



# DEMOGRAPHICS and ENTREPRENEURSHIP

Mitigating the Effects of an Aging Population



Contributing Editor  
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# Demographics and Entrepreneurship

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of an Aging Population

*Steven Globerman, Contributing Editor*

*Jason Clemens, Coordinating Editor*



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# INTRODUCTION

*Steven Globerman, Contributing Editor*

*Jason Clemens, Coordinating Editor*

Entrepreneurship is generally acknowledged and accepted as a driving force for improving living standards. This volume of collected essays, which includes contributions from leading international academics, explains (1) the importance of entrepreneurship to economic prosperity, (2) how changing demographics, and more specifically the aging of populations in developed countries, could adversely affect entrepreneurship—and may already be doing so, and (3) policy levers that can be used to mitigate these negative demographic effects. The Fraser Institute is proud to be the lead organization amongst four in this important endeavor: the Centre for Strategic and International Studies (US), the Institute of Public Affairs (Australia), and The Entrepreneurs Network (UK).

Technological change is the primary factor driving increases in standards of living in developed countries, and innovation is at the heart of technological change. That is, the introduction and widespread adoption of new ways of producing output, including new ways of organizing business activity, as well as new or modified goods and services, are the primary means for making people healthier and wealthier.

While not the exclusive source of innovation, start-up firms, usually relatively small, are disproportionate contributors to innovation, as well as to changes (large or small) in what people consume, where they live, where they work, and how much they earn. The rise of new firms, which often

results in the demise of less competitive, older firms, comprises the phenomenon that the economist, Joseph Schumpeter, identified as “creative destruction” (Schumpeter, 2009). The creative destruction phenomenon is the lifeblood of a healthy capitalist system, as it results in the constant replenishment of an economy’s innovation pipeline. At the core of the innovation process are the entrepreneurs who create start-up firms, as discussed in detail by Robert Murphy in **Chapter 1**. While many start-ups are not sources of important innovations, the minority that are can be a major force for economic change as recently exemplified by companies such as Alphabet (formerly Google), Facebook, and Tesla. Since relatively few start-ups become successful industry leaders, it is desirable to reduce barriers to entrepreneurship, so that more, rather than fewer, start-ups compete to become the next Microsoft.<sup>1</sup>

There is a growing literature focusing on the environmental and personal attributes that contribute to the making of entrepreneurs. One prominently identified attribute discussed in the literature is demography. In particular, Liang, Wang, and Lazear (2014) identify age as a major attribute influencing the propensity of individuals to become entrepreneurs. Specifically, they identify the late 20s to early 40s as the critical age range for entrepreneurs. The relevant distribution is U-shaped. That is, the propensity for entrepreneurship rises within this age span, reaches a maximum, and then decreases.

Those authors identify two main factors that account for the critical age span for entrepreneurship as Russell Sobel discusses in **Chapter 2**. One factor is that relatively young people have “supple” brains that facilitate creative thinking. A second factor is that individuals ordinarily need some business experience to successfully run a company, even a start-up business. To the extent that senior and junior executives are relatively old, their continued participation in the work force can deprive young people of the

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1 This is not to say that established firms have only a minor role to play in the economic growth process. As Carden and McCloskey discuss in their chapter in this volume, economies of scale associated with large, established firms are complementary to the innovations created by start-ups. See also Weiblen and Chesbrough (2015).



business experience they need to hone their managerial skills in areas such as production, finance, and accounting. In short, an aging population can be a prominent barrier to entrepreneurship and, therefore, to the major economic benefits conveyed by start-up companies.

In his chapter, Sobel presents demographic data for a number of developed economies that paint a pessimistic long-run picture for entrepreneurship. Specifically, developed countries have been aging, and the aging process is set to accelerate generally beyond the year 2025. For example, the percentage of the population in the 25-to-49 age group was at its highest in 1995 in Canada, the US, the UK, and Australia. That year, 40.1 percent of the population was in this age group in Canada, 38.4 percent in the US, 36.3 percent in the UK and 38 percent in Australia. By 2015, that percentage was lower in all four countries by some two to five percentage points. Furthermore, for these four countries, the percentage aged 25 to 49 will continue to fall by an average of four percentage points over the next five decades.

In **Chapter 3**, Joel Emes, Taylor Jackson and Steven Globerman present and discuss data bearing upon the changing rate of start-up businesses in Canada, the US, Australia, the UK, and Germany. The broad pattern is the same across the various sample countries. Namely, small start-up companies as a share of the population of small business incumbents declined in the post-2000 period. Table I-1 summarizes this decline.

The decline is particularly notable in the post-2008 period consistent with the likelihood that the financial crisis of 2008 and the subsequent recession and slow economic recovery discouraged entrepreneurial start-ups. However, a longer time series for the US and Canada suggests that the decline in entrepreneurial start-ups is not uniquely a function of the severe recession of 2008. Specifically, the declining share of small firm start-ups begins earlier and generally overlaps the aging profile of the populations of the sample countries. While it was not possible to do formal statistical testing, the broad coincidence of declining rates of small business start-ups and aging populations in the countries examined is consistent with the econometric evidence of Liang, Wang, and Lazear (2014) that is discussed in Sobel's chapter.

**Table I-1: Small Business Entry Rates per 100 Small Business Incumbents, Three Year Averages, 2003–2014**

Period	2003–2005	2006–2008	2009–2011	2012–2014
Australia*	17.59	14.99	14.14	12.57
Canada*	15.74	15.74	14.29	13.73
United States*	13.61	13.12	10.68	11.30
Germany**§	6.06	6.62	6.36	4.76
United Kingdom**	15.48	14.72	11.60	14.94

Notes:

\* Small enterprise defined as 20 or fewer employees.

\*\* Small enterprise defined as fewer than 10 employees.

§ 2003–2005 is based on 2004 and 2005 data for Germany.

There is a break in the data for the United Kingdom and Germany, in that a new reporting system was adopted for these two countries from 2008 onwards.

Source: Australian Bureau of Statistics, 2007, 2012, 2016; Eurostat, 2012, 2017; Statistics Canada, 2017a; US Census Bureau, 2017; author calculations.

Chapter 3 also presents data on growth rates of multifactor productivity for the sample countries. This broad measure of productivity growth has noticeably slowed in recent years for most of the countries examined. By way of illustration, for Australia, Canada, Germany, the United Kingdom, and the US, multifactor productivity growth from 2011 to 2015 was, on average, only around 50 percent of the growth rate from 1991 to 1995. The declining productivity growth rate is consistent with a slowdown in business start-up rates. To be sure, there can be multiple causes of a slowdown in productivity growth; however, the latter phenomenon underscores the importance of gaining a better understanding of why business start-up rates have slowed, as well as the importance of identifying and implementing policies to revitalize entrepreneurial activity.

Perhaps the single most important institutional factor influencing entrepreneurial activity is the tax structure facing would-be entrepreneurs.

In **Chapter 4**, Seth Giertz discusses the various effects that taxes have on entrepreneurship. Most directly, higher taxes on incomes reduce the private sector savings that are available over time to fund entrepreneurial start-ups. In effect, an income tax reduces accumulated savings by reducing the amount available to be saved, and then by reducing the after-tax income that accrues from investing what is saved in an earlier period. In this regard, a consumption tax would be preferable to an income tax, as it would effectively not tax accumulated income from savings, at least until it was spent on consumption.

Giertz also highlights the impact of higher marginal income tax rates on risk-taking, which is an essential feature of entrepreneurship. In theory, if investors are risk-neutral and income losses from start-up ventures were fully deductible in the year they were incurred, symmetrical to income gains being fully subject to taxation in the year they are realized, higher marginal tax rates would have a neutral impact on risk-taking. In fact, losses from business start-ups are generally not fully deductible in the year that they are incurred. Hence, higher marginal tax rates discourage risk-taking, other things constant. This effect is magnified if investors are risk averse. An offsetting factor is that higher marginal income tax rates will encourage a substitution away from salaried employment to self-employment, especially if business tax rates are lower, at the margin, than personal income tax rates for any level of income. This might result in some increased start-up activity at the margin, although it is unlikely to be of the Schumpeterian variety, i.e., start-ups driven by innovation.

Dan Mitchell, Taylor Jackson, and Charles Lammam in **Chapter 5** address the importance of the capital gains tax structure. Many entrepreneurs anticipate that the main source of the payoff to their work efforts and risk-taking will be the capital gains that they realize when either taking their companies public or, increasingly, selling their companies to private equity investors. It makes sense that a higher capital gains tax will therefore discourage business start-up activity. In Chapter 5, the authors provide a very detailed review of the empirical literature on the impact of a higher capital gains tax rate on business start-ups. Unsurprisingly, the impact is generally quite substantial. Indeed, in some studies, the capi-

tal gains tax rate is the single most important policy instrument affecting start-up activity. The authors then summarize the capital gains tax structure for the US, Canada, the UK, and Australia, highlighting important differences across the countries reviewed.

In **Chapter 6**, Douglas Cumming and Sofia Johan provide additional perspective on the importance of a country's tax structure on entrepreneurship in their broad evaluation of how financial laws and regulations affect investments in business start-ups. Their analysis reveals that tax law is the most frequently linked policy variable to business start-ups in the entrepreneurship literature. This provides additional support for the importance of developed countries restructuring their tax systems away from taxing income and capital gains from entrepreneurial activity if more of that activity is to be realized.

Cumming and Johan also discuss the potential role that government might play in providing funding for entrepreneurship, particularly through tax-sponsored venture capital companies. In particular, they review the experience of Canadian Labour Sponsored Venture Capital Corporations (LSVCCs) and highlight the problems with those funds and their relatively poor financial performance. Cumming and Johan's conclusion is broadly consistent with a growing number of empirical studies that compare the financial performance of private sector investment managers to that of sovereign wealth funds. The latter are funds that invest government savings typically accrued through royalties and taxes on natural resources. While the mandates of private investment managers and sovereign wealth funds differ, the financial performance of the former group is generally better than that of the latter group.<sup>2</sup> Cumming and Johan also document the potential for direct or indirect (through tax credits) government funding of start-ups to crowd out private investment. This finding argues against governments accruing savings through taxes and royalties in order to fund

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2 For a review and discussion of studies that compare the financial performance of privately owned investment managers to those of sovereign wealth funds, see Globberman and Shapiro (2018).

innovative business ventures, rather than allowing savings to be mobilized and invested through the private sector.

Cumming and Johan also discuss the relevance of bankruptcy laws, labour regulations, and equity crowdfunding rules on entrepreneurship. In particular, they highlight the importance of entrepreneur-friendly bankruptcy laws, limited labour market regulations, and securities laws that encourage initial public offerings, as well as support the activities of intermediaries, such as venture companies, in promoting business start-ups. Given the economic spillover benefits from start-up businesses, they highlight the potential for “intelligent” financial rules to improve economic efficiency. They caution that more research is needed on how public policy in the area of financial laws and regulations might improve efficiency.

Universities are widely seen as sources of new scientific and technical knowledge through the research activities of faculty. Increasingly they are also coming to be seen as engines of economic development as reflected in the growing establishment of university offices focused on encouraging start-up ventures based on faculty research, as well as the proliferation of formal educational programs in entrepreneurship. In **Chapter 7**, Art Sherwood discusses the prominent role that universities play in what he identifies as the “entrepreneurial ecosystem.” This system involves different parts of the university, in particular, technology transfer offices, as well as university faculty, interacting with private sector investors and businesses, and government officials and agencies, among other external institutions. Sherwood describes these interactions, as well as other, less formal ways, that knowledge created within the university can promote innovation. He also offers a number of suggestions based on case studies and other findings reported in the literature that promise to strengthen the role that universities can play in promoting entrepreneurship

Legal and regulatory institutions can play a prominent role in conditioning the entrepreneurial environment, as Cumming and Johan, among others, identify. In **Chapter 8**, Wayne Crews offers an extensive discussion of the burden that regulations place on would-be entrepreneurs, including phenomena such as health and safety regulations, professional licensing requirements, and environmental restrictions. Crews reviews the empiri-

cal literature on the relationship between regulation and start-up activity, highlighting the conceptual and statistical challenges researchers face in identifying the relationship using conventional empirical tests. Notwithstanding these difficulties, and while acknowledging that certainly not all regulations have net social costs, Crews makes a compelling case that in general, developed countries are much too highly regulated from the perspective of social welfare broadly considered, particularly given the vital role that entrepreneurship plays in promoting real economic growth. He provides an extensive set of recommendations for reforming the regulatory process so that it poses a substantially smaller barrier to entrepreneurial start-ups. In particular, he recommends that existing regulations be regularly reviewed and eliminated, unless there is a compelling social reason for their continuation.

Another way that individual countries can address the challenge to entrepreneurship posed by aging populations is to allow more immigration into their countries, particularly younger and more highly educated and skilled immigrants. In **Chapter 9**, Peter Vandor and Nikolaus Franke discuss important linkages between immigration and entrepreneurship. One critical issue they address is whether immigration “crowds out” domestic entrepreneurship. That is, are immigrant entrepreneurs complements to, or substitutes for, domestic entrepreneurs? While there is some conflicting evidence on this issue, Vandor and Franke conclude that on balance, immigration encourages start-up business activity. Certainly, as they report, immigrants account for a disproportionate share of successful business start-ups in developed countries. For example, in the United States, immigrants represented 24.9 percent of all new business owners between 2007 and 2011, but only 15.6 percent of the wage workforce. Similar observations have been made for Canada where the 2009 Labour Force Survey indicates that 17.5 percent of immigrants aged 18 to 69 were self-employed compared to only 14.4 percent of the Canadian-born population.

