Holes: The Social Structure of Competition*. Cambridge, MA: Harvard University Press.

———. 2009. The Network Entrepreneur. In *Entrepreneurship: The Social Science View*, ed. R. Swedberg. Oxford: Oxford Management Readers.

Chamlee-Wright, Emily. 1997. The Cultural Foundations of Indigenous Entrepreneurship. In *The Cultural Foundations of Economic Development: Urban Female Entrepreneurship in Ghana*. London and New York: Taylor and Francis.

———, and Virgil H. Storr. 2015. Social Economy as an Extension of the Austrian Research Program. In *Oxford Handbook of Austrian Economics*, ed. Peter J. Boettke and Christopher Coyne. Oxford: Oxford University Press.

Coyne, Christopher, and Peter Leeson. 2004. The Plight of Underdeveloped Countries. *Cato Journal* 24 (3): 235–249.

de Montoya, M. L. 2009. Entrepreneurship and Culture: The Case of Freddy, the Strawberry Man. In *Entrepreneurship: The Social Science View*, ed. R. Swedberg. Oxford: Oxford Management Readers.

de Soto, Hernando. 2000. *The Mystery of Capital: Why Capitalism Triumphs in the West and Fails Everywhere Else*. New York: Basic Books.

Denzau, Arthur, and Douglas North. 1994. Shared Mental Models: Ideologies and Institutions. *Kyklos* 47: 3–31.

DiMaggio, Paul, and Francie Ostrower. 1990. Participation in the Arts by Black and White Americans. *Social Forces* 68: 753–778.

Diouf, Mamadou. 2000. The Senegalese Murid Trade Diaspora and the Making of a Vernacular Cosmopolitanism. *Public Culture* 12 (3): 679–702.

Douhan, Robin, and Magnus Henrekson. 2008. Productive and Destructive Entrepreneurship in a Political Economy Framework. IFN Working Paper No. 761.

———. 2010. Entrepreneurship and Second-Best Institutions: Going Beyond Baumol's Typology. *Journal of Evolutionary Economics* 20 (4): 629–643.

Easterly, William. 2002. *The Elusive Quest for Growth: Economists' Adventures and Misadventures in the Tropics*. Boston: MIT Press.

———. 2007. Inequality Does Cause Underdevelopment: Insights from a New Instrument. *Journal of Development Economics* 84 (2): 755–776.

Ebin, Victoria. 1993. Les commerçants mourides á Marseille et New York: Regards sur les stratégies d´Implantation. In *Grands commerçants d´Afrique de l´Ouest: Logiques et pratiques d´un groupe d´hommes d´affaires contemporains*, ed. Gregoire Emmanuel and Pascal Labazée, 101–123. Paris: Karthala-Orstom.

Fligstein, Neil, and Luke Dauter. 2007. The Sociology of Markets. *Annual Review of Sociology* 33: 6.1–6.24.

———, and D. McAdam. 2015. *A Theory of Fields*. Oxford: Oxford University Press.

Fourcade, Marion. 2007. Theories of Markets and Theories of Society. *American Behavioral Scientist* 50 (8): 1015–1034.

Geertz, Clifford. 1963. *Peddlers and Princes Social Development and Economic Change in Two Indonesian Towns*. Chicago: University of Chicago Press.

———. 1973. *The Interpretation of Cultures: Selected Essays*. New York: Basic Books.

———. 1978. The Bazaar Economy: Information and Search in Peasant Marketing. *The American Economic Review* 68 (2): 28–32.

Golub, Stephen, and Jamie Hansen-Lewis. 2012. Informal Trading Networks in West Africa: The Mourides of Senegal/The Gambia and the Yoruba of Benin/Nigeria. In *The Informal Sector in Francophone Africa: Firm Size, Productivity and Institutions*, ed. N. Benjamin and A.A Mbaye. World Bank.

Granovetter, Mark. 1985. Economic Action and Social Structure: The Problem of Embeddedness. *American Journal of Sociology* 91 (3): 481–510.

———. 1995. The Economic Sociology of Firms and Entrepreneurs. In *The Economic Sociology of Immigration: Essays in Networks, Ethnicity and Entrepreneurship*, ed. Alejandro Portes, 128–165. Russell Sage Foundation.

———. 2005. The Impact of Social Structure on Economic Outcomes. *Journal of Economic Perspectives* 19 (1): 33–50.

Greif, Avner. 1993. Contract Enforceability and Economic Institutions in Early Trade: The Maghribi Traders. *American Economic Review* 83 (3): 525–548.

Gudeman, Stephen. 2001. *The Anthropology of Economy*. Oxford: Blackwell.

Hart, Keith. 1971. Migration and Tribal Identity Among the Frafras of Ghana. *Journal of Asian and African Studies* 6: 21–36.

———. 1973. Informal Income Opportunities and Urban Employment in Ghana. *Journal of Modern African Studies* 11: 61–89.

———. 1988. Kinship, Contract and Trust: The Economic Organisation of Migrants in an African City Slum. In *Trust: Making and Breaking Cooperative Relations*, ed. D. Gambetta. Oxford: Basil Blackwell.

Hayek, Friedrich. 1945. The Use of Knowledge in Society. *The American Economic Review* 35 (4): 519–530.

Hilgers, Mathieu. 2009. Habitus, Freedom, and Reflexivity. *Theory & Psychology* 19 (6): 728–755.

Igué, John. 2003. *The Yoruba in French Speaking West Africa: Essay About a Diaspora*. Paris: Librairie Presence Africaine.

Kirzner, Israel. 1973. *Competition and Entrepreneurship*. Chicago, IL: University of Chicago Press.

———. 1979. *Perception, Opportunity, and Profit*. Chicago, IL: University of Chicago Press.

———. 1985. *Discovery and the Capitalist Process*. Chicago: University of Chicago Press.

———. 1992. *The Meaning of Market Process, Essays in the Development of Modern Austrian Economics*. London: Routledge.

———. 2008. The Alert and Creative Entrepreneur: A Clarification. IFN Working Paper No. 760. Available at SSRN https://ssrn.com/abstract=1224842 or http://dx.doi.org/10.2139/ssrn.1224842.

———. 2009. The Economic Point of View. Liberty Fund Inc.

———. 2011. Market Theory and the Price System. Liberty Fund Inc.

———. 2015. Austrian Subjectivism and the Emergence of Entrepreneurship Theory. The Collected Works of Israel M. Kirzner.

———, and Frederic Sautet. 2006. The Nature and Role of Entrepreneurship in Markets. Mercatus Policy Series, Policy Primer 4.

Klein, Peter. 2008. Opportunity Discovery, Entrepreneurial Action, and Economic Organization. *Strategic Entrepreneurship Journal* 2 (3): 175–190.

Knight, Frank. 1921. *Risk, Uncertainty and Profit*, 1965. New York: Harper and Row.

Kripner, Greta, and Anthony Alvarez. 2007. Embeddedness and the Intellectual Projects of Economic Sociology. *Annual Review of Sociology* 33: 219–240.

Lachmann, Ludwig. 1971. *The Legacy of Max Weber*. Berkeley: Glendessary Press.

Langrill, Ryan, and Virgil H. Storr. 2015. Contemporary Austrian Economics and the New Economic Sociology. In *Oxford Handbook of Austrian Economics*, ed. Peter J. Boettke and Christopher Coyne. Oxford: Oxford University Press.

Lautier, Bruno. 2004. *L'économie informelle dans le tiers monde*. Paris: La Decouverte.

Lavoie, Donald. 1991. The Discovery and Interpretation of Profit Opportunities: Culture and the Kirznerian Entrepreneurs. In *The Culture of Entrepreneurship*, ed. Brigitte Berger. San Francisco: ICS Press.

———, and Emily Chamlee-Wright. 2000. *Culture and Enterprise: The Development, Representation, and Morality of Business*. New York: Routledge.

Light, Ivan. 1972. *Ethnic Enterprise in America: Business and Welfare among Chinese, Japanese and Blacks*. Berkeley: University of California Press.

———. 2010. Transnational Entrepreneurs in an English-Speaking WORLD. *DIE ERDE* 141 (1–2): 1–16.

———, Georges Sabagh, Mehdi Bozorgmehr, and Claudia Der-Martirosian. 1994. Beyond the Ethnic Enclave Economy. *Social Problems*. Special Issue on Immigration, Race, and Ethnicity 41 (1): 65–80.

———, and Steven Gold. 2000. *Ethnic Economies*. San Diego: Academic Press.

Lobato, Ramon. 2010. Creative Industries and Informal Economies. *International Journal of Cultural Studies* 13 (4): 337–354.

Lofchie, Michael. 1994. The Politics of Agricultural Policy. In *Beyond Capitalism vs Socialism in Kenya and Tanzania*, ed. J. Barkan. Boulder, Colorado: Lynne Rienner.

Mäki, Uskali. 1991. Practical Syllogism, Entrepreneurship, and the Invisible Hand. In *Economics and Hermeneutics*, Dir. Don Lavoie. London: Routledge.

Mauss, Marcel. 1973. Techniques of the Body. *Economy and Society* 2: 70–88.

Mises, Ludwig von. [1949] 1996. *Human Action*, 3rd revised ed. Chicago: Henry Regnery.

North, Douglas. 1990. *Institutions, Institutional Change and Economic Performance*. Cambridge: Cambridge University Press.

O´Brien, Donald. C. 1971. *The Mourides of Senegal*. Oxford: Oxford University Press.

Obunike, Chinazor. 2016. Induction Strategy of Igbo Entrepreneurs and Micro-Business Success: A Study of Household Equipment Line, Main Market Onitsha, Nigeria. *Acta University Sapientiae, Economics and Business* 4: 43–65.

Olutayo, Olanrewaju Akinpelu. 1999. The Igbo Entrepreneur in the Political Economy of Nigeria. *African study Monographs* 20: 147–174.

Orugun, Juwon J., and Akeem T. Nafiu. 2014. An Exploratory Study of Igbo Entrepreneurial Activity and Business Success in Nigeria as the Panacea For Economic Growth and Development. *International Journal of Scientific & Technology Research* 3 (9): 158–165.

Parsons, Talcott. 1951. *The Social System*. New York: Free Press.

Piaget, Jean. 1971. *Biology and Knowledge*. Chicago: University of Chicago Press.

Portes, Alejandro. 1987. The Social Origins of the Cuban Enclave Economy of Miami. *Sociological Perspectives* 30 (4): 340–372.

———, and Patricia Landolt. 2000. Social Capital: Promise and Pitfalls of Its Role in Development. *Journal of Latin American Studies* 32 (2): 529–547.

———, and Ruben Rumbaut. 1996. *Immigrant America*, 2nd ed. Berkeley: University of California Press.

Putnam, Robert. 1995. Bowling Alone: America's Declining Social Capital. *Journal of Democracy* 6 (1): 65–78.

Pye, Lucian. 2000. Asian Values: From Dynamos to Dominoes? In *Culture Matters: How Values Shapes Human Progress*, ed. L. Harrison and S. Huntington. New York: Basic Books.

Ruef, Martin. 2010. *Entrepreneurial Group: Social Identities, Relations, and Collective Action*. Princeton, NJ: Princeton University Press.

———. 2015. Sociology of Entrepreneurship. In *Emerging Trends in the Social and Behavioral Sciences*, ed. Robert Scott and Stephan Kosslyn. New York: Wiley.

———, and Michael Lounsbury. 2007. *The Sociology of Entrepreneurship*. New York: Elsevier

Salem, Gerard. 1981. De la Brousse senegalaise au Boul´Mich: Le systeme commercial Mouride en France. *Cahier d ´études Africaines* 21 (81–83): 267–288.

Schaefer, Heinrich W. 2009. Habitus-Analysis: A Method to Analyse Cognitive Operators of Practical Logic. CIRRUS Conference Contributions, University of Bielefeld.

Schumpeter, Joseph. 1954. *History of Economic Analysis*. Oxford University Press.

Schütz, Alfred. 1967. *The Phenomenology of the Social World*. Evanston: Northwestern University Press.

Schütz, Alfred, and Thomas Luckmann. 1973. *The Structures of the Life-World*. Evanston: Northwestern University Press.

Servet, Jean-Michel. 2006. *Banquiers aux pieds nus: La microfinance*. Paris: Editions Odile Jacob.

Shane, Scott. 2003. *A General Theory of Entrepreneurship: The Individual Opportunity Nexus*. Cheltenham, UK: Edward Elgar.

———, and Sankaran Venkataraman. 2000. The Promise of Entrepreneurship as a Field of Research. *Academy of Management Review* 25 (1): 217–226.

Sharma, Shaurya, and Cledwyn Fernandez. 2018. Cash, Demonetisation and the Informal Economy in India. *World Economics* 19 (2).

Shughart, William F., Diana W. Thomas, and Michael D. Thomas. 2020. Institutional Change and the Importance of Understanding Shared Mental Models. *Kyklos* 73 (3): 371–391.

Steiner, Philippe. 2005. Economic Knowledge. In *International Encyclopedia of Economic Sociology*, ed. J. Beckert and M. Zafirovski. London: Routledge.

Storr H., Virgil. 2013. *Understanding the Culture of Markets*. New York, NY: Routledge.

———, and Arielle John. 2011. The Determinants of Entrepreneurial Alertness and the Characteristics of Successful Entrepreneurs. In *Annual Proceedings of the Wealth and Well-Being of Nations*, ed. Chamlee-Wright Emily. Beloit, WI: Beloit College Press.

Sudarkasa, Niara. 1985. The Role of Yoruba Commercial Migration in West African Development. In *African Migration and National Development*, ed. Beverly Lindsay. University Park, PA: University of Pennsylvania Press.

Swedberg, Richard. 1997. New Economic Sociology: What Has Been Accomplished, What Is Ahead? *Acta Sociologica* 40: 161–182.

———. 2009. *Entrepreneurship: The Social Science View*. Oxford: Oxford Management Readers.

———. 2011. The Economic Sociologies of Pierre Bourdieu. *Cultural Sociology* 5: 67–82.

Swidler, Ann. 1986. Culture in Action: Symbols and Strategies. *American Sociological Review* 51 (2): 273–86.

Thornton, Patricia 1999. The Sociology of Entrepreneurship. *Annual Review of Sociology* 25: 19–46.

Urban, Boris. 2011. Entrepreneurial Networking Differences: An Ethnic In-Group and Out-Group Analysis. *SA Journal of Industrial Psychology* 37 (1): 1–14.

Waldinger, Roger, Darryn McEvoy, and Howard Aldrich. 1990. Spatial Dimensions of Opportunity Structures. In *Ethnic Entrepreneurs: Immigrant Business in Industrial Societies*, ed. Waldinger Roger, Aldrich Howard, and R. Ward, 106–130. London: Sage.

Weber, Max. [1904] 1930. *The Protestant Ethic and the Spirit of Capitalism*, trans. Talcott Parsons. New York: Charles Scribner's Sons.

Weber, Max. 1978. *Economy and Society an Outline of Interpretive Sociology*. Berkeley, CA: University of California Press.

Zerubavel, Eviatar. 1997. *Social Mindscapes: An Invitation to Cognitive Sociology*. Cambridge, MA: Harvard University Press.

Non-Market Competition as a Discovery Procedure

David S. Lucas

INTRODUCTION

Virtually all of the seminal theoretical contributions of the Austrian school deal with the functioning of the market process. The centrality of economic calculation (Mises 1920), the intertemporal discoordination resulting from central bank interest rate manipulation (Hayek 1931), and the entrepreneur's equilibrating role (Kirzner 1973) all speak to action within a specific institutional framework: a market context featuring prices, property rights, and profit and loss. In light of this, it is notable that a significant strand of modern Austrian research has taken a "nonmarket turn"—dealing with social interaction beyond the scope of these institutions. For instance, recent scholarship falling squarely in the Austrian tradition has dealt with foreign intervention and policing (Coyne and Hall 2018), post-disaster recovery (Storr et al. 2016), prison governance (Skarbek 2014), motorcycle gangs (Piano 2017), homelessness (Lucas 2017), and criminal justice (Koppl 2018), to name only a

D. S. Lucas (✉)
Syracuse University, Syracuse, NY, USA
e-mail: dlucas01@syr.edu

97

few. A common theme across this work is an emphasis on purposeful human action in the face of distributed knowledge leading to spontaneous coordination and other un-designed outcomes. Thus, just as traditional Austrian theory elucidates the entrepreneurial market process, it could be said that this "new" branch of Austrian economics deals with the "nonmarket discovery process."

This increased breadth of inquiry offers both opportunities and challenges for Austrian scholars. On the one hand, the trend highlights the vibrancy of the school: Austrian ideas are being fruitfully applied to new questions and are permeating fresh academic literatures. On the other hand, this development also raises issues of theoretical clarity and precision. It creates the risk of arguing by analogy, overextending, or (worst of all) misapplying theories originating in the market process to nonmarket phenomena. (Have we a clear sense of what we mean by Kirznerian "alertness to profit opportunities" in the political sector?) This is in no way meant as a slight extant work in nonmarket entrepreneurship, which has done much to pioneer the fresh application of Austrian ideas. To the contrary, it suggests the need for conceptual clarification that would provide structure and rigor to an applied research agenda on the nonmarket discovery process.

What, then, does a framework building on "market process theory" look like in the "nonmarket process"? The purpose of this paper is to move toward an answer to this question. In so doing, I offer a review, theoretical synthesis, and agenda for research on nonmarket entrepreneurship. In revisiting extant work, I highlight common "Austrian" themes that have been explored in a variety of nonmarket contexts. From this, I sketch a rough framework for nonmarket entrepreneurship research, surrounding the notion of "nonmarket competition as a discovery procedure." This framework shares many common elements with Hayek's vision of market competition as a discovery procedure, including dispersed knowledge, uncertainty, and alertness. I detail the types of questions that such a framework might facilitate. Finally, I also elaborate a number of outstanding conceptual issues that future work in the nonmarket context might address.

The Nonmarket Discovery Process

To clarify the theoretical gap I address and to delineate the boundary conditions of this chapter, I present a simple taxonomy outlining four

"contexts of human action." Human actors may operate in a context characterized by Market or Nonmarket features, and they may operate under Risk or Uncertainty. Table 5.1 details this taxonomy.

Scholars in and around the tradition of "mainline" economics (Boettke 2012) tend to pay explicit attention to the context within which human action occurs. As a result, my taxonomy features two core dimensions of the action context, which I label the Exchange Context and Decision Context. The Exchange Context of human action is the set of institutions, the formal and informal "rules of the game," within which individuals act (North 1990). Exchange Context may be either Market or Nonmarket. Market context is characterized by money prices, profit and loss feedbacks, and well-defined property rights. Nonmarket context may include a variety of political and social spheres of interaction that vary in substance. Crucially, the nonmarket context always lacks one or more of the aforementioned market institutions (see Boettke and Coyne 2009).

The Decision Context of human action relates to whether actors face conditions of risk or uncertainty in the set of possible outcomes of their actions. I conceptualize the risk–uncertainty dimension as a feature of the environment rather than depending on the decision maker: actors face risk or uncertainty as they seek to achieve their ends. Decision Context is thus an environmental feature that profoundly influences the

Table 5.1 The context of human action

		Exchange context	
		Market	Nonmarket
Decision Context	Risk	Equilibrium: Actors are rational choosers maximizing utility subject to price and income constraints	Shadow Equilibrium: Actors are rational choosers maximizing utility subject to shadow price and income constraints
	Uncertainty	Entrepreneurial Discovery Process: Actors are entrepreneurs alert to profit opportunities resulting from price disequilibrium	Nonmarket Discovery Process: Actors are change agents whose actions alter the institutional environment

Source Author's creation

researcher's model of individual choice. Risk implies a closed-ended situation of knowledge about the future: the full set of future outcomes can be identified, and each can be assigned a probability. Uncertainty, in contrast, means that the Decision Context cannot be categorized probabilistically; it entails "uncertainty about the very structure of the world" (Langlois 1994, 119) wherein the full set of possible outcomes is not knowable ex ante.

The context that the human actor finds herself in may be characterized along these dimensions into four groups: Market-Risk (MR), Market-Uncertainty (MU), Nonmarket-Risk (NR), and Nonmarket-Uncertainty (NU). This framework thus is broadly descriptive of extant research. Much of the scholarship in mainline economics can be located within the taxonomy fairly intuitively.

MR is the terrain of the neoclassical, rational choice framework commonly associated with the Chicago School. Actors face calculable risk under well-defined market institutions, and so they are modeled as "rational maximizers" who optimize choices by equating the marginal costs and marginal benefits of additional action. The result is that human actors tend to exhaust gains from trade, resulting in a state of equilibrium.

MU is the predominant context characterizing the Austrian research agenda. Purposeful market actors pursuing their ends under conditions of uncertainty (or "sheer ignorance") is at the core of the entrepreneurial discovery process pioneered by Mises, Hayek, and Kirzner. A key point of departure relative to the Chicago-esque, MR framework is the uncertainty of the Decision Context—resulting largely from the dispersed, tacit nature of knowledge in society. Note that there are other unique features of the Austrian school (e.g., time, capital theory, etc.) that emerge indirectly in the present taxonomy: one may plausibly conceive of "dynamic" time or heterogeneous, multi-specific capital as "sources" of uncertainty. Interested readers may consult the rich debate among these MR and MU perspectives (Becker 1963; Boettke 1997; Kirzner 1962, 1963).

Moving to the nonmarket dimension, NR scholarship focuses on the economizing actions of rational choosers outside of Market Institutions. Despite lacking price signals, choosers still face risk, yielding a "closed" choice set with calculable tradeoffs. The result is that these actors respond to those tradeoffs by maximizing utility, yielding coordination in the form of states of "Shadow Equilibrium." This work follows in large part from the pioneering efforts of Becker (1968) and Tullock (1967) and has recently enjoyed a revival in disparate but exciting areas such as

the economics of superstition, religion, and the family (Leeson 2012b; Leeson et al. 2014; Leeson and Coyne 2012; Leeson and Suarez 2017).

The present chapter focuses on the final category: the NU context. Whereas the entrepreneurial discovery process (MU context) has an extremely solid theoretical foundation, research into the nonmarket discovery process (NU context) appears to be much more fragmented. To see this, consider a representative definition of one form of action in the NU context, "political entrepreneurship": "political entrepreneurship is alertness to unnoticed opportunities to achieve desired political outcomes" (Simmons et al. 2011, 370). Note that this definition references the Kirznerian notion of "alertness to opportunities." But Kirzner typically refers to alertness in the recognition of profit opportunities, which requires the presence of profit and loss signals. Without the institutions that facilitate profit and loss identification (i.e., economic calculation), how can opportunities be assessed? "Alertness" and "opportunities" may well be theoretically sound constructs beyond the entrepreneurial discovery process (the MU context); however, this has yet to be established. I elaborate on this and other issues below.

Importantly, this taxonomy and the rest of the paper builds on the standard Austrian assumption of methodological individualism: the individual is the choosing entity (Boettke and Coyne 2005). In this view, human choosers are purposive and, in this sense, self-interested; however, we need not assume the content or nature of their objectives here (i.e., actors need not comport with the strict version of homo economicus). The result is the study of individual choosers pursuing their ends in a variety of external environments. I take the position of analytical egalitarianism regarding human actors: the "same players" are acting in each of the four contexts (Koppl 2012; Peart and Levy 2009).

In the next section, I discuss extant research in the NU framework, dealing with the nonmarket discovery process. This review reveals the many related definitions and foci of nonmarket entrepreneurship research, and it suggests that many questions remain regarding both the nature and consequences of human action in this context.

A Review and Synthesis of Nonmarket Entrepreneurship Literature

A brief overview of the nonmarket entrepreneurship literature reveals a plethora of terminology, with many partially overlapping definitions.

Specifically, a number of "types" of entrepreneurship have been posited within the nonmarket entrepreneurial process, including at least "institutional," "public," "political," "social," "constitutional," and "cultural" entrepreneurship. There is significant overlap in many of these concepts, and all deal with entrepreneurial action beyond the market. However, scholars have yet to discuss their relationship to one another. The fragmented state of this literature leaves scholars with little sense or agreement on how to navigate these alternative terms and theories, which limits the advance of the field. I attempt to address this by situating extant nonmarket entrepreneurship research.

To structure the review, I position the types of nonmarket entrepreneurship found in extant literature in relation to Williamson's (2000) institutional hierarchy. In his retrospective/prospective assessment of the New Institutional Economics literature—a cornerstone of the Virginia Political Economy school (Boettke and Marciano 2015)— Williamson presented a model of the institutional environment as a four-level hierarchy. This hierarchy effectively illuminates how various strands of "institutions-influenced" research within economics fit together, including transaction cost and property rights economics. I propose that this framework can also illuminate the nonmarket process literature. Specifically, the framework reveals that different scholars have focused on nonmarket entrepreneurship at different levels of the institutional hierarchy.

Level 1, "embeddedness," deals with existing informal institutions: e.g., norms, beliefs, customs, and religion. Level 2, the formal institutional environment, captures the fundamental elements of the political structure: the "rules of the game" such as property rights and constitutions. Level 3, "governance," involves the structures that organize and govern the "play of the game," or transactions (e.g., markets, firms, bureaucracies, legislators, regulators, nonprofits). Level 4, "resource allocation and employment," captures the transactions themselves: the continuous, everyday process of exchange.

This framework allows us to make sense of nonmarket entrepreneurship: different types of nonmarket entrepreneurs act in relation to phenomena at different institutional levels. Thus, nonmarket entrepreneurs are change agents whose actions alter the institutional environment at each of the levels of the institutional hierarchy.

"Cultural entrepreneurs" seek to arbitrage norms and beliefs in order to in turn bring about informal institutional change (Level 1). "Constitutional" and "institutional" entrepreneurs pursue changes in the "rules about the rules" of the game, altering the fundamental set of formal institutions that govern interaction (Level 2). "Public" and (some) "political" entrepreneurs set out to alter the rules of the game in ways that benefit them (Level 3). Finally, some "political" and (most) "social" entrepreneurs arbitrage social and economic resources to engage in exchange within the given framework of rules and norms (Level 4)

Table 5.2 summarizes this synthesis of nonmarket entrepreneurship along the institutional hierarchy. Mapping the predominant types of nonmarket entrepreneurship onto the institutional hierarchy in this way yields two key benefits. First, it provides a framework to understand how these distinct types relate to one another. Second, it highlights the rich

Table 5.2 Nonmarket entrepreneurship and the institutional hierarchy

	Level	*Nonmarket entrepreneurship*	*Description of entrepreneurial goals*
L1	Embeddedness—Customs, traditions, norms, religion	Cultural entrepreneurship	Entrepreneurs seek changes in society's customs, traditions, norms, and/or religion
L2	Institutional environment—Formal "rules of the game"	Constitutional entrepreneurship; institutional entrepreneurship	Entrepreneurs seek to change the "rules about the rules"—altering fundamental features of the formal institutional framework (e.g., creating and enforcing property rights)
L3	Governance—Play of the game	Public entrepreneurship, Political entrepreneurship (second-tier)	Entrepreneurs seek changes in the rules that govern action *within* the broader institutional framework
L4	Resource allocation and employment—Prices and quantities, incentive alignment	Political entrepreneurship (first-tier); Social entrepreneurship	Entrepreneurs arbitrage social and economic resources to engage in exchange with other actors *within* extant rules and norms

Source Adapted from Williamson (2000)

body of work in certain areas and the dearth in others. The synthesis therefore invites scholars both to build more systematically on existing research in well-trodden areas and to exploit opportunities for new insights in neglected areas. I now turn to reviewing literature addressing nonmarket entrepreneurship at each of the respective institutional levels.

Level 4 Nonmarket Entrepreneurship: Political and Social

Much of modern Austrian scholarship emerges from Virginia Political Economy school—a marriage of the Austrian and Public Choice traditions, the latter of which deals with the economic analysis of political action. As such, it is unsurprising that perhaps the most well-trodden ground of the entrepreneurial nonmarket process relates to mundane, everyday action in the political context. The study of such actions falls under the territory of political entrepreneurship (Wagner 1966).

Political entrepreneurship is typically understood as the purposeful action of self-interested individuals seeking to achieve their ends through the political process in the face of sheer ignorance. The unknowability of future outcomes—resulting in "alertness" to political profit "opportunities"—is the source of the distinctive entrepreneurial element in this work (Coyne et al. 2010; Simmons et al. 2011). Uncertainty thus distinguishes political entrepreneurship research from other scholarship in the public choice tradition, which also seeks to explain the role of individual interests and exchange in the public sector (Tullock 1967).

Early work on political entrepreneurship focused on lobbying efforts and redistributive policies, leading scholars to view political entrepreneurship as inherently wealth-destroying (DiLorenzo 1988). Political entrepreneurs exploit "political profit opportunities," meaning they realize private gains by capturing concentrated redistributive benefits while dispersing those costs among the population. By contrast, Holcombe (2002) identifies the political entrepreneur as the driver of both efficiency increases in government operations as well as the impetus for redistribution—allowing for both "productive" and "predatory" political entrepreneurship. Still, Holcombe also asserts that the incentives associated with political institutions cause predatory political entrepreneurship to predominate—especially "within" the given set of political institutions where "the worst get on top" (Hayek 1944). Holcombe's work has been extended and applied to several interesting empirical contexts (Christopoulos and Ingold 2015; Coyne et al. 2010;

Witcher and Campbell 2015). Interestingly, Coyne and coauthors suggest that the exploitation of unproductive political opportunities yields conditions that generate further political profit opportunities—resulting in an ongoing, nonproductive entrepreneurial process (Coyne et al. 2010).

I note that only "some" political entrepreneurship research occurs at level four. This is because the term has been used rather generally in discussion of many different types of political action. What distinguishes level four political entrepreneurship is that it occurs within existing rules. Such actions characterize the realm of "everyday" political exchange and change; where the overall rules are left largely unaffected. The creation and enforcement of regulation are included here, however, since they deal with the carrying out of established legal mandates created by legislators. As Henrekson and Sanandaji write, "the expansion of a suburb entails new roads and public services, and the individual who identifies and responds to this need is the political entrepreneur" (2011, 50). Similarly, Martin and Thomas (2013) discuss this kind of political entrepreneurship as the "lower tier" of their two-tiered model—relating to such things as the organization of coalitions. To the extent that political and "bureaucratic" entrepreneurship deal with rent-seeking activity over the implementation of regulations (e.g., Benson 2002), these actions correspond to the base level of the institutional hierarchy.

In addition, the growing field of "social entrepreneurship" operates principally at this level. Social entrepreneurs pursue the dual goals of economic value creation and social change through their ventures. Typically, social entrepreneurs seek to exploit opportunities in the market while simultaneously pursuing nonmarket goals. Mohammad Yunus, the Nobel Prize-winning founder of the Grameen Bank and a forerunner of the microcredit movement, is a notable example. The entrepreneurial process is somewhat complicated by economic and social goal hybridity (Lumpkin et al. 2013), and an emerging literature explores the prospects and tensions of social entrepreneurship both in theory and practice (Dacin et al. 2011).

Level 3 Nonmarket Entrepreneurship: Public and Political

The next level deals with actions that seek to change the play of the game—typically through changing the rules of the game. Martin and Thomas (2013), mentioned above, illustrate level three entrepreneurship as a "higher tier" of political entrepreneurship. In general, however,

nonmarket entrepreneurs operating at level three have been discussed predominately as public entrepreneurs.

Public entrepreneurship involves the creation and maintenance of rules of the game. Much of the Bloomington School, stemming from the work of Elinor Ostrom (1965), addresses a mix of public and private governance solutions to potential sources of conflict in the allocation and use of common pool resources. These solutions establish rules that then govern future behaviors, facilitating coordination and cooperation within those roles. Note that level three nonmarket entrepreneurship addresses rules are "post-constitutional" in nature—dealing with rulemaking that exists within some broader constitutional–institutional framework.

Thomas and Thomas (2018) offer an intriguing example of level three nonmarket entrepreneurship in the United States market for blood. They build on the insight that entrepreneurs may seek to change the rules of the game in their favor when efforts to capture rents "within" those rules are thwarted (Martin and Thomas 2013). In the case of the market for blood, hospitals traditionally used donated blood for transfusions and other procedures. Historically, these organizations had enjoyed protection from liability for blood-recipient complications (e.g., the patient's contraction of post-transfusion hepatitis); however, the rise of commercially purchased blood disrupted this legal regime. In the 1960s, the courts adopted a strict liability standard for any blood transfusions involving purchased (non-donated) blood—imposing significant costs on healthcare organizations supplying blood and/or administering transfusions. Hospitals responded by allying with the American Red Cross to lobby for regulatory override of the new, strict liability standard in state and eventually national legislatures. When legislatures banned commercial blood sales, hospitals were able to avoid the strict liability standards, and the Red Cross enjoyed reduced competition in the supply of blood.

A few papers extend public entrepreneurship theory drawing on Austrian insights to other disciplines, including management (Klein et al. 2010; Shockley et al. 2006) and public policy (Lucas 2018). Klein and coauthors contrast Kirznerian and Knightian approaches to public entrepreneurship and propose four research topics for public entrepreneurship: establishment of the rules of the game, creation of new public organizations, "creative management of public resources," and spillovers from private actions to the public domain (Klein et al. 2010, 5). Of these, all but the third can quite neatly be categorized at level three of this framework. The spillover of private actions to the public domain is

particularly intriguing, as it suggests the ability of private actors to supply aspects of governance commonly viewed as strictly "public." For instance, Fuller and DelliSanti (2017) present a case study of an engineering firm in the Midwestern United States that invested considerable resources in public buildings and schools, in order to attract high-skilled workers to its small headquarters city.

In a different context, I attempt to bring public entrepreneurship theory to the public management debate on "evidence based policy" (Lucas 2018). The evidence based policy paradigm promotes the extensive use of quantitative evaluation in the process of creating and implementing public policy—allowing "the data" to guide and constrain policymakers. Instead, I claim that evidence based policy is best thought of as part of a broader public entrepreneurial process; in this view, evidence is conceptualized as a resource that political entrepreneurs use to achieve their ends, rather than an objective constraint.

Level 2 Nonmarket Entrepreneurship: Constitutional and Institutional

Nonmarket entrepreneurship takes place within the political rules of the game at level four, and it yields substantive changes in law and policy at level three. At still higher level, nonmarket entrepreneurs may seek changes in the fundamental elements of the institutional environment—altering the highest-order rules that determine how lower-order rules like laws and regulations will be created and enforced. The most obvious example of this is "constitutional entrepreneurship," wherein the entrepreneur is the impetus for the establishment or alteration of constitutional rules (Salter 2016; Skarbek 2016; Thomas and Thomas 2014). Salter offers a related perspective of "sovereign entrepreneurship," which involves the delineation and distribution of political property rights (Salter 2018).

Research at the institutional environment level also posits a role for entrepreneurship in overcoming incentive challenges at the lower levels. Emily Skarbek's (2016) study of constitutional entrepreneurship in the context of humanitarian aid in nineteenth-century urban Chicago is an intriguing example. Skarbek demonstrates how constitutional entrepreneurship in the Chicago Relief and Aid Society enabled the organization to establish rules to mitigate the "Samaritan's Dilemma," a kind of moral hazard endemic to redistributive efforts. This work

highlights the role of constitutional entrepreneurship within private organizations—an issue worthy of further exploration.

A related issue is how actors might overcome barriers to exchange resulting from weak or nonexistent formal institutions. Again, nonmarket entrepreneurship yields a promising solution. Particularly where governments have been unable or unwilling to establish property rights through the public sector, entrepreneurs themselves may create and enforce property rights privately. Anderson and Hill (2002) discuss the entrepreneurial creation of property rights as a three-step process. Property rights entrepreneurs (1) discover previously unowned but valuable resource attributes, (2) define rights to these attributes, and (3) enforce those rights through contracts. David Skarbek (2009) extends their framework to highlight the importance of prior knowledge and subjective interpretation in the property right opportunity discovery stage. He demonstrates this with the case of Johnny Appleseed, who sold apple trees as a means of strengthening settlers' land rights in the Northwestern territories of North America. Leeson and Boettke (2009) write of institutional entrepreneurship as a "higher tier" form of private sector entrepreneurship critical to economic development. Here, institutional entrepreneurs exploit opportunities to introduce "private protection technologies" that enable others to engage in greater levels of investment and exchange that are required for development (Leeson and Boettke 2009).

Lucas and Fuller (2017a) discuss a similar process of "market-making entrepreneurship," wherein entrepreneurs create market institutions in response to interventionism by the state. We argue that entrepreneurs can effectively create markets for the exchange of previously untraded goods when intervention results in the attribution of pecuniary value to those goods. We illustrate this possibility with five cases where policy changes incentivized entrepreneurs to facilitate market emergence, including rats, feral pigs, homeless shelters, infected sputum, and human soldier remains.

As evident in this review, level two nonmarket entrepreneurship has gained considerable traction, garnering the interest of a growing number of market process scholars. Indeed, entrepreneurship has been argued to be a key link among Austrian research and closely related fields such as Constitutional Political Economy (Thomas and Thomas 2014). Research on the entrepreneurial element in constitutional/institutional emergence can continue to offer important insights to the economics of property rights—a literature that traditionally views the emergence of

property rights as something that "just happens" once efficiency warrants it (Demsetz 1967).

Level 1 Nonmarket Entrepreneurship: Cultural

Cultural entrepreneurship deals with change at the first institutional level: the level of customs, traditions, norms, and religion. Interestingly, although Williamson (2000) famously proposed that informal institutions are the most durable and spontaneous societal rules, a growing body of literature highlights the role of agency in informal institutional change. This view proposes that shifts in beliefs, thought, and values result not solely as spontaneous outcomes but from the interplay of unintended (i.e., emergent) and intended (purposive) forces. The purposive force in informal institutional change is the cultural entrepreneur.

Clear opportunities for cultural entrepreneurship emerge when communities are subject to crises or disasters. This is because the magnitude of disruption brought about can enable or even require the reassessment of previously held beliefs. A notable series of projects in this vein studies how social and cultural entrepreneurs facilitated post-disaster recovery in the wake of Hurricane Katrina (Chamlee-Wright and Storr 2009; Storr et al. 2016). In this work, the entrepreneur is viewed as the "proximate cause" of "social transformation": social change occurs when individuals exploit the relevant "opportunities" (Storr et al. 2016, 11). In New Orleans, Pastors and other community leaders were pivotal actors whose leadership encouraged and facilitated the return of many individuals in the wake of hurricane-driven mass evacuations, enabling subsequent community rebuilding (Chamlee-Wright 2015). By leveraging a shared pre-crisis culture, these individuals altered the way community members incorporated resilience into their shared identity, compelling them to believe and act upon the idea that community revival was both possible and valuable.

Similarly, "ideological entrepreneurs" induce change in informal institutions by brokering ideological shifts. Scholars tend to model the ideological entrepreneur as an exogenous source of redirection in values, beliefs, and ways of seeing in the broader society; thus, they can break societies from former path dependencies (Storr et al. 2016, 26). This notion fits well with the institutional-hierarchical structure, as Douglass North proposed a similar link among ideological change and entrepreneurial action (Denzau and North 1994). Martin and Storr

address these themes in the context of mid-twentieth century Bahamas (Martin and Storr 2006; Storr and Martin 2007).

Cultural entrepreneurship research from the Austrian perspective has enjoyed a relatively broad interdisciplinary scope, including sociology and crisis management. However, it has yet to reach a critical mass or impact in any given scholarly conversation. There is thus rich potential for both theoretical and empirical contributions along these lines. A particularly compelling avenue is the issue of post-crisis entrepreneurship, of which is there is much more to be done and many potential synergies with work in the disciplines of management and entrepreneurship (Shepherd and Williams 2014; Williams and Shepherd 2016a, b).

Outstanding Issues in Nonmarket Entrepreneurship Research

As detailed in the above review, nonmarket entrepreneurship research is becoming a vibrant branch of modern Austrian scholarship. Such research has seen theoretical inquiry at each of the four institutional levels and empirical application to an increasingly rich variety of contexts. Yet, despite this progress, our understanding of the nonmarket entrepreneurial process still has important theoretical gaps. In fact, a cynical view of nonmarket entrepreneurship research is that of a puzzle factory, where pieces are being produced but no overarching picture is emerging. While the goal of this chapter is to synthesize this work into a coherent framework, the exercise has also revealed a number of fundamental questions and opportunities to advance the perspective. I discuss several of these below.

The "Essence" of Nonmarket Entrepreneurial Action

A fundamental issue is whether the entrepreneurial lens is in fact (1) theoretically sound and (2) practically valuable in nonmarket contexts. Theoretical soundness relates to the coherence of the constructs employed; practical value relates to the explanatory power of the approach relative to others (e.g., a neoclassical approach to nonmarket choice). While I believe there is a case to be made on both counts, I also see legitimate issues that have yet to be sufficiently addressed.

The Austrian view tends to treat "entrepreneurial action" as a ubiquitous human phenomenon. While this premise opens door to inquiry

on nonmarket entrepreneurship, it also runs the risk of tautology: if entrepreneurship explains all nonmarket action, does it explain any nonmarket action after all? The question lurks in the shadows of this growing body of research. Scholars should also ask in what sense a "theory" of nonmarket entrepreneurship currently exists. To see this, consider that the commonly understood socioeconomic benefits of market entrepreneurship—wealth creation, social coordination, etc.—greatly depend on well-functioning market institutions. Nonmarket entrepreneurship research often borrows theoretical constructs, like opportunities or alertness, from the market context without attending to implications of an altered institutional context. Thus, there is a need to rigorously identify nonmarket feedback mechanisms, which would lead to consistent pattern predictions about opportunity identification and exploitation in this context.

The Intersection of Market and Nonmarket Entrepreneurship

In this review, I have largely treated market and nonmarket spheres of action as mutually exclusive. This was done because of the prevalence of this perspective in extant scholarship on nonmarket entrepreneurship, and for the delineating of boundary conditions for the emerging conversation on nonmarket entrepreneurship. Scholars of the market process proclivity rarely explore entrepreneurs' roles across these two contexts, tending to conceptualize entrepreneurs as either market or nonmarket actors. In the language of Table 5.1, existing work focuses on entrepreneurial actions in one Exchange Context at a time (cf., Wagner 2016; Boettke and Storr 2002). This may be problematic, considering that individuals frequently seek political or institutional change as part of their efforts to exploit market opportunities (Lucas and Fuller 2017b). More generally, as Lavoie and Chamlee-Wright (2000) argue, culture impinges thoroughly on market activity; individuals' beliefs about concepts like authority, exchange, and markets profoundly influence the way they act in the market (for an application to economic development, see Chamlee-Wright 2002).

Consider the example of Uber, the ride-sharing service that actively engaged regulators from the beginning, in order to not be regulated as a taxi service. Were nonmarket entrepreneurship absent from the venture's efforts, it is unclear whether or not the ride-sharing industry would have emerged at all. Entrepreneurial action is often characterized

by simultaneous market and political arbitrage, or concurrent creative destruction and policy disruption (Elert and Henrekson 2016). Market entrepreneurs may also seek to bring about cultural change as part of the opportunity exploitation process (e.g., through marketing). However, the longstanding debate among Kirznerian, equilibrating entrepreneurship versus Schumpeterian, disequilibrating entrepreneurship in many ways overlooks this issue of "hybrid" entrepreneurship that spans multiple institutional levels.

The point here is that we have many comparative studies and fascinating cases of political entrepreneurship, but we know surprisingly little about the intersection of market and political entrepreneurship. This issue affords many compelling avenues for future research. For example, what are the implications of profit opportunity exploitation if actors first obtain political favoritism that facilitates the opportunity's profitability? How is the equilibrating function of entrepreneurship affected by endogenizing regulation to the entrepreneur's political action? How does this kind of "entangled" entrepreneurship square with the dynamics of interventionism framework (Ikeda 2002), wherein policymaker decisions are largely treated as the exogenous impositions of benevolent actors? How do we conceptualize entrepreneurship in a world where the "rules of the game" are themselves part of the game?

Institutional Durability and Nonmarket Entrepreneurship

The proposed connection of nonmarket entrepreneurship to Williamson's (2000) institutional hierarchy invites theoretical questions about the effectiveness of nonmarket entrepreneurship, especially at the higher levels. Specifically, consider the implications of entrepreneurial action in relation to Williamson's propositions about the durability of institutions at the different levels. Williamson claims that changes to the higher levels (e.g., L1) take exponentially longer to change than the lower levels (e.g., L4). Whereas resources are continuously reallocated (L4), governance structures are said to last for one to ten years; more fundamental formal institutions such as constitutions (L3) tend to persist intact anywhere from ten to 100 years. Informal institutions (L4) are the most durable of all, with changes occurring over the course of 100 to 1000 years. Furthermore, Williamson also asserts that with increasing durability comes an increasing role for spontaneity in the formation of the institutions: higher level institutions emerge rather than being brought about by design.

The implications of these propositions for nonmarket entrepreneurship are potentially profound, but they are largely unexplored. As entrepreneurs engage increasingly durable institutions, does this mitigate their ability to achieve their ends? As spontaneity becomes increasingly important in determining outcomes, does this mean that entrepreneurs are less relevant—or perhaps more relevant, due to the process of marginal changes they initiate? How does durability impact the strategies that nonmarket entrepreneurs pursue, or the ways that they organize? Are longer planning horizons or more collective action required? Answering such questions would advance our understanding of the relationship among agency and emergence in institutional change.

Nonmarket Coordination and Economic Calculation

Austrian scholars are keen to point out the implications of the absence of comparable prices and profit and loss feedback outside the market process. This is an important task; as Hayek writes, "the curious task of economics is to demonstrate to men how little they really know about what they imagine they can design" (Hayek 1988, 78). The limits on human design have been elucidated across a range of issues from the impossibility of socialism (Mises 1920) to the failures of humanitarian efforts (Coyne 2013). One result of this is that Austrian nonmarket literature tends to emphasize "negatives" in the nonmarket context, highlighting the limits of nonmarket coordination (Skarbek and Leeson 2009).

Yet, some scholars have also argued for the possibility of "price-like" nonmarket coordination. This approach conceptualizes human exchange and interaction as involving "markets" even where money prices are absent. Presenting a vision for Austrian law and economics, Leeson points out, "Nonmarket decision making is as much decision making as that which occurs in the context of conventional, explicit markets" (Leeson 2012a, 188). For Leeson, a focus on subjective beliefs and purposive action facilitates analysis of the emergence and persistence of legal institutions. This perspective implies that institutions arise endogenously through human interaction, suggesting the "efficiency" of even objectively false beliefs that persist over time (Leeson 2012b). Such a conclusion is, at a minimum, quite intriguing: while rooted in the Austrian notions of subjective beliefs and purposeful action, it also suggests powerful forces of spontaneous coordination in the absence of economic calculation.

Similarly, in his work on digital privacy regulation, Fuller conceptualizes free (i.e., non-priced) internet browsing as a market, involving suppliers of web content and demanders who "pay" for access to this content with the provision of non-sensitive digital information (Fuller 2018). If digital information is the "price" paid for digital content, Fuller reasons, then regulation restricting the exchange of such information generates a "price control." He then draws on the dynamics of interventionism to present evidence analogous to the "multiple margins of adjustment" (Boettke and Candela 2017) brought by competition in a price-controlled market.

These examples are not unique but rather illustrate a larger body of work highlighting the propensity for market-like competition and coordination beyond the scope of market institutions (Leeson and Harris 2018; Leeson and Suarez 2017; Lemke 2016; Skarbek 2014). This literature on nonmarket, non-price coordination can be positioned in the Nonmarket-Risk cell of Table 5.1. But this work also evokes new tensions and questions for scholars of nonmarket entrepreneurship.

For instance, how might patterns of nonmarket coordination—lacking money prices, and sometimes even property rights—be reconciled with the centrality of economic calculation to social coordination? This question is critically important for scholars working in the Nonmarket-Uncertainty context. Elinor Ostrom and the Bloomington School offer an interesting framework for understanding the design of nontraditional institutions to govern common pool resources (Ostrom 1990). Yet, one of the critical points of departure in the Austrian research tradition is that prices, property rights, and profit and loss are non-negotiable institutional prerequisites of economic coordination through entrepreneurship (Mises 1920). Market entrepreneurs provide an equilibrating role that is only possible in the presence of these prerequisites; without them, economies collapse (Boettke 1993). So what, then, are "political," "cultural," or "ideological" opportunities, which do not involve pecuniary signals? How does the nonmarket entrepreneur identify them, assessing that the benefits outweigh the costs? How does she know if she has successfully exploited the opportunity—even ex post—without monetary reward or penalization? What feedback mechanisms exist in these contexts, and toward what outcomes do they direct nonmarket entrepreneurial behavior? As these questions indicate, much work remains in the development of a systematic approach to nonmarket action through the lens of entrepreneurship.

Conclusion

Scholarship in the Austrian tradition has flourished thus far in the twenty-first century. However, its recent growth has arguably been unlike prior chapters, as Austrian ideas are being applied in increasingly novel, often interdisciplinary, and often nonmarket contexts. In taking stock of this trend, I hope to draw attention to this rich nonmarket turn and thereby encourage more scholars to push the limits of Austrian insights. I would be remiss to attempt to centrally plan such an advance; however, the present exercise may offer contours of structure to motivate future work.

References

Anderson, Terry, and Peter Hill. 2002. Cowboys and Contracts. *The Journal of Legal Studies* 31 (S2): S489–S514. https://doi.org/10.1086/342026.

Becker, Gary S. 1963. Rational Action and Economic Theory: A Reply to I. Kirzner. *Journal of Political Economy* 71 (1): 82–83.

———. 1968. Crime and Punishment: An Economic Approach. *Journal of Political Economy* 76 (2): 169–217.

Benson, Bruce L. 2002. Regulatory Disequilibrium and Inefficiency: The Case of Interstate Trucking. *The Review of Austrian Economics* 15 (2–3): 229–255.

Boettke, Peter J. 1993. *Why Perestroika Failed*. New York: Routledge.

———. 1997. Where Did Economics Go Wrong? Modern Economics as a Flight from Reality. *Critical Review* 11 (1): 11–64.

———. 2012. *Living Economics*. Oakland, CA: Independent Institute.

Boettke, Peter J., and Rosolino A. Candela. 2017. Price Theory as Prophylactic Against Popular Fallacies. *Journal of Institutional Economics* 13 (3): 725–752.

Boettke, Peter J., and Christopher J. Coyne. 2005. Methodological Individualism, Spontaneous Order and the Research Program of the Workshop in Political Theory and Policy Analysis. *Journal of Economic Behavior & Organization* 57 (2): 145–158.

———. 2009. Context Matters: Institutions and Entrepreneurship. *Foundations and Trends® in Entrepreneurship* 5 (3): 135–209.

Boettke, Peter J., and Alain Marciano. 2015. The Past, Present and Future of Virginia Political Economy. *Public Choice* 163 (1–2): 53–65.

Boettke, Peter J., and Virgil Henry Storr. 2002. Post-Classical Political Economy: Polity, Society and Economy in Weber, Mises and Hayek. *American Journal of Economics and Sociology* 61 (1): 161–191.

Chamlee-Wright, Emily. 2002. *The Cultural Foundations of Economic Development: Urban Female Entrepreneurship in Ghana*. London: Routledge.

———. 2015. Pastor Response in Post-Katrina New Orleans: Navigating the Cultural Economic Landscape. In *Culture and Economic Action*, ed. Laura E. Grube and Virgil Henry Storr. Northampton, MA: Edward Elgar Publishing.

Chamlee-Wright, Emily, and Virgil Henry Storr. 2009. The Role of Social Entrepreneurship in Post-Katrina Community Recovery. *International Journal of Innovation and Regional Development* 2 (1–2): 149–164. https://doi.org/10.1504/IJIRD.2010.02986.

Christopoulos, Dimitris, and Karin Ingold. 2015. Exceptional or Just Well Connected? Political Entrepreneurs and Brokers in Policy Making. *European Political Science Review* 7 (3): 475–498. https://doi.org/10.1017/S1755773914000277.

Coyne, Christopher J. 2013. *Doing Bad by Doing Good: Why Humanitarian Action Fails*. Stanford, CA: Stanford University Press.

Coyne, Christopher J., and Abigail R. Hall. 2018. *Tyranny Comes Home: The Domestic Fate of US Militarism*. Stanford, CA: Stanford University Press.

Coyne, Christopher J., Russell S. Sobel, and John A. Dove. 2010. The Non-Productive Entrepreneurial Process. *The Review of Austrian Economics* 23 (4): 333–346.

Dacin, M. Tina, Peter A. Dacin, and Paul Tracey. 2011. Social Entrepreneurship: A Critique and Future Directions. *Organization Science* 22 (5): 1203–1213.

Demsetz, Harold. 1967. Toward a Theory of Property Rights. *American Economic Review* 62: 347–359.

Denzau, Arthur T., and Douglass C. North. 1994. Shared Mental Models: Ideologies and Institutions. *Kyklos* 47 (1): 3–31.

DiLorenzo, Thomas J. 1988. Competition and Political Entrepreneurship: Austrian Insights into Public-Choice Theory. *The Review of Austrian Economics* 2 (1): 59–71.

Elert, Niklas, and Magnus Henrekson. 2016. Evasive Entrepreneurship. *Small Business Economics* 47 (1): 95–113. https://doi.org/10.1007/s11187-016-9725-x.