This dynamic of immigrants being disproportionately likely to start businesses is unsurprising. For one thing, immigrants are likely to be, by nature, more risk-taking than those who are native born, since immigration itself is a risky proposition. For another, immigrants face language

and other challenges to getting employment that native-born job-seekers are less likely to face, which should make the former more willing, at the margin, to start their own businesses. Vandor and Franke also discuss challenges that immigrants face in actually becoming successful as entrepreneurs, including access to financial capital and limited knowledge of local laws and regulations. In this regard, there is a potential role for public policy to play in helping immigrant entrepreneurs address those challenges.

Finally, in **Chapter 10**, Art Carden and Deirdre McCloskey discuss the importance of attitudes towards entrepreneurs as determinants of start-up businesses. This chapter summarizes and extends McCloskey's well-known writings on the virtues of the bourgeoisie. Carden and McCloskey describe how different social attitudes towards people engaged in business pursuits across European countries help explain why economic growth differed across those countries and, in particular, why Great Britain became the dominant European power by the mid-nineteenth century. In short, starting and running a business came to be seen in Great Britain and several other European countries as a worthy and honorable occupation. This was a departure from the traditional social hierarchy of Europe where the clergy and the military held an exalted status and where "shopkeepers" were looked upon as less worthy—indeed, perhaps unworthy—members of society. Carden and McCloskey remind us that entrepreneurs are often motivated by more than just pecuniary gain. Many contemporary entrepreneurs also want to be the source of important economic and social changes, as exemplified by the entrepreneurial projects of Elon Musk, who is aiming for nothing less than to enable people on earth to live on other planets.

Carden and McCloskey's discussion of social attitudes towards entrepreneurs has great contemporary relevance given the recent rise of "populism," which might be seen as a backlash on the part of those who have experienced economic displacement from the changes wrought by the Schumpeterian process. Certainly, Donald Trump's election as president of the United States was achieved, in significant measure, by his pledge to workers in industries such as steel and coal that he would restore their formerly high paying jobs. He has followed up his pledge, in part, by imposing tariffs on imported washing machines, steel, aluminum, and other manu-

factured products. Portraying oneself as a defender of those adversely affected by economic and social change may become an increasingly popular gambit for politicians seeking the support of relatively narrow groups of voters. The solid voting support of even narrowly defined voting blocs seems to be increasingly the difference between winning or losing elections. This political dynamic might prove to be an increasingly important deterrent to entrepreneurship, since protection of the *status quo* will slow or prevent the migration of financial capital and other productive resources from inefficient incumbents in developed economies to start-ups that have better ideas about what products will create consumer surplus and how to produce those products.

While entrepreneurs such as Steve Jobs and Elon Musk may enjoy an exalted social status, Schumpeterian competition might not. Indeed, and arguably contrary to the enlightened nineteenth century attitude towards business ownership described by Carden and McCloskey, surveys that show a growing preference on the part of millennials in the United States for socialism speak to the threat that possibly changing social attitudes pose to a system of institutions supportive of entrepreneurship.<sup>3</sup> Against the background of a challenging political environment, it is critical for government officials and policymakers to be reminded of the fundamental importance of entrepreneurship to a society's well-being, as well as the growing threat that an aging population poses to entrepreneurship.

The headwind to entrepreneurship posed by an aging population highlights the need for policies that encourage business startups and (hopefully) mitigate the challenges to entrepreneurship posed by demography. In this regard, promoting some or all of the policy initiatives put forth in this volume is a worthy task for those who want to reinvigorate entrepreneurial activity in developed countries.

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3 See, for example, Lane (2017).



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# CHAPTER 1

## The Connection between Entrepreneurship and Economic Prosperity: Theory and Evidence

*Robert P. Murphy*

*Senior Fellow, The Fraser Institute*

### Introduction

This chapter<sup>1</sup> argues that there is a crucial connection between entrepreneurship and economic prosperity. Although some readers might consider the relationship almost a tautology—after all, don't we need entrepreneurs if we are to have any goods and services at all?—it has been an ironic twist of history that economic theory, particularly in the first half of the twentieth century, largely forgot the importance of the entrepreneur. Perhaps abetted by this disturbing theoretical trend, policy makers around the world, particularly in the explicitly communist governments, ignored the

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1 The author thanks Peter Klein, Eric C. Mota, David Gordon, Ryan Murphy, and Lawrence McQuillan for research suggestions. John Haltiwanger provided data to allow for the reproduction of a figure.

importance of institutional encouragement for socially beneficial entrepreneurship.

Fortunately, both economic theorists and policy makers alike have recognized the shortsightedness of such a stance. There is a growing recognition that a society's economic prosperity depends not merely on "education" or "investment," but also specifically on entrepreneurship.

This essay will clarify and provide evidence for such a dependence. We start by providing a conceptual framework of entrepreneurship, before turning to historical examples and empirical studies documenting the importance of entrepreneurs in delivering material benefits to the masses.

## **The conceptual framework**

Two of the top names associated with the theory of entrepreneurship are Joseph Schumpeter and Israel Kirzner, whose views are often contrasted with each other. We will review their approaches in turn.

Schumpeter famously invoked the term "creative destruction" to describe the volatile development occurring in a capitalist system:

The opening up of new markets, foreign or domestic, and the organizational development from the craft shop and factory to such concerns as U.S. Steel illustrate the process of industrial mutation that incessantly revolutionizes the economic structure *from within*, incessantly destroying the old one, incessantly creating a new one. This process of Creative Destruction is the essential fact about capitalism. It is what capitalism consists in and what every capitalist concern has got to live in. (Schumpeter 1942/1994: 83)

In addition to being a theorist, Schumpeter was also a master historian of economic thought. In an essay (1949/2008) tracing the various notions of entrepreneurship by various writers, Schumpeter distills the usage in which it is the entrepreneur who sees a *new* opportunity and deploys factors of production accordingly. The entrepreneur is a creative leader, who

earns a return that is not simply a return on his or her labour, nor is it merely interest on invested capital. The entrepreneur is not a risk-bearer per se—for it is the capitalist's funds that are at risk—but rather the entrepreneur is the one who *decides in the face of uncertainty* (p. 256).

Indeed, in a previous essay (1947/2008), Schumpeter first contrasts two ways in which the economy can respond to a change in the data. One way is an “adaptive response,” in which people engage in more (or less) of the same basic activities, while a “creative response” occurs when firms in the economy do “something that is outside the range of existing practice” (p. 222). Schumpeter distinguishes between the mere managers who oversee adaptive responses and the true entrepreneur, who engages in creative responses. “[T]he entrepreneur and his function are not difficult to conceptualize: the defining characteristic is simply the doing of new things or the doing of things that are already being done in a new way (innovation)” (p. 223). Schumpeter goes on to make another useful distinction when he writes, “The inventor produces ideas, the entrepreneur ‘gets things done,’” which he illustrates in this way: “[T]he fact that Greek science had probably produced all that is necessary in order to construct a steam engine did not help the Greeks or the Romans to build a steam engine” (p. 224).

Israel Kirzner has written extensively on entrepreneurship, elaborating on the approach of his teacher, Ludwig von Mises (e.g., 1952). Kirzner (1973) lays out his vision of the market process, and how entrepreneurs acting in competition move the economy towards equilibrium (or state of coordination, in a more Hayekian [1937] approach). In the tradition of the Austrian School, in a state of long-run equilibrium across all markets, labour receives its discounted marginal product in the form of wages, while land and capital goods owners receive rental payments that are also in accordance with their contribution to output. These wages and rents are *discounted*, however, depending on how far removed in the future the final product is from the moment they are paid. This allows for the capitalists to earn a pure interest return on their invested funds, which accrues with the passage of time simply because present goods are more valuable than future goods.

However, in the real world we are never in such a fictitious state of economy-wide (and perpetual) equilibrium. The “data” of the market—consumer preferences, resource supplies, and technological know-how—are constantly changing. At any given moment, some enterprises are channeling too many resources into the production of certain goods and services, while other enterprises are not grand enough. It is the alert entrepreneurial class who perceive these misallocations before their more complacent peers, and in the process earn *pure profits* which cannot be decomposed into wages, rents, or interest. As Kirzner explains:

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. It comes from discovering sellers and buyers of something for which the latter will pay more than the former demand. The discovery of a profit opportunity *means the discovery of something obtainable for nothing at all*. No investment at all is required; the free ten-dollar bill is discovered to be already within one’s grasp. (Kirzner, 1973: 48, emphasis in original.)

In terms of technical theory, Schumpeter’s and Kirzner’s treatment of the nature of entrepreneurship is quite similar. However, at the very least the flavour of their writings is quite different. Schumpeter’s entrepreneur is a *disruptor* who *creates* new products first in his mind and then makes them a reality, whereas Kirzner’s entrepreneur is a *coordinator* who simply *observes* the profit opportunities waiting to be grasped.

I agree with Palagashvili (2015) who writes that on the issue of promoting prosperity, the alleged tension between the “disequilibrating” Schumpeterian entrepreneur and the “equilibrating” Kirznerian entrepreneur “is unimportant because both roles... improve society’s material standard of living and, hence, each is crucial to long-run economic prosperity” (p. 7). She also cites Boudreaux (1994) who argues that even

Schumpeter's entrepreneur moves the economy towards equilibrium, from a broader vantage point.

In this essay, we endorse the conceptual framework offered in Baumol, Litan, and Schramm (2007). Rather than endorsing "entrepreneurship" or "capitalism" per se, in this book the authors identify four types of capitalism: (1) entrepreneurial, (2) big-firm, (3) state-directed, and (4) oligarchic. Within this taxonomy, the authors argue that the optimal arrangement for economic growth is a mixture of the first two types:

[I]t takes a mix of innovative firms *and* established larger enterprises to make an economy really tick. A small set of entrepreneurs may come up with the "next big things," but few if any of them would be brought to market unless the new products, services, or methods of production were refined to the point where they could be sold in the marketplace at prices such that large numbers of people or firms could buy them. It is that key insight that led us to the conclusion that the *best* form of "good capitalism" is a blend of "entrepreneurial" and "big-firm" capitalism... (Baumol, Litan, and Schramm, 2007: ix, emphasis in original.)

Although they don't themselves motivate it as such, we can interpret their framework as uniting the perspectives of Schumpeter and Kirzner. If the goal is maximum economic efficiency in the long run, to provide the highest possible standard of living to citizens within the unavoidable constraints imposed by nature, then we need bold, innovative entrepreneurs who disrupt existing modes of production by introducing entirely new goods and services, but we also need vigilant, alert entrepreneurs who spot arbitrage opportunities in the existing price structure and quickly move to whittle them away. In other words, the work of Baumol et al. shows that we need the Schumpeterian entrepreneur to disrupt the status quo with innovations, but we also need the Kirznerian entrepreneur to transmit these innovations throughout the economy through imitation and slight adjustments.

As we will see in the remainder of this chapter, the conceptual framework we have just developed can effectively accommodate historical anecdotes connecting entrepreneurship to prosperity, as well as the empirical studies on the topic.

## **Examples of the heroic and pioneering entrepreneur**

This section provides four historical examples of entrepreneurship that helped deliver our modern standard of living. I have deliberately chosen them to emphasize that successful innovation is *not* simply a matter of invention, but instead involves the nuts and bolts of production, distribution, and marketing.

John D. Rockefeller was, by all accounts, a humble and generous man, who by his death had donated some \$550 million to philanthropic causes. And though some critics objected to his “ruthless” tactics in business, the ultimate reason Rockefeller captured 90 percent of the refining market was his ability to cut costs: He drove the price of kerosene from 58 cents down to 8 cents per gallon. John Archbold, a colleague who would become a vice president of Standard Oil, said, “You ask me what makes Rockefeller the unquestioned leader in our group. Well, it is simple... Rockefeller always sees a little further ahead than any of us—and then he sees around the corner” (Folsom, 2003: 83, 93–94).

An anecdote illustrates the ability of Charles Schwab—the famous steel magnate, who should not be confused with the later financier of the same name—to take a “given” factory and labour force, and wring more output from them. Historian Burt Folsom relays Schwab’s story of when he visited an unproductive steel mill under his control:

It was near the end of the day; in a few minutes the night force would come on duty. I turned to a workman who was standing beside one of the red-mouthed furnaces and asked him for a piece of chalk.

“How many heats has your shift made today?” I queried.



“Six,” he replied

I chalked a big “6” on the floor, and then passed along without another word. When the night shift came in they saw the “6” and asked about it.

“The big boss was in here today,” said the day men. “He asked us how many heats we had made, and we told him six. He chalked it down.”

The next morning I passed through the same mill. I saw that the “6” had been rubbed out and a big “7” written instead. The night shift had announced itself. That night I went back. The “7” had been erased, and a “10” swaggered in its place. The day force recognized no superiors. Thus a fine competition was started, and it went on until this mill, formerly the poorest producer, was turning out more than any other mill in the plant. (Quoted in Folsom, 2003: 63–64)

It’s easy enough to understand how increases in material efficiency—the ability to take a given amount of physical inputs and create a greater amount of physical output—could give John D. Rockefeller or Charles Schwab a competitive advantage. But entrepreneurial innovation isn’t just limited to physical production. It also includes new techniques in marketing. For example, Schweikart and Doti (2010) explained the secret behind the success of a household name in beauty products:

Mary Kay Ash took with her a decade’s worth of experience and knowledge of the direct sales industry and, in 1963, decided to launch her own company, Beauty by Mary Kay, in Dallas. Joined by her son, Richard Rogers, Ash targeted a part of the market that the largest competitor, Avon, had ignored: skin care. Simple door-to-door sales no longer worked, however, so Ash used the concept of a “party”—a two-hour, in-home beauty show in the residences of women who agreed to act as hostesses... Ash realized that the key to successful

sales of any good product is the sales force, causing her to explore new and unconventional motivational techniques. She handed out bonuses and monetary prizes... (Schweikart and Doti, 2010: 347)

Eventually, Mary Kay Ash would increase the incentives for her best representatives so that she was giving them signature pink Cadillacs. By the late 1980s, “Mary Kay Cosmetics had more than 120,000 employees... all of whom could compete for mink coats, diamonds, resort vacations, and other luxuries. The pink Cadillac became... literally, a ‘cosmetic’ symbol of success” (Schweikart and Doti, 2010: 348).

As I will stress in this chapter, often entrepreneurial innovation occurs in complementary waves, where individual firms build off of the success and opportunities afforded by others. For example, no one genius could invent the modern supermarket; the suppliers had to first innovate, as well. Schweikart and Doti explain:

Well after the turn of the [twentieth] century, grocery stores still had the old-fashioned touch, using stock clerks to take items from the shelves for the customer and box the purchases... [T]hat tradition faded when a Memphis grocer named *Clarence Saunders applied assembly-line techniques to grocery store shopping in 1916 at his Piggly Wiggly store*. All items were marked with a price and displayed on shelves. The customer walked down the store aisles with a basket and pulled products off the shelf for checkout with a clerk in front of the store. *Saunders’s strategy only worked when products came in packages that consumers could clearly identify*. Packaging already had become an integral part of selling a number of products, especially foods... Rather than emphasizing the crackers in the box, Nabisco’s Uneeda advertising campaign, introduced in 1898, stressed Nabisco’s patented “In-Er-Seal” package that kept crackers fresh. Before the appearance of packaged products, grocery stores kept goods in bins, filling the customer’s request for, say, a pound of flour from an open bin. Unfortunately, any number of foreign objects, including codfish, kerosene, salt, floor sweepings, or even lost earrings, could fall into

the bins, then into the customer's package. Of course, Nabisco was not the only food processor to use packages. Heinz's vegetables and sauces, Campbell's soups, and *many other products were sold in packages by 1900. That practice allowed grocery owners like Saunders to rearrange their stores* to feature shelved items instead of large bins. (Schweikart and Doti, 2010: 257, emphasis added.)

These are the types of entrepreneurial success stories that our conceptual framework must accommodate. Yet in order to appreciate the work of economists such as Schumpeter and Kirzner—and the synthesis of Baumol, Litan, and Schramm (2007) that we have consciously embraced for this chapter—the next section explains how entrepreneur was virtually snuffed out in twentieth century economic theory.

### **The fall and rise of entrepreneurship in economic theory**

The layperson might assume that entrepreneurship—being so central to the market economy—would occupy a dominant place in economic theory. And indeed, it *is* true that business schools offer extensive training on the theory of and practice of entrepreneurship and management. However, the situation is more nuanced when it comes to the theoretical models developed by the purely academic economists.

Specifically, as economics matured out of its beginnings as “political economy” discussed by the “moral philosophers” in the eighteenth and nineteenth centuries, it became more mathematical and mechanistic, taking the apparent epitome of science—classical mechanics—as its guide. Modern economists can debate the pros and cons of this development, but one undeniable casualty of this move towards formalization was the place of the entrepreneur in formal economic theory.

In what some historians of economic thought dub the first work of political economy, even predating Adam Smith, Richard Cantillon's 1755 *Essai sur la Nature du Commerce en Général* devoted an entire chapter to a verbal “model” of a city's economy (including the surrounding country-

side), which was composed of *entrepreneurs* (a term credited to Cantillon), labourers, landowners, and government officials. In Cantillon's discussion, it is the entrepreneurs who bear the risk in each business undertaking. Here is a typical paragraph:

All these entrepreneurs become consumers and customers of each other, the draper of the wine merchant, and vice versa. In a state, they proportion themselves to the customers or their consumption. If there are too many hat makers in a city or on a street for the number of people who buy hats, the least patronized must go bankrupt. On the other hand, if there are too few, it will be a profitable business, which will encourage new hat makers to open shops and in this manner, entrepreneurs of all kinds adjust themselves to risks in a state. (Cantillon, 1755/2010: 75)

Later on, the famous J.B. Say, from whom we get Say's Law, continued to use the term "entrepreneur." One English translator rendered it as "adventurer" to capture the sense in which Say used it. Writing in 1965, management icon Peter Drucker praised Say's usage, arguing that the French economist deployed the term "as a manifesto and a declaration of dissent: the entrepreneur upsets and disorganizes" (quoted in Baumol, Litan, and Schramm, 2007: 3).

However, despite this early focus on entrepreneurship, the formalization of economics expunged the entrepreneur from standard models.<sup>2</sup> This is completely understandable, in retrospect: After all, if a major role of the entrepreneur is to upset the existing order—to show that the status quo is suboptimal—then it is difficult to incorporate that element in a model with continuous functions and in which all of the agents (consumers, firms, government officials) maximize a function capturing their respective payoffs.

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2 Ironically, though Adam Smith is famously connected with the term "undertaker," the great British classical economists did not stress entrepreneurship as much as their French peers, as Schumpeter (1949/2008: 254–255) observes.

Over the years, some of the giants in economics were well aware of this sterility in formal economic theory. For example, Ronald Coase, who would later win the Nobel Prize, expressed the situation in 1988:

The entities whose decisions economists are engaged in analyzing have not been made the subject of study and in consequence lack any substance. The consumer is not a human being but a consistent set of preferences. The firm, to an economist, as Slater has said, “is effectively defined as a cost curve and a demand curve, and the theory is simply the logic of optimal pricing and input combinations.” (Coase and Slater, quoted in Baumol, Litan, and Schramm, 2007: 14)

Another Nobel laureate, Friedrich Hayek, also lamented the lack of entrepreneurship in formal economic models. Specifically, the model of “perfect competition” as it had developed in the textbooks in the first half of the twentieth century would, ironically, *exclude* the everyday activities that real-world businesspeople use to compete! As Hayek put it:

The peculiar nature of the assumptions from which the theory of competitive equilibrium starts stands out very clearly if we ask which of the activities that are commonly designated by the verb “to compete” would still be possible if those conditions were all satisfied... I believe that the answer is exactly none. Advertising, undercutting, and improving (“differentiating”) the goods or services produced are all excluded by definition—“perfect” competition means indeed the absence of all competitive activities. (Hayek, 1948: 96)

It is against this backdrop of an austere modeling of the economy, in which there is no role for genuine innovation, that we must appreciate the contributions of those modern economists such as Schumpeter, Kirzner, and Baumol, who have kept alive the central focus on entrepreneurship in their research.

The purpose of this brief section on the history of economic thought is not merely pedagogical. There are genuine policy implications stemming

from the two different approaches to models of the economy (and competition in particular). Specifically, models of so-called “perfect competition” all too often give the impression that if firms in the real world have too much “market power,” then the industry in question must be failing to provide the full social benefits possible to workers and consumers. Such thinking drives antitrust legislation and decisions about merger approval and other business practices.

Economist Dominick Armentano has built a career using the findings of entrepreneurship research in order to criticize the conventional approach to antitrust. Rather than viewing government breakup of large firms as promoting healthy competition which keeps wages high and prices low, Armentano argues that such policies can perversely cripple the incentive for firms to innovate. If a particular firm has a large share of its market, this need not be a sign of harm. On the contrary, so long as there are no institutional barriers to entry, large market share is *prima facie* evidence that a firm has been serving customers well, by transforming inputs into outputs more efficiently than its rivals. After laying out his theoretical framework, Armentano (1972) spends an entire book refuting what he calls the “myths” of antitrust. Drawing on the US experience, Armentano documents historical case after case in which antitrust policy has been used by companies to *stifle* competition from their more capable peers.

For our purposes in this chapter, the message is that if policy makers wish to reap the full benefits of entrepreneurial innovation for society at large, they must take care not to make decisions based on economic models that assume away the very problems that real-world entrepreneurs solve. Yes, in certain models it can be shown that firms with “market power” may set output and prices in a manner that does not achieve “Pareto efficiency.” But in these types of models, *there is no need* for entrepreneurs in the first place, since the firms all use the same production function and know the demand function of their customers, the consumers have perfect information about products, and any constraints in terms of depletable resources are fully known at the outset, as is all other information relevant to determining supply and demand conditions. In short, in the world of models

touting “perfect competition,” there is no need for genuine innovation, and hence there is no downside to policies that could hinder entrepreneurship.

Yet in the real world, of course, entrepreneurship is vitally important to economic growth. Ironically, even though the earliest economic treatises placed the entrepreneur at center stage, it is only more recently that the economics profession has begun to rehabilitate the position of the entrepreneur in their formal treatment.<sup>3</sup>

## **What the literature says about the benefits of entrepreneurship**

Besides broad economic theory and compelling historical anecdotes, there is a vast empirical literature on the connection between entrepreneurship and prosperity. This section highlights just a sample of the academic studies in this arena, categorized by topic.

### ***Economic growth***

An extensive literature documents the connection between entrepreneurship and economic growth. The studies vary in terms of the specific measure of entrepreneurship (e.g., small firms, self-employment rate, young firms, etc.) and the size of the economic unit being studied. This section can only provide a sample of the extensive work in this area. Carree and Thurik (2006) is a single collection containing reprints of some of the most important contributions.<sup>4</sup>

Carree et al. (2002) look at 23 OECD countries from 1976 to 1996. Using a two-equation model, they study (among other questions) the “equilibrium rate of business ownership” and how deviations from it can

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3 One could plausibly argue that William Baumol in particular (see, for example, Parts II and III of Baumol, 2002) has tried to insert the entrepreneur back into the conventional models of industrial organization and long-run growth.

4 Note that some of the essays reprinted in Carree and Thurik (2006) are discussed later in this chapter, as they fall more specifically under “innovation” or “job growth” than “economic growth,” which is the topic of this particular section.

hamper economic growth. They “find confirmation for the hypothesized economic growth penalty on deviations from the equilibrium rate of business ownership... An important policy implication of our exercises is that low barriers to entry and exit of businesses are necessary conditions for the equilibrium seeking mechanisms that are vital for a sound economic development” (p. 271).

Other studies in a similar vein adopt a particular measure of “entrepreneurship” and test if it is related to a stipulated measure of growth. For example, Holtz-Eakin and Kao (2003) look at the birth and death rates of firms across US states, and find that this proxy for entrepreneurship contributes to growth. Similarly, Callejón and Segarra (1999) look at manufacturing firm birth and death rates in Spain from 1980 to 1992, and conclude that this measure of “turbulence” contributes to total factor productivity growth. The results for Germany were more nuanced. At first, studies such as Audretsch and Fritsch (1996) concluded that higher firm birth/death rates in Germany in manufacturing and service were associated with lower (not higher) growth. Yet this was based on data from the 1990s. Later, in 2002, Audretsch and Fritsch found that turbulence *is* associated with higher growth, meaning that the nature of the German economy seems to have changed from the 1980s to the 1990s. (Summaries of the studies in this paragraph are taken from Audretsch and Keilbach, 2006: 303–304.)

Schmitz (1989) developed a neoclassical growth model that explicitly captures the “importance of imitation in the growth process,” in order to formalize the importance of entrepreneurship in promoting economic growth. Specifically, Schmitz departs from the more typical models in this genre by altering the specific *way* in which new knowledge is produced and disseminated among the members of an industry to more accurately match the historical record. However, his result was purely theoretical, in the sense that he derived the implications of his formal model, without actually engaging in empirical tests of its predictions versus those of the more typical models. Nonetheless, his work is important in demonstrating the possibility that the standard models of growth and “endogenous learning” may be unwittingly downplaying the role entrepreneurship plays in the real world.



Michelacci (2003) “proposes a model of endogenous growth where innovating requires both researchers, who produce inventions, and entrepreneurs who implement them” (p. 207). Michelacci assumes that individuals can choose to become either researchers or entrepreneurs. Consequently, if the relative economic rewards to entrepreneurs are too low, then the returns to R&D suffer because society is producing too many inventions without enough matching entrepreneurs to implement them. After developing the model, Michelacci illustrates it using US data from 1950 to 1990, using patent applications and the “ratio of scientists and engineers involved in R&D” as some of the inputs. The results are consistent with his hypothesis, namely, that “an increase in research effort can crowd out more socially useful entrepreneurial skills [and] reduce the growth rate” (Michelacci, 2003: 221).

Audretsch and Keilbach (2004) augment the traditional neoclassical growth models by introducing a new factor, “entrepreneurship capital,” along with the standard inputs of labour, (physical) capital, and human (knowledge) capital. According to their abstract: “A production function model including several different measures of entrepreneurship capital is then estimated for German regions. The results indicate that entrepreneurship capital is a significant and important factor shaping output and productivity.”