Fuller, Caleb S. 2018. Privacy Law as Price Control. *European Journal of Law and Economics* 45 (2): 225–250.

Fuller, Caleb S., and Dylan DelliSanti. 2017. Spillovers from Public Entrepreneurship: A Case Study. *Journal of Entrepreneurship and Public Policy* 6 (1): 72–91.

Hayek, F.A. 1931. *Prices and Production*. London: Routledge.

———. 1944. *The Road to Serfdom*. UK: Routledge.

———. 1988. *The Fatal Conceit: The Errors of Socialism*. London: Routledge.

Henrekson, Magnus, and Tino Sanandaji. 2011. The Interaction of Entrepreneurship and Institutions. *Journal of Institutional Economics* 7 (1): 47–75.

Holcombe, Randall G. 2002. Political Entrepreneurship and the Democratic Allocation of Economic Resources. *The Review of Austrian Economics* 15 (2–3): 143–159.

Ikeda, Sanford. 2002. *Dynamics of the Mixed Economy: Toward a Theory of Interventionism.* London: Routledge.

Kirzner, Israel M. 1962. Rational Action and Economic Theory. *Journal of Political Economy* 70 (4): 380–385.

———. 1963. Rational Action and Economic Theory: Rejoinder. *Journal of Political Economy* 71 (1): 84–85.

———. 1973. *Competition and Entrepreneurship.* Chicago, IL: University of Chicago Press.

Klein, Peter G., Joseph T. Mahoney, Anita M. McGahan, and Christos N. Pitelis. 2010. Toward a Theory of Public Entrepreneurship. *European Management Review* 7 (1): 1–15.

Koppl, Roger. 2012. Experts and Information Choice. In *Experts and Epistemic Monopolies*, ed. Steven Horwitz, Roger Koppl, and Laurent Dobuzinskis, 171–202. Bingley: Emerald Group Publishing Limited.

———. 2018. *Expert Failure.* Cambridge: Cambridge University Press.

Langlois, Richard. 1994. 17 Risk and Uncertainty. *The Elgar Companion to Austrian Economics*, ed. Peter Boettke, 118. Northampton, MA: Edward Elgar Publishing.

Lavoie, Don, and Emily Chamlee-Wright. 2000. *Culture and Enterprise: The Development, Representation and Morality of Business.* London: Psychology Press.

Leeson, Peter T. 2012a. An Austrian Approach to Law and Economics, with Special Reference to Superstition. *The Review of Austrian Economics* 25 (3): 185–198.

———. 2012b. Ordeals. *The Journal of Law and Economics* 55 (3): 691–714.

Leeson, Peter T., and Peter J. Boettke. 2009. Two-Tiered Entrepreneurship and Economic Development. *International Review of Law and Economics* 29 (3): 252–259.

Leeson, Peter T., Peter J. Boettke, and Jayme S. Lemke. 2014. Wife Sales. *Review of Behavioral Economics* 1 (4): 349–379.

Leeson, Peter T., and Christopher J. Coyne. 2012. Sassywood. *Journal of Comparative Economics* 40 (4): 608–620.

Leeson, Peter T., and Colin Harris. 2018. Wealth-Destroying Private Property Rights. *World Development* 107 (July): 1–9. https://doi.org/10.1016/j.worlddev.2018.02.013.

Leeson, Peter T., and Paola A. Suarez. 2017. Child Brides. *Journal of Economic Behavior & Organization* 144: 40–61.

Lemke, Jayme S. 2016. Interjurisdictional Competition and the Married Women's Property Acts. *Public Choice* 166 (3–4): 291–313.

Lucas, David S. 2017. Federal Homelessness Policy: A Robust Political Economy Approach. *The Review of Austrian Economics* 30 (3): 277–303.

———. 2018. Evidence-Based Policy as Public Entrepreneurship. *Public Management Review* 20 (11): 1602–1622.

Lucas, David S., and Caleb S. Fuller. 2017a. Bounties, Grants, and Market-Making Entrepreneurship. *The Independent Review* 22 (4): 507–528.

———. 2017b. Entrepreneurship: Productive, Unproductive, and Destructive—Relative to What? *Journal of Business Venturing Insights* 7: 45–49.

Lumpkin, G.T., Todd W. Moss, David M. Gras, Shoko Kato, and Alejandro S. Amezcua. 2013. Entrepreneurial Processes in Social Contexts: How Are They Different, If at All? *Small Business Economics* 40 (3): 761–783.

Martin, Adam, and Diana Thomas. 2013. Two-Tiered Political Entrepreneurship and the Congressional Committee System. *Public Choice* 154 (1–2): 21–37.

Martin, Nona P., and Virgil Henry Storr. 2006. Demystifying Bay Street: Black Tuesday and the Radicalization of Bahamian Politics in the 1960s. *Journal of Caribbean History* 43 (1): 37–50.

Mises, Ludwig v. 1920. Economic Calculation in the Socialist Commonwealth. In *Collectivist Economic Planning*, ed. F. A. Hayek. London: Routledge.

North, Douglass C. 1990. *Institutions, Institutional Change and Economic Performance*. Cambridge, MA: Cambridge University Press.

Ostrom, Elinor. 1965. Public Entrepreneurship: A Case Study in Ground Water Basin Management. PhD thesis, University of California, Los Angeles.

———. 1990. *Governing the Commons: The Evolution of Institutions for Collective Action*. Cambridge: Cambridge University Press.

Peart, Sandra J., and David M. Levy. 2009. *The Street Porter and the Philosopher: Conversations on Analytical Egalitarianism*. Ann Arbor: University of Michigan Press.

Piano, Ennio E. 2017. Free Riders: The Economics and Organization of Outlaw Motorcycle Gangs. *Public Choice* 171 (3–4): 283–301.

Salter, Alexander William. 2016. The Personal and the Political: Implications of Constitutional Entrepreneurship. *NYUJL & Liberty* 10: 587.

———. 2018. Sovereign Entrepreneurship. *Journal of Entrepreneurship and Public Policy*, Forthcoming. https://papers.ssrn.com/abstract=3178112.

Shepherd, Dean A., and Trenton A. Williams. 2014. Local Venturing as Compassion Organizing in the Aftermath of a Natural Disaster: The Role of Localness and Community in Reducing Suffering. *Journal of Management Studies* 51 (6): 952–994. https://doi.org/10.1111/joms.12084.

Shockley, Gordon E., Roger R. Stough, Kingsley E. Haynes, and Peter M. Frank. 2006. Toward a Theory of Public Sector Entrepreneurship. *International Journal of Entrepreneurship and Innovation Management* 6 (3): 205–223.

Simmons, Randy T., Ryan M. Yonk, and Diana W. Thomas. 2011. Bootleggers, Baptists, and Political Entrepreneurs: Key Players in the Rational Game and

Morality Play of Regulatory Politics. *The Independent Review* 15 (3): 367–381.

Skarbek, David. 2009. Alertness, Local Knowledge, and Johnny Appleseed. *The Review of Austrian Economics* 22 (4): 415–424. https://doi.org/10.1007/s11138-008-0066-0.

———. 2014. *The Social Order of the Underworld: How Prison Gangs Govern the American Penal System*. New York: Oxford University Press.

Skarbek, David, and Peter T. Leeson. 2009. What Can Aid Do. *Cato Journal* 29: 391–398.

Skarbek, Emily C. 2016. Aid, Ethics, and the Samaritan's Dilemma: Strategic Courage in Constitutional Entrepreneurship. *Journal of Institutional Economics* 12 (2): 371–393.

Storr, Virgil Henry, Stefanie Haeffele-Balch, and Laura E. Grube. 2016. *Community Revival in the Wake of Disaster: Lessons in Local Entrepreneurship*. London: Springer.

Storr, Virgil Henry, and Nona P. Martin. 2007. 'I'Se a Man': Political Awakening and the 1942 Riot in the Bahamas. *Journal of Caribbean History* 41 (1–2). https://papers.ssrn.com/abstract=1711235.

Thomas, Diana W., and Michael D. Thomas. 2014. Entrepreneurship: Catallactic and Constitutional Perspectives. *The Review of Austrian Economics* 27 (1): 11–22. https://doi.org/10.1007/s11138-013-0208-x.

Thomas, Michael D., and Diana W. Thomas. 2018. The Rise of the Regulatory State: Institutional Entrepreneurship and the Decline of Markets for Blood. *Independent Review* 22 (4): 485.

Tullock, Gordon. 1967. The Welfare Costs of Tariffs, Monopolies, and Theft. *Economic Inquiry* 5 (3): 224–232.

Wagner, Richard E. 1966. Pressure Groups and Political Entrepreneurs: A Review Article. *Papers on Non-Market Decision Making* 1 (1): 161–170.

———. 2016. *Politics as a Peculiar Business: Insights from a Theory of Entangled Political Economy*. Northampton, MA: Edward Elgar Publishing.

Williams, Trenton A., and Dean A. Shepherd. 2016. Building Resilience or Providing Sustenance: Different Paths of Emergent Ventures in the Aftermath of the Haiti Earthquake. *Academy of Management Journal* 59 (6): 2069–2102. https://doi.org/10.5465/amj.2015.0682.

———. 2016b. Victim Entrepreneurs Doing Well by Doing Good: Venture Creation and Well-Being in the Aftermath of a Resource Shock. *Journal of Business Venturing* 31 (4): 365–387. https://doi.org/10.1016/j.jbusvent.2016.04.002.

Williamson, Oliver E. 2000. The New Institutional Economics: Taking Stock, Looking Ahead. *Journal of Economic Literature* 38 (3): 595–613.

Witcher, Marcus, and Noel Campbell. 2015. Political Entrepreneurship: Jefferson, Bayard, and the Election of 1800. *Journal of Entrepreneurship and Public Policy* 4 (3): 298–312. https://doi.org/10.1108/JEPP-01-2014-0004.

Entrepreneurship in Practice

The Comparative Liberty-Dignity Context of Innovative Immigrant Entrepreneurship

Olga Nicoara

Introduction

In an increasingly interconnected, technology-driven global economy, where new ideas and discoveries matter, attracting talented immigrant entrepreneurs is becoming a central part of economic policy discussions and scholarly interest in many countries in the world (Stangler and Wiens 2015; Ortmans 2018; Stangler and Konczal 2013; *Economist* 2012; Docquier and Rapoport 2012; Clemens 2011). For developed countries marked by aging populations, immigrants represent an untapped source of human capital, value creation, and productive entrepreneurship—a solution to a growing demographic problem (Lévesque and Minniti 2011; Acs et al. 2009; Caplan 2007; Audretsch and Feldman 1996). The highly skilled and educated immigrant entrepreneurs contribute to innovation output by generating new ideas and technologies meant to

O. Nicoara (✉)
Department of Business and Economics, Ursinus College, Collegeville, PA, USA
e-mail: onicoara@ursinus.edu

increase market value and opportunity in the countries of their destination (Simarasl and Williams 2016; No and Walsh 2010; Hart and Acs 2011; Murphy et al. 1991; Hunt and Gauthier-Loiselle 2010).

Empirical studies show that immigrant entrepreneurs surpass native entrepreneurs in ingenuity. For example, in the United States, immigrant entrepreneurs in high-tech sectors are shown to significantly outperform their American counterparts in most measures of innovativeness, including number of patents, researched recently (Brown et al. 2020), as well as in the previous century (Akcigit et al. 2017), not only in the U.S. but also elsewhere in Europe (Lissoni et al. 2014). They are also twice as likely to co-found high-tech enterprises (Stangler and Wiens 2015). Other studies, focused on surveying and analyzing U.S.-based enterprises, have shown that at least 15%, and at most 26%, of the co-founders of enterprises with a high impact on technological innovation and job creation in the U.S., are foreign-born (Saxenian 1999; Anderson and Platzer 2006; Hart and Acs 2011; Wadhwa et al. 2007). These studies echo Joseph Schumpeter's idea that entrepreneurship of the innovative, technological kind contributes more to modern economic growth (Schumpeter 1942) than entrepreneurship of the simple kind, which may involve buying low and selling high, without disrupting the existing technological combinations. Complex or "high tech-high impact" immigrant entrepreneurs, as opposed to the simple or "low-tech-low impact" enterprise creators, are thus portrayed as superior contributors to economic growth (Wadhwa et al. 2007; Hart and Acs 2011). While these studies document the role of the supply of innovative immigrant entrepreneurs as "engines of economic growth" (Minniti et al. 2006) in the country of destination, more research is needed to understand what determines the supply of immigrant entrepreneurs in the first place. Why do immigrant entrepreneurs choose to start high-growth businesses in country A and not in country B? More fundamentally, because the decision to start a business usually does not come until years after arrival and settling in the destination country, the underlying question is why do individuals choose to migrate to country A and not to country B? Is one's initial decision to migrate linked to one's later decision to start a business (or the likelihood to start a business)? Are there essential differences between an immigrant's country of origin and her country of destination that can explain immigrant entrepreneurship in general and innovative immigrant entrepreneurship in particular? What determines the allocation of the global supply of innovative entrepreneurs?

In this chapter, I argue that the direction of the observed flows of migrants may reveal cross-country institutional and socio-cultural differences that matter for entrepreneurship theory in general, and for understanding the modern phenomenon of innovative immigrant entrepreneurship, in particular. An immigrant entrepreneur's decision to engage in productive and creative activities is shaped by a comparative-institutional context. From a comparative-institutional perspective, applied on a global scale, the conjecture in this chapter is that the global supply of creative entrepreneurs is allocated according to the cross-country institutional and cultural differences and the corresponding differences in payoffs. I propose a framework by which one should expect that the direction of the flows of innovative immigrant entrepreneurs goes from countries with lower institutional quality to countries with higher institutional quality, and from cultures with low praise or social honor for entrepreneurs to cultures with high praise or social honor accorded to entrepreneurs. The framework combines Deirdre McCloskey's notions of the "Liberty" and "Dignity" factors explaining the innovation-based, modern growth (McCloskey 2011), with Israel Kirzner's concept of an "element of entrepreneurial alertness" characterizing human cognitive processes and action (Kirzner 1978).

The rest of the chapter is organized as follows: Section ("Institutions and Entrepreneurship: Context Matters") discusses the relationship between institutions and entrepreneurship. Section ("Creative Immigrant Entrepreneurship and Institutions: Which Context Matters?") presents the relationship between creative immigrant entrepreneurship and institutions. Section ("Why Might Innovative Immigrant Entrepreneurs Choose Developed Countries? A Comparative Liberty-Dignity Framework") provides a Liberty-Dignity framework for understanding the determinants of innovative immigrant entrepreneurship. Section ("Empirical Illustrations of the Comparative Liberty-Dignity Framework") illustrates the Liberty-Dignity framework with cross-country data. Section ("Conclusion") concludes.

Institutions and Entrepreneurship: Context Matters

The concept of entrepreneurship started to overtake the world beginning in the twentieth century, notably with the works of economists Joseph Schumpeter and Israel Kirzner, at a time of increased focus

on demystifying the wealth of nations and economic growth in the world. For Schumpeter, entrepreneurship is the process of implementing new ways to combine ideas and resources to produce value in society by entrepreneurs-innovators who discover new products and services, new methods of production, new technologies, new markets, etc. (Schumpeter 1942). In Schumpeter's view, creativity is personal trait necessarily possessed by entrepreneurs-innovators. One requires a certain degree of creativity to discover new ideas valuable for the economy. Creativity and innovation go together, and Schumpeter coined the term "creative destruction", a process of economic growth over the long run whereby talented entrepreneurs use their creativity to innovate, rendering the old structure of resources and technologies in the economy obsolete (Schumpeter 1942, 83). The old-vs-new tradeoffs are well worth it in a capitalist system because the entrepreneurs as innovators advance the frontier of the economy to unprecedented levels, toward more diversified and better quality products, services, and markets, better technologies, and greater economic possibilities translating into increased standards of living over the long run. For Kirzner, entrepreneurship is a broader, all-encompassing concept, accounting for both the "Schumpeterian" or creative type of entrepreneurship and the "Kirznerian" or simple type of entrepreneurship (Kirzner 1999, 2009). The simple entrepreneurs, as small-scale arbitrageurs, discover ways to create new market value by allocating existing resources, in productive, yet not necessarily innovative ways, in order to match previously unmatched buyers with sellers at potentially better prices (Kirzner 1978, 1999; Boettke and Coyne 2009). Kirzner coined the concept of "entrepreneurial alertness" defined as the innate human propensity to notice that which is in one's best interest to notice and ultimately to pursue, whether it is profit opportunities in a market context or non-profit opportunities in other contexts (Kirzner 1978). In Kirzner's theoretical approach, entrepreneurship is an omnipresent and endogenous phenomenon in human societies. Because individuals are endowed with an element of entrepreneurial alertness, the supply of entrepreneurship in any society can be hypothesized as constant across time. What matters then, for how this entrepreneurial supply manifests, is the make-up of the context of policies and institutions within which individuals manifest their entrepreneurial alertness and the corresponding institutional stimuli they respond to (Sautet 2002; Kirzner 1979, 1997; Minniti 2008). William Baumol pioneered the use of

historical examples to illustrate the power of the prevalent context of institutions and policies in channeling a society's supply of entrepreneurship toward productive, unproductive, or even destructive endeavors (Baumol 1990). Context matters because it is comprised of the set of all formal and informal institutions or "rules of the game" dictating the structure of incentives, and associated payoffs, at any point in time in society (Baumol 1990; Boettke and Coyne 2009; North 1990; Boettke and Fink 2011). The allocation of entrepreneurial talent in society will then depend on the relative payoffs signaled by the local institutions and policies at a particular point (or over a period) in time, with some societies rewarding entrepreneurial ingenuity, while others reward rent-seeking (e.g. Shughart and Thomas 2015; Boettke et al. 2005; Kreft and Sobel 2005; Baughn and Neupert 2003; Murphy et al. 1991; Baumol 1990; Olson 1996; Minniti 2008; Hall and Jones 1999). At the cross-country level, sound economic institutions and policies matter for entrepreneurship because they can mitigate cognitive inclinations, such as one's fear of failure, providing entrepreneurs with a boost in confidence grounded in the stability and reduced uncertainty of the institutional environment within which they decide to pursue their profitable endeavors (Boudreaux et al. 2019). Furthermore, we can see how cross-country differences in institutions might also affect the decisions of entrepreneurs directly through perceived differences in prosperity (a potential wealth effect), and through many other interlinked channels, including perceived differences in corruption, weak property rights, and encumbering business regulations (Faría and Montesinos 2009; Faría et al. 2013; Faría et al. 2012; Hall and Lawson. 2014; Hall and Jones 1999).

What also matters are a country's informal institutions, comprised of the cultural and social-moral "rules of the game," including norms, morals, and attitudes toward the entrepreneurial, productive, and innovative members of society (Hofstede 2001; McCloskey 2011; Storr 2009; Baughn and Neupert 2003; Boettke 1996). The more pro-entrepreneurship and pro-innovation the culture and morality in a society, the more likely its individuals will undertake productive and innovative activities. Several cross-country studies measure the cultural dimensions relevant to entrepreneurship. The Global Entrepreneurship Monitor (GEM), for example, gathers country-level survey data on three entrepreneurship-related cultural factors: (1) cultural and social norms toward entrepreneurship, (2) innovation, (3) the perception of entrepreneurship as a desirable career choice, and (4) high status to

successful entrepreneurs. Countries across the globe differ in their cultural attitudes toward entrepreneurship and innovation in different dimensions, which can help us understand why some countries experience higher levels of entrepreneurialism and innovativeness. Overall, at the national level, it seems that the discovery and pursuit of mutually beneficial gains from trade by alert and creative local entrepreneurs are best fostered by the mix of inclusive culture, policies, and institutions conducive to productive and innovative forms of entrepreneurship.

CREATIVE IMMIGRANT ENTREPRENEURSHIP AND INSTITUTIONS: WHICH CONTEXT MATTERS?

What about the link between institutions and the flows of creative[1] immigrant entrepreneurs? If the local context matters for channeling the domestic supply of entrepreneurship toward productivity and innovation, which context matters for channeling the *global* supply of entrepreneurship? In an open and competitive world, can strong, local institutions attract productive and innovative entrepreneurs from among the worldwide supply located within contexts with weak institutions? Can inclusive policies, institutions, and culture attract creative immigrant entrepreneurs? Conversely, can countries with weak institutions lose productive and creative native entrepreneurs to countries with better, more inclusive institutions elsewhere in the world? Which context(s) matter for immigrant entrepreneurs in general and for innovative immigrant entrepreneurs in particular?

Classic macroeconomic models do incorporate the role of technological innovations, e.g., through the R&D activities of highly skilled workers (Solow 1956; Romer 1990). Still, they seem to take for granted the underlying motive to innovate. These models look at innovation factors after an entrepreneurial decision has *already* been made, as opposed to considering what prompts the incentive to innovate *in the first place*. In mainstream entrepreneurship research on the phenomenon of immigrant entrepreneurship, the direction is either toward the study of simple (or "low tech—low impact") ethnic enterprise creation (Light 1972;

---

[1] Following Schumpeter's ideas, in this chapter I use the terms "creative" and "innovative" interchangeably. For example: the term "creative entrepreneur(s)" is not different from "innovative entrepreneur(s)," and "creative immigrant entrepreneur(s)" is not different from "innovative immigrant entrepreneur(s)."

Light and Bhachu 1992) or toward the research of complex (or "high tech-high impact") ethnic enterprise creation and innovation (Hart and Acs 2011; Kerr 2008). A few studies are concerned with what determines an immigrant entrepreneur's choice of the location itself, and with extending Israel Kirzner's theory of entrepreneurial alertness and market process across locations. Nastaran and Williams find that highly educated immigrant entrepreneurs decide against a place with high costs of doing business in favor of a place where they might have high social capital (Simarasl and Williams 2016). Others show that the U.S. environment is the preferred destination for highly skilled immigrants, ethnic scientists, and innovators alike (Kahn and MacGarvie 2014; Kerr 2010). Andersson introduces the role of space in Kirzner's notion of entrepreneurial alertness and its implication to market coordination to help explain migration and other phenomena of economic development (Andersson 2005). He concludes that differences in property rights across countries might stimulate entrepreneurial alertness to cross-country profit opportunities, and thereby help explain the entrepreneurial actions of migrants, highlighting the role of the inter-spatial discovery of profit opportunities in entrepreneurship theory (Andersson 2005). This literature either falls short of delimiting what determines the flows of immigrant entrepreneurship at the global scale in general or innovative immigrant entrepreneurship in particular.

WHY MIGHT INNOVATIVE IMMIGRANT ENTREPRENEURS CHOOSE DEVELOPED COUNTRIES? A COMPARATIVE LIBERTY-DIGNITY FRAMEWORK

If innovative immigrant entrepreneurship is the future, identifying precisely what types of policies or institutional changes are necessary to attract creative immigrant entrepreneurs and capture the gains from foreign-born entrepreneurial talent is critical. Because of the cross-country nature of immigrant entrepreneurship, identifying what determines the flows of innovative immigrant entrepreneurs requires analyzing decision-making in a comparative-institutional context. I propose a comparative-institutional framework of analysis to better understand immigration flows in general, and creative immigrant entrepreneurship flows that propel economic growth, in particular. The comparative-institutional framework employs Deirdre McCloskey's

"Bourgeois Dignity" factor for social honor, along with her "Bourgeois Liberty" factor for the degree of economic freedom, that may both matter to an individual's entrepreneurial decision-making of where to immigrate in general, and where to migrate to start an innovative, high-growth business, in particular. The framework draws on McCloskey's model of modern growth (McCloskey 2011, 411). In her book, she sets up the function of the national production, Q, as the interaction between the neoclassical Solow production function F and an innovation function I. The role of ideas expressed mathematically in the innovation function I is McCloskey's unique contribution to theorizing about the phenomenon of modern growth. A summary of McCloskey's ideas-augmented model, based on pages 411–412 of her book[2] (McCloskey 2011), is presented in the box below.

$$Q = I(D, B,R) * F(K,s * L), \text{ where:}$$

I— the Innovation function responsible for modern economic growth, going back to the Industrial Revolution to recent times;

D— the Dignity accorded to innovators by society; D is a factor for the prevalent culture toward productive entrepreneurs, particularly innovators;

B— the Liberty of innovators; B stands for the liberties enjoyed by the productive entrepreneurs in society, a factor also discussed by Adam Smith, in The Wealth of Nations (Smith 2008 [1776]), as the institutional context supporting the invisible hand effect of open and competitive markets;

R— the rent or profit for innovative activities.

The innovation function in McCloskey's view must multiply any conventional neoclassical production function, F(K, eL), where K is physical capital or land; L is human capital or labor multiplied by a coefficient for the level of education and skills of the workers in the economy. McCloskey argues that for a society to achieve the highest rates of economic growth, what she calls "modern growth," its individuals must enjoy not only the highest degree of economic freedom, or liberty, but

---

[2] For McCloskey's full discussion and explanation of her formalized model of modern growth, see chapter 43, in McCloskey (2011).

also the highest degree of social honor, or dignity. Modest and prominent entrepreneurs alike must be culturally and socially acknowledged for their positive contribution to the good of society as a whole. Only then may the full productive and creative capacity of society become activated, and the highest growth rates and increases in wellbeing be achieved (McCloskey 2011).

Based on McCloskey's modern growth model presented above, I identify two composite institutional dimensions at play for understanding the flows of immigrant entrepreneurship:

1. The prevailing culture, comprised of social norms, morals, and informal institutions for or against doing innovative business (i.e., the informal rules of the game, morals, and attitudes—including social praise, recognition, and admiration—toward entrepreneurs and innovators). This is where I derive McCloskey's "D" factor from the "Innovator's Dignity."
2. The prevailing legal and economic-financial institutions for or against doing innovative business (i.e., the formal rules of the game about entrepreneurship)—this is where I derive McCloskey's "B" factor, "Economic LiBerty."

Under a comparative-institutional context, potential immigrant entrepreneurs must operate and derive their motivation primarily from weighing the institutional dimensions 1 and 2 above for both the country of origin and the potential country of destination. They must cross-examine the differences in expected long-term payoffs associated with the differences in the qualities of institutional climates specific to their countries of interest. For example, when both liberty and dignity are higher in a potential country of destination, the entrepreneurial context is propitious for productive entrepreneurial endeavors, particularly involving high-tech investments. The decision in favor of immigrating is obvious. On the contrary, when both liberty and dignity are lower in a possible country of destination, the entrepreneurial context is against entrepreneurial activities of the productive kind, in general, and against productive innovations in particular. In between, we might find an entire spectrum of such differences in combinations cross-examined.