As we will see throughout this literature review, researchers often try to qualify previous findings by adding more subtlety. For example, in one of his chapters in *The Empirical Analysis of Entrepreneurship and Economic Growth*, Stel (2006) looks at 36 countries from 1999 to 2003 to see whether the (then) newly available *Total Entrepreneurial Activity* (TEA) rate, which measures “the relative amount of nascent entrepreneurs and business owners of young firms,” is associated with higher economic growth. Stel’s study is particularly relevant to the present chapter, because he controls for a country’s rating on the *Global Competitiveness Index* (GCI). This is significant because much of the indirect evidence on the ostensible importance of entrepreneurship could in fact be capturing the fact that economic freedom, broadly construed, contributes to various measures of entrepreneurship *and* to economic growth. But because Stel (2006) includes both the

Total Entrepreneurial Activity (TEA) rate and the Global Competitiveness Index (GCI) score in his analysis, he seeks to isolate the *additional* impact on economic growth from entrepreneurship, over and above the general benefits of a “business friendly” environment. It is worth quoting his discussion at length:

Entrepreneurship fails to be a well-documented factor in the empirical growth literature because of difficulties defining and measuring entrepreneurship... In the present chapter we have critically analyzed whether the acclaimed impact of the Total Entrepreneurial Activity (TEA) rate on economic growth stands the test of adding competing variables. There is an impact but not a simple linear one... We find that the TEA rate has a negative effect for the relatively poor countries, while it has a positive effect for the relatively rich countries. The results show that entrepreneurship matters. However, the effect of entrepreneurial activity on growth is not straightforward and can possibly be interpreted using the distinction between the Schumpeter Mark I versus Mark II regimes or the “entrepreneurial” versus “managed” economy. (Stel, 2006: 158)

Thus we see that Stel’s analysis is quite compatible with the framework of Baumol, Litan, and Schramm (2007). The similarities are even more striking when Stel offers a suggestion as to *why* there might be a negative relationship between the measured Total Entrepreneurial Activity rate and economic growth among the poorer countries. (Remember that the TEA measures the percentage of “nascent entrepreneurs” and owners of young firms in the population of a country.) Stel suggests:

The result that poorer countries fail to benefit from entrepreneurial activity does not imply that entrepreneurship should be discouraged in these countries. Instead, it may be an indication that there are not enough larger companies present in these countries. Large firms play an important role in the transformation process from a developing economy to a developed economy.” (Stel, 2006: 159)

Audretsch and Fritsch (2002), which we briefly mentioned earlier in this section, look at 74 regions in West Germany over a two-decade period, and “identify the existence of four distinct growth regimes: the entrepreneurial regime; the routinized regime; the revolving door regime; and the declining regime.” They conclude that “regional growth can result in regions focusing on large enterprises or new enterprises” (p. 113).

Although not exactly a measure of entrepreneurship *per se*, Gort and Sung (1999) looked at the US telephone industry to assess the effect of the introduction of competition on productivity growth. The US telephone industry provided a good case study because competition had been gradually introduced in the long-distance market by the early 1960s, while local service was still dominated by monopolies up through the early 1990s. Gort and Sung found both “the estimation of total factor productivity growth and the analysis of shifts in cost functions show a markedly faster change in efficiency in the effectively competitive market than for the local monopolies.” They argue that their “results support... a policy of permitting entry and increasing competition in local telephone markets” (p. 678).

For a negative result, Blanchflower (2000) looked at self-employment rates across the 22 OECD countries from 1966 to 1996, and though he did find that the self-employed reported higher job satisfaction, he did not find evidence that self-employment implied faster economic growth.<sup>5</sup>

### ***Innovation***

The connection between innovation and entrepreneurship is intimate. Indeed, in 1985 Peter Drucker wrote a book devoted to the topic. And as we explained in earlier sections, many writers use the very term “entrepreneur” to *mean* the person in a market economy who pioneers new products, services, and delivery techniques. As Drucker puts it, “Innovation is

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5 However, Blanchflower (2000) specifically tested whether *changes* in the self-employment rate were associated with higher real GDP growth, and found that they were not. Some readers might have assumed that higher *levels* of self-employment would be associated with higher real GDP growth.

the specific tool of entrepreneurs, the means by which they exploit change as an opportunity for a different business or a different service” (1985: 19).

In 1990, Acs and Audretsch relied on a new (at that time) data set in order to refine our understanding of the relationship between firm size and economic variables of interest, including innovation. Specifically, they computed the innovation rate (defined as the number of innovations divided by number of employees) among large and small firms, then looked at the difference in these rates to see if firm size were correlated with innovation. Looking at US data for 1982, they found that in general, smaller firms were associated with higher rates of innovations. However, their results differed significantly depending on the industry. For example, in the tire industry, “the large-firm innovation rate exceeded the small-firm innovation rate by 8.46, or by about 8 innovations per 1,000 employees” (Acs and Audretsch, 1990: 50–52). On the other end of the spectrum, the industry classification of “scales and balances” had an excess of 8 innovations per 1,000 employees among *small* firms, relative to their large peers. Stepping back to summarize some of their findings, the authors explain:

[C]ontrary to much of the conventional wisdom, innovative activity is apparently hindered, not promoted, in concentrated markets. The evidence also suggests that there tends to be more innovative activity in industries consisting of larger and not smaller firms. However... *we find that, in fact, small firms tend to have the innovative advantage in industries consisting of predominantly large firms.* This is consistent with the notion that small firms play an important role in introducing new products even in industries dominated by large firms. (Acs and Audretsch, 1990: 147, emphasis added.)

Thus, the empirical patterns Acs and Audretsch discovered are consistent with the framework advocated by Baumol, Litan, and Schramm (2007). Namely, rather than asking whether small or large firms are most conducive to innovation, the reality seems to be that they complement each other, with younger start-ups providing fresh ideas which are then distributed through older, more established channels.

Similarly, Prusa and Schmitz (1991) examine US data from the PC software industry from 1982–1987. They “find that new firms have a comparative advantage (over established firms) in *creating* new software categories, while established firms have a comparative advantage in developing subsequent improvements in *existing* categories” (p. 339, emphasis in original).

Brunner (1991) looks at the Indian computer industry and “finds that entrepreneurial start-ups provided a significant share of the innovative activity” (quoted in Acs and Audretsch, 1992: 57).

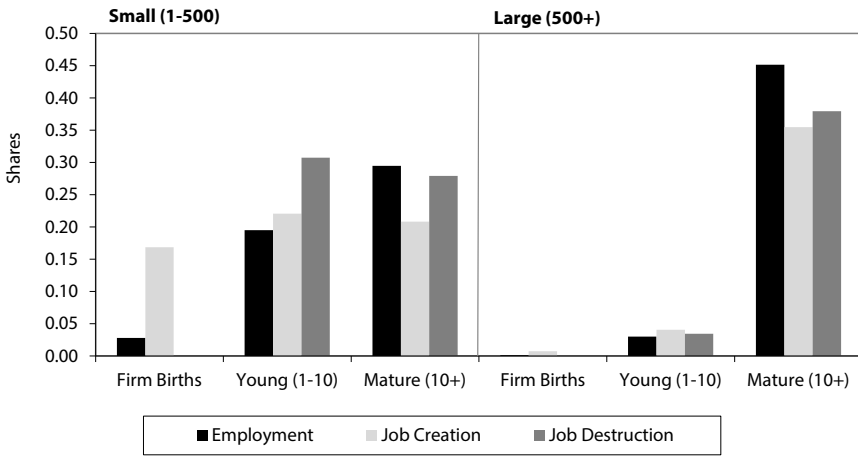
### ***Job creation***

The connection between entrepreneurship and job creation is commonsensical, though the precise nature of the relationship is a topic requiring quantitative study. For example, political figures often invoke the image of small business owners being the “engines of job creation” and therefore deserving of careful regulatory and tax treatment. However, the connection between *small* firms and job growth has been a disputed topic among scholars.

Early studies (Birch, 1979, for instance) documented empirically that small- and medium-sized businesses created relatively more jobs than larger firms. However, more recently critics raised methodological objections to such studies (see, for example, Davis, Haltiwanger, and Schuh, 1996), arguing that these earlier studies often lacked suitable data, or that they didn’t distinguish between gross and net job creation. In this context, Neumark, Wall, and Zhang (2011) reaffirmed the original orthodoxy (and conventional wisdom), by taking care to avoid all such methodological pitfalls. Specifically, they used US data from the National Establishment Time Series covering the period 1992 to 2004, and found that larger firms were indeed associated with lower rates of net job growth.

Yet that wasn’t the end of the story. Haltiwanger, Jarmin, and Miranda (2013) introduced an additional complication. Using data from the US Census Bureau Business Dynamics Statistics and Longitudinal Business Database covering the period from 1976 to 2005, they agree with Neumark, Wall, and Zhang that “when we do not control for firm age, we find an inverse relationship between net growth rates and firm size,” although even

**Figure 1: Shares of Employment, Job Creation and Job Destruction by Firm Size and Age—US Census Bureau Data, 1992-2005 (Average Annual Rates)**



Source: Haltiwanger, Jarmin, and Miranda, 2013: figure 1. Recreated with permission.

here they caution that “this relationship is quite sensitive to regression-to-the-mean effects” (p. 347). However, in a sense this finding is overturned because “once we add controls for firm age, we find no systematic inverse relationship between net growth rates and firm size” (p. 347, emphasis added). Haltiwanger, Jarmin, and Miranda (2013) argue that what’s *really* going on is that “firm births contribute substantially to both gross and net job creation,” and most new firms are relatively small. Therefore, analyses that do not take into account firm age will make it appear as if small firms generate most new jobs, when in fact it’s *young firms* that do so. Davidson (2008) also emphasizes that the field of entrepreneurship studies has drifted from focusing on small business *per se*, to concentrate instead on new economic activity, whatever the size of the firm.

Although these nuances are important for academics studying labour market dynamics, they do not affect our claim that entrepreneurship is critical to job growth. Indeed, the refinements in the quantitative litera-

ture actually *underscore* the conceptual approach laid out earlier in this chapter, in which entrepreneurship is associated *not* with owners or management *per se*, but rather with *innovation*.

Specifically, the results of Haltiwanger, Jarmin, and Miranda (2013) show just how much *new firms* contribute to net job creation.

As figure 1 indicates, it is not small firms *per se* that contribute (relative to their employment size) to net job growth, at least for US data in the period covered.<sup>6</sup> Rather, it is *young firms* that do so. Specifically, in both the small and large categories, we see that young firms have gross job creation shares that are higher than their total employment shares, whereas mature firms (both small and large) have gross job creation shares lower than total employment. The figure also indicates that small, mature firms have a much higher share of job destruction than job creation. All in all, we see that—at least for the US in the period covered in this chapter—net job growth is due more to a firm's youth rather than smallness.

It is true that newly born firms can only have job creation, not job destruction, by definition. However, if all firms on average had equal job growth *rates*, regardless of firm age or size, then we would expect their share of gross job creation to equal their share of total employment. And yet, as figure 1 starkly reveals, the actual situation is nothing of the kind (at least for the US in the period studied). Rather, new start-ups (particularly those with 500 or fewer employees) are a source of dynamism. It then ap-

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6 Note in figure 1 that the bars indicate percentage shares of the total figures, *not* absolute job numbers. For example, just because a certain category might have a higher job destruction figure than job creation figure, we can't conclude that the number of jobs shrank in that category, because the total numbers of jobs created in the economy typically will be higher than the total number of jobs destroyed. For example, from March 1994 to March 1995, the US private sector had 14.4 million jobs created with 11.1 million jobs destroyed, for a net growth of 3.3 million (see [https://www.bls.gov/web/cewbd/anntab1\\_1.txt](https://www.bls.gov/web/cewbd/anntab1_1.txt).) With these numbers, note that a firm age/size category responsible for, say, 35 percent of the job creation and 40 percent of the job destruction, would still create on net 5.04 million – 4.44 million = 600,000 jobs.

pears that most firms (weighted by aggregate employment) suffer a “trial by fire” period with a high “mortality rate” in their middle years, considering the young (1-10) firms in the small category, with their very high job destruction share (relative to total employment). Eventually, those firms that can grow large (i.e., 500 or more employees) and can survive at least a decade, stabilize into a pattern of high employment along with lower but nearly equal shares of gross job creation and destruction.

The pattern of job creation, as related to firm age and size, is broadly consistent with Baumol, Litan, and Schramm’s 2007 narrative, explained earlier in this essay, in which a vibrant economy relies on young, small firms to bring new ideas to the table, but then the older, large firms implement the innovations to serve the masses.

To be assured of robustness, there are studies that use different measures (besides firm size) and reach similar conclusions. For example, Wenekers and Thurik (1999) use business ownership rates as a proxy for “entrepreneurship.” Looking at a sample of 23 OECD countries from 1984 to 1994, they, too, find that entrepreneurship was associated with higher rates of employment growth at the national level. For another more recent example, Glaeser, Kerr, and Kerr (2015) note that both firm size and prevalence of start-ups have been associated with employment growth at the city level, but caution that there is an endogeneity problem. (In other words, there might be outside factors that are causing *both* entrepreneurship *and* employment growth to increase in some cities versus others.) Relying on a conjectured (negative) relationship between a region’s specialization in large-scale mining and the availability of human capital for other ventures, these authors use historical mining deposits as an instrument and “find a persistent link between entrepreneurship and city employment growth” (p. 498). That is to say, these authors attempt to control for exogenous factors, and still conclude that two measures of entrepreneurship—namely, small firm size and start-ups—are associated with faster city employment growth.



## **Unemployment**

Although it is obviously related to the issue of job creation, a slightly different question is the connection between entrepreneurship and unemployment. There are (at least) two theoretically plausible causal flows. On the one hand, we might expect that economies with higher levels of entrepreneurship would, other things being equal, have lower levels of unemployment, because the prevalence of entrepreneurs would lead to displaced workers more quickly finding a niche for their specific skill sets and work objectives. On the other hand, we might expect that economies with higher levels of unemployment would, other things being equal, have higher levels of self-employed workers, because these people can't find stable work as conventional employees.

Audretsch, Carree, van Stel, and Thurik (2005) seek to untangle these two conflicting effects. Their paper constructs a “two-equation vector autoregression model capable of reconciling these ambiguities and tests it for data of 23 OECD countries over the period 1974–2002” (p. 3). The authors conclude that both relationships to unemployment—what they dub the “entrepreneurial effect” and the “refugee effect,” respectively—can be found empirically. However, they “also find that the ‘entrepreneurial’ effects are considerably stronger than the ‘refugee’ effects” (p. 3).

Blanchflower (2000) analyzed 23 OECD countries from 1966 to 1996 and found a negative relationship between the self-employment rate and the unemployment rate. In his paper, Blanchflower summarized some of his own previous work in the following way: “In Blanchflower and Oswald (1990), we found a strong negative relationship between regional unemployment and self-employment for the period 1983–1989 in the UK using a pooled cross-section time-series data set. In Blanchflower and Oswald (1998), we confirmed this result, finding that the log of the county unemployment rate entered negatively in a cross-section self-employment probits for young people age 23 in 1981 and for the same people aged 33 in 1991” (Blanchflower, 2000: 477).

Audretsch and Thurik (2002) looked at a panel of 18 OECD countries over the period 1974 to 1998. Using self-employment as its proxy for “entrepreneurship,” they found that increased entrepreneurship is associated

with lower unemployment. (However, on its face this result might suffer from the feedback loop described earlier, in which unemployed people may have started their own businesses out of desperation, rather than entrepreneurial ambition.)

### ***Transition economies***

Another subfield in the entrepreneurship literature focuses on economies in transition. McMillan and Woodruff “summarize entrepreneurial patterns in the transition economies, particularly Russia, China, Poland and Vietnam” (2002: 154). They show that not only the communist planners, but also the Western observers, simply assumed that privatization of state-owned firms would be the driving force in the new economies, when in fact the “spontaneous” emergence of *new* firms was very significant. McMillan and Woodruff open their paper with this poignant quotation from Deng Xiaoping: “All sorts of small enterprises boomed in the countryside, as if a strange army appeared suddenly from nowhere,” and Deng admitted that this “was not something I had thought about. Nor had the other comrades. This surprised us” (Deng Xiaoping, quoted in McMillan and Woodruff, 2002: 153).

Estrin, Meyer, and Bytchkova (2006) document the rapid growth of the private sector (in both output and employment shares) in Eastern Europe after the fall of the Soviet Union. We reproduce some of their data in table 1.

As table 1 indicates, some of the transitions were incredibly speedy, particularly the Czech Republic and Lithuania, which saw at least a 50 percentage-point increase in their private share of GDP in just four years. They agree with the earlier McMillan and Woodruff (2002) perspective in thinking that the conventional analysis of transition economies downplayed the importance of entrepreneurship. Estrin, Meyer, and Bytchkova explain: “Privatization has received enormous attention in the literature... but new firm growth was probably at least as important; we observe that a significant proportion of private sector development preceded privatization in most transition economies” (2006: 694–695). They also argue that the “development of the entrepreneurial sector is sensitive to the institutional environment and there is a distinction between the more market-

**Table 1: Private Sector Share in GDP and Employment in  
Select Eastern European Countries, 1991-1995**

Country	Private Share of GDP		Private Share Employment	
	1991	1995	1991	1995
Albania	24%	60%	n/a	74%
Belarus	7%	15%	2%	7%
Bulgaria	17%	50%	10%	41%
Croatia	25%	40%	22%	48%
Czech Republic	17%	70%	19%	57%
Estonia	18%	65%	11%	n/a
Georgia	27%	30%	25%	n/a
Hungary	33%	60%	n/a	71%
Kazakhstan	12%	25%	5%	n/a
Lithuania	15%	65%	16%	n/a
Poland	45%	60%	51%	61%
Romania	24%	45%	34%	51%
Russia	10%	55%	5%	n/a
Slovenia	16%	50%	18%	48%
Ukraine	8%	45%	n/a	n/a

Adapted from Table 27.1 in Estrin, Meyer, and Bychkova (2006).

oriented economies of Central and Eastern Europe... and the slower and more erratic pace of change in the former Soviet Union” (2006: 694).

### ***Individual case studies***

The prodigious literature on entrepreneurship contains “case studies” of individual countries or industries for particular time periods, touching on all of the aspects of the issue we have thus far described. (Indeed, Landes, Mokyr, and Baumol (2010) is a collection of essays devoted to the topic.)

For example, in 1980, Steinhoff studied the development of entrepreneurial abilities in Taiwan from 1880 to 1972. At the outset, he cautions the reader that “at least in some societies there are population strata whose

behavior is not exclusively determined by profit seeking” (Steinhoff, 1980: 2). Steinhoff lists Indian Brahmins (seeking mystical experiences), European aristocrats (preferring military service to industrial ventures), and the wealthy classes in China (pursuing government service rather than more lucrative commercial activities), as possible examples. In the rest of his study, Steinhoff documents the fascinating history of Taiwan, which was controlled by a sequence of more powerful states during this period, that includes its industrial development, as well as the growing prestige conferred on profit-earning. (The unusual element in Steinhoff’s account is the extent to which foreign threats constituted a series of “crises” that helped explain the speed with which Taiwanese society adapted.<sup>7</sup>) Although Steinhoff’s narrative thus connects the economic development of Taiwan to changing cultural attitudes and institutional rewards for commercial entrepreneurship, the study is a multidisciplinary approach and lacks quantitative measures of this specific relationship.

Yu (1998) agrees with earlier writers that Hong Kong’s economic “miracle” can only be explained with an emphasis on entrepreneurship, because standard growth models cannot explain its rapid industrialization and per capita income growth beginning in the 1950s. However, the Schumpeterian framework did not seem to fit very well in the case of Hong Kong. Instead, Yu invokes the work of “adaptive entrepreneurs” who imitated foreign firms and techniques, as Hong Kong shifted from fishing and agriculture into manufacturing, and then again into finance. Yu explicitly cites Kirzner (1973) as being a better paradigm to understand the entrepreneurship that transformed Hong Kong.

A different example comes from McCloskey (1973) and is the outgrowth of a doctoral dissertation that also epitomizes the promise and pitfalls of the themes we have addressed in this chapter. McCloskey’s task in this study is to acquit British entrepreneurs of the allegation—which had become “conventional wisdom” by the 1960s—that they underperformed their American and German peers in the iron and steel industry. Since this

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7 Per capita income in Taiwan fell by more than half during World War II (Steinhoff, 1980: 9).

was allegedly the *worst* example of British performance, McCloskey seeks to exonerate British entrepreneurs from the charge they were responsible for the empire's displacement as the world's leading economy. As laid out eloquently in works such as David Landes (1965), some of the specific accusations were that British entrepreneurs had failed to invest quickly enough in the emerging industries of "chemicals, automobiles, and electrical engineering," and that they "failed to adopt in many industries the best available techniques of production, such as ring spinning in cotton textiles, the Solvay process in chemicals, mechanical cutting in coal, and a host of new techniques in iron and steel" (McCloskey, 1973: 4). Landes put the matter quite vividly in this fashion:

Thus the Britain of the late nineteenth century basked complacently in the sunset of economic hegemony... [N]ow it was the turn of the third generation, the children of affluence, tired of the tedium of trade and flushed with the bucolic aspirations of the country gentleman... The weakness of British enterprise reflected this combination of amateurism and complacency... [T]he British manufacturer was notorious for his indifference to style, his conservatism [sic] in the face of new techniques, his reluctance to abandon the individuality of tradition for the conformity implicit in mass production. (Landes, 1965: 582, quoted in McCloskey, 1973: 3–4.)

The purpose of McCloskey's dissertation was to *overturn* this conventional wisdom, and acquit British entrepreneurs of responsibility for the relative decline of their nation's<sup>8</sup> economic standing in the world. McCloskey focused on the iron and steel industry, as this was the area where the alleged inferiority in entrepreneurial ability was the greatest. Then, rather than the casual and non-quantifiable notions of entrepreneurial ability in much of the literature, the author adopted precise measures of "productivity" tailored to these specific activities, and found little evidence of Ameri-

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8 Early in the book, McCloskey apologizes for using the shorter term "British" rather than the more accurate but cumbersome "citizens of the United Kingdom."

can superiority in the production of pig iron or rolled steel up until the eve of World War I (McCloskey, 1973: 114–120).

McCloskey attributes the (apparently) false narrative to a naïve reliance on statistics concerning national income and output in industries such as iron and steel, which undeniably showed that Britain after 1870 was growing more slowly than America or Germany. Yet McCloskey argues, “Whatever its political and psychological significance, however, there was nothing economically ominous for Britain in the faster growth of two large, industrializing nations” [i.e., the US and Germany] (p. 127). McCloskey then concludes:

It is unlikely that anyone should be blamed for Britain’s failure to match their [i.e. American and German] growth in any industry, least of all in an industry so dominated by internal supplies of resources and demands for investment goods as iron and steel. Late nineteenth-century entrepreneurs in iron and steel did not fail. By any cogent measure of performance, in fact, they did very well indeed. (McCloskey, 1973: 127)

The controversy over late nineteenth century British entrepreneurial performance—specifically in the iron and steel industries but also in the economy more generally—shows the importance of innovation to economic development. However, as McCloskey’s work underscores, we must be careful not to use “entrepreneurship” as a catch-all explanation when there are other factors at work, such as the growth of demand in industries characterized by reliance on particular natural resources.

### ***Regional development***

An entire subdiscipline is devoted to the study of entrepreneurship as it relates specifically to *regional* development.<sup>9</sup> For example, Suarez-Villa’s

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9 Note that the earlier section on growth in this chapter reviewed some of the academic work studying entrepreneurship and *regional* economic growth. Those particular studies will not be repeated in this section.

1989 book-length analysis of the historical development of sectors in an economy goes through various stages (agricultural, manufacturing, service-sector) and explains how those “macro” changes can be traced to “micro” incentives that are seized by entrepreneurs. As he summarizes: “Far from being the outcome of coincidental or seemingly random events, regional evolution has been shown to be the product of a deeper structure, where economic sectors, entrepreneurial action, and human wants become major forces in long-term change” (p. 180). Suarez-Villa’s perspective is important because too often analysts write as if local economies and populations “automatically” adapt to new stages in development, when in reality it takes individual farmers, for example, to incorporate the latest techniques that boost productivity, and it takes individual owners (or CEOs) to make the decision to “outsource” a factory because of labour costs and thus pave the way for a shift toward a more service-oriented domestic workforce. These changes are conditioned by market prices, but ultimately one or more decision makers, acting entrepreneurially, has to execute such change.

Rocha (2013) is another book-length treatment that summarizes existing research on “clusters” (i.e., concentration of economic activity) and tries to disentangle some of the subtle causal relationships. After a battery of statistical tests that are careful to avoid methodological pitfalls, Rocha finds that “clusters matter to both entrepreneurship and the relationship between entrepreneurship and development at the regional level,” but contrary to some earlier results, “industrial agglomerations do not” (Rocha, 2013: 27). Rocha argues that policy makers in particular need to understand that “clusters provide economies of specialization, labour supply, and specialized skills that help to overcome liabilities of newness, such as an unknown workforce, the learning of new roles, and other resources” (p. 27). Rocha thus echoes Baumol, Litan, and Schramm’s 2007 framework, in which “good capitalism” blends the virtues of innovative start-ups with the economies of scale offered by large, established firms.

## Policy implications

The purpose of the present chapter is to provide theoretical and empirical support for the important connection between entrepreneurship and prosperity. However, in order to place the chapter in context, some brief remarks on policy implications may be useful.

William Baumol's famous 1990 *Journal of Political Economy* paper distinguishes among productive, unproductive, and downright *destructive* entrepreneurship. In this approach, the ability of innovative and ambitious individuals to upset the existing order was not always a good thing. If such people figured out cheaper ways to deliver goods and services to voluntary customers, that was one thing. But if they engaged in cleverer rent-seeking, or outwitted their rivals in a war over drug turf, then these activities were wasteful or even harmful. Drawing on both theory and historical examples from several countries, Baumol argued that "policy can influence the allocation of entrepreneurship more effectively than it can influence its supply" (p. 893). In other words, policy makers shouldn't try to promote entrepreneurship *per se*, but instead should structure incentives so that *the given entrepreneurs* devote their skills to socially useful ends.

Although the arguments do not necessarily single out entrepreneurship *per se*, there is a wide literature explaining the connection between "economic freedom" and various measures of economic and social well-being, including GDP growth, job creation, literacy, reduced infant mortality, etc. (See McQuillan and Murphy, 2009; and Boudreaux, 2015, for a good overview.) In this vein, Sobel (2008) empirically tests Baumol's (1990) hypothesis, and concludes that institutional quality is critical for channeling ambitious individuals' energies into socially useful activities.

Bjørnskov and Foss (2008) look at 29 countries, analyzing the possible connection between various categories on the Economic Freedom of the World Index and measures of entrepreneurship, such as the Total Entrepreneurial Activity (TEA) rate (described earlier in this chapter). They conclude: "We find that the size of government is negatively correlated with entrepreneurial activity but that sound money is positively correlated with entrepreneurial activity" (p. 307).