This chapter's conjecture is that the liberty-dignity framework presented above can explain the allocation of the global supply of innovative entrepreneurs across countries. Figure 6.1 illustrates this conjecture with a preliminary mapping of the expected directional flows of creative immigrant entrepreneurs on a global scale according to the framework. The direction of the flows of innovative immigrant entrepreneurs is likely from countries with lower institutional quality to countries with higher institutional quality, and from cultures with low social praise and dignity for entrepreneurs to cultures with high social praise and dignity conferred to entrepreneurs.

Today, more than ever, because of globalization and the marked decreases in the virtual distance between nations and their entrepreneurial environments, creative individuals face stronger incentives to move toward places that may foster more substantial payoffs to their talent in
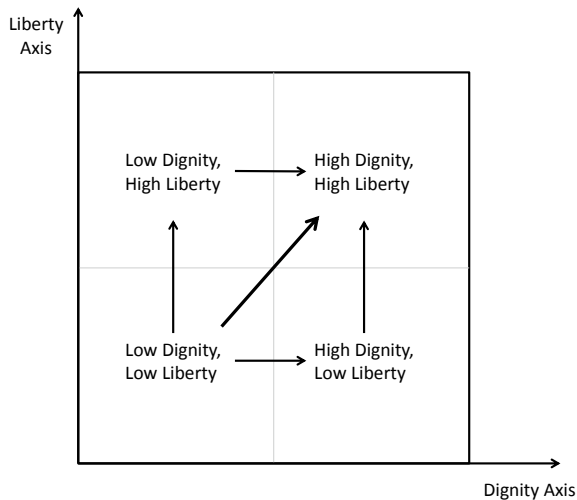
Fig. 6.1 A two-dimensional representation of the direction of the flows of innovative immigrant entrepreneurs based on our Comparative Liberty-Dignity Framework

both monetary form and social form (see the High Dignity and High Liberty quadrant in Fig. 6.1).[3]

Empirical Illustrations of the Comparative Liberty-Dignity Framework

This section develops an analysis of the strength of the link between the contexts of any two countries (one of origin, and one of destination) and the direction of the potential flows of innovative immigrant entrepreneurs, with empirical illustrations of the comparative Liberty-Dignity conjecture introduced above. I use survey data from The Global Entrepreneurship Monitor (GEM), Hofstede's six cultural dimensions (Hofstede 2001), net migration data from The World Bank, and data on the quality of economic institutions from The Fraser Institute's Economic Freedom of the World (EFW) Annual Reports.

Data on Net Migration and the Liberty of Entrepreneurs

Liberty in this chapter's comparative-institutional framework is measured by the degree of economic freedom enjoyed by individuals in a country. My argument is that the quality of economic institutions, economic liberty, matters more to innovative immigrant entrepreneurs than to the general pool of immigrants. The reality, at this time, is that measuring the flows of immigrant entrepreneurs is difficult, and not being able to obtain the precise data for the flows of creative immigrant entrepreneurs is a limitation of the narrative in this chapter. As an approximate solution, using Baumol's observation that the supply of entrepreneurship is constant, I assume that, similarly, the supply of immigrant entrepreneurship is constant, as is the latent supply of innovative immigrant entrepreneurs. What varies are the contexts in terms of institutional and cultural environments across time and place. I assume, therefore, that the flow of innovative immigrant entrepreneurs is approximately proportional to the flow of immigrant entrepreneurs, which is in turn proportional to the

---

[3] The perceived payoffs do not necessarily need to be financial. They can also be social and cultural non-monetary payoffs.

flow of immigrants.[4] Thus, for empirical illustration, I will use net migration across countries as a proxy for the relative proportion of the flows of innovative immigrant entrepreneurs in a comparative framework.

The World Bank[5] defines net migration as the total number of immigrants minus the total number of emigrants, including both citizens and noncitizens. Table 6.1 presents net migration data in both absolute and relative terms as well as data on the quality of economic institutions, as measured by the Economic Freedom of the World Index (EFW), for the top fifteen and bottom fifteen countries over the 2010–2015 period. Figure 6.2 is an illustration of the strength of the association between the main variables included in Table 6.1.[6]

Panel A in Table 6.1 reveals that over the 2010–2015 period, the United States was, by far, the developed country with the highest total flow of immigrants, followed by Germany, Saudi Arabia, Turkey, and Canada. In relative terms, measured as net number of migrants per 1000 people in the country of destination, and excluding refugee havens like Jordan, the United States is surpassed by the oil-rich Persian Gulf countries, Qatar, Saudi Arabia, the United Arab Emirates, as well as Switzerland, Australia, Canada, Germany, United Kingdom, and even Malaysia. At the opposite end, Panel B reveals the countries with negative net migration rates, where many more people are exiting than entering. Here, again, excluding countries affected by recent military conflict or political unrest, like Libya, El Salvador, and Georgia, we find Romania, Spain, Morocco, and Peru receiving the fewest immigrants net of emigrants. What prompted Romanians, for instance, to leave their home countries? What attracts migrants toward countries like the United States, Switzerland, and Canada? As economic theory and empirical studies suggest, and by this chapter's framework, economic institutions and culture play a

---

[4] I acknowledge the existence of measurement error and nuisances that are inevitable in empirical practice given the lack of precise data on foreign-born entrepreneurs and innovators.

[5] The source of the net migration data is The World Bank Data (2019) and the United Nations (UN) Population Division, World Population Prospects: 2017 Revision (United Nations 2019).

[6] Countries receiving numerous refugees due to political instability or armed conflict in neighboring countries have been purposefully excluded from the scatterplot in Fig. 6.2 to more accurately illustrate the relationship between net migration rates and economic institutions in normal times.

Table 6.1 Net migration, population, net migration rate per 1000 people, economic freedom over the past 30 years, top and bottom countries (2010–2015)

Country	Net migration (Total, over 5 years: 2010–2015)	Population (Millions)	Net migration rate (per 1000 people. Over 5 Years: 2010–2015)	EFW30
Panel A: Top 15 countries				
United States	4,600,982	321.0	14.3	8.1
Germany	1,804,988	81.7	22.1	7.5
Saudi Arabia	1,725,065	31.6	54.7	–
Turkey	1,707,946	78.3	21.8	–
Canada	1,181,394	35.8	33.0	7.9
Jordan	1,117,654	9.2	122.0	–
Russia	1,024,241	144.1	7.1	5.9
United Kingdom	1,012,200	65.1	15.5	8.0
Australia	957,606	23.9	40.1	7.7
South Africa	841,394	55.3	15.2	6.2
Malaysia	823,254	30.7	26.8	7.0
Qatar	708,148	2.5	285.4	–
United Arab Emirates	493,690	9.2	53.9	–
Switzerland	411,452	8.3	49.7	8.3
France	366,863	66.6	5.5	7.0
Panel B: Bottom 15 countries				
El Salvador	−243,941	6.3	−38.6	6.4
Peru	−249,689	31.4	−8.0	6.2
Egypt	−293,704	93.8	−3.1	5.6
Romania	−296,370	19.8	−15.0	5.8
Georgia	−296,658	3.7	−79.8	–
Mexico	−312,575	125.9	−2.5	6.3
Morocco	−320,646	34.8	−9.2	5.8
Nigeria	−324,895	181.2	−1.8	5.0
Iran	−415,206	79.4	−5.2	5.0
Libya	−435,969	6.2	−69.9	–
Spain	−566,000	46.4	−12.2	7.1
Philippines	−682,548	101.7	−6.7	6.6
Indonesia	−866,134	258.2	−3.4	6.4
China	−1,724,309	1371.2	−1.3	5.6
India	−2,672,041	1309.1	−2.0	5.9

Source: Calculations based on net migration data from the 2019 World Development Indicators (The World Bank 2019). Data on the measure of economic freedom (EFW30) are from Montesinos (2019)
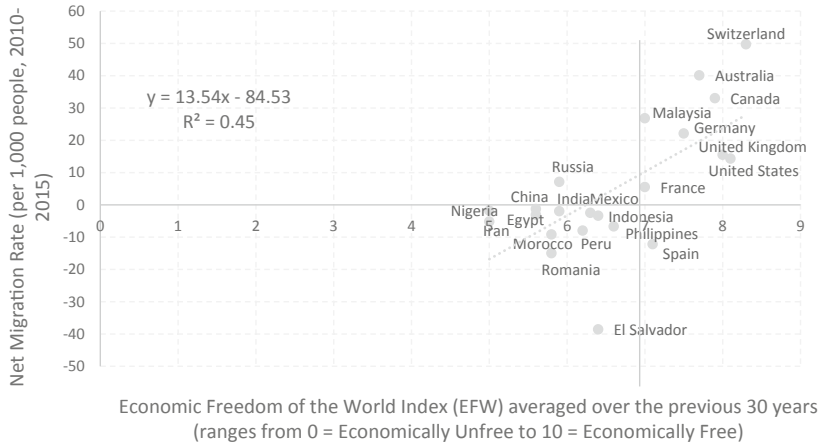
Fig. 6.2 Net migration rates and quality of economic institutions across top 15 and bottom 15 countries by net migration flows (2010–2015) (*Source* Chart and calculations are based on data from The World Bank's World Development Indicators [The World Bank 2019], and Hugo Montesinos [2019])

fundamental role in motivating an immigrant entrepreneur's decision to choose country A over country B.

As a measure of the quality of the economic institutions or the liberty enjoyed by entrepreneurs within a national context, I use the Economic Freedom of the World Index (EFW) published by the Fraser Institute (Gwartney et al. 2016). This index ranges from 0 (least free) to 10 (most free), and includes 42 indicators grouped in 5 main areas: (1) Government Size, (2) Legal System and Protection of Property Rights, (3) Access to Sound Money, (4) Freedom to Trade Internationally, and (5) Regulation of Credit, Labor, and Business. If higher degrees of liberty or economic freedom in a destination country are to foster immigrant entrepreneurship, then we should observe a positive correlation between net migration rates with the EFW rankings in Table 6.1. The data presented in Table 6.1 and illustrated in Fig. 6.2 indeed support the hypothesized positive association between net migration rates, and by inference net immigrant entrepreneurship rates, and the quality of economic institutions or the degree of liberty in the country of destination. Countries with better quality economic institutions are associated with higher rates of net migration. By inference, countries with better

quality institutions attract more innovative immigrant entrepreneurs. Countries that rank high in terms of their 2015 EFW index (e.g., Switzerland, the United States, the United Kingdom, Australia, and Canada, as shown in Table 6.1) also rank high in terms of their 2010–2015 net migration rates. Similarly, countries that rank low in terms of their 2015 EFW index (e.g., Romania, Morocco, India, Mexico, and the Philippines) tend to rank low in terms of their net migration rates (i.e., negative net migration rates). See Table 6.1 and Fig. 6.2.

Most of the countries that have a high quality of economic institutions are typically OECD, developed countries, or economies that have recently undergone significant liberal economic reforms. Overall, I conclude that liberty seems to matter to immigrants because several of the countries with the highest rates of net migration are also among the countries with the highest degree of economic freedom. Creative immigrant entrepreneurs, as a subset of the global supply of immigrants, are individuals for whom the quality economic institutions should matter even more.

Data on Net Migration and Dignity for Entrepreneurs

Dignity, in the comparative-institutional framework of this chapter, represents the degree of cultural support in the form of social praise and acknowledgment enjoyed by entrepreneurs in a country. My argument is that the quality of the cultural and social-moral norms and attitudes toward entrepreneurship and innovations matters to innovative immigrant entrepreneurs. Dignity or social praise matters to creative entrepreneurs more than it does to the general pool of entrepreneurs and immigrants. To illustrate the dignity of entrepreneurs, I consider five different measures of culture and social-moral norms toward entrepreneurship and innovation in society. Four measures come from the Global Entrepreneurship Monitor's 2017/2018 Annual Report (Global Entrepreneurship Monitor 2018), while the fifth measure comes from Hofstede's study on national cultural dimensions (Hofstede 2001).

Do countries experiencing the most net flows of immigrants also have societies with high praise and enthusiasm for entrepreneurs and entrepreneurship as a career choice? Conversely, do countries experiencing the least flows of net immigrants also have societies with low praise and enthusiasm for entrepreneurs and entrepreneurship as a career choice? To

answer these questions, I consider the following variables from the Global Entrepreneurship Monitor (GEM):

1. High Status to Successful Entrepreneurs Rate, measuring "the percentage of 18-64 years old in the population who agree with the statement that in their country, successful entrepreneurs receive a high status";
2. Entrepreneurship as a Good Career Choice Rate, measuring "the percentage of 18-64 years old in the population who agree with the statement that in their country, most people consider starting a business as a desirable career choice";
3. Innovation, measuring "the percentage of those involved in Total Entrepreneurial Activity who indicate that their product or service is new to at least some customers AND that few/no businesses offer the same product";
4. Cultural and Social Norms Toward Entrepreneurship, measuring "the extent to which social and cultural norms encourage or allow actions leading to new business methods or activities that can potentially increase personal wealth and income."

Table 6.2 summarizes the GEM statistics for the top 15 (panels A and C) and bottom 15 (panels B and D) countries according to the rate of population with favorable answers to the survey questions on (1) the high status to successful entrepreneurs (panels A and B) and (2) entrepreneurship as a desirable career choice (panels C and D).

Panel A of Table 6.2 includes four highest recipients of net migrants from the top 15 countries listed in Table 6.1: The United States, the United Kingdom, South Africa, and the United Arab Emirates. Panel B of Table 6.2 also includes four countries from among the 15 countries with the lowest net migration rates: Peru, India, Mexico, Spain. The differences could be partially attributed to measurement error and could be better understood by investigating the meaning of the phrase "successful entrepreneurs" across societies, along with other unobserved factors.

In terms of entrepreneurship as a desirable career choice, Panel C includes three of the top 15 countries in Table 6.1: Malaysia, Saudi Arabia, and South Africa, while Panel D comprises four of the bottom 15 countries in Table 6.1: Spain, India, Mexico, and Iran.

Table 6.2 High status to successful entrepreneurs, and perception of entrepreneurship as a good career choice, top 15 and bottom 15 countries (2017)

Country	High status to successful entrepreneurs	Country	Entrepreneurship as a good career choice
Panel A: Top 15 countries		Panel C: Top 15 countries	
1 United Arab Emirates	87.77	1 Guatemala	91.91
2 Israel	86.07	2 Madagascar	83.62
3 Egypt	82.01	3 United Arab Emirates	82.73
4 Ireland	81.88	4 Netherlands	81
5 Indonesia	80.95	5 Poland	79.26
6 Kazakhstan	80.11	6 Malaysia	77.06
7 Iran	79.4	7 Egypt	75.94
8 Germany	77.9	8 Morocco	75.81
9 Madagascar	77.78	9 Thailand	74.72
10 Qatar	77.32	10 Chile	73.76
11 United Kingdom	75.6	11 Taiwan	71.08
12 United States	75.49	12 Indonesia	70.01
13 Colombia	75.34	13 Saudi Arabia	69.66
14 South Africa	74.86	14 South Africa	69.36
15 Vietnam	74.77	15 Colombia	68.42
Panel B: Bottom 15 countries		Panel D: Bottom 15 countries	
38 Chile	62.87	38 Estonia	54.22
39 Peru	62.86	39 Australia	53.87
40 Cyprus	61.53	40 Spain	53.83
41 Ecuador	60.68	41 Sweden	53.6
42 Taiwan	60.13	42 Ireland	53.24
43 Slovakia	59.99	43 Switzerland	53.02
44 Latvia	58.54	44 India	52.96
45 India	56.18	45 Germany	51.31
46 Mexico	52.34	46 Mexico	50.67
47 Puerto Rico	52.3	47 Iran	48.28
48 Japan	51.96	48 Slovakia	47.55
49 Uruguay	51.94	49 South Korea	47.24
50 Spain	47.88	50 Luxembourg	42.98
51 Croatia	47.71	51 Japan	24.27
52 Argentina	47.43	52 Puerto Rico	22.56

Source: GEM Data (Global Entrepreneurship Monitor 2018). National Attitudes Towards Entrepreneurship based on GEM Survey Data, Report 2017/2018.

Table 6.3 presents data on two more GEM alternative measures relevant to the national culture toward entrepreneurship and innovation worth investigating: the perception of cultural and social norms, and the perception of business innovation.

Measuring the local culture toward entrepreneurship using GEM's social and cultural norms survey results, we find five of the top 15 countries in Table 6.3 overlapping with the top 15 highest recipients of net migrant flows in the world (Table 6.1). We can see a similar overlap in terms of the perception of innovativeness among active businesses and net migration rates. Comparing and contrasting the bottom 15 countries in terms of social and cultural norms and innovativeness, the overlap is small.

Net Migration Rates, Economic Freedom, and Cultural Norms Toward Entrepreneurship

Mapping together the key variables examined so far can help us visualize if indeed the data pattern supports the liberty-dignity conjecture. To illustrate the full picture of the framework with data, Fig. 6.3 shows, in a bubble chart, the relationship between (a) net migration rates per 1000 people, (b) economic institutions, and (c) cultural and social norms toward entrepreneurship. The bubble chart is a multidimensional representation of the relationship between the three variables. The cultural and social norms are depicted on the vertical axis representing one dimension. The economic institutions are depicted on the horizontal axis representing a second dimension. The net migration rate per 1000 people in a specific country is depicted by the size of the bubbles, representing yet a third dimension. Because net migration rates are negative for countries with a lower number of immigrants compared to emigrants, the data was split in two: the red bubbles represent countries with positive net migration rates, while the green bubbles represent countries with negative net migration rates. To a degree, the color of the bubbles represents the fourth dimension in this chart. By recreating Fig. 6.3 in different years, one could see the evolution (or persistence) of the illustrated pattern and even visualize a fifth dimension (time). Doing so would also serve as an empirical robustness check for the liberty-dignity framework in understanding the flows of innovative immigrant entrepreneurs.

If the Liberty-Dignity conjecture is to be supported empirically, the bubble chart should illustrate patterns in favor of the critical directions

Table 6.3 Innovation, and cultural and social norms based on GEM survey data. Top 15 and bottom 15 countries (2017)

	Country	Cultural and Social norms		Country	Innovation
	Top 15 countries			Top 15 countries	
1	Israel	4.28	1	Luxembourg	47.94
2	United Arab Emirates.	4.06	2	Chile	47.58
3	United States	4.03	3	India	46.88
4	Netherlands	4.01	4	Lebanon	41.89
5	Estonia	3.86	5	Canada	41.3
6	Vietnam	3.62	6	Guatemala	39.16
7	Indonesia	3.56	7	Cyprus	38.63
8	Canada	3.55	8	Austria	37.02
9	Colombia	3.4	9	Ireland	35.75
10	Taiwan	3.37	10	United States	33.99
11	Peru	3.3	11	Sweden	33.71
12	United Kingdom	3.28	12	China	33.06
13	China	3.23	13	Israel	32.9
14	Switzerland	3.23	14	Argentina	32.17
15	Lebanon	3.16	15	Switzerland	31.68
	Bottom 15 countries			Bottom 15 countries	
40	Luxembourg	2.5	35	United Kingdom	21.63
41	Greece	2.49	36	Taiwan	18.76
42	Iran	2.44	37	Angola	17.8
43	Bosnia and Herzegovina	2.4	38	Thailand	17.8
44	Egypt	2.38	39	Iran	17.23
45	Italy	2.38	40	Colombia	16.07
46	Madagascar	2.33	41	Indonesia	15.36
47	Spain	2.33	42	Bulgaria	14.89
48	Slovenia	2.3	43	Morocco	14.88
49	Japan	2.26	44	Madagascar	13.38
50	Brazil	2.19	45	Sudan	13.37
51	Morocco	2.16	46	Poland	12.17
52	Slovakia	1.98	47	Panama	10.47
53	Uruguay	1.95	48	Russia	8.09
54	Croatia	1.8	49	Brazil	3.71

Source GEM Data (Global Entrepreneurship Monitor 2018)

Fig. 6.3 Net migration rates (2010–2015), economic freedom of the world (2016), and cultural and social norms towards entrepreneurship (2017) (*Source* Calculations and illustration are based on data from The World Bank [2019], The Fraser Institute [Gwartney et al. 2016], and The Global Entrepreneurship Monitor [2018])

preliminarily mapped in Fig. 6.1. Taking note of the apparent outliers, like Lebanon, a country receiving many more refugees from the countries with conflict in the region, we see two clear patterns supporting the conjecture: (a) most countries with positive net migration rates (red bubbles) are located in the upper-right corner of the chart, in the High Liberty-High Dignity corner with the highest degrees of both economic freedom and socio-cultural support toward entrepreneurs; and (b) most countries with negative net migration rates (green bubbles) are located mostly closer to the lower-left corner of the chart, in the Low Liberty–Low Dignity corner, with the lowest degrees of economic freedom and low to mediocre levels of socio-cultural support for entrepreneurs. Accounting for other possible outliers, like Argentina, we could provide sensible explanations based on the country's history, macroeconomic characteristics, and events in its proximity. For example, Argentina's Gross

Domestic Product per capita is relatively high compared to other countries in South America. Second, Argentina continues to receive relatively high numbers of refugees, given the ongoing political and humanitarian crisis in Venezuela. Addressing other outliers would require a case by case approach, subject to future advancements of this study. Overall, the data seem to support the Liberty-Dignity conjecture of this chapter that migrant entrepreneurs, particularly innovative migrant entrepreneurs, as a subset of net migrants, are more likely to move toward destinations with high degrees of economic freedom and societal support toward of their talents, aspirations, and the novelties and opportunities they generate.

Although the patterns in the data visualized are promising, we must acknowledge the limitations and possible biases in measurements due to the differences in data sources, assumptions, and data gathering methodologies. Further investigations are necessary to be able to derive more definitive conclusions. For example, in future advancements of the relationships in this study, a way to mitigate some of the unexplained outliers would be to investigate alternative or complementary proxies for the social praise or dignity conferred to entrepreneurs in society. For example, three of Geert Hofstede's six cultural dimensions (Hofstede 2001) that may apply to entrepreneurship and innovation are (1) individualism, defined as the extent to which people feel independent, as opposed to being interdependent as members of larger wholes, (2) long-term orientation, dealing with change, and (3) uncertainty avoidance, defined as dealing with a society's tolerance for uncertainty and ambiguity. Similarly, instead of the EFW, the World Bank's Ease of Doing Business Index could be used as a proxy for liberty.

Despite the potential limitations, this framework could help explain the allocation of the global supply of innovative entrepreneurs of the last century (1920–2020) and help inform predictions about the flows of creative minds in the future. Given the recent transportation-communication revolution (Connors et al. 2020), the allocation of the global supply of creative entrepreneurs is expected to happen faster and more efficiently. The underlying implication of this trend is the increasing necessity of inclusive policies, institutions, and culture, to capitalize on the growth-propelling power of the most productive and innovative individuals in the world.

CONCLUSION

This chapter explored the relationship between the formal institutional environments and the social-cultural norms and attitudes toward entrepreneurial activities across nations on one side, and the direction of net migration flows, on the other side. The purpose is to better understand the modern phenomenon of creative immigrant entrepreneurship. Unlike native entrepreneurs, immigrant entrepreneurs compare and contrast the payoffs to entrepreneurial activity across different national contexts before deciding where to immigrate to start a business. Thus, an alternative comparative-institutional framework of analysis, highlighting the importance of the comparative-institutional context in shaping immigrant entrepreneurship toward productive and innovative activities, is necessary for understanding the phenomenon of creative immigrant entrepreneurship.

In a global, comparative-institutional context, the direction of the flows of immigrant entrepreneurs is most likely from national institutional contexts of lower quality to national institutional contexts of higher quality, and from cultures with low praise for entrepreneurs to cultures with high praise and honor for entrepreneurs. Preliminary data from The Global Entrepreneurship Monitor, The World Bank, and The Fraser Institute support the comparative liberty–dignity conjecture advanced in this chapter. Nations with elevated quality of economic institutions and socio-cultural and moral support for entrepreneurs exhibit the largest flows of net migrants in general, and proportionately the largest inflows of innovative immigrant entrepreneurs in particular. Moreover, high degrees of dignity and low degrees of economic freedom in the country of origin combined with high degrees of both economic freedom and dignity expected in the country of destination has direct implications for the migrant entrepreneurs and the nations that end up hosting (or losing) them. The creative immigrant entrepreneurs will benefit directly from the inclusive institutional and cultural environment of the host country. The host countries will capitalize on the growth-propelling power of the creative immigrant entrepreneurs. In contrast, the countries of origin will lose the opportunity to capitalize on the creative powers generated by their own citizens.

The preliminary evidence supporting my Liberty-Dignity conjecture in this chapter can be inferred by merely looking at the broad data figures. Countries in the top-right corner of Figs. 6.1 and 6.3 tend to receive the

most immigrants (positive net migration) and therefore attract a larger share of the global supply of creative immigrant entrepreneurs. Overall, the data support that individuals in developing countries with low levels of liberty and dignity seem to choose to migrate to countries with high levels of liberty and dignity.

To conclude, the allocation of the global supply of creative entrepreneurs is a function of the relative differences across institutional and cultural contexts in the world and the differential payoffs associated with them. In an increasingly open, technologically competitive world, where new ideas matter, a smart strategy for the governments of countries like the United States wishing to attract innovative entrepreneurs is to use the comparative Liberty-Dignity framework to identify and address the competitive strengths and weaknesses in their policies and institutions in a way that turns the balance in the battle for the world's most productive and innovative minds in their favor.

References

Acs, Zoltan J., David B. Audretsch, and R.J. Strom. 2009. *Entrepreneurship, Growth, and Public Policy*. New York: Cambridge University Press.

Akcigit, Ufuk, John Grigsby, and Tom Nicholas. 2017. Immigration and the Rise of American Ingenuity. *American Economic Review* 107 (5): 327–331.

Andersson, David E. 2005. The Spatial Nature of Entrepreneurship. *The Quarterly Journal of Austrian Economics* 8 (2): 21–34.

Anderson, S., and M. Platzer. 2006. American Made: The Impact of Immigrant Entrepreneurs and Professionals on U.S. Competitiveness. Public Education Institute at The Immigrant Learning Center.

Audretsch, David, and Maryann Feldman. 1996. R&D Spillovers and the Geography of Innovation and Production. *American Economic Review* 86 (3): 630–640.

Baughn, Christopher C., and Kent E. Neupert. 2003. Culture and National Conditions Facilitating Entrepreneurial Start-Ups. *Journal of International Entrepreneurship* 1 (3): 313–330.

Baumol, William J. 1990. Entrepreneurship: Productive, Unproductive, and Destructive. *Journal of Political Economy* 98 (5): 893–921.

Boettke, Peter. 1996. Why Culture Matters: Economics, Politics and the Imprint of History. *Nuova Economia e Storia* 3: 189–214.