Finally, in an effort to manage expectations, I note that some experts in this field believe that even institutional quality is not sufficient to encourage the “healthy” entrepreneurship discussed in this essay. In particular, McCloskey (2010) argues that it was not merely property rights, reasonable taxation, and the rule of law that explained the sudden emergence of capitalist innovation in the West. Another crucial component, McCloskey claims, was the transformation of cultural values and norms. To put the matter starkly: Even if the political authorities won’t seize your business, society’s most creative and ambitious individuals would be hesitant to found large companies if their family and friends considered merchants to be social pariahs. On this dimension, there is precious little policy makers can do, at least in the short to medium run.

## **Summary and conclusions**

This chapter has argued for a tight connection between entrepreneurship and economic prosperity. It began by drawing on the work of Joseph Schumpeter and Israel Kirzner to offer a conceptual framework for understanding the role entrepreneurs play in both grand innovation and the more mundane fine-tuning of the market economy’s sprawling operations. It then adopted the more recent framework of Baumol, Litan, and Schramm (2007) because these authors stress the need for both pioneering start-ups as well as the economies of scale and established distribution networks of mature, large firms.

Using this framework, the chapter surveyed the empirical literature, showing the vast evidence that entrepreneurship, measured in different ways, contributed to various indicators of economic prosperity, including GDP and productivity growth, job creation, and innovation. It also surveyed treatments of historical and regional analyses, showing once again the tremendous importance of entrepreneurship in delivering economic benefits to the masses.

Finally, it offered some thoughts on lessons for policy makers. Some of the leading thinkers in this field agree that government measures can’t

“create entrepreneurs” *per se*, but instead can provide the institutional prerequisites—which can be summarized as fiscal responsibility, sound money, and the rule of law—necessary for “good” entrepreneurship to flourish.

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# CHAPTER 2

## The Effect of Demographic Trends on Entrepreneurship Rates: Theory and Evidence

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### **Introduction**

Entrepreneurship is the key source of the new ideas, goods, and services that continuously improve our standard of living. At a personal level, a quick comparison of life today for the average citizen with how it was, say, 50 or 100 years ago illustrates the vast changes that have occurred in the way we work, live, and play. From the invention of basic household appliances such as the clothes washer and dryer, to medical procedures such as heart transplants, and technology such as computers, the internet, and cell phones, virtually every aspect of our lives has been touched by the creativity of the multitudes of entrepreneurs that each day search for new profit opportunities. Entrepreneurs such as Willis Carrier, who invented modern air conditioning, and Italian-immigrant Candido Jacuzzi, who developed the first hydrotherapy pump for bathtubs to help his son who

suffered from juvenile rheumatoid arthritis, are among those who have fundamentally altered the way we live. The entrepreneurial advances in medicine alone have helped increase life expectancy by approximately 30 years in the United States over the past century.<sup>1</sup>

Far beyond the micro-level impacts on our personal lives, entrepreneurship has also affected the macroeconomy on a much grander scale. Innovations in areas such as robotics and 3D printing have revolutionized the manufacturing processes of companies, and modern technology has reduced the costs of transacting in product and financial markets across physical distances. Thus, it shouldn't be surprising that the differing levels of entrepreneurial activity across countries help to explain a large share of the differences in the rates of economic growth and prosperity. For example, Zacharakis, Bygrave, and Sheperd (2000) find that differing levels of entrepreneurial activity explain approximately one-half of the difference in economic growth between countries, while Reynolds, Hay, and Camp (1999) find that one-third of the difference in economic growth rates across countries is explained by differing levels of entrepreneurship.

As is discussed in the other chapters in this volume, there is a clear and robust link between the quality of a country's economic policies and its economic performance. Simply stated, countries with policies that are consistent with more economic freedom show higher levels of prosperity and entrepreneurial activity (see Sobel, 2008a, 2008b; Kreft and Sobel, 2005; Sobel, Clark, and Lee, 2007; Hall and Sobel, 2008; and Hall, Sobel, and Crowley, 2010). Most importantly, these policies include institutions that provide secure property rights, a non-corrupt and independent judicial system, contract enforcement, and effective limits on government's ability to transfer wealth through taxation and regulation.

Economic policies, however, are not the only factors that affect the rate of entrepreneurship in an economy. Other factors, particularly demo-

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<sup>1</sup> Life expectancy at birth was 78.7 years in 2010 and 47.3 years in 1900 (see United States Department of Health and Human Services, Centers for Disease Control and Prevention, 2014: table 19).

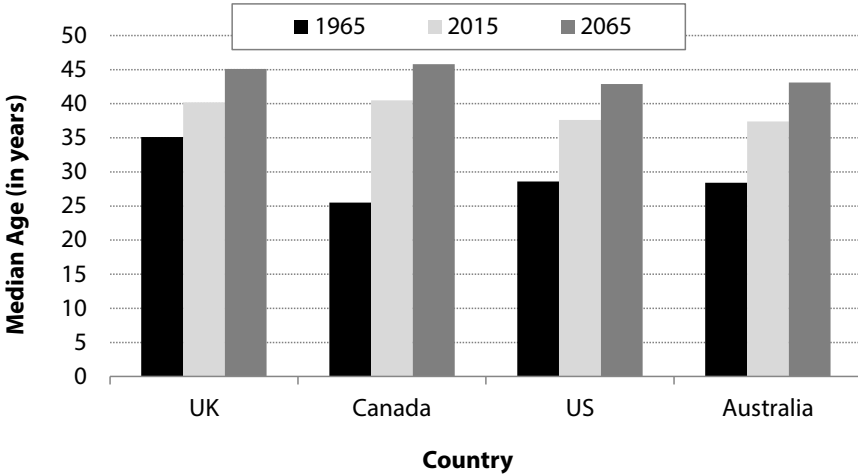
graphic factors, are the primary focus of this chapter. Each stage of the entrepreneurial process needs innovative thinking, a desire to profit and serve others, and the ability to implement ideas and run a business. All of these stages and steps are influenced by factors such as gender, age, religion, and education. To understand the influence of each on entrepreneurship requires an in-depth understanding of the entrepreneurial process, as well as an understanding of how each stage might be affected by demography. This chapter attempts to provide insight into these relationships. The focus will be on those demographic features—age distributions and educational levels—that are changing the most, with long-run trends that are evident even today in the data. We begin by discussing these demographic trends and then explain how these trends are affecting entrepreneurship. We focus on four main countries: Australia, Canada, the United Kingdom, and the United States.

## The effect of age trends on entrepreneurship

One important measure of the age of a country's population is *median age*. The median age is the age for which exactly half the population is older and half is younger. Figure 1 shows how the median age has been changing over time in our four countries of interest: the United States, the United Kingdom, Canada, and Australia.

Figure 1 gives the median age for each country for three time periods. The middle bar for each country represents roughly the current situation as of 2015. The first bar shows the median age 50 years earlier, in 1965, and the third gives the projected value, from the United Nations Population Division, 50 years into the future, in 2065. The trend for all four countries is clear—the populations are aging. The median age over the past 50 years has risen by an average of 9.5 years in these four countries, and it is projected to rise by an average of 5.3 more years across these countries over the next 50 years. While the median age in three of these countries was less than 30 years in 1965, it is rapidly increasing. In 50 years, the median ages of all four countries will be greater than 40 years. What this means

**Figure 1: Change in the Median Age of Selected Countries, 1965, 2015, and 2065 Projection**



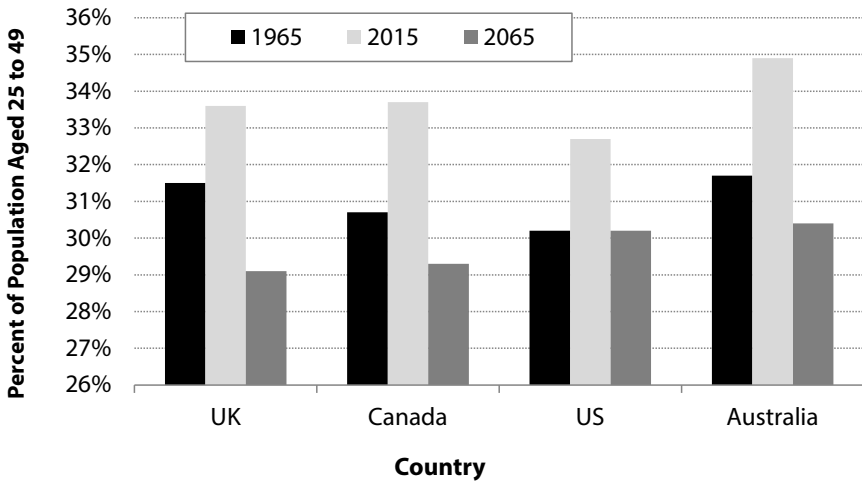
Source: United Nations, Department of Economic and Social Affairs, Population Division, 2017: custom data.

is that in 50 years, the average person in these four countries will be approximately 15 years older than they were just a century before. This is particularly striking given that the average age of a “generation” is defined as 20 years, as that was the average age of first childbearing. Thus, in 50 years, the average person will be almost a generation older than they were a century prior. We are currently in the middle of that trend.

Median age is not the only frequently cited indicator when discussing the aging populations of countries. Another frequently used indicator is the percentage of the population in specific age groups. These data provide more detail about demographic change than simple statistics such as median age. Figure 2 shows the percentage of the populations in these same four countries aged between 25 and 49 years.

While the median age data in figure 1 might lead one to conclude that the populations of these countries have been rising steadily, and that what will happen in the future is just an extension of the past, the data in figure

**Figure 2: Percent of Population Aged 25 to 49 in Selected Countries, 1965, 2015, and 2065 Projection**



Source: United Nations, Department of Economic and Social Affairs, Population Division, 2017: custom data.

2 paint a slightly different picture. In all four countries, the percentage of the population aged 25 to 49 rose over the 50 years between 1965 and 2015. In fact, on average, the percentage of the population in this age group rose by 2.7 percentage points over that time. The changes over the next 50 years, however, will be much different. The percentage aged 25 to 49 will fall by an average of 4 percentage points over the next five decades. By 2065, the percentage of the population in this age group will fall to between 29 and 30 percent in the selected countries, well down from today's 33 to 35 percent range.

From the data, it is clear that while the population of the four countries has been aging over the past few decades and will continue to do so, there is a fundamental difference between the past trend and what we expect to see in the future. Specifically, over the past 50 years, the proportion of the population in the younger to middle part of the age distribution was rising, whereas as we move to the future, it will be falling. As we will see, this

change is a key determinant of what experts believe will happen to entrepreneurship levels into the future—a trend that has already begun. There are complex reasons behind the demographic trend in aging that is shown in these figures, but they involve several factors including reduced fertility rates in wealthier countries and improved medicine and life expectancy. One factor, though, stands out above all the others among the countries in our sample: the larger than average population “bubble” of individuals born right after World War II—“baby boomers”—that has moved through the age distribution. As this bubble has progressed, countries have gone from being young to middle aged, and now they are becoming elderly.

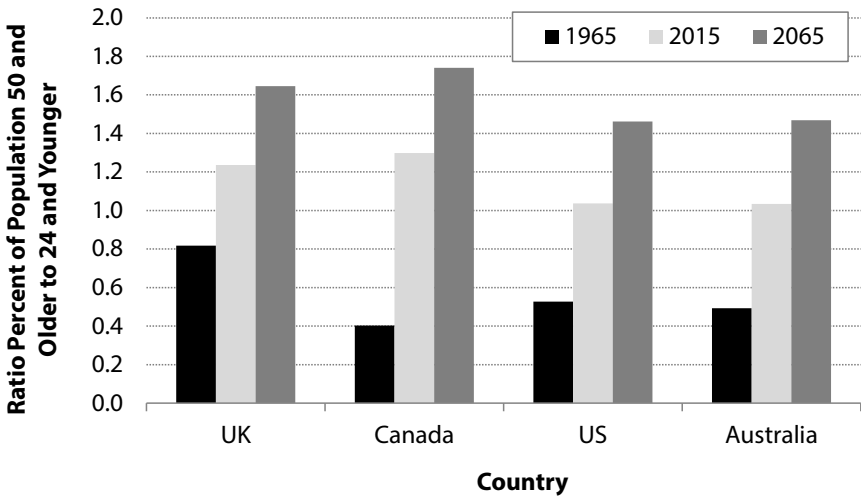
An examination of the entire data series, available in five year intervals (which is the reason for using 2015 as the “current” year above), shows that it was in 1995 that the percentage of the population in the 25 to 49 age group was at its highest in all four countries. That year, 36.3 percent of the population was in this age group in the United Kingdom, 40.1 percent in Canada, 38.4 percent in the United States, and 38.0 percent in Australia. The research we will review later in this chapter tends to suggest that this age group contains the key source of entrepreneurial talent, which means that the age-related demographic factors encouraging increased entrepreneurship rates peaked in 1995 and are now on a downward trajectory which will continue for decades to come.

While those aged 25 to 49 are the primary source of entrepreneurial talent, as we discuss in the remainder of this chapter, it is also important to understand that the age distribution of the population also affects the marketplace of consumers, which in turn affects the opportunities for entrepreneurship. Obviously, older individuals demand a much different mix of goods and services than younger people. Therefore, we should also have demographic data in mind when we discuss marketplace opportunities.