Boettke, Peter J., and Christopher J. Coyne. 2009. Context Matters: Institutions and Entrepreneurship. *Foundations and Trends in Entrepreneurship* 5 (3): 135–209.

Boettke, Peter J., Christopher J. Coyne, Peter T. Leeson, and Frederic Sautet. 2005. The New Comparative Political Economy. *The Review of Austrian Economics* 18 (3): 281–304.

Boettke, Peter, and Alexander Fink. 2011. Institutions First. *Journal of Institutional Economics* 7 (4): 499–504.

Boudreaux, Christopher J., Boris N. Nikolaev, and Peter Klein. 2019. Sociocognitive Traits and Entrepreneurship: The Moderating Role of Economic Institutions. *Journal of Business Venturing* 34 (1): 178–196.

Brown, David J., John S. Earle, Mee Jung Kim, and Kyung Min Lee. 2020. Immigrant Entrepreneurs and Innovation in the U.S. High-Tech Sector. In *The Roles of Immigrants and Foreign Students in US Science, Innovation, and Entrepreneurship*, ed. Ina Ganguli, Shulamit Kahn, and Megan MacGarvie, 149–171. Chicago: University of Chicago Press.

Caplan, Bryan. 2007. Immigration Restrictions: A Solution in Search of a Problem. *The Economist*.

Clemens, Michael. 2011. Economics and Emigration: Trillion-Dollar Bills on the Sidewalk? *Journal of Economic Perspectives* 25 (3): 83–106.

Connors, Joseph, James Gwartney, and Hugo Montesinos. 2020. The Transportation-Communication Revolution: 50 Years of Dramatic Change in Economic Development. *The Cato Journal* 40 (1): 153–198.

Docquier, Frederic, and Hillel Rapoport. 2012. Globalization, Brain Drain, and Development. *Journal of Economic Literature* 50 (3): 681–730.

Economist. 2012. Visas for Entrepreneurs: Where Creators Are Welcome: Australia, Canada, and Even Chile Are More Open Than America. *The Economist*, June 9. Accessed February 22, 2020. https://www.economist.com/business/2012/06/09/where-creators-are-welcome.

Faría, Hugo J., and Hugo M. Montesinos. 2009. Does Economic Freedom Cause Prosperity? An IV approach. *Public Choice* 141: 103–127.

Faría, Hugo J., Daniel R. Morales, Natasha Pineda, and Hugo M. Montesinos. 2012. Can Capitalism Restrain Public Perceived Corruption? Some Evidence. *Journal of Institutional Economics* 8 (4): 511–535.

Faría, Hugo J., Hugo M. Montesinos-Yufa, Daniel R. Morales, César G. Aviles B., and Osmel Brito-Bigott. 2013. Does Corruption Cause Encumbered Business Regulations? An IV Approach. *Applied Economics* 45 (1): 65–83.

Global Entrepreneurship Monitor. 2018. The 2017/2018 Global Entrepreneurship Monitor (GEM) Report. The Global Entrepreneurship Research Association (GERA). https://www.gemconsortium.org/report/gem-2017-2018-global-report.

Gwartney, James D., Robert Lawson, and Joshua Hall. 2016. Economic Freedom of The World: 2016 Annual Report. The Fraser Institute.

Hall, Robert E., and Charles I. Jones. 1999. Why Do Some Countries Produce So Much More Output Per Worker Than Others? *The Quarterly Journal of Economics* 114 (1): 83–116.

Hall, Joshua C., and Robert A. Lawson. 2014. Economic Freedom of the World: An Accounting of the Literature. *Contemporary Economic Policy* 32 (1): 1–19.

Hart, David M., and Zoltan J. Acs. 2011. High-Technology Immigrant Entrepreneurship in the U.S. *Economic Development Quarterly* 25 (2): 116–129.

Hofstede, Geert. 2001. *Culture's Consequences: Comparing Values, Behaviors, Institutions, and Organizations Across Nations*. Thousand Oaks, CA: Sage.

Hunt, Jennifer, and Marjolaine Gauthier-Loiselle. 2010. How Much Does Immigration Boost Innovation? *American Economic Journal: Macroeconomics* 2 (2): 31–56.

Kahn, Shulamit, and Megan MacGarvie. 2014. How Important Is U.S. Location for Research in Science? *Review of Economics and Statistics* 98 (2): 397–414.

Kerr, William. 2008. Ethnic Scientific Communities and International Technology Diffusion. *Review of Economics and Statistics* 90 (3): 518–537.

———. 2010. The Agglomeration of U.S. Ethnic Inventors. In *Agglomeration Economics*, ed. Edward Glaeser, 237–276. Chicago: University of Chicago Press.

Kirzner, Israel M. 1978. *Competition and Entrepreneurship*. Chicago: University of Chicago Press.

———. 1979. *Perception, Opportunity, and Profit: Studies in the Theory of Entrepreneurship*. Chicago: University of Chicago Press.

———. 1997. Entrepreneurial Discovery and the Competitive Market Process: An Austrian Approach. *Journal of Economic Literature* 35 (1): 60–85.

———. 1999. Creativity and/or Alertness: A Reconsideration of the Schumpeterian Entrepreneur. *The Review of Austrian Economics* 11: 5–17.

———. 2009. The Alert and Creative Entrepreneur: A Clarification. *Small Business Economics* 32 (2): 145–152.

Kreft, Steven F., and Russell S. Sobel. 2005. Public Policy, Entrepreneurship, and Economic Freedom. *Cato Journal* 25 (3): 595–616.

Lévesque, Moren, and Maria Minniti. 2011. Age Matters: How Demographics Influence Aggregate Entrepreneurship. *Strategic Entrepreneurship Journal* 5: 269–284.

Light, Ivan H. 1972. *Ethnic Enterprise in America: Business and Welfare Among Chinese, Japanese, and Blacks*. Berkeley: University of California Press.

Light, Ivan H., and Parminder Bhachu. 1992. *Immigration and Entrepreneurship: Culture, Capital, and Ethnic Networks*. London: Routledge.

Lissoni, Francesco, Stefano Breschi, and Gianluca Tarasconi. 2014. Inventor Data for Research on Migration and Innovation: A Survey and a Pilot. Economic

Research Working Paper No. 17, World Intellectual Property Organization (WIPO).

McCloskey, Deirdre N. 2011. *Bourgeois Dignity: Why Economics Can't Explain the Modern World*. Chicago: University of Chicago Press.

Minniti, Maria. 2008. The Role of Government Policy on Entrepreneurial Activity: Productive, Unproductive, or Destructive? *Entrepreneurship Theory and Practice* 32 (5): 779–790.

Minniti, Maria, Andrew Zacharakis, Stephen Spinelli, Mark P. Rice, and Timothy G. Habbershon. 2006. *Entrepreneurship: The Engine of Growth*. Westport: Greenwood Publishing Group.

Montesinos, Hugo M. 2019. On Geography, Institutions, Human Capital, and Economic Development. Doctoral Dissertation, Florida State University.

Murphy, Kevin M., Andrei Shleifer, and Robert W. Vishny. 1991. The Allocation of Talent: Implications for Growth. *The Quarterly Journal of Economics* 106 (2): 503–530.

No, Y., and J.P. Walsh. 2010. The Importance of Foreign-Born Talent for U.S. Innovation. *Nature Biotechnology* 28 (3): 289–291.

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

Olson, Mancur. 1996. Big Bills Left on the Sidewalk: Why Some Nations Are Rich and Others Poor. *Journal of Economic Perspectives* 10 (2): 3–24.

Ortmans, Jonathan. 2018. *The Little Hope for Policy to Attract Entrepreneurial Talent*. The Kauffman Foundation.

Romer, Paul M. 1990. Endogenous Technological Change. *Journal of Political Economy* 98 (5): S71–S102.

Sautet, Frederic E. 2002. Kirznerian Economics: Some Policy Implications and Issues. *Journal des Economistes et des Etudes Humaines* 12 (1): 131–151.

Saxenian, A. 1999. *Silicon Valley's New Immigrant Entrepreneurs*. San Francisco: Public Policy Institute of California.

Schumpeter, Joseph A. 1942. Capitalism, Socialism, and Democracy. University of Illinois at Urbana-Champaign's Academy for Entrepreneurial Leadership Historical Research Reference in Entrepreneurship.

Shughart, William F., and Diana W. Thomas. 2015. Regulatory Rent Seeking. In *Companion to the Political Economy of Rent Seeking*, ed. R. D. Congleton and A. L. Hillman. Northampton, MA: Edward Elgar.

Simarasl, Nastaran, and David Williams. 2016. Highly-Educated Immigrant Entrepreneurs' Start-Up Location Decisions. Frontiers in Entrepreneurship Research.

Smith, Adam. 2008 [1776]. *An Inquiry into the Nature and Causes of the Wealth of Nations*. Hamburg: Management Laboratory Press.

Solow, Robert M. 1956. A Contribution to the Theory of Economic Growth. *The Quarterly Journal of Economics* 70 (1): 65–94.

Stangler, D., and J. Konczal. 2013. Give Me Your Entrepreneurs, Your Inno-
    vators: Estimating the Employment Impact of a Startup Visa. Ewing Marion
    Kauffman Foundation.
Stangler, Dane, and Jason Wiens. 2015. The Economic Case For Welcoming
    Immigrant Entrepreneurs. An Educational Policy Brief From The Ewing
    Marion Kauffman Foundation, Kauffman Foundation.
Storr, Henry V. 2009. Why the Market? Markets as Social and Moral Spaces.
    Journal of Markets & Morality 12 (2): 277–296.
The World Bank. 2019. Net Migration | Data Catalog. https://datacatalog.wor
    ldbank.org/net-migration-3. Accessed February 22, 2020.
United Nations. 2019. 2019 Revision of World Population Prospects. https://
    population.un.org/wpp/. Accessed February 22, 2020.
Wadhwa, Vivek, AnnaLee Saxenian, Ben A. Rissing, and Gary Gereffi. 2007.
    America's New Immigrant Entrepreneurs: Part I. Duke Science, Technology
    & Innovation Paper.

Economic Development Incentives: Fostering Productive or Unproductive Entrepreneurship?

John A. Dove

INTRODUCTION

Economic development incentives have a long history of usage across state and local governments. These incentives have been touted by public officials as a means to enhance and stimulate firm formation, job creation, entrepreneurship, and ultimately economic development. While the use of such incentives has ebbed and flowed over time, it appears that the employment of these various incentives has been on the rise over the past several decades, resulting in intensive competition between state and local governments as they attempt to attract firms and stimulate economic activity within their respective jurisdictions.

These developments have led to a growing body of literature that has evaluated the impact that such incentives have on various measures of economic wellbeing including economic growth (Bondonio and Engberg

J. A. Dove (✉)
Troy University, Troy, AL, USA
e-mail: jadove@troy.edu

2000; Greenbaum and Engberg 2004; Bondonio and Greenbaum 2007), firm formation (Hanson and Rohlin 2011a, b), and job creation (Rubin and Wilder 1989; Erickson and Friedman 1990; Papke 1994; Grasso and Crosse 1991; Logan and Barron 1991; Elvery 2009; Neumark and Kolko 2010; O'Keefe 2004). While some studies do find a positive relationship between economic development incentives and enhanced economic opportunity and growth, the bulk of the evidence suggests that such incentives tend to retard economic performance within a state or local jurisdiction (see Thomas [2011] for a fairly recent review of the literature).

However, an important issue in regard to these incentives—and one that is touted as being a major driver behind the provision of such benefits—is the impact those incentives have on entrepreneurship. For instance, the Delaware Prosperity Partnership, a joint private-public partnership, is tasked specifically with assisting aspiring entrepreneurs and growing small businesses (Goss 2017). Further, the state of Virginia explicitly pushes funding to incentivize entrepreneurial endeavors within the state, as do many local economic development boards (McGee 2017). Numerous other instances across state and local jurisdictions abound. Interestingly, there has been little in the way of formal analysis of the effect economic development incentives might have on entrepreneurial activity. This current study attempts to fill that void.

Specifically, to the extent that these development incentives are applied in a manner that can mimic capital markets, this should lead to increases in entrepreneurial activity, as suggested through anecdotal evidence above. Additionally, this paper dives deeper into this issue and applies insights derived from Baumol (1990) and assesses how such development incentives might influence various types of entrepreneurship and entrepreneurial formation, specifically whether the entrepreneurship that does develop is either productive or unproductive.

Here, if development incentives are being channeled by public officials into truly economically viable outlets, i.e., those outlets that would attract private capital through market signals of profit and loss, then this should spur productive entrepreneurial activity, and ultimately foster economic growth as suggested by Holcombe (1998). However, if such development incentives are distributed as a result of political motivations and connections, then this should incentivize rent-seeking behavior and lead to the development of unproductive entrepreneurial activity, compounded through the channels suggested by Coyne et al. (2010).

Specifically, as unproductive entrepreneurial endeavors prove successful, this increases the relative benefit for others to pursue such unproductive opportunities in a potentially self-perpetuating cycle. In other words, unproductive entrepreneurship begets more unproductive entrepreneurship. These two potential effects give rise to an interesting empirical question regarding the net effect of development incentives. This paper sets out to evaluate the extent to which such development incentives may influence entrepreneurial activity and importantly which type of entrepreneurial activity.

In order to carry out this exercise, I employ several measures of productive and unproductive entrepreneurship developed by Sobel (2008) and an index of non-tax state government economic incentive tools developed by Patrick (2014b) both of which will be discussed in greater detail below. Anticipating the results, more liberal availability of such non-tax incentives provided by state governments results in significantly lower levels of productive entrepreneurship and higher levels of unproductive entrepreneurship, with the overall effect culminating in lower net entrepreneurial productivity (the latter of which measures the returns to productive relative to unproductive entrepreneurship). These results are robust to several specifications. The policy implications stemming from these results would suggest that while proponents of economic development incentives are correct in their assessment that such incentives spur entrepreneurship, it appears that the entrepreneurship that is created is of the unproductive variety. This would suggest curbing and limiting the use of these incentives and applying more market-based approaches to fostering productive entrepreneurship.

The remainder of the chapter is organized as follows: section "Theory" develops the theory applied in the analysis, which is drawn from both Baumol (1990) and Coyne et al. (2010). Section "Data and Empirical Specification" discusses the data and empirical specification employed. Section "Results and Interpretation" presents and discusses the results along with providing policy implications that can be drawn from those results. Section "Conclusion" concludes.

Theory

The rationale behind economic development incentives tends to revolve around the effect they will have on economic growth for those jurisdictions employing them. Tied to this, is a strong desire to promote

entrepreneurship within a jurisdiction, to encourage economic growth and development. However, this gives rise to an important question: to the extent that such development incentives do promote entrepreneurship, which type is ultimately fostered?

Baumol (1990) indicates that there are several types of entrepreneurship: productive, unproductive, and destructive. Productive entrepreneurship is of the sort that is tied to market activity and channeling productive yet scarce resources to their highest valued use, driven by market prices and the profit and loss signals that result from that. This sort of entrepreneurship tends to promote economic growth and wealth creation, ensuring that resources are channeled to their highest valued use, and creating opportunities for more entrepreneurial activity to develop (Holcombe 1998). Unproductive entrepreneurship is of the sort that results from rent-seeking behavior associated with the political process. This form of entrepreneurship results in the transferring of resources and wealth rather than its actual creation.

Importantly, both types of entrepreneurship can be influenced by the relative payoffs and network effects that develop due to each type of entrepreneurship and accrue to the entrepreneur from either source (Coyne et al. 2010; Holcombe 1998). Specifically, the emergence of either type of entrepreneurship creates niche opportunities for additional entrepreneurs to pursue opportunities related to the initial profit opportunity and thereby provide new and innovative services tied to either form of entrepreneurship. As this process unfolds and the network effect is extended, it further changes the relative payoffs associated with either productive or unproductive entrepreneurship. For example, the development of the personal computer begets additional productive entrepreneurial opportunities to meet the needs associated with such a technological change and thus increasing the relative payout to pursuing such entrepreneurial activities.

This has important ramifications for economic development incentives. As noted, the anecdotal evidence (and academic literature that has evaluated these incentives) tends to consider the impact they have on economic outcomes like growth and job formation. Further, while a significant amount of anecdotal evidence suggests that fostering entrepreneurial activity is considered an important function being performed by these incentive deals, little formal work has been done to evaluate exactly how successful they are at promoting this goal. These issues surrounding the effect entrepreneurship has on the relative profitability of consecutive

entrepreneurial ventures along with the theory discussed above provide an important empirical question.

First, given the above it would be expected that as the prevalence and ease with which economic development incentives grow, this would increase entrepreneurial activity as proponents of such incentives would hope to achieve. However, a second and highly relevant question then is if this situation ultimately promotes the development of productive or unproductive entrepreneurship. To the extent that economic development incentives are capable of efficiently allocating capital to their highest valued use, then this should increase the relative payoff for pursuing productive entrepreneurial activity. In other words, the availability of such resources would act akin to another channel through which capital could be obtained for financing productive activities and would ultimately foster economic growth.

On the other hand, to the extent that such incentive packages and the ease with which they can be offered are ultimately allocated through the political process and political bargaining, then this would shift the relative payoff toward the pursuit of more rent-seeking activities and would ultimately foster the expansion of unproductive activities. Further, either form of entrepreneurship would be augmented through the network effects that would also develop, depending on how those resources are actually allocated.

While no academic research has evaluated these issues specifically, a number of academic studies have considered various other political economy issues behind economic development incentives. This research tends to find that larger, more politically powerful firms capture many of the benefits stemming from economic development incentives, creating significant economic inefficiencies. For instance, Greenbaum and Landers (2009) discuss how most incentive programs tend to be far too broad upon passing and then expand further after adoption, relative to what optimal theory would suggest. They attribute this to the logrolling necessary for enactment. Further, Jensen et al. (2015) suggest that while the uncertain economic benefits of development incentives are clear, the electoral incentives facing public officials provide a compelling rationale for their proliferation.

Finally, a considerable literature assesses the rent seeking and institutional aspects of economic development incentives. For instance, Jensen et al. (2015) find that elected mayors tend to be associated with significantly larger incentive awards and weaker oversight relative to appointed

city managers. Jansa and Gray (2016) find strong evidence that relatively larger firms making larger political contributions and incurring higher lobbying expenditures are more likely to receive development incentives. Overall, these political economy issues tend to further dampen any positive effects associated with targeted development incentives.

In summary, the above literature would suggest that relatively more unproductive entrepreneurship would be expected to emerge, however, this result is far from clear. To the author's knowledge there has been no formal evaluation of the type of entrepreneurial activities that ultimately result from economic development incentives. Therefore, the remainder of the paper is devoted to addressing these issues.

Data and Empirical Specification

Data for this study come from a number of sources, the most important of which are related to measures of the various types of entrepreneurship as discussed above and also economic development incentives. In regard to entrepreneurship this study applies several measures developed in Sobel (2008) that represent productive and unproductive entrepreneurship, along with a net entrepreneurial productivity score. Given that both productive and unproductive entrepreneurship are unobservable, Sobel (2008) derives several indices through proxies for either type of entrepreneurship.

In order to measure productive entrepreneurship, Sobel (2008) includes measures of per capita venture capital investment, per capita patents, the growth rate of self-employment activity, all firm establishment birth rates, and the birth rate of firms with 500 or more employees. These variables are averaged over several years, centered on 2000. Four measures of unproductive entrepreneurship are also applied, three of which evaluate the number of lobbying and political organizations residing within each state's capital and one measure of legal quality within a given state.

The subcomponents of each measure of productive and unproductive entrepreneurship are then indexed through a Borda Count, which normalizes these variables into two comparable measures ranging between "1" and "48," with a higher score indicating relatively more of the particular type of entrepreneurship. From there, it is possible to derive a "net entrepreneurial productivity score" (NEP) which is the difference between the return to productive relative to unproductive entrepreneurship. Thus, a positive NEP indicates that a particular state has relative

more productive to unproductive entrepreneurship. NEP scores range between a low of "−47" and a high of "47."

Data for state economic development incentives is drawn from Patrick (2014a) who develops an Incentives Environment Index (IEI). This index draws on state constitutional limits restricting both state and local public aid to private enterprise that are in place across the continental 48 states. The database covers all state constitutional constraints from 1970 to 2000, specifically derived from three constitutional clauses regarding public aid to private enterprise, which reflect non-tax economic development incentives. The index is specifically based on constitutional clauses governing the restrictions on the use of state and local public credit for the support of private enterprise, current appropriations for such aid, and also stock ownership clauses. Further, equal weight is given to each clause in constructing the index. Overall, the index is built such that a score of "0" would represent the most restrictive combination of clauses that could exist, with higher scores implying less restrictive (or more liberal) use of public aid to support private enterprise. In other words, a state with no restrictions at all would receive the highest score, which would imply the ability to provide completely unrestricted economic development incentives.

The three specific constitutional restrictions evaluated include credit clause restrictions (which dictate how and if a state or local government may use state credit to aid private enterprise) and if certain approval requirements exist before such aid can be extended. Current appropriations clauses shape whether and how a state government may use cash subsidies, land grants, public loans, or fund other similar activities. Finally, stock clauses limit the nature of the financial relationship between the public sector and private firms. They specifically govern the nature of private-public partnerships, investment in seed capital, and various other types of public cooperation or ownership. Thus, the index is based on six sub-indices (credit clause restrictions, current appropriation restrictions, and credit restrictions for state governments).

Based on these variables, I would expect that if more liberal state development incentive options were being channeled in a manner that approximates market allocation, then both productive entrepreneurship and NEP would be positively associated with the IEI index, while unproductive entrepreneurship would be negatively correlated. On the other hand, if more liberal development incentive options were channeled through the political process and increased rent-seeking opportunities,

then I would anticipate the opposite result. Figures 7.1, 7.2, and 7.3 provide a simple correlation between these three entrepreneurial variables and the IEI index.

Figure 7.1 shows the relationship between productive entrepreneurship and the IEI index, Fig. 7.2 includes unproductive entrepreneurship, while Fig. 7.3 uses the NEP scores. Here, Figs. 7.1 and 7.2 show a clear negative correlation between both productive entrepreneurship and the IEI as well as the NEP and IEI. Further, Fig. 7.2 shows a clear positive correlation between unproductive entrepreneurship and IEI. Thus, as the availability of economic development incentives becomes more permissible and liberal, it suggests that they are associated with growth in unproductive entrepreneurship and lower levels of productive entrepreneurship. Overall, this leads to lower levels of net entrepreneurial productivity.

In order to more thoroughly tease out causation, I evaluate the following cross-sectional econometric model:

$$\llbracket \text{Entrepreneurship} \rrbracket\_i = \alpha + \beta\_i \ \llbracket \text{IEI} \rrbracket\_i + \delta\_i\text{''} \ \beta\_2 + \varepsilon\_i \qquad (1)$$

Here $\llbracket \text{Entrepreneurship} \rrbracket$ _i represents each of the three measures of entrepreneurship (productive, unproductive, and the NEP) for each
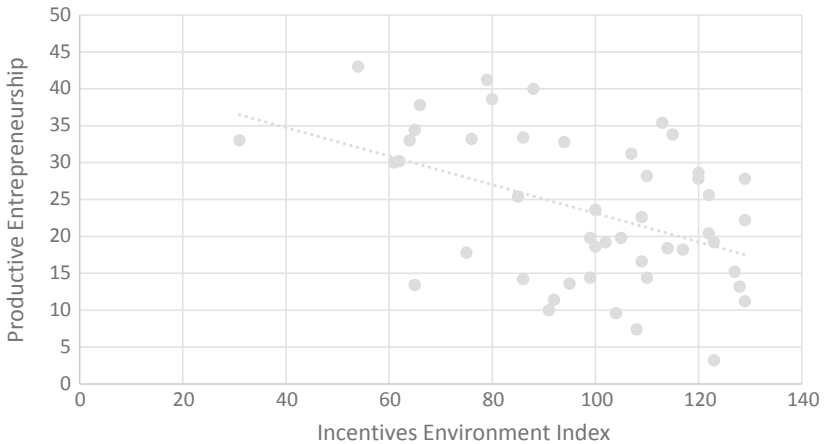
Fig. 7.1 Productive entrepreneurship and economic development incentives (*Note* Entrepreneurship measure from Sobel [2008], Incentives index from Patrick [2014a]. *Source* Author's creation)
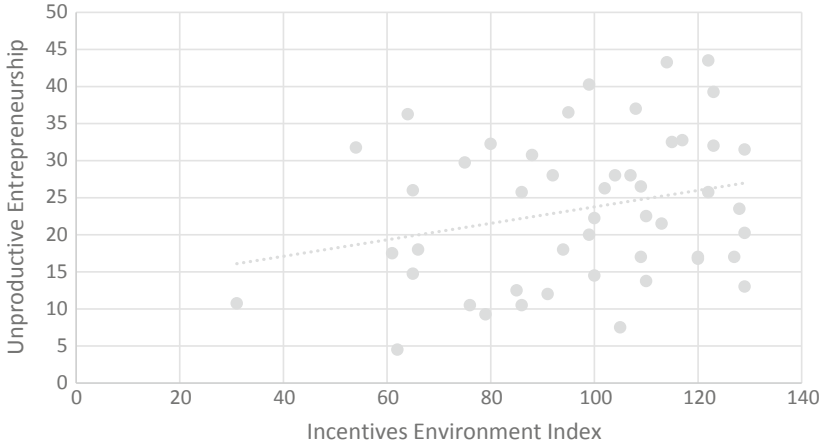
Fig. 7.2 Unproductive entrepreneurship and economic development incentives (*Note* Entrepreneurship measure from Sobel [2008], Incentives index from Patrick [2014a]. *Source* Author's creation)
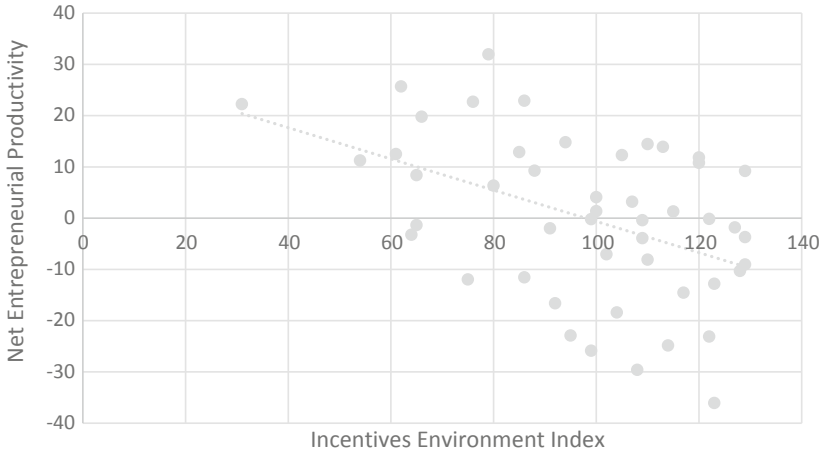
Fig. 7.3 NEP and economic development incentives (*Note* Entrepreneurship measure from Sobel [2008], Incentives index from Patrick [2014a]. *Source* Author's creation)

state i, while ⟦IEI⟧ _i represents the incentives index for each state i. δ_i‵’ is a vector of control variables, typical to the literature and includes the percentage of the population that is male, the percentage of the population with a bachelor's degree or higher, the unemployment rate by state, real per capita GDP, and regional dummies for each of the US Census regions (Northeast, Midwest, West, and South) to help control for as many unobservable regional characteristics that might influence entrepreneurship as possible. These latter variables are all averaged between 1995 and 2000, which loosely corresponds to the years averaged in calculating measures of entrepreneurship. Table 7.1 provides the summary statistics for each of these variables.

One final issue to address is the potential reverse causality that might exist between the types of entrepreneurship and economic development incentives. While no particularly strong instrument exists, as a second best I also include 10- and 20-year lagged values of the incentive index. This is done for two reasons. First, it can act as a second-best solution to issues of reverse causality, and second it can help indicate the extent to which

Table 7.1 Summary statistics

	Observations	*Mean*	*Std. Dev.*	*Min*	*Max*
Productive entrepreneurship	48	23.58	9.97	3.2	43
Unproductive entrepreneurship	48	23.51	10.00	4.5	43.5
NEP	48	0.078	15.67	−36.05	31.95
IEI	48	97.67	23.41	31	129
% Male	48	48.15	0.69	46.51	49.60
% Bachelor	48	23.60	4.27	15.58	32.94
Median Age	48	35.34	1.76	26.84	38.44
% White	48	84.49	9.23	61.60	97.55
Unemployment rate	48	4.34	1.01	2.65	7.48
Per capita GDP	48	42404	7037	30328	64828
Northeast	48	0.21	0.41	0	1
Midwest	48	0.25	0.44	0	1
West	48	0.25	0.44	0	1

Source Author's creation

persistence in the IEI might lead to even more productive or unproductive entrepreneurship, suggesting that network effects as discussed in Coyne et al. (2010) may develop and emerge over time.

Results and Interpretation

Table 7.2 presents the results for the observations centered on the year 2000 (the baseline specifications). Columns 1 through 3 apply the productive entrepreneurship scores as a dependent variable, columns 4 through 6 use the unproductive entrepreneurship scores, while columns 7 through 9 apply the NEP scores. Further, columns 1, 4, and 7 only include the IEI score, columns 2, 5, and 8 add the socioeconomic control variables, while columns 3, 6, and 9 include the regional dummy variables.

The results are quite consistent and corroborate the correlations presented in Figs. 7.1–7.3. Specifically, higher IEI scores are consistently associated with lower levels of productive entrepreneurship, with 2 specifications statistically significant (including regional dummies resulting in insignificance at conventional levels). Columns 4 through 6 clearly indicate that higher IEI scores are correlated with higher levels of unproductive entrepreneurship, again with 2 of 3 specifications significant (here column 5—the inclusion of socioeconomic variables—results in insignificance). Finally, columns 7 through 9 indicate that higher IEI scores are associated with lower levels of net entrepreneurial productivity, with all specifications statistically significant.

The coefficients are difficult to interpret given the makeup of each of the indices, however beta coefficients (presented in brackets for each of the main independent variables of interest) can provide some indication of the magnitude of those coefficients. Specifically, a one standard deviation increase in the IEI score results in productive entrepreneurship declining anywhere between 0.19 and 0.46 standard deviations depending on specification, unproductive entrepreneurship increasing between 0.17 and 0.33 standard deviations, and NEP declining between 0.32 and 0.46 standard deviations.

In order to quantify these magnitudes, consider the median state in each category, which is Tennessee for productive entrepreneurship (with a score of 22.6), Wisconsin for unproductive entrepreneurship (with a score of 23.5), and Minnesota for NEP (with a score of −0.15). Here, a one standard deviation increase in the IEI score would result in Tennessee falling to anywhere between 27th and 30th in the overall ranking of states.

Table 7.2 Productive, unproductive, and net entrepreneurial activity

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Productive	Productive	Productive	Unproductive	Unproductive	Unproductive	NEP	NEP	NEP
IEI	-0.194***	-0.141***	-0.0790	0.111*	0.0723	0.142**	-0.305***	-0.213**	-0.221**
	[-0.455]	[-0.331]	[-0.186]	[0.260]	[0.169]	[0.332]	[-0.330]	[-0.319]	[-0.455]
	(0.0490)	(0.0437)	(0.0548)	(0.0599)	(0.0684)	(0.0690)	(0.0716)	(0.0857)	(0.100)
% Male		-2.589*	-3.010		-4.173	-3.524		1.584	0.515
		(1.419)	(1.928)		(2.557)	(3.149)		(3.142)	(3.950)
% Bachelor		0.833***	0.636***		0.431	0.0601		0.402	0.576
		(0.226)	(0.228)		(0.364)	(0.365)		(0.385)	(0.462)
Median age		-2.059***	-1.668***		-0.990	-0.567		-1.069	-1.101
		(0.410)	(0.478)		(0.665)	(0.786)		(0.757)	(0.861)
% White		0.0592	0.120		0.374**	0.329*		-0.315*	-0.209
		(0.0984)	(0.128)		(0.159)	(0.191)		(0.187)	(0.241)
Unemployment rate		2.421***	1.003		0.505	-1.641		1.916	2.645
		(0.880)	(0.882)		(1.300)	(1.611)		(1.578)	(1.912)
Per capita GDP		0.000487***	0.000679***		-0.000728***	-0.000589**		0.00122***	0.00127***
		(0.000146)	(0.000180)		(0.000242)	(0.000265)		(0.000277)	(0.000359)
Northeast			-4.266			0.132			-4.398
			(3.455)			(5.236)			(6.437)
Midwest			-7.014**			-7.090*			0.0757
			(2.834)			(3.813)			(5.396)
West			2.428			4.780			-2.352
			(3.855)			(4.304)			(5.599)
Observations	48	48	48	48	48	48	48	48	48
R-squared	0.207	0.705	0.763	0.068	0.339	0.426	0.207	0.636	0.643

Note Robust standard errors in parentheses. Constant suppressed in output tables. Beta coefficients included [in brackets] for the IEI variable. ***$p <$ 0.01, **$p <$ 0.05, *$p <$ 0.1
Source Author's creation

Wisconsin would increase in its ranking of unproductive entrepreneurship roughly 5 spots to 20th, while Minnesota would decline roughly 9 spots to 33rd in overall NEP ranking.

Finally, I consider how 10- and 20-year lagged values of the IEI scores influence entrepreneurial activity. Again, these lagged results are included for several reasons. First, while the IEI scores are highly persistent across time, it still may be the case that the initial findings are biased as a result of reverse causality. Lagged IEI scores can help alleviate this issue. Additionally, including lagged values can also help explain whether such policies create network effects and lead to persistence in the types of entrepreneurship that develop. Results for the 10-year lag are reported in Table 7.3 and 20-year lag reported in Table 7.4. Each table follows the layout of Table 7.2.

As can be seen, the results are extremely similar to those reported in Table 7.2. Specifically, the signs and significance are the same as those in Table 7.2, while the magnitudes of the beta coefficients are also similar across tables and specifications.

Overall then, these findings suggest that the greater availability and more liberal opportunities to employ and offer economic development incentives are negatively related to productive entrepreneurship and net entrepreneurial productivity and positively related to unproductive entrepreneurial activity. These results are suggestive of several policy implications. First, proponents of economic development incentives are in fact correct that such incentives can stimulate entrepreneurial activity. However, it seems that it is actually unproductive entrepreneurship that is stimulated, which is in all likelihood the opposite of the intent or desire of those proponents. My findings would thus suggest that rather than being allocated in a manner that mimics market allocation, the opportunity to capitalize on such incentives stimulates greater rent-seeking behavior. Additionally, the results from the lagged IEI scores also indicate persistence and potential network effects that become entrenched within an economy due to the prevalence of such incentives and in line with the theoretical results of Coyne et al. (2010).

Given the above two findings then, it would seem that the only effective way to limit these unintended outcomes and to stimulate greater productive entrepreneurial activities would be to better limit the scope of authority that many state and local governments are currently constitutionally granted to promote and aid private entities with the use of public resources. With greater limits in place this should, over time, change

Table 7.3 Productive, unproductive, and net entrepreneurial activity (1990)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Productive	Productive	Productive	Unproductive	Unproductive	Unproductive	NEP	NEP	NEP
IEI	-0.192**	-0.139***	-0.0760	0.111*	0.0747	0.145**	-0.303***	-0.213**	-0.221**
	[-0.452]	[-0.326]	[-0.179]	[0.260]	[0.175]	[0.341]	[-0.454]	[-0.319]	[-0.331]
	(0.0490)	(0.0442)	(0.0557)	(0.0598)	(0.0682)	(0.0689)	(0.0717)	(0.0861)	(0.102)
% Male		-2.536*	-2.969		-4.189	-3.626		1.653	0.657
		(1.417)	(1.941)		(2.543)	(3.125)		(3.120)	(3.934)
% Bachelor		0.828***	0.629***		0.431	0.0604		0.397	0.569
		(0.227)	(0.229)		(0.364)	(0.364)		(0.383)	(0.459)
Median age		-2.045***	-1.659***		-1.003	-0.571		-1.043	-1.088
		(0.416)	(0.479)		(0.664)	(0.790)		(0.768)	(0.869)
% White		0.0550	0.118		0.376**	0.332*		-0.321*	-0.215
		(0.0983)	(0.127)		(0.158)	(0.189)		(0.186)	(0.239)
Unemployment rate		2.395**	0.977		0.541	-1.608		1.854	2.585
		(0.902)	(0.886)		(1.294)	(1.598)		(1.586)	(1.897)
Per Capita GDP		0.000491***	0.000684***		-0.000727***	-0.000587**		0.00122***	0.00127***
		(0.000146)	(0.000180)		(0.000241)	(0.000265)		(0.000276)	(0.000358)
Northeast			-4.296			0.0452			-4.341
			(3.441)			(5.234)			(6.422)
Midwest			-7.115**			-7.075*			-0.0400
			(2.820)			(3.811)			(5.377)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
West			2.441			4.962			−2.521
			(3.877)			(4.286)			(5.625)
Observations	48	48	48	48	48	48	48	48	48
R-squared	0.204	0.702	0.761	0.068	0.341	0.429	0.206	0.636	0.643

Note Robust standard errors in parentheses. Constant suppressed in output tables. Beta coefficients included [in brackets] for the IEI variable. ***$p <$ 0.01, **$p < 0.05$, *$p < 0.1$
Source Author's creation

Table 7.4 Productive, unproductive, and net entrepreneurial activity (1980)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Productive	Productive	Productive	Unproductive	Unproductive	Unproductive	NEP	NEP	NEP
IEI	-0.190***	-0.138***	-0.0741	0.104*	0.0676	0.134*	-0.294***	-0.205**	-0.208**
	[-0.467]	[-0.338]	[-0.182]	[0.255]	[0.166]	[0.329]	[-0.459]	[-0.321]	[-0.326]
	(0.0455)	(0.0410)	(0.0509)	(0.0580)	(0.0686)	(0.0702)	(0.0693)	(0.0854)	(0.101)
% Male		-2.755*	-3.157		-4.102	-3.260		1.347	0.103
		(1.473)	(1.987)		(2.581)	(3.133)		(3.219)	(4.005)
% Bachelor		0.860***	0.638***		0.420	0.0545		0.440	0.583
		(0.236)	(0.233)		(0.366)	(0.372)		(0.395)	(0.477)
Median age		-1.952***	-1.580***		-1.038	-0.725		-0.914	-0.855
		(0.396)	(0.453)		(0.696)	(0.839)		(0.822)	(0.921)
% White		0.0584	0.107		0.376**	0.352*		-0.317	-0.245
		(0.0975)	(0.123)		(0.160)	(0.197)		(0.191)	(0.244)
Unemployment rate		2.310***	0.881		0.542	-1.423		1.768	2.304
		(0.849)	(0.851)		(1.315)	(1.527)		(1.554)	(1.766)
Per capita GDP		0.000472***	0.000669***		-0.000723***	-0.000568**		0.00120***	0.00124***
		(0.000151)	(0.000183)		(0.000244)	(0.000274)		(0.000284)	(0.000377)
Northeast			-3.924			-0.515			-3.409
			(3.408)			(5.298)			(6.489)
Midwest			-6.665**			-7.756*			1.091
			(2.790)			(4.022)			(5.578)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
West			3.074			3.645			−0.571
			(3.459)			(4.132)			(5.083)
Observations	48	48	48	48	48	48	48	48	48
R-squared	0.218	0.704	0.761	0.065	0.337	0.421	0.211	0.633	0.638

Note Robust standard errors in parentheses. Constant suppressed in output tables. Beta coefficients included [in brackets] for the IEI variable. ***p < 0.01, **p < 0.05, *p < 0.1
Source Author's creation

the relative payoff between productive and unproductive entrepreneurship and result in greater productive opportunities, freeing up additional private capital to be channeled into these outlets, and ultimately crowding out unproductive entrepreneurial endeavors. Additional policy responses would be to better streamline the overall institutional environment so as to increase competitiveness and attract productive entrepreneurship. Though the specifics of this latter point are beyond the scope of this current paper, they would be worthy of future research.

Conclusion

The use of economic development incentives to aid and promote private entities has been a popular strategy in local and state policy. Proponents of these incentives point out that their use promotes business formation in a particular jurisdiction, leads to job creation, and ultimately economic growth and development. Central to many of these arguments is the stimulative effect development incentives can have on new firm formation and entrepreneurial activities. However, regarding this latter point little formal work has been done to evaluate the extent to which these incentives actually impacts entrepreneurial activity.

This study fills this void and thus adds to the literature regarding the effect economic development incentives have on various economic outcomes. Most importantly, it operationalizes the distinction made between productive and unproductive entrepreneurship via Baumol (1990) and provides an empirical assessment of the extent to which such development incentives may promote or hinder the growth of either type of entrepreneurship. With the use of a new measure of the constitutional restrictions imposed on state and local governments from Patrick (2014a) and measures of productive and unproductive entrepreneurial activity derived from Sobel (2008), this study finds that the greater availability and more liberal application of public assistance to private entities is negatively associated with productive entrepreneurship and positively associated with unproductive entrepreneurship.

Further, the results also suggest that with the persistence of such development incentives, network effects are developed that further change the relative payoff to pursuing either type of entrepreneurial activity (either productive or unproductive), thus compounding the issue. Overall then, this study has provided not only a diagnostic on the impact that economic development incentives have on entrepreneurship across states,

it also provides important insights and information regarding the type of entrepreneurship (again either productive or unproductive), that such development incentives ultimately incentivize. These results should open up new avenues and opportunities for future research.

References

Baumol, William J. 1990. Entrepreneurship: Productive, Unproductive, and Destructive. *Journal of Political Economy* 98 (5): 893–921.

Bondonio, Daniele, and John Engberg. 2000. Enterprise Zones and Local Employment: Evidence from the States' Programs. *Regional Science and Urban Economics* 30 (5): 519–549.

Bondonio, Daniele, and Robert T. Greenbaum. 2007. Do Local Tax Incentives Affect Economic Growth? What Mean Impacts Miss in the Analysis of Enterprise Zone Policies. *Regional Science and Urban Economics* 37 (1): 121–136.

Coyne, Christopher J., Russell S. Sobel, and John A. Dove. 2010. The Non-productive Entrepreneurial Process. *The Review of Austrian Economics* 23 (4): 333–346.

Elvery, Joel A. 2009. The Impact of Enterprise Zones on Resident Employment. *Economic Development Quarterly* 23 (1): 44–59.

Erickson, R.A., and S.W. Friedman. 1990. Enterprise Zones: 2. A Comparative Analysis of Zone Performance and State Government Policies. *Environment and Planning* 8 (4): 363–378.

Goss, Scott. 2017. Delaware's New Economic Development Agency Searches for an Identity. *The News Journal*. http://www.delawareonline.com/story/money/smallbusiness/2017/10/03/delawares-new-economic-development-agency-searchesidentity/726386001/. Last accessed 10 June 2017.

Grasso, Patrick, and Scott Crosse. 1991. Enterprise Zones: Maryland Case Study. In *Enterprise Zones: New Directions in Economic Development*, ed. R.E. Green, 122–135. Newbury Park, CA: Sage.

Greenbaum, Robert T., and John B. Engberg. 2004. The Impact of State Enterprise Zones on Urban Manufacturing Establishments. *Journal of Policy Analysis and Management* 23 (2): 315–339.

Greenbaum, Robert T., and Jim Landers. 2009. Why Are State Policy Makers Still Proponents Of Enterprise Zones? What Explains Their Action in the Face of a Preponderance of the Research? *International Regional Science Review* 32 (4): 466–479.

Hanson, Andrew, and Shawn Rohlin. 2011a. Do Location-Based Tax Incentives Attract New Business Establishments? *Journal of Regional Science* 51 (3): 427–449.

Hanson, Andrew, and Shawn Rohlin. 2011b. The Effect of Location-Based Tax Incentives on Establishment Location and Employment Across Industry Sectors. *Public Finance Review* 39 (2): 195–225.

Holcombe, Randall G. 1998. Entrepreneurship and Economic Growth. *The Quarterly Journal of Austrian Economics* 1 (2): 45–62.

Jansa, Joshua M., and Virginia Gray. 2016. Captured Development: Industry Influence and State Economic Development Subsidies in the Great Recession Era. *Economic Development Quarterly* 31: 50–64.

Jensen, Nathan M., Edmund J. Malesky, and Matthew Walsh. 2015. Competing for Global Capital or Local Voters? The Politics of Business Location Incentives. *Public Choice* 164 (3–4): 331–356.

Logan, W., and L. Barron. 1991. Florida's Enterprise Zones Program: The Program After Sunset. In *Enterprise Zones: New Directions in Economic Development*, ed. R.E. Green, 91–104. Newbury Park, CA: Sage.

McGee, David. 2017. Bristol Virginia IDA working to Improve Development Strategy Bristol Herald Courier. http://www.heraldcourier.com/news/bristol-virginia-ida-working-to-improve-developmentstrategy/article_8404a306-3cb1-55c9-8822-e70b1ee85dbe.html. Last accessed 10 June 2017.

Neumark, David, and Jed Kolko. 2010. Do Enterprise Zones Create Jobs? Evidence from California's Enterprise Zone Program. *Journal of Urban Economics* 68 (1): 1–19.

O'Keefe, Suzanne. 2004. Job Creation in California's Enterprise Zones: A Comparison Using a Propensity Score Matching Model. *Journal of Urban Economics* 55 (1): 131–150.

Papke, Leslie E. 1994. Tax Policy and Urban Development: Evidence from the Indiana Enterprise Zone Program. *Journal of Public Economics* 54 (1): 37–49.

Patrick, Carlianne E. 2014a. Does Increasing Available Non-Tax Economic Development Incentives Result in More Jobs? *National Tax Journal* 67 (2): 351–386.

Patrick, Carlianne E. 2014b. Constitutional Limits on State and Local Aid to Private Enterprise. The Center for State and Local Finance. Georgia State University Andrew Young School of Public Policy.

Rubin, Barry M., and Margaret G. Wilder. 1989. Urban Enterprise Zones: Employment Impacts and Fiscal Incentives. *Journal of the American Planning Association* 55 (4): 418–431.

Sobel, Russell S. 2008. Testing Baumol: Institutional Quality and the Productivity of Entrepreneurship. *Journal of Business Venturing* 23 (6): 641–655.

Thomas, Kenneth P. 2011. *Investment Incentives and the Global Competition for Capital*. New York, NY: Palgrave Macmillan.

Silicon Valley vs. Main Street: Regulatory Impact on Entrepreneurial Ventures

Liya Palagashvili

Introduction

Over the last few decades, empirical evidence has suggested that business dynamism and entrepreneurial activity have been declining in the United States. In one well-known study on business formation and growth, Decker et al. (2014) find that the pace of business dynamism has declined over recent decades and that there has been a falling trend in the pace of job creation. An important aspect of the declining trends is a marked decline in the firm startup rate, which they note naturally leads to a reduction in the number of young firms operating in the economy.

Furthermore, using the Census Bureau Business Dynamics Statistics, Haltiwanger et al. show a declining startup rate and stagnant startup size (Haltiwanger et al. 2010). Goldschlag and Tabarrok (2018) also find this decline in the annual number of business startups, using the Census

L. Palagashvili (✉)
Mercatus Center, George Mason University, Arlington, VA, USA
e-mail: lpalagashvili@mercatus.gmu.edu

Bureau Business Dynamics Statistics.[1] Moreover, in a 2014 report by the Kauffman Foundation, which tracks the rate of entrepreneurship from year to year, the authors explain that over the last few decades "the per-capita entrepreneurship rate has been steadily declining, meaning that even as the population expanded and the overall number of new businesses formed each year held steady or grew, the pace slowed, failing to keep up with population growth" (Kauffman Foundation 2014, 7). The overall conclusion of the 2014 Kauffman report is that a decreasing business creation environment indicates that the state of entrepreneurship in the United States is slowly declining.[2]

Some empirical research has connected this decline in entrepreneurial activity with the rise of regulation—thereby linking to the vast amount of research on how the institutional and regulatory environment has a significant impact on the extent of entrepreneurial activity (Klapper et al. 2006; Coyne et al. 2005; Nyström 2008; Boettke and Coyne 2009; Bruhn 2011; Monteiro and Assunção 2012; Bripi 2013; Branstetter et al. 2013; Boudreaux 2015; Sobel et al. 2007).

The argument is that an increase in the regulatory burden for entrepreneurs in the United States has contributed to a decline in overall entrepreneurship. This increase in regulation burden can be seen in variety of measurements. Take for example the administrative requirements in the business regulations component of the Economic Freedom of the World Index—the United States had a score of 7.92 (10 as the best score) in 2000 and as low as 3.88 in 2012, and now sits at 5.06 in 2017. Business bureaucracy costs and business "favoritism" also worsened during this period. In the World Bank's Doing Business Index, some components such as the cost of starting a business, the cost of registering property, and business taxes have also declined since the early 2000s. Furthermore, using the Mercatus Center's RegData on intensity of regulations by industry, Al-Ubaydli and McLaughlin (2015) show that just between 1997 and 2012, the regulatory burden (as measured by the Code of Federal Regulations) has risen by more than 28% to "a staggering number in excess of one million individual restrictions."

---

[1] The dynamism decline also appears in data on the Job Openings and Labor Turnover and in the Bureau of Labor Statistics' Business Employment Dynamics data.

[2] However, in the latest Kauffman report, entrepreneurship rates have for the first time started to increase again.

However, as aggregate measures of entrepreneurship have been declining and the regulatory burden for entrepreneurs has been increasing, technology-enabled startups were proliferating and venture capital and angel funding going to startups was increasing. In one study, the number of technology startups increased by 47% from 2007 to 2016 (Wu and Atkinson 2017, 17). Wu and Atkinson explain, "while it's true that fewer mom-and-pop shops are forming, technology-based startup formation appears robust… and has grown" (2017, 17). During the same period, the amount of venture capital funding increased by 100% and the number of venture capital deals to tech startups increased by a 140% (Ritcher 2018).

At one point, the U.S. venture exit density, defined as the number of venture-backed M&A and IPO exits in a year, reached a 15-year high in 2014 (Kauffman Foundation 2017). This is during the same time where the Kauffman Foundation was also reporting a low in the entrepreneurial index. And more specifically, the Kauffman's report of "Main Street Entrepreneurship" was also declining during this time period (Kauffman Foundation 2016). Main Street entrepreneurship refers to businesses that have fewer than fifty employees and have been in existence for longer than five years—attempting to capture "mom-and-pop" businesses. Main Street entrepreneurship had been declining since 2008, until the trend reversed itself in 2016 (though still below the long-term average). The term "Main Street" is used to invoke an image of storefronts as one is walking down the main street of a city. These tend to be hair salons, restaurants, bars, grocery stores, local banks, hardware stores, accountant services, retail stores, galleries, and the standard "brick-and-mortar" stores one would expect to see on a typical "Main Street."

Thus, while the narrative and some of the data point to the conditions for entrepreneurship declining, regulations increasing, and specifically main street entrepreneurship being on a decline, technology startups have been proliferating over the same time period. Why was this happening? One way to reconcile these empirical observations is by understanding how the macroeconomic environment of "easy credit" has led to a funneling of money to technology startups. Returns from investing in technology startups have also been high—leading more investors to enter and hence resulting in more growth in the number of startups. But this is not the full explanation because the ability to launch a startup and the subsequent success of a startup also depends on the same regulatory environment that other entrepreneurs and businesses had to face. Thus

it is important to discuss how regulations may or may not be hindering technology startups.

In the empirical economics literature, regulations have been found to disproportionally burden small businesses as compared to large businesses because of the differences in certain group characteristics. This paper theoretically explores the channels and links by which regulation may impact different types of entrepreneurial ventures—Main Street businesses vs. Silicon Valley startups—in more detail.[3] These particular channels are different than the ones discussed in distinctions between small and large firms because both Main Street and Silicon Valley startups tend to be "small" firms, but are quite different on other important margins that matter for regulatory impact. In other words, why might regulations be hindering some "small" businesses and not others?

I provide a more nuanced theoretical description of the channels by which the negative impact of regulations may have a greater "weight" on "Main Street" entrepreneurs than on the "Silicon Valley" entrepreneurs. These three main channels are as follows: (1) Regulatory burden: Federal and state regulations on labor create more burden on Main Street because of their use of low-skilled labor; (2) Regulatory compliance: The incentives to comply with existing regulations are lower in Silicon Valley startups; (3) Regulatory entrepreneurship: Silicon Valley startups are engaged in the business of changing regulations and operate despite the industry-specific regulations that may otherwise prevent or hinder Main Street entrepreneurs.

Thus, I provide a preliminary discussion and opportunity for an avenue of empirical research to investigate the potential ways in which regulations over the last few decades may have disproportionally burdened Main Street entrepreneurial ventures over Silicon Valley entrepreneurial ventures. This discussion is supplemented by original fieldwork interviews of startups and venture capital investors conducted in the United States.[4] Interviews were conducted between May 2017 and December 2017. The primary U.S. cities in the analysis included San Francisco

---

[3] I use the term Silicon Valley as a shorthand notion to reference technology startups that are the 'Silicon Valley startups' (young and innovative technology startups) in their respective cities, such as in New York City, Boston, Austin, Los Angeles, and other major cities in the United States.