Figure 3 gives the data for the two age groups (50 and older, and 24 and younger) that are excluded from figure 2. Specifically, figure 3 shows the ratio of the number of people aged 50 or older to the number aged 24 or younger for the same four countries and time periods. This ratio has a slightly different interpretation from the data presented earlier. A value of 1 would mean that the percentage aged 50 and older is equal to the per-



**Figure 3: Ratio of Population Aged 50 and Older to 24 or Younger: 1965, 2015, and 2065 Projection**



Source: United Nations, Department of Economic and Social Affairs, Population Division, 2017: custom data.

centage aged 24 and younger. A value of less than one would mean that the percentage aged 50 and older is smaller than the percentage aged 24 and younger. For example, a value of 0.5 would mean that for every person aged 50 or over, there are two aged 24 or under. Conversely, a value of greater than one would mean that the percentage aged 50 and older is greater than the percentage aged 24 and younger. For example, a value of 1.5 would mean that there are 1.5 people aged 50 or older to every person aged 24 or younger (or, perhaps more understandably, 3 persons aged 50 or older to every 2 persons aged 24 or younger).

Figure 3 shows that drastic changes have been happening, and will continue to happen, in the age distribution of consumers in the marketplace. While 50 years ago, on average, there were two consumers aged 24 or less for every one aged 50 or older, today there are roughly equal numbers of people aged 24 and younger, and aged 50 and older. In 50 years, however, there will be, on average, 50 percent more consumers in the older age

group than in the younger one. The changes in overall consumption patterns that accompany this age shift will affect entrepreneurial opportunities across industries, which is where we now turn our attention.

## **Consumption patterns by age and the opportunities for entrepreneurship**

There are two primary avenues through which the demographic trends shown earlier can affect the rate of entrepreneurship. As we will discuss later, both the proclivity of an individual to want to become an entrepreneur and to have the skills necessary to be an entrepreneur varies by age group. This is the route by which the *supply* of entrepreneurs is affected by demographic trends. However, equally important are the opportunities present in the marketplace for individuals to become entrepreneurs.

Each and every day, new entrepreneurial opportunities arise in an economy. Continuously changing prices, consumer preferences, and technologies produce these opportunities. One of the most cited scholars in the area of entrepreneurship, Joseph Schumpeter (1911/1934, 1942), termed this ongoing process “creative destruction,” which he described as a process in which new goods and services replace old ones. Each innovation then in turn spurs other entrepreneurial opportunities. For example, the advent of the cell phone created (and continues to create) opportunities for entrepreneurs who want to make accessories such as headphones or apps, while the invention of the automobile created opportunities not only for the makers of automobile accessories such as tires, rims, and car stereos, but for the whole transportation sector. In this manner, even those entrepreneurs who simply copy others and enter existing profitable industries with incrementally better or different products can find opportunities (see Holcombe, 1998).<sup>2</sup>

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2 While beyond the scope of this chapter, the literature sometimes distinguishes between a ‘Schumpeterian’ entrepreneur, who is someone who innovates something entirely new (e.g., something “disruptive”) versus a “Kirznerian” entrepreneur, who exploits arbitrage or profit opportunities in existing industries by entering when profits

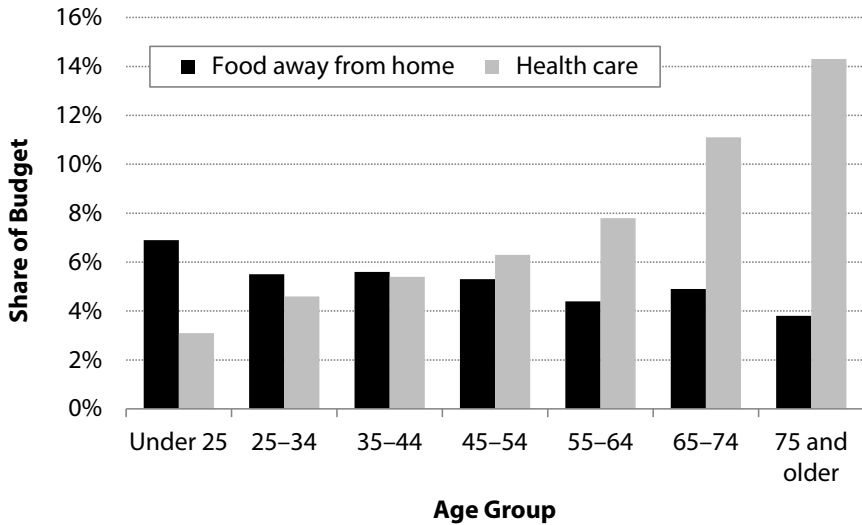
While it may seem obvious that for entrepreneurship to thrive in an economy there must be opportunities for entrepreneurship, we often give little thought to what creates those opportunities and under what conditions they are maximized. The visible presence of opportunities for individuals is a significant determinant of their likelihood of becoming entrepreneurs (see Khyareh and Mazhari, 2016 and Ucbasaran, Westhead, and Wright, 2008). Clearly, government policies that limit entry into business sectors or occupations, such as occupational licensing, reduce the number of opportunities and therefore reduce the rate of entrepreneurship (see Wiens and Jackson, 2015). The impact that various government policies have on the rate of entrepreneurship has been well studied in the literature and will be the topic of subsequent chapters in this volume. This chapter focuses on how changes in the age distribution influence the number of entrepreneurial opportunities.

Some industries tend to be dominated by larger, well-established firms. These industries tend to have fewer opportunities for entrepreneurship. There can be many reasons why specific industries are more heavily dominated by bigger, older firms, but according to Calcagno and Sobel (2014), the presence of significant regulations in the industry is one factor, as are economies of scale, network effects, and brand name (reputational) capital. In contrast, some industries have substantial “churn” of new small firms and individual business owners. As an example, consider the difference in the number of opportunities for entrepreneurship in the restaurant industry versus the hospital industry.

Hospitals consistently rank among the industries with the longest-surviving firms (see Bureau of Labor Statistics, 2017, for US data). As a pure opportunity for a small, first time entrepreneur to start an enterprise, the hospital sector ranks poorly in terms of the potential and the actual rate of entrepreneurship and new business formation. While there could arguably be substantial entrepreneurial opportunities in the hospital sector, it also faces significant public sector regulations and licensing restrictions which,

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are high. For a discussion, see Holcombe (1998). For our purposes, this distinction does not matter as both phenomena are generally both considered to be entrepreneurship.

**Figure 4: Eating Out vs. Health Care as Share of Budget by Age**

Source: Foster, 2015.

coupled with other factors listed above, block the entry of new firms, particularly first-time entrepreneurs.

Now consider the restaurant industry. It contrasts starkly with the hospital industry. The failure rate of restaurants is among the highest of all industries at almost 17 percent per year, according to the Bureau of Labor Statistics. But this industry also has the highest percentage of new firms each year. Quite simply, there are more opportunities for new young entrepreneurs to open new restaurants than to open new hospitals.

This differential in entrepreneurial opportunities across industrial sectors is important to understand because changes in the population's age distribution have predictable patterns of consequences for consumer spending among industries. By itself, this could lower entrepreneurial opportunities if older individuals tend to spend more money in the industries that have fewer opportunities for new entrepreneurs, such as a switch in spending from restaurants (or games) to hospitals. Consider the spending data in figure 4.

As figure 4 makes clear, the share of a typical consumer's budget spent on eating out and health care are highly dependent on age. While younger consumers spend 5 to 6 percent of their budget on eating out, older individuals spend less than 4 percent. To put these numbers in perspective, note that consumer spending makes up just slightly over two-thirds of the economy as measured by Gross Domestic Product (GDP). A swing of two percentage points in a category of consumer spending (e.g., eating out going from 6 to 4 percent of total consumer spending) can therefore amount to a swing of just under one and a half percent of GDP—implying that this one factor alone may cut hundreds of billions, if not trillions of dollars, from consumer spending at restaurants. In contrast, health care spending rises from about 3 percent to over 14 percent of the average person's budget as they move into their senior years. Thus, consumer spending is falling in restaurants and rising in hospitals and health care as the population ages.

Again, it is not that entrepreneurial opportunities are absent in the health care industry. Obviously, there are extensive entrepreneurial opportunities in the health care sector as a whole, and an aging population spending more in the sector will create even more opportunities for innovation. More spending in hospitals will create entrepreneurial opportunities in machines, tools, equipment, patient access solutions, 3D printed drugs and organs, and other areas. The point is that in some specific sub-sectors, such as hospitals in particular, there are fewer new entrepreneurial opportunities created per dollar of consumer spending than there are in the restaurant industry, both due to larger firm sizes and longer firm survival rates (part of which may be caused by government rules and regulations). If spending patterns shift in such a manner as to move spending into these more heavily regulated, large firm dominated industries with fewer entrepreneurial opportunities, it could also work to reduce opportunities for entrepreneurship. This is particularly true if the regulations that cause some of these barriers are not reformed (the subject of a later chapter).

The data also show that spending in other areas, such as vacations and transportation, fall with age. These two are important because they are at the forefront of the new “sharing” economy dominated by on-line platform businesses such as Uber and Airbnb. These areas have created tremendous

opportunities for entrepreneurial individuals, even those with little business experience, to use their cars and homes to generate income. In the process, they learn about marketing and customer relations and therefore are more likely to try even more ambitious entrepreneurial endeavors in the future (see Morgan, 2015). As spending in these areas as a share of the economy also falls, the opportunities for entrepreneurship and self-employment could fall even further.

This first area of focus has been on how the changing age distribution affects entrepreneurial opportunities. Schumpeter (1911/1934, 1942) described how entrepreneurs search for new combinations of resources, guided by the profit and loss system, and unleash a process of “creative destruction” in which new goods and services replace old ones. While the process of creative destruction does result in a churning in which some firms die and others are born, this rate of churn differs substantially across industries. In summary, the demographic trends in the age distribution of the population will affect spending patterns. If these trends shift spending away from sectors that are typically easier for budding entrepreneurs to get a start, and toward sectors that tend to be much less entrepreneurial and dominated by larger, longer-lived firms, it could also result in reduced rates of entrepreneurship.

## **The “Age of Discovery”: How age and creativity are related**

Noted Austrian economist Israel Kirzner (1973, 1997) focused on entrepreneurship as a discovery process. A clear understanding of his ideas is important as we begin our analysis of how changes in the age distribution may influence the supply of entrepreneurs. To Kirzner, the key factor in entrepreneurship is the ability of an individual to notice, or discover, something that has been either overlooked or previously unthought-of by other individuals. It was not possible, in Kirzner’s view, to do a systematic search for entrepreneurial opportunities, but instead it was more the creation of a new idea that was previously unknown. Kirzner’s notion of entrepreneurial discovery is perhaps better thought of as undeliberate ser-

endipity or epiphany. For example, Kirzner (1979: 159) writes of Robinson Crusoe “climbing a tree to look far out to sea—without realizing at all that his action will yield him fruit.” The discovery of the fruit is true discovery in the language of Kirzner.

Perhaps one of the best and most entertaining examples of Kirzner’s idea is contained in an academic article by Demmert and Klein (2003), in their attempt to test Kirzner’s ideas. In particular, the article set out to see if the percentage of times people were able to discover something was related to the reward. That is—do profits motivate discovery. The article attempted to do this using an experimental method by putting a nonobvious opportunity before the study’s participants to see if they could discover it. The participants were basically tasked with carrying as much water as possible in one trip from a full bucket on one side of a room to an empty bucket on the other side of the room. They were given four plastic cups, placed on a small plastic table, and the only rule was that the participants could not move either bucket. To Demmert and Klein, the “obvious” method of transferring the water was for a participant to fill the four cups, carry them across the room, and empty them into the collection device. But the true discovery opportunity was to see that the table could be flipped over, the underside could hold water, and it could be filled as well. After using the cups to fill the underside of the table, the cups could then be filled again and placed on the crosshatch pattern on the underside of the inverted table, and it all could be easily carried across in one trip. Only about 30 percent of participants “discovered” the thought to use the table. Their study was done using college students as participants. Returning to the main thrust of the chapter, the research on creativity clearly suggests the percentage would have been lower had Demmert and Klein used an older group of individuals. Creativity declines with age.

The fact that aging populations suffer declines in creativity is one of the main arguments that Lazear (2002) and Liang, Wang, and Lazear (2014) employ to explain recent declines in entrepreneurship associated with aging populations in the developed world. While we will discuss these papers in more detail, the main argument is that entrepreneurial capability depends on two factors: creativity and business acumen. They define

creativity as the ability to think in novel ways and to break from methods of the past, and a key part of their analysis rests on the fact that younger individuals are more creative. They argue that it's not a continuous process of decline from birth, as very young children do not have the skills or wisdom to be creative, but rather an "inverted U" shaped pattern as the elderly do not possess the mental facilities to be creative. They cite a vast literature, mostly outside of economics, that establishes that creativity is maximized in early adulthood and declines afterward (see Ruth and Birren, 1985; Florida, 2002; Kaufman and Horn, 1996; Ryan, Sattler, and Lopez, 2000). There is variance, however, in the estimated age at which creativity peaks, but the general conclusion from the literature is early adulthood, as we will discuss in the next section.

In summary, the trends toward an older population in our sample countries will work to lessen entrepreneurship rates through declines in creativity, which, as we will see, is a trend that has already started.

## **Human Capital Theory and business skills**

There is a second key part of the Lazear (2002) and Liang, Wang, and Lazear (2014) argument about why entrepreneurship rates decline in aging populations. Part of the decline in entrepreneurship rates is due to the relationship between age and the skills necessary to run a business. Using data from the Global Entrepreneurship Monitor, Khyareh and Mazhari (2016) show decisively that an individual's level of knowledge about business and knowing other entrepreneurs are two of the main determinants of entrepreneurship. While the first part of entrepreneurship may be the presence of opportunities and the ability to be creative and discover new solutions, the second part of the process is being able to physically open and run a business. This requires a different set of skills, which are attained through experience on the job in the business world.