[4] Fieldwork interviews were conducted by Liya Palagashvili and Seth Oranburg (Assistant Professor at Duquesne University School of Law).

and neighboring cites ("Silicon Valley"), New York City, Boston, Los Angeles, and San Diego. A handful of cities were also chosen as the "Silicon Prairie" cities—these included: Austin, Pittsburgh, Omaha, Chicago, Denver, and Boulder. There were a total of 88 interviews—including 45 interviews with startup entrepreneurs and c-level executives, 12 with investors, 10 with accelerators and incubators, and the remaining 21 with startup lawyers, advisors and mentors, researchers, and others in the startup ecosystem.

The following sections will proceed as followings: Section "Overview of Entrepreneurship and Regulation" will provide a literature review and summary of the research at the intersection of entrepreneurship and regulation, with discussions of how regulations impact different types of entrepreneurial ventures. Section "Differences Between Main Street vs. Silicon Valley Entrepreneurs" will provide an overview of the main differences between Main Street and Silicon Valley entrepreneurs that are relevant for how regulations may impact each type of entrepreneur in different ways. Section "Differences in Regulatory Impact" will provide a preliminary analysis of the main channels for how regulations may by different for these different groups, and Section "Conclusion" concludes.

Overview of Entrepreneurship and Regulation

A thriving entrepreneurial environment has been identified as a key determinant for the long-term growth of an economy (Acs and Audretsch 1988; Blachflower 2000; Klapper et al. 2014; Van Praag and Versloot 2007; Parker 2009; Landes et al. 2012). As such, there is a growing interest in following various measures of entrepreneurial activity or business dynamism and analyzing cross-country differences or how levels of entrepreneurship are changing over time. Falling rates of entrepreneurial activity or business dynamism are often seen as a concern because they are important for productivity, growth, and the overall well-being of an economy.

Much of this research is also directed to understanding how to encourage and spur entrepreneurship and what conditions can burden entrepreneurs. Within this literature, the institutional environment has been identified as having a significant impact on the extent of productive entrepreneurial activity (Baumol 1990; Djankov et al. 2002; Klapper et al. 2006; Coyne et al. 2005; Boettke and Coyne 2009; Bruhn 2011; Monteiro and Assuncao 2012; Bripi 2013; Branstetter et al. 2013;

Boudreaux 2015; Sobel et al. 2007). This institutional environment includes such aspects as the protection of private property or intellectual property rights, as well as various regulations on business operations and requirements or licenses to starting a business. The regulation of business activity and entry has been on the forefront of this research, and many empirical studies indicate that higher levels of regulations impede business activity, firm entry, and entrepreneurship (Klapper et al. 2006; Van Stel et al. 2007; Nyström 2008; Ardagna and Lusardi 2010; Bripi 2013; Bailey and Thomas 2017).

Scholars have also discovered a new avenue of research investigating how regulation may impact different types of firms in different ways—specifically, empirical evidence suggests that regulation impacts small firms to a greater extent than large firms (Bailey and Thomas 2017; Chambers et al. 2018). The idea is that the cost of regulatory compliance may burden smaller firms more than larger firms (Cole and Sommers 1981; Crain and Hopkins 2010).[5] Crain and Crain (2014) measure regulatory cost incidence by assessing the cost of regulatory compliance for different industries, and they find that, across all industries, the compliance cost per employee is $11,724 for small businesses, $10,664 for medium businesses, and $9083 for large businesses. Furthermore, Calcagno and Sobel (2013) find that regulation seems to operate as a "fixed cost" that results in larger firm sizes and hurts precisely the smallest firms—thus indicating that the cost of compliance presents a greater burden for small firms relative to large firms. I add to this literature by further exploring how regulatory compliance may be different among two types of small firms—the Main Street firm and the Silicon Valley firm. I argue that, although startups also tend to be small, they may not experience the full burden of the regulatory costs of compliance as many "small firms" would. Because of the nature and characteristics of Silicon Valley technology startups, the incentive to comply with regulations may be lower than with Main Street businesses.

Furthermore, labor regulations are often cited as a type of regulation that can be particularly costly and burdensome, especially for nascent and young business entrepreneurship (Van Stel et al. 2007; Sobel 2008). Cumming and Li (2013) find that labor restrictions matter more

---

[5] And in fact, particularly high compliance cost of regulations may threaten the existence of small firms In terms of policy, this is often used a justification for exempting small businesses from new regulations.

than any other element in the Economic Freedom of the World index for creating new business startups. Labor market regulations can cause frictions and constrain entrepreneurs' ability to make human resource decisions, thereby discouraging startup formation and growth. With labor laws such as minimum wage laws and overtime regulations, these contribute to added costs for small businesses. In fact, some empirical research has indicated that, while larger companies may better internalize the costs to business of higher minimum wages, it is more difficult for small businesses (Sabia 2006; Meer and West 2015). This can also be found with overtime regulations, which may have greater impact on small businesses (Boudreaux and Palagashvili 2016). I contribute to this literature by discussing how, to the extent that these laws and regulations add burden to small businesses, they are less of burden to technology startups because technology startups do not tend to employ low-skilled labor. In other words, although research indicates that small businesses may face a greater burden from these types of regulations than large businesses, startups are practically "exempt" from these costs because they do not generally employ low-skilled labor.

Lastly, some of the public choice literature suggests that regulation may be promoted by incumbent firms in the industry who may successfully lobby officials to increase regulations in order to raise costs to smaller, competitor firms (e.g., Tullock 1967; Stigler 1971). With a similar concept, Pollman and Berry (2017) coin the term regulatory entrepreneurship that refers to new technology companies that are pursuing a line of business where changing the law is a significant part of the business plan. Pollman and Berry contrast this with traditional lobbying because traditional lobbying efforts often seek to prevent or weaken cost-increasing regulations or protect incumbents from competition. In contrast, regulatory entrepreneurs (with Uber as the well-known example), make an issue as publicly salient as possible, rally the public to their cause, and the use their popular support as a force to change the regulations (Tusk 2018). Following Pollman and Berry (2017), I discuss how the presence of regulatory entrepreneurship in Silicon Valley firms may be another avenue by which Silicon Valley firms may be less disadvantaged by industry regulation than Main Street firms. That is, while industry-specific regulations may be hampering Main Street entrepreneurs, they may not be hampering some technology startups in the same way.

Thus, I draw on this literature on regulation and provide the theoretical mechanisms and links for how regulations played out in practice and why regulation may be hindering some "small" businesses and not others. There are other scholars who draw out differences in types of entrepreneurs and firms and connect them with policy and regulations. For example, Aulet and Murray (2013) describe the different characteristics between "small and medium" enterprises"—those serving local markets with traditional, well-understood business ideas and limited competitive advantage versus "innovation-driven" enterprises," which pursue global opportunities based on bringing to customers new innovations that have a clear competitive advantage and high-growth potential. Aulet and Murray (2013) discuss how these differences can play a role for development policies that aim to spur entrepreneurship around the globe.

In addition to the distinctions defined by Aulet and Murray, there is a similar distinction between opportunity vs. necessity entrepreneurship. Necessity entrepreneurs typically come from lower-income backgrounds and start a business because of "necessity" to survive.[6] On the other hand, opportunity entrepreneurs start a company because they see a market opportunity and potential for growth. In one study that aims to discuss these differences in developing countries, Schoar (2010) refers to the opportunity entrepreneurs as the "transformational entrepreneurs" because they aim to create large, vibrant businesses that grow beyond their subsistence needs (58). The "necessity" entrepreneur is also referred to as "subsistence" entrepreneur because s/he becomes an entrepreneur as a means for providing subsistence income (58).

Schoar (2010) then goes on to discuss how policy differences in emerging economies impact these two types of entrepreneurs: for example, a "regulatory tax" might be more distortive for transformational entrepreneurs in developing countries if officials are more likely to increase their demands on the large and successful firms while smaller firms stay under the radar. Most importantly, the author discusses how inefficient capital markets disproportionly harm transformational entrepreneurs, thus negatively impacting growth since transformational entrepreneurial ventures are more likely to be growth enhancing.

My contribution complements the work of Schoar (2010) and Aulet and Murray (2013) by providing another distinction—that between the

---

[6] See Kauffman Entrepreneurship Index and Global Entrepreneurship Monitor.

Main Street and the Silicon Valley entrepreneur—and illustrating how regulations may impact these two groups in different ways.

Thus I provide the theoretical links and discussion of how regulations may impact Main Street firms differently than Silicon Valley firms by focusing on how they may experience differences in regulatory burden, regulatory compliance, and regulatory entrepreneurship.

Differences Between Main Street vs. Silicon Valley Entrepreneurs

In order to understand how regulation may impact Main Street vs. Silicon Valley entrepreneurs in different ways, it is important to first draw out some differences in their respective group characteristics and traits.

Growth and Innovation

Arguably the most important difference between these two groups is that Main Street entrepreneurs do not generally grow and innovate their businesses as Silicon Valley entrepreneurs do. Technology startups are often thought of as "high-growth" potential because the aim of the initial founders and of the startups is to substantially grow the business, typically within 7–10 years. In fact, the goal of venture capitalists investing in startups is to achieve returns in the order of 20% or more per year within a 10-year period (Hargadon and Kenney 2011; Niles 2018). With that 7–10-year time frame, startups generally either go public or become acquired. On CrunchBase, which is a database of technology startups, acquired companies were an average of seven years old, while companies that went public were around 8.25 years, on average.[7] However, biology technology (Biotech) and some medical technology (Medtech) companies have much longer timespans, around 15–25 years of age. A more "standard" Silicon Valley startup, such as advertising technology (Adtech) was

---

[7] The findings from the CrunchBase database are discussed here: https://techcrunch.com/2013/12/14/crunchbase-reveals-the-average-successful-startup-raises-41m-exits-at-242-9m/.

found to have an average lifespan of six years, at which point, 82% of startups are acquired.[8] Fewer than 5% of Adtech startups exist past 10 years of age.

In their report on technology startups in the United States, Wu and Atkinson (2017, 7) explain that: "In general, technology-based startups have high-growth potential, in both employment and revenue, as a result of them seeking to develop innovations that have a clear competitive advantage in the global market." Hall and Woodward (2010), using a dataset of venture-backed startups in the United States, find that startups attract entrepreneurs who have expectations and beliefs about high payoffs from their products. Haltiwanger et al. (2010) and Haltiwanger (2011) also find that startups exhibit an "'up or out' dynamic: they have a high probability of exit, but those that survive exhibit rapid growth on average" (Haltiwanger 2011, 123). Furthermore, almost all venture capital firms will only fund startups that have potential to takeoff within a time period of seven years[9]—thus, investing in startups that have this growth potential.

In contrast, Hurst and Pugsley (2011) find that most "small businesses" start small and stay small in their entire life cycle. Furthermore, these small businesses do not innovate along any observable margin.[10] While Hurst and Pugsley (2011) do not make an explicit distinction that these small businesses are in fact "Main Street" entrepreneurial ventures, the descriptions of the vast majority of small businesses that they analyze

---

[8] See for example, this article reporting on AdTech companies, using Pitchbook data: https://www.businessinsider.com/average-lifespan-of-an-ad-tech-company-2016-7?r=US&IR=T.

[9] Exception is in biotech or medtech where timespan is longer, and as such there are more specialized, niche venture capital firms investing in mostly in those types of companies.

[10] These margins of innovation include utilizing the following measurements: applications for copyright, patents, and trademarks; a survey asked directly to businesses on whether they have "developed any propriety technology, processes or procedures"; and another survey asked directly to businesses, "Right now, are there many, few, or no other businesses offering the same product to your [intended] customers" (Hurst and Pugsley 2011, 94–95). It is important to note though that 'innovation' may be defined and measured in different ways and thus it may be difficult to capture some notion of 'innovation' in the 'Main Street' business.

seem to capture this concept of mom-and-pop shops (sometimes referred to as "brick-and-mortar" or "local businesses").[11]

Supplementing a survey to understand the motivations and intent of these entrepreneurs, Hurst and Pugsley find that most of these small businesses start with no expectations of growth or innovation. They explain (2011, 75):

> When asked at the time of their business formation, most business owners report having no desire to grow big and no desire to innovate along observable dimensions. In other words, when starting their business, the typical plumber or lawyer expects the business to remain small well into the foreseeable future and does not expect to innovate by developing a new product or service or even to enter new markets with an existing product or service.

Furthermore, as discussed above, Schoar (2010) also shows these differences among subsistence entrepreneurs, who become entrepreneurs in order to provide subsistence income, and another group as the transformational entrepreneurs—those who aim to create large, vibrant businesses that grow beyond the scope of an individual's subsistence needs. Aulet and Murray (2013) also made this distinction between the "small-and-medium" enterprises vs. the "innovation-driven" enterprises.[12] The main category distinctions in both the Schoar (2010) and Aulet and Murray (2013) is that one group aims to start a business as a way to make a living and with no real intention to grow beyond serving the local market, while the other group aims to create high-growth businesses reaching national or global markets.

---

[11] For example, the descriptions of the majority of small businesses they analyze fall into these main category of lists: restaurants: (full service, limited service, or bars), skilled professionals (physicians, dentists, lawyers, accountants, architects, consultants), skilled craftsperson (general contractors, plumbers, electricians, masons, painters, roofers), professional service providers (clergy, insurance agents, real estate agents), general service providers (auto repair, building services such as landscaping, barbers and beauticians), or small retailers (grocery stores, gas stations, clothing stores). The secondary category includes dry cleaners, hardware stores, jewelry stores, liquor stores, and furniture stores.

[12] Recall, "small and medium" enterprises" are those severing local markets with traditional, well-understood business ideas and limited competitive advantage and "innovation-driven" enterprises" are those that pursue global opportunities based on bringing to customers new innovations that clear competitive advantage and high-growth potential.

Virtual Products, Invisible Locations

In contrast to Main Street entrepreneurs, technology startups tend to offer products that are intangible, such as a platform or an app, or a virtual service or product (i.e., software you can download from a website). There are a host of startups working in hardware technology or technology that produces physical goods or products (i.e., drones, medical devices, energy equipment, etc.) but there are vastly more startups with virtual or intangible goods and services. This is gleaned by investigating the type of companies in Pitchbook's database, which collects information on any startups that has engaged in any financing round (loan or equity deals). In the United States, there are approximately 126,863 companies that are "hardware" or "physical" in nature—this search includes any industry or sub-industry that has a physical product component to it.[13] In contrast, a more conservative search for more intangible or virtual goods and services (search includes companies that are only software in nature) yields 448,902.[14] In fact, within only the Information Technology industry, there are 20 times more software startups than there are hardware startups.[15] Even with companies that tend to work with physical assets such as cars and homes (i.e., Uber and Airbnb), the product the companies are offering are the platforms, and not the cars or homes. The cars and homes belong to the individual owners. Uber's product is a technology platform, not a "smart car," just as Airbnb's product is a platform connecting buyers and sellers, and not building homes or hotels for usage.

Because the products and services that startups tend to offer are "virtual," there are virtually no physical location shops where they sell these products and services. Many of these products and services do not require much physical capital. In The Startup Owner's Manuel (2012), Blank and Dorf argue that "bit" (virtual) products coupled with "bit" (virtual) sales channels are how successful startups were able to move at "Internet

---

[13] Industries included: Apparel and accessories; consumer durables; consumer nondurables, energy equipment; exploration, production, and refining; healthcare devices and supplies; pharmaceuticals; computer hardware; semiconductors; materials and resources.

[14] Industries included: Commercial services; business-to-consumer services of media and non-financial services; energy services; financial services; IT services; software.

[15] Hardware (17,421) + semiconductors (3497) = 20,918. Software = 231,753.

speed" and obtain explosive growth (i.e., Facebook, Google). They advise startups to continue using these strategy of operating in the "bit" space. Thus, unlike a pizza shop or hair salon, those involved in the development and sales of a product/service can work virtually. It is often common that in the early stages of a startup, individuals are working remotely, from someone's home, from coffee shops, or more popularly, from co-working space such as WeWork, or related co-working spaces in accelerators or incubators.

In a survey of co-working spaces, it was found that the average U.S. coworker space user is a "young, male, well-educated, and works in Tech."[16] The conclusions of the survey indicate that co-working facilities are popular places for "starting and operating new businesses."[17] These startups tended to be early stage startups. Larger and later stage startups tend to move to office spaces. In the fieldwork studies that included interviews of 45 startup entrepreneurs across the United States, interviewees indicated that members of their company tended to work virtually, from different cities in the United States, and from different countries. Many of these interviewees also indicated previously or currently working from a co-working space rather than an office. In fact, in discussion forums and articles geared for startups, there are business operations discussions on questions of "Does your startup really need a physical space?" or "Better to work without an office."[18]

These characteristics are in contrast to Main Street entrepreneurs— the owners of hair salons, restaurants, bars, grocery stores, local banks, hardware stores, accountant services, retail stores, galleries, and the standard "brick-and-mortar" stores one would expect to see on Main Street. These products are tangible—a dinner, an orange, a tool, a haircut, a seamed dress—and they tend to have a storefront location or a physical office space. It is of course possible that the local accounting service

[16] See survey results at DeskMag: http://www.deskmag.com/en/the-coworkers-global-coworking-survey-168.

[17] See survey results at DeskMag: http://www.deskmag.com/en/the-coworkers-global-coworking-survey-168.

[18] See for example, "Does your startup really need a physical space?" (April 7, 2016): https://www.forbes.com/sites/under30network/2016/04/07/does-your-startup-really-need-a-physical-office/#13d6981a4aba, Or, "Here's why startups are going fully remote" (June 4, 2018): https://www.techworld.com/business/companies-without-office-heres-why-startups-are-going-fully-remote-3678346/.

can offer virtual products. It is also possible for startups in cities to open up storefronts for accounting services. But perhaps one reason there are fewer office locations of startups is because most startup hub activity is happening in cities where the price of renting offices or storefronts is substantially higher than it would be on a typical Main Street. The top three cities in the Unites States with greatest number of startups and venture capital funding are in Silicon Valley, New York City, and Boston, all three of which top the charts every year for highest commercial rental prices.

Section 3.3 Type of Labor Employed

Main Street entrepreneurs and Silicon Valley entrepreneurs differ in the type of workers they employ, with Main Street entrepreneurs employing more low-skilled labor than Silicon Valley entrepreneurs. AngelList, a website dedicated entirely to startups posting jobs and potential employees applying for the jobs provides a list of all the types of roles that startups have posted and average salaries for those roles: Engineering manager ($119,000), product manager ($106,000), software architect ($103,000), DevOpps ($103,000), data scientist ($100,000), Account Executive ($92,000), and host of various types of developers and designers, ranging average salaries from $97,000–$81,000.[19] The three roles with the lowest average salaries are Sales Development ($68,000), Business Development ($65,000), and Content Creator ($56,000). Even these lower paying roles are considered high-skilled positions.

On Main Street, there are also high-paying, high-skilled employees, such as lawyers, accountants, physicians, dentists, architects, and others in professional high-skilled services. However, while startup technology companies tend not to employ much low-skilled or medium-skilled labor because of the nature of the product and services offered, main street entrepreneurial ventures often depend on these roles—the cashiers, the waiters and waitresses, hostesses, bartenders, dishwashers, beauticians, fast food cooks, and the like. These types of jobs, whether employed by larger or smaller companies (i.e., local grocery store or Wal-Mart) tend to be paid lower salaries because the nature of their job is considered

---

[19] This search on AngelList was conducted on January 15, 2019.

low-skilled. In the most recent Bureau of Labor Statistics (2018) analysis of median wages by type of job—the lowest paid jobs (making below $25,000 a year) were: food and preparation serving workers, shampooer, waiters and waitresses, hosts and hostesses, cashiers, fast food cooks, dishwashers, laundry-and-drying cleaning workers, and a host of others that fall more in line with jobs found on Main Street than in Silicon Valley.[20] While it is true that some of these roles, such as cashiers, are also being employed by large firms, it is reasonable to assume there are not significant differences in skill or pay between a cashier at Wal-Mart and a cashier at Lynn's Deli. Aulet and Murray (2013) also find that, on average, small and medium-sized businesses pay lower average wages relative to their innovation-driven (or "Silicon Valley") counterparts.

Furthermore because of the culture of "lean startups" and "bootstrapping,"[21] and the fact that startups are unstable and face fluctuating demand, funding, and business models, they tend to utilize contract labor over traditional employees.[22] The "virtual" and modular nature of jobs at startups also allows for more contract over employee labor. The reliance of contract labor at startups has sparked several controversies and pushbacks. For example, the Innovation Center at MIT posted the following advice article to startups, entitled, "Is Your Lean Startup Violating Labor Laws?" The post explains that while many startups will "forgo hiring employees and instead rely on contractors to perform much of the work," it is still a violation of the law and they should stop doing it.[23] The authors explain, "In other words, a contract developer, for example, who is working on your innovative new product on site and for whom you set the work hours is, in fact, not a contractor. He or she is an employee. And whether your organization intends to or not, you are committing labor fraud." This

---

[20] See the Bureau of Labor Statistics, April 2018 release: https://www.bls.gov/ooh/occupation-finder.htm?pay=&education=&training=&newjobs=&growth=&submit=GO.

[21] Lean startup is an approach aimed to shorten product development cycles and emphasizes how to meet demand using the least amount of resources possible. Bootstrapping refers to most startups in their early phases when they are faced with limited cash flow and are very cautious with their expenses.

[22] For example, see this article which summarizes the lean startup strategy and argues that lean startups should only use contractor developers, entitled: https://www.upwork.com/blog/2012/07/truly-lean-startups-use-online-contract-developers-achieve-lean-development/.

[23] See: https://executive.mit.edu/blog/is-your-lean-startup-violating-labor-laws#.XE8K3Rica9Y.

type of behavior could be considered labor fraud because companies are classifying workers as contractors to forgo paying benefits.

Fieldwork interviews indicated a similar observation—31 out of 42 startups interviewed indicated they used some form of contract labor. Most indicated that it was because of the nature of the role, affordability, and "uncertainty" of the stage of their business. This is captured well by the following statement from a digital health startup CEO in Boston, whose workers are all currently 1099 contractors: "I don't want them to quit their main job yet and I don't have the funds to hire employees and provide the benefits I would like to offer them."[24] Another founder of a media platform startup in San Francisco said that most of the people working with him are contractors and consultants because of "labor and management costs."[25] A CEO of a small software startup in New York City, with two current full-time employees, said he has four contractors doing IOS developer work internationally and that he would continue to rely on international contractors to maintain affordability.[26] In a May 2019 survey of 396 technology startup executives, 79% of CEOs indicate they use contract labor.[27] Contrast this to a "typical" U.S. company from the Annual Survey of Entrepreneurs (Census Bureau 2016), which indicates that only 29% of companies said they hire any contractors.

There are of course several other important differences that are not elaborated in this section. For example, startups primarily engage in equity deals (e.g., from institutional or angel investors) instead of loan deals, whereas small businesses tend to acquire a small business loans from banks. On demographic differences, Silicon Valley entrepreneurs are younger, well educated, and tend to come from higher income backgrounds. Main Street entrepreneurs tend to have lower incomes, less educational outcomes, and are older than the typical Silicon Valley. In the Kauffman Foundation's report on Main Street entrepreneurs in 2015,

---

[24] Interviewed on September 17, 2017 in Boston, MA. Name of the founder and company have been removed to ensure anonymity.

[25] Interviewed on June 20, 2017 in San Francisco, CA. Name of the founder and company have been removed to ensure anonymity.

[26] Interviewed on May 23, 2017 in New York, NY. Name of the founder and company have been removed to ensure anonymity.

[27] The online survey was conducted by author Liya Palagashvili. The methodology and summary survey results can be found in a working paper, "Exploring how Regulation Shapes Technology Startups" (Palagashvili 2020).

adults aged 45–64 make up 59.3% of all Main Street business owners (Kauffman Foundation 2016, 6). And in fact, young business owners—those aged 24–34—were only 15.8% of Main Street business owners in 2015. This is in sharp contrast with the average age of technology-enabled startup founders, who fit the stereotype of the characters from the TV-show "Silicon Valley"—young (in their 20s or early 30s), male founders.

Thus, while there are other differences among these groups, I focus on growth and innovation, products and location, and the type of worker employed because they are most significant for highlighting the differential impact of regulation.

Differences in Regulatory Impact

In this section, I identify three differences in the practical ways regulations may have impacted Main Street entrepreneurs in different ways than Silicon Valley entrepreneurs, drawing from the differences discussed above. Further research is needed to test these channels and links empirically, but for the purposes of this paper, I provide the theoretical mechanisms and links for how regulations played out in practice and why might regulations be hindering some "small" businesses and not others. The three ways are (1) Regulatory burden: Federal and state regulations on labor create more burden on Main Street because of their use of low-skilled labor; (2) Regulatory compliance: The incentives to comply with existing regulations are lower in Silicon Valley startups; (3) Regulatory Entrepreneurship: Silicon Valley startups are engaged in the business of changing regulations and operate despite the industry-specific regulations that may otherwise burden Main Street entrepreneurs.

Labor and Regulatory Burden

Federal and state labor regulations may have a greater burden on mom-and-shops rather than small startups because of the different types of labor employed by these two types of entrepreneurial ventures. Because Main Street businesses employ significantly more low-skilled labor than do technology startups, labor laws such as the minimum wage laws and overtime regulations are more of a concern for main street businesses and less of a concern for technology startups, which employ more high-skilled labor. Thus, to the extent that the theoretical and empirical research on labor

laws and regulations find that they can cause harm on small businesses, startups are less impacted by these regulations, despite also being a "small business."

The Fair Labor Standards Act governs the federal minimum wage, although states have their own minimum wages that can be over the federal standard. Currently, this minimum wage is set at $7.25 an hour (lower for workers who receive tips and higher for private workers making products or performing services for the government). Overtime regulations are also under the Fair Labor Standards Act. Employees are required to receive 150% of a worker's wage rate—"overtime pay"—for time worked over 40 hours a week. There are a number of exemptions to this, most importantly; workers who have executive, administrative, or professional (EAP) duties whose annual base salaries are above $23,660 are exempt from the FLSA's overtime pay requirement. This means startups salary workers' are exempt from the overtime regulations, since most of them are earning above the $23,660 threshold.

Employers must also pay for workers' compensation insurance—an insurance program that covers both lost wages and the cost of medical treatment from workplace injuries. Workers' compensation indirectly impacts more employers who have low-skilled labor rather than high-skilled labor because healthcare premiums are generally higher for those types of labor. Premiums generally are calculated as a percentage of wages and "range from as low as 1% for skilled workers, to 10% of wages for outdoor and maintenance workers, to as much as 50% of wages in certain injury-prone professions like roofing" (Meyer 2018, 46).

Furthermore, because of technology startups' greater reliance on independent contractors, laws governing employment also become less applicable for those workers who are independent contractors. These laws includes the minimum wage and overtime regulations under the Fair Labor Standards Act; or laws requiring businesses to comply with The Patient Protection and Affordable Care Act (PPACA) for their employees; or worker's compensation which only covers employees, not independent contractors. Thus employers do not have to meet any of these same requirements for workers who are contractors with the company.

Moreover, Main Street businesses may be burdened more by payroll taxes, which are paid for employees, but not for independents contractors. Employers must pay several percentage-based taxes on employees' wages including Social Security, Medicare, and state and federal unemployment insurance. Thus, including the federal and state unemployment insurance,

estimates indicate that employer share of payroll taxes "starts at around 8% of wages. For businesses that hire a lot of transient or seasonal unskilled labor, these taxes are as high as 16% of wages" (Meyer 2018, 45).

These sentiments were also expressed by interviewees who discussed reasons why they relied mostly on independent contractors. A founder and CEO of a Fintech startup stated that he used only independent contractors for the first two years because it helped to "lower costs."[28] A serial startup entrepreneur explained how he uses mostly contractors, especially in early stages of the company and then suggests that "everyone in a startup should be classified as contractors. All additional costs incurred by hiring employees in the first year or two can kill a company."[29] Furthermore, one venture capital investor remarked that California's high costs of labor and employment regulation "encourage distributed teams," who tend to be contractors rather than employees of a company.[30]

As discussed above, these labor laws and regulations are an important aspect for businesses and can harm and reduce entrepreneurship. Thus, to the extent that these laws and regulations add burden to small businesses, they are less of burden to technology startups because technology startups do not tend to employ low-skilled labor. In other words, although research indicates that small businesses face a greater burden from these types of regulations than large businesses, startups are practically "exempt" from these costs because they do not generally employ low-skilled labor. This aspect is vital for understanding this differences in main street and technology startups in terms of regulation because while technology startups and main street entrepreneurs share the "smallness" aspect, their labor employment differences can make it such that they are "out of the purview" of certain labor laws and regulations.

[28] Interviewed on December 6, 2017 in Los Angeles. Name of the founder and company have been removed to ensure anonymity.

[29] Interviewed on August 19, 2017 in Florida. Name of the founder and company have been removed to ensure anonymity.

[30] Founder and managing director of an early stage venture capital firm in Los Angeles. Interview on December 14, 2017.

Regulatory Compliance

Regulatory costs also come in the form of compliance costs—the costs that businesses must incur in order to meet regulatory obligations. Compliance costs may include, for example, filling out paperwork, buying new equipment to meet mandates, or hiring lawyers to advise on compliance strategies. As discussed above, compliance costs pose a greater burden for small firms than for larger firms.

Although startups also tend to be small, they may not experience the full burden of the regulatory costs of compliance. Because of the nature and characteristics of Silicon Valley technology startups, the incentive to comply with regulations may be lower than with Main Street businesses. Recall that startups are small, young, and tend to aim for "high-growth" potential in a very short period of time. Thus, most startups are faced with the following within a 10-year timeframe: (1) Go public (IPO), indicating they have become a relatively large company; (2) Sell, thus being acquired by a large company, or (3) Fail, which happens to 85–90% of all startups. Few startups stay "small" for a longer timespan.[31] In any of these three scenarios, noncompliance with regulation comes at relatively low cost. In the first scenario of going pubic, the startup has become sufficiently large in the short period of time (i.e., a "high growth" startup) that by the time the regulations "catch-up" with them, they are sufficiently large and have greater resources to deal with the costs of compliance. As one example, Amazon has stayed "under the radar" for several years, including not having to report for sales taxes. Although it was in existence since 1994, it was not until 2011 when Amazon first started to add sales taxes, albeit only in 5 states. By 2017, Amazon had to comply with all 45 states that have state sales taxes. Uber also has a similar story when it first started operating in local cities. Because it was small, it was "under the radar." By the time regulators caught up to what was going on, Uber was a large company and had a large sum of resources to deal with various regulatory compliance issues (and in some cases to devote resources to change regulations). Uber first launched in San Francisco in 2011 (growing six times in size in one year), and it went public in May 2019.

In the second scenario, companies that plan to sell and become acquired are also faced with the "fly under the radar" strategy because

---

[31] The exception is most true in the biotech industry, where the lifespan of startup to "take off" is longer.

their plan is to sell to larger companies in a short period of time. Knowing this, startups focus their time and money on developing the product and growing the company rather than on complying with regulations. However, it is important to note that under this scenario, the incentives to comply are much stronger than the IPO scenario because the acquiring company may care about this aspect of noncompliance. Whether or not the acquiring company "cares" depends in large part on the nature of the company and the regulatory apparatus, and the extent and type of noncompliance. For biotech or medtech startup, acquiring companies do care about compliance—startups cannot "ignore" FDA regulations from the onset because this aspect is important for acquisitions.

And in the last scenario, if the startups chance of failing is high, there is not a strong incentive to comply with the regulations at the onset. Unlike their small business counterparts, startups do not plan to exist for a long period as a small startup, and thus do not face as strong of an incentive to comply with the regulations. The culture of startups reflects an attitude of "go big or go home" or "we'll worry about the regulations when we make it,"—thereby indicating a priority to develop and grow the company until they either takeoff or fail.

This is evidenced by the fact that there is a culture of "noncompliance" among startups. This culture is discussed in news article, forums, interviews, and even highlighted in pop culture—for example, in several seasons of the TV-show "Silicon Valley," many startups are depicted as either being ignorant about regulations or not caring enough to comply with the regulation.

This culture of noncompliance was also a common theme found during our fieldwork interviews. For example, in one interview with the founder and CEO of a small software startup in New York City, the interviewee commented on the fact that the culture of noncompliance stems mostly from young startups not having the time nor the funds to pay for legal fees involved with understanding the regulations they are required to follow, and thus in many cases—"non compliance is due to our ignorance."[32] The interviewee explained that because they have to grow fast and that it's already difficult to survive in terms of competition with other startups and competition for venture capital funds, it makes more sense to invest time in building the product. He commented that his investors "generally

---

[32] Interviewed on May 23, 2017 in New York City. Name of the founder and company have been removed to ensure anonymity.

agree" with this notion. As another example, in interview with a former Fintech (financial technology) founder who sold his company, the interviewee commented that because the regulatory framework is so vast and confusing this "promotes noncompliance."[33] He explains that he "tried to be compliant the entire time but it was so hard." Nevertheless, he was able to grow and sell the company.

In the May 2019 survey of 396 technology startup executives, only 7% of executives indicated that most companies are regularly fully compliant.[34] Of the remaining 93% of startups who believe startups in their industry are not regulatory compliant, 87% of startups indicated that a primary reason (top 1, 2, or 3 choice) for why they do not fully comply with applicable regulations is because they lack awareness or clarity of the applicable regulations. 72% of startups also indicated as a primary reason (top 1, 2, or 3 choice) for not complying with regulation is that it is difficult to comply during early stages of a startup. And 45% indicated they are able to operate regularly without full compliance.

Venture capital investment also reinforces this as some investors do not have a strong incentive to due diligence on every small investment they make to every small startup.[35] This is coupled by the fact that most startups in the venture capital portfolio will fail. The venture capital investment strategy is to have one "unicorn" company that pays out (e.g., Facebook, Uber, Airbnb).[36] Thus, to do due diligence on every small startup investment that has high probability of failure is not worth it. This aspect was discussed in some interviews with venture capitalists who explained that unless the noncompliance with regulations was egregious,

---

[33] Interviewed on June 20, 2017 in San Francisco. Name of the founder and company have been removed to ensure anonymity.

[34] The online survey was conducted by author Liya Palagashvili. The methodology and summary survey results can be found in a working paper, "Exploring how Regulation Shapes Technology Startups" (Palagashvili 2020).

[35] This sentiment is likely more true in Silicon Valley hubs than in other startup hubs.

[36] See, for example, this discussed in Peter Thiel's Zero to One (2014).

they did not care.[37] One venture capitalist directly said, "VCs don't do regulatory diligence."[38]

Furthermore, it may be difficult for regulators to "checkup" and "show up" when there is no real physical location of the startup. Whereas a regulator may visit a physical location of a hair salon to make sure the licenses of the hairdressers are displayed on the walls, regulators may have a difficult time tracking down the location of the startup. As mentioned above, in the early stages the startup may be working from home or from coffee shops, remotely in different cities around the country or world, at incubators, accelerators, or co-working spaces, and at later stages, in office spaces. Furthermore, because startup sizes tend to drastically fluctuate within a short time span, startups frequently change office spaces.

The "no physical space" aspect was discussed in detail with one founder of a startup in New York City.[39] The founder described how New York State regulators sent letters regarding noncompliance to a family member's home address that he had associated with the company, but he did not receive these for over a year because his team worked remotely from different cities in the United States.

These are not the same aspects for more conventional mom-and-pop businesses, which tend to have a physical location, and they tend to be in existence for longer periods of time. And because they tend to be in existence for longer, there is more of a long-term relationship and experience with regulators. Interestingly, the COO of one startup acknowledged the "noncompliance" aspect but indicated that his startup's strategy was to work with regulators from beginning stages—he

[37] This point was made in the following interviews: (1) Founder and managing director of venture capital firm in New York City, interview on June 14, 2017. (2) A principal in an early stage venture in Palo Alto, interview on October 17, 2017; (3) The co-founder and managing director of a venture capital firm in New York City, interview on June 1, 2017; (4) A principal of an early stage venture capital firm in Boston, MA, interview on September 19, 2017; (5) General partner of an early stage venture capital firm in San Francisco, interview on October 18, 2017; (6) Managing director of an early and growth stage venture capital firm in Los Angeles, interview on December 13, 2017; (7) Founder and managing director of an early stage venture capital firm in Los Angeles, interview on December 14, 2017.

[38] Founder and managing director of venture capital firm in New York City, interview on June 14, 2017.

[39] Interviewed on May 30, 2017 in New York City. Name of the founder and company have been removed to ensure anonymity.

explained, "we are asking for permission, not forgiveness" (alluding to a common startup motto, mostly notably employed by Uber: "ask for forgiveness, not permission").[40] This particular startup had a large physical space and large equipment and capital because they were in the business of building modular homes. In this case, the "ask for permission" strategy may have made sense because the costs of noncompliance would have been higher for this startup than for the typical "virtual" startup.

Regulatory Entrepreneurship

Borrowing the term from Pollman and Berry (2017), regulatory entrepreneurship refers to pursing a line of business where changing the law is a significant part of the business plan. Regulatory entrepreneurs (with Uber as the well-known example), make an issue as publicly salient as possible, rally the public to their cause, and the use their popular support as a force to change the regulations. These regulatory entrepreneurs pursue a line of business, sometimes in legal gray areas, with the aim of changing the law (through "rallying the consumer base" strategy) in order to continue operating.

Bradley Tusk, the former political adviser to Uber who currently has a company that "helps startups navigate through regulations," provides an explanation of the different conditions for successfully changing the rules with this type of regulatory entrepreneurship (Tusk 2018) Two of the main conditions are: (1) Consumers must be excited about the product being offered because the strategy depends on mobilizing a passionate consumer base; (2) The institutions of the country have to be democratic so that leaders would be punished if they went against popular opinion (Tusk 2018). Tusk details how this strategy was used to defeat the New York City's mayor proposal to regulate Uber in July 2015, and provides examples of other startups that have continued to use this strategy to change regulations.

Yishan Wong, who was an early PayPal employee, the former CEO of Reddit, and now a Silicon Valley angel investor, shares this sentiment. He says that if you are a startup "who feels the violation of a law (or an excursion into a grey and questionable/undefined area of the law) will allow you to create a business that provides enormous value to people,

---

[40] Interview conducted on September 5, 2017. The location has also been removed to help ensure anonymity.

the tactically wise thing to do is to move forward and try to build the business" (Wong 2013).

Pollman and Berry (2017) documents the rise of regulatory affairs in innovative startups, explaining that: "a generation of engineers has grown up in a culture of "hacking" problems and pursuing "permissionless innovation," which has fostered a willingness to create technology that challenges existing legal frameworks" and furthermore that "changing market trends and regulations have helped startups stay private longer on average and, in some instances, raise millions or even billions of dollars that can be used to fund efforts to lobby, change laws, engage experts, and battle incumbents and regulators" (2017, 1–2).

Thus, while some industry-specific regulations may be hampering Main Street entrepreneurs, they may not be hampering some technology startups in the same way. For the Silicon Valley entrepreneur, complying with the law is not a first-order concern for startups whose aim is to get large enough to change the law. This is often supported directly by venture capital funding, and thus there are funds aimed specifically for altering the law to allow these companies to exist and function. This aspect was described in a handful of interviews with venture capitalists who described investing in startups in legal gray area as an "opportunity." In one particular interview, the venture capital investor says, "When there is regulatory uncertainty, it presents an investment opportunity."[41] One venture capitalist alluded that legal gray area strategies are a potential way to get a unicorn company (such as Uber, Airbnb), and that it is one where there are "few competitors in the space."[42]

It's important to note, however, that this regulatory entrepreneurship aspect was absent from interviews with biotech and medtech startups and investors, who emphasized that the first-order priority was in fact to meet all the regulatory standards. This may be the case because the regulatory standards on pharmaceutical-related developments and medical devices are strict, and those involved view the laws as unlikely or difficult to change. This makes it difficult to be a regulatory entrepreneur in the business of "changing the law." In these industries, there may be few "legal gray areas." Regulations are strictly defined. Thus while it is

---

[41] A principal of a venture capital firm for early stage digital health technology startups, Interview on September 19, 2017 in Boston, MA.

[42] General partner of a venture capital firm in San Francisco investing in early stage startups. Interview on October 18, 2017.

not impossible to be in a business of changing regulations in the medical technology industry, it is less of a path pursed by startups.

This aspect of regulatory entrepreneurship hinges on the ability for startup businesses to scale up quickly and create significant interaction with their consumer base. As a result, technology startups are able to grow despite industry-specific regulations that may otherwise make it difficult for other types of companies.

Conclusion

In this chapter, I have identified three theoretical differences in characteristics and traits of Main Street entrepreneurs vs. Silicon Valley entrepreneurs in order to explain how these differences may impact the practical application of certain regulations. The group characteristic differences are as follows: (1) Silicon Valley entrepreneurs have a high-growth and innovation focus and only "stay small" for a very short period of time, whereas Main street entrepreneurial ventures tend to exist for a long period of time as a small business, and they are rarely innovation and growth focused. (2) Silicon Valley tends to exist in the "virtual" space, in terms of their products and often their offices, while Main Street entrepreneurs tend provide more tangible products and services and typically have "storefronts." (3) Silicon Valley entrepreneurs tend to employ more high-skilled labor and more contractor labor, whereas Main Street entrepreneurs tend to employ more low-skilled labor and do not rely as much on contractors as do the Silicon Valley entrepreneurs.

Drawing from these group characteristic differences, there are three main channels by which regulations may impact Main Street and Silicon Valley entrepreneurial ventures in different ways. (1) Regulatory burden: Federal and state regulations on labor may impact Silicon Valley entrepreneurs less because they tend to use more high-skilled labor and contractor labor, which is out of the purview of employment law and labor regulations. (2) Regulatory compliance: The incentives to comply with existing regulations are lower in Silicon Valley startups than in their Main Street counterparts, thus Silicon Valley entrepreneurs may tend to avoid compliance and continue with their business activities, whereas the Main Street small businesses are be impacted by having to comply with various regulations. (3) Regulatory Entrepreneurship: Silicon Valley startups are engaged in the business of changing regulations and operate

despite the industry-specific regulations that may otherwise burden Main Street entrepreneurs.

This discussion does not imply that Silicon Valley entrepreneurs are not impacted by regulations. They surely are. There are also regulations that impact Silicon Valley entrepreneurs but not Main Street entrepreneurs. For example, because startup financing relies on investor funds, startups are required to meet a set of Securities and Exchanges Commission (SEC) requirements. Furthermore, there are industry-specific regulations that hamper startup entrepreneurs more because of the industries that they operate in—for example, few Main Street entrepreneurs are in the business of medical technology development, but this is one of the most regulated industries that impacts startups, and one where startups cannot just "fly under the radar" when innovating. This means that Silicon Valley entrepreneurs are greatly impacted by the industry-specific regulations in their abilities to innovate and grow.

Thus, I do not aim to conclude that Silicon Valley entrepreneurial ventures are not impacted by regulations. Instead, I argue that to the extent that Main Street entrepreneurs have been hampered by specific regulations in different ways and with greater burden because of them being mostly "small businesses," these same regulations may not hinder in the same way a particular type of small business: a small technology startup. I further provide this discussion as way to illustrate that while the impact of regulations may have contributed to a decline in Main Street entrepreneurial ventures in the last few decades, the Silicon Valley entrepreneurs were not impacted in the same way—thus allowing them to continue proliferating amidst this general backdrop. Future research is needed to empirically test this claim. My paper merely outlines the important considerations and mechanisms by which the negative impact of regulations may have a greater "weight" on "Main Street" entrepreneurs than on the "Silicon Valley" entrepreneurs.

Thus, just as the literature on regulation has shown that the negative impact of regulations on small businesses is greater than on larger businesses, this paper provides theoretical insight into how negative impact of regulations may have a greater "weight" on "Main Street" businesses than on the "Silicon Valley" businesses.

References

Acs, Zoltan J., and David B. Audretsch. 1988. Innovation in Large and Small Firms: An Empirical Analysis. *American Economic Review* 78 (4): 678–690.

Al-Ubaydli, O., and P.A. McLaughlin. 2015. RegData: A Numerical Database on Industry-Specific Regulations for All U.S. Industries and Federal Regulations, 1997–2012. *Regulation and Governance* 11 (1): 109–123.

Ardagna, Silvia, and Annamaria Lusardi. 2010. The Role of Individual Characters and Regulatory Constraints. In *Explaining International Differences in Entrepreneurship*, ed. J. Lerner and A. Schoar. Chicago: University of Chicago Press.

Aulet, William, and Fiona E. Murray. 2013. *A Tale of Two Entrepreneurs: Understanding Differences in the Types of Entrepreneurship in the Economy*. Ewing Marion Kauffman Foundation.

Bailey, James, and Diana Thomas. 2017. Regulating Away Competition: The Effect of Regulation on Entrepreneurship and Employment. *Journal of Regulatory Economics* 52 (3): 237–254.

Baumol, William. 1990. Entrepreneurship: Productive, Unproductive, and Destructive. *Journal of Political Economy* 98 (5): 893–921.

Blaanchflower, David G. 2000. Self-Employment in OECD Countries. *Labour Economics* 7 (5): 471–505.

Blank, Steve, and Bob Drof. 2012. *The Startup Owner's Manuel: The Step-by-Step Guide for Building a Great Company*. Pescadero, CA: K&S Ranch.

Boettke, Peter J., and Christopher J. Coyne. 2009. *Context Matters: Entrepreneurship and Institutions*. Foundations and Trends in Entrepreneurship Monograph Series. Boston: now publishers.

Boudreaux, Donald (ed.). 2015. *What America's Decline in Economic Freedom Means for Entrepreneurship and Prosperity*. Vancouver: Fraser Institute.

Boudreaux, Donald, and Liya Palagashvili. 2016. An Economic Analysis of Overtime Pay Regulations. Mercatus Working Paper.

Branstetter, L., F. Lima, L.J. Taylor, and A. Venancio. 2013. Do Entry Regulations Deter Entrepreneurship and Job Creation? Evidence from Recent Reforms in Portugal. *The Economic Journal* 124 (June): 805–832.

Bripi, Francesco. 2013. The Role of Regulation on Entry: Evidence on the Italian Provinces. *The World Bank Economic Review* 30 (2): 383–411.

Bruhn, Miriam. 2011. License to Sell: The Effect of Business Registration Reform on Entrepreneurial Activity in Mexico. *Review of Economics and Statistics* 93 (1): 382–386.

Calcagno, P.T., and R.S. Sobel. 2013. Regulatory Costs on Entrepreneurship and Establishment Employment Size. *Small Business Economics* 42 (3): 541–559.

Census Bureau. 2016. Annual Survey of Entrepreneurs.

Chambers, Dustin, Patrick McLaughlin, and Tyler Richards. 2018. Regulation, Entrepreneurship, and Firm Size. Mercatus Working Paper. Mercatus Center at George Mason University.

Cole, Ronald, and Paul Sommers. 1981. Complying with Government Requirements: The Costs to Smaller and Larger Businesses. U.S. Small Business Administration February Report.

Coyne, Christopher J., Frédéric Sautet, Peter J. Boettke, and Peter Leeson. 2005. The New Comparative Political Economy. *The Review of Austrian Economics* 18 (3–4): 281–304.

Crain, M., and N. Crain. 2014. The Cost of Federal Regulations to the U.S. Economy, Manufacturing and Small Business (September). National Association of Manufacturers Report.

Crain, W.M., and T.D Hopkins. 2010. The Impact of Regulatory Costs on Small Firms. Small Business Administration September Report.

Cumming, Douglas, and Dan Li. 2013. Public Policy, Entrepreneurship, and Venture Capital in the United State. *Journal of Corporate Finance, Elsevier* 23 (C): 345–367.

Decker, Ryan, John Haltiwanger, Ron Jarmin, and Javier Miranda. 2014. The Role of Entrepreneurship in US Job Creation and Economic Dynamism. *Journal of Economic Perspectives* 28 (3): 3–24.

Djankov, S., R. La Porta, F. Lopez-de-Silanes, and A. Shleifer. 2002. Regulation of Entry. *Quarterly Journal of Economics* 117 (1): 1–37.

Goldschlag, Nathan, and Alex Tabarrok. 2018. Is Regulation to Blame for the Decline in American Entrepreneurship? *Economic Policy* 33 (93): 5–44

Hall, Robert E., and Susan E. Woodward. 2010. The Burden of the Nondiversifiable Risk of Entrepreneurship. *American Economic Review* 100 (3): 1163–1194.

Haltiwanger, John. 2011. Comments and Discussion. *Brookings Papers on Economic Activity* 2011 (2): 119–142.

Haltiwanger, John, Ron Jarmin, and Javier Miranda. 2010. Who Creates Jobs? Small vs. Large vs. Young. U.S. Census Bureau Center for Economic Studies Paper No. CES-WP-10-17.

Hargadon, A., and M. Kenney. 2011. Venture Capital and Clean Technology: Opportunities and Difficulties. Berkeley Working Paper Series.

Hurst, Erik, and Benjamin Pugsley. 2011. What Do Small Businesses Do? Brookings Paper on Economic Activity, Fall.

Klapper, Leora, Luc Laeven, and Rajan Raghuram. 2006. Entry Regulation as a Barrier to Entrepreneurship. *Journal of Financial Economics* 82 (3): 591–629.

Klapper, Leora, Inessa Love, and Douglass Randall. 2014. New Firm Registration and the Business Cycle. *International Entrepreneurship and Management Journal* 11 (2): 287–306.

Kauffman Foundation. 2014. State of Entrepreneurship Report.

———. 2016. Main Street Entrepreneurship Report.

———. 2017. Kauffman Index 2017: Growth Entrepreneurship National Trends.

Landes, David, Joel Mokyr, and William Baumol. 2012. *Invention of Enterprise: Entrepreneurship from Ancient Mesopotamia to Modern Times*. Princeton: Princeton University Press.

Meer, Jonathan, and Jeremy West. 2015. Effects of the Minimum Wage on Employment Dynamic. *Journal of Human Resources* 51 (2): 500–522.

Meyer, Warren. 2018. *How Labor Regulation Harms Unskilled Workers*. Regulation.

Monteiro, C.M. Joana, and J.J. Assunção. 2012. Coming Out of the Shadows? Estimating the Impact of Bureaucracy Simplication and Tax Cut on Formality in Brazilian Microenterprises. *Journal of Development Economics* 99: 105–115.

Niles, Raymond C. 2018. Entrepreneurial Discovery Capital. Working Papers 2018-03, DePauw University, Department of Economics and Management.

Nyström, K. 2008. The Institutions of Economic Freedom and Entrepreneurship: Evidence from Panel Data. *Public Choice* 136: 269–282. https://doi.org/10.1007/s11127-008-9295-9.

Palagashvili, Liya. 2020. How Regulation Shapes Technology Startups. Working Paper.

Parker, Simon. 2009. *The Economics of Entrepreneurship*. Cambridge: Cambridge University Press.

Pollman, Elizabeth, and Jordan Barry. 2017. Regulatory Entrepreneurship. *Southern California Law Review* 90 (10): 383–448.

Ritcher, Felix. 2018. Venture Capital Funding Climbs to Decade High in 2017. *Statista*, January 10. https://www.statista.com/chart/11443/venture-capital-activity-in-the-us/.

Sabia, Joseph. 2006. The Effects of Minimum Wage Increase on Retails and Small Business. Employment Policy Institute. https://www.epionline.org/wp-content/studies/sabia_05-2006.pdf.

Schoar, Antoinette. 2010. The Divide Between Subsistence and Transformational Entrepreneurship. In *Innovation Policy and the Economy*, vol. 10, ed. J. Lerner and S. Stern. Chicago: University of Chicago Press.

Sobel, R.S. 2008. Testing Baumol: Institutional Quality and the Productivity of Entrepreneurship. *Journal of Business Venturing* 23: 641–655.

Sobel, R.S., Clark, J., and Lee, D.R. 2007. Freedom, Barriers to Entry, Entrepreneurship, and Economic Progress. *Review of Austrian Economics* 20: 221–236.

Stigler, George. 1971. The Theory of Economic Regulation. *The Bell Journal of Economics and Management Science* 2 (1): 3–21.

Tullock, Gordon. 1967. The Welfare Costs of Tarriffs, Monopolies, and Theft. *Western Economic Journal* 7: 224–232.

Tusk, Bradley. 2018. *The Fixer: My Adventures Saving Startups from the Death of Politics*. New York: Portfolio Publishers.

Van Praag, Mirjam, and Peter H. Versloot. 2007. What Is the Value of Entrepreneurship? A Review of Recent Research. *Small Business Economics* 29 (4): 351–382.

Van Stel, Andre, David Storey, and A. Roy Thurik. 2007. The Effects of Business Regulations on Nascent and Young Business Entrepreneurship. *Small Business Economics* 28 (2/3): 171–186.

Wu, John J., and Robert Atkinson. 2017. How Technology-Based Startups Support U.S. Economic Growth. The Information Technology and Innovation Foundation.

Wong, Yishan. 2013. Comment to Why Has Airbnb Not Been Sued or Regulated Out of Existence? *QUORA*, December 13. https://www.quora.com/Airbnb/Why-has-Airbnb-not-been-sued-or-regulated-out-of-existence.

Index

203