This part of the chapter differentiates between the age of the individual who may (or may not) become an entrepreneur, the average age of the population as a whole, and discusses the impact of changes in each factor



separately. A person's age will affect their personal likelihood of becoming an entrepreneur for many reasons, including changing risk preferences, different levels of income (and income diversification), and the level of knowledge the person has acquired through both formal education and on-the-job training and work experience. In general, these factors point toward an inverted U-shape pattern over one's life—the odds of becoming an entrepreneur rise as one moves out of childhood through early adulthood, then fall for the remainder of one's life. The exact age where it peaks is of some debate, but between the ages of 30 and 44 is the generally accepted range where the odds of becoming an entrepreneur are maximized, with the likelihood trailing off at both ends. The obvious implication of this relationship at the individual level is that when a society ages, more individuals are moving past this peak age and rates of entrepreneurship decline. From the data presented earlier, the percentage of the population in this key entrepreneurship age group will fall by approximately 5 percent over the coming decades as more of the population moves into the older part of the age distribution.

To understand how the age of the population as a whole plays a role here, let us return to a specific part of the argument in the previous paragraph and explore it further—that on-the-job experience matters. Gary Becker (1964, 1975) pioneered the economic analysis of “human capital” accumulation. Human capital refers to the acquired skills and knowledge one possesses that make a person productive. While formal education is one means of acquiring human capital, Becker also argued that workers acquire human capital through on-the-job training and experience. This is why productivity and earnings generally rise with work experience through mid-career. According to Liang, Wang, and Lazear, “Workers may begin with raw talent and inherent creativity, but the acquisition of skills at work is essential to their founding a business. It is for that reason that the young are not the ones most likely to start businesses, even if they are the most creative. They must have time to obtain the skills on the job that will allow [the] business that they found to succeed” (2014: 5). However, the authors argue that a worker's ability to obtain business-related skills on the job is dependent on the worker's opportunity to be promoted within the

firm—that is, the worker’s opportunity to earn rank and seniority within their jobs. This opportunity to earn rank and promotions is how the overall age distribution of the society comes into importance in their theory.

Liang, Wang, and Lazear continue: “rank in the firm affects an individual’s exposure to experiences that produce the human capital necessary to start a business... The higher one is in an organization, the more opportunity to gain experience that will be useful in starting an enterprise... It is for this reason that the demographic structure of a country affects human capital formation” (2014: 5). In essence, they argue that when there is a higher proportion of older, more senior workers in the population, it slows down the rate at which younger workers are promoted within the workforce. As these younger people accumulate less experience, they acquire fewer of the skills necessary to start a business, and overall rates of entrepreneurship fall. The authors call this the “rank effect.” At any given age, the range and depth of skills that an individual acquires will be reduced as the percentage of the population older than that individual rises.

Thus, as populations age, not only are there fewer workers in the prime age group, but the younger workers are accumulating less business experience. Both factors work to reduce entrepreneurship rates. It is worth discussing one last factor that complicates the age-entrepreneurship link, and that is individual tolerance of risk. The process of being entrepreneurial and starting a business is full of significant risks and uncertainty. This is especially true when compared to the alternative of a job in the normal labour market where wage income is more stable. Thus, as Weller and Wenger (2017) argue, willingness to take on risk (or more precisely, the lack of aversion to taking on risk) is an important factor in the decision to become an entrepreneur. Relevant to our current point, Werner, Oliver and Stephan (2009) argue that as people age and have less opportunity to accumulate new savings, the opportunity cost for risk becomes higher, and they tend to prefer a more stable wage-based income, making them less likely to become entrepreneurs. Even more fundamentally, one could argue that one reason creativity declines with age is because people become more risk averse, and creativity requires taking risks.

Now, let's retrace our steps through all of the channels by which aging populations negatively affect entrepreneurship rates, and tie them together. Entrepreneurship requires three things: 1) the presence of opportunities; 2) human creativity and willingness to take on risks; and 3) business skills. From our discussion of consumption patterns, an aging population may lead to shifts in spending away from areas that are the easiest for new entrepreneurs, such as the restaurant industry, and into areas traditionally dominated by larger, longer-lived private firms and government provision (and regulation), that may offer fewer entrepreneurial opportunities. Second, individual creativity tends to peak in early adulthood and wane as people grow older. Thus, aging populations will have lower proportions of people who are at their most creative ages. Willingness to take on risk also falls with age, so increasing risk aversion will reduce the proportion of the population interested in becoming entrepreneurs relative to those who want more stable sources of wage income. Last, aging populations will lead to reduced business skills and experience among the pool of potential entrepreneurs, not just because human capital accumulation over an individual's own lifecycle follows the inherent inverted U shape, but also because of the "rank effect," as explained by Liang, Wang, and Lazear (2014) in which older work forces diminish promotion opportunities for young workers, and with the drop in those opportunities, the accumulation of skills.

To this point, we have focused on factual demographic trends and on theories about why changing demographic trends may be influencing entrepreneurship rates now and into the future. But to this point we have not discussed the evidence from the literature supporting these claims based on the trends that have already begun. That is the purpose of the next section. There is a very large and robust literature on the relationship between age and entrepreneurship—and not all of it agrees. While some things are generally agreed-upon, there are many minor points of difference among the findings in the literature. We now turn our attention to examining this evidence and discussing the differences.

## **A review of the literature's empirical evidence**

Some of the studies that attempt to examine the relationship between demographic factors and entrepreneurship rates use individuals as the unit of analysis, while others use broader measures of entrepreneurship at the national or subnational level. Available studies also use different measures of the relevant variables, control for different factors, and examine data from different periods, different countries, and even different industrial sectors. Hence, it is not surprising that there are some differences in the findings. The purpose of this section is to briefly summarize a selected set of major papers from the literature to assess the theoretical arguments presented earlier about the relationship between age and entrepreneurship rates.

Despite differences, the vast majority of empirical evidence identifies an inverted U shape that finds entrepreneurship rates maximized among individuals (and populations) roughly somewhere between their late twenties and early forties. As the data presented earlier in this chapter show, the percentage of the population in this age group was at its peak in 1995 in Australia, Canada, the United Kingdom, and the United States. Since 1995, the proportion of people in this age group in each of these countries has begun to decline, a trend that will continue decades into the future and will likely lower the rate of entrepreneurship.

A good place to begin the literature review is with Liang, Wang, and Lazear's (2014) paper that provides both a theoretical and empirical exploration of the relationship between age and entrepreneurship. Because the paper forms a large basis for some of the arguments made in this chapter, it is worth discussing in detail. The authors begin by outlining the long-run trends in global age structures, attributing the changes to declining fertility rates. They pay special attention to Japan's "lost decades" and "entrepreneurship vacuum," which were caused by underlying demographic changes. After establishing the importance of the age on entrepreneurship rates, they continue by setting out the two main arguments that support their theory. The first is to demonstrate that, for an individual, the odds of being an entrepreneur follow an inverted U-shape pattern, and they cite both the prior literature, as well as data from the Global Entrepreneurship

Monitor to illustrate this relationship that they consider “a stylized fact” in the literature. They then introduce their innovation to the literature—the “rank effect” argument, in which an aging population harms the rate of entrepreneurship because older workers dominate management positions and in so doing, block younger workers from moving into those positions, thereby acquiring the business skills they need to become successful entrepreneurs.

The paper contains a detailed theoretical model that produces several formal propositions, corollaries, and lemmas that ultimately generate their empirical implications. The main implications of their theory are: 1) within a country, the effect of age on entrepreneurship is negative, holding the share of those below that age group constant; 2) for any given age group, a country with a smaller proportion of the population below that age will have a lower rate of entrepreneurship; 3) the rates of entrepreneurship at any given age are reduced in a country that is aging more rapidly; 4) countries with higher median ages should have lower entrepreneurship rates; and 5) within a country, entrepreneurship rates rise with age and then decline after some point.

The authors then use data from the Global Entrepreneurship Monitor from 2001 to 2010 that covers more than 1.3 million individuals aged between 20 and 60 in 82 countries. They use the more than 16,000 data observations to calculate the entrepreneurship rates of interest. For demographic data, they employ the population estimates and projections from the US Census Bureau’s International Database for over 200 countries and areas of the world, along with other country-level attributes from several other sources including the Penn World Tables, World Bank, and Property Rights Alliance. This additional data allows the authors to control for an impressive number of factors such as each country’s GDP per capita, rates of tertiary education, country-specific costs to register a business, and the security of property rights. In the end, they empirically confirm their theoretical predictions and find that a one-standard deviation increase in the median age of a country decreases the rate of entrepreneurship by 2.5 percentage points. They also estimate the inverted U-shape pattern and find that entrepreneurship peaks roughly around age 32.

To show the great variety in the findings of the papers in the literature, let us now consider those that reach conclusions that contrast somewhat to Liang, Wang, and Lazear (2014). Weller and Wenger (2017) argue that there is a growing age gap in entrepreneurship and that entrepreneurship has declined in households younger than 50 and increased in older households, mainly due to younger people having less diversified income sources. The authors employ data for the United States from the Federal Reserve's *Survey of Consumer Finances* to examine their hypothesis. But the main take-away from their paper that is central to this chapter is that if the key ages for entrepreneurship begin to change, it may have an impact on future entrepreneurship rates. The entire argument about demographic trends, which says that age will affect entrepreneurship rates, assumes that the critical age for entrepreneurship will remain in the 30 to 40 age group. Other papers, such as that by Kadam and Ayarekar (2014), have begun to explore whether the rise of social media may also affect the age distribution of entrepreneurship and entrepreneurial performance, and this could contribute to a change in the fundamental U-shaped pattern assumed in the literature. They argue that social media has broken age, class, and social barriers, and in doing so may open more opportunities for younger individuals. If true, this may make the key age range for entrepreneurship younger, further contributing to the negative impact of demographic trends on entrepreneurship rates.

Stangler and Spulber (2013) argue that there may be reasons to expect entrepreneurship to decrease less than some fear, and instead to increase. They point to the fact that while the *proportion* of the population in the middle-age bracket is falling, from now until about 2030 in the United States the absolute *number* of people in their thirties and forties (the peak age for entrepreneurship) will be larger than ever before. They also point to the dampening effect that continued immigration will have on problems of entrepreneurship as immigrants have higher rates of entrepreneurship (and fertility). They also warn, however, that policy changes are necessary to help slow the decline in entrepreneurship including ensuring labor market flexibility, lowering barriers for occupational and industry entry, and expanding immigration.

Despite the slightly contrasting results in these few papers, the vast majority of the literature agrees with the general thrust of the Liang, Wang, and Lazear (2014) argument. Perhaps one of the most insightful papers is by Khyareh and Mazhari (2016). They empirically examine some of the factors and relationships that the other key papers simply assume. The authors look at the Global Entrepreneurship Monitor data for Iran in 2014 at the individual survey level to see if four possible things matter as to whether a person becomes an entrepreneur: 1) whether they know another entrepreneur; 2) whether they perceive there are profitable business opportunities present in their economy; 3) if they perceive they personally have sufficient entrepreneurial knowledge; and 4) whether they fear business failure. Interestingly, their data show that for Iran, the most entrepreneurially active age is 18 to 24, a younger age than much of the literature finds for other countries. The study finds that knowing another entrepreneur increases the probability of an individual being an entrepreneur by 8 percentage points. The perception of business opportunities increases the probability by around 4 percentage points, especially for those aged 25 to 44. The fear of failing causes a 3 to 6 percentage point reduction in the probability of being an entrepreneur, and particularly affects those who are middle-aged. Perhaps most importantly, the study finds the greatest determinant of whether someone chooses to become an entrepreneur is whether the individual believes he or she possesses entrepreneurial knowledge and skills. That factor has a very large, 18 percentage point impact on the probability of being an entrepreneur and is strongest in the 18 to 24 age group.

Khyareh and Mazhari's (2016) findings are important in that they demonstrate that the knowledge factor—the possession of business skills—is a significant determinant of entrepreneurship. This is, of course, a critical (and assumed) part of Liang, Wang, and Lazear's (2014) "rank effect" argument. In addition, because Khyareh and Mazhari find that knowing other entrepreneurs is important, it helps to point to another way in which age distribution can affect entrepreneurship—a peer effect. We will discuss this effect next.

Everyone is generally familiar with the arguments that peer pressure and peer effects can substantially influence human behavior. If one extends this to entrepreneurship, the implications are that the more entrepreneurs there are around you, the more likely you are to become an entrepreneur. To the extent that this peer effect is important it is yet another reason why an aging population will result in reduced entrepreneurship rates. With fewer individuals in the key entrepreneurial age range, there are fewer other individuals with whom to interact. This argument is made and confirmed empirically by Werner, Oliver, and Stephan (2009) using regional data for Germany. They find that peer and societal influences affect entrepreneurship levels and the motivation to start a business through three channels: 1) peers facilitate access to resources such as capital and labour; 2) peers provide information on opportunities and risks, therefore decreasing uncertainty; and 3) peers provide psychological support which helps to ease the stress of starting a business. The clustering of technology-intensive industries and thriving technology entrepreneurship sectors in locations such as Silicon Valley in the southern San Francisco Bay area of California is an indicator of the importance of these networking and peer effects.

Markussen and Røed (2017) take the peer effect one step further by arguing that gender matters. They find that men are mostly influenced by other men, and women by other women, which helps to explain the persistence of men being more likely to be entrepreneurs than women, as the number of male entrepreneurs historically was larger than the number of female entrepreneurs. Markussen and Røed argue that the gender disparity among entrepreneurs is not due to capabilities or human capital that is different across genders, but the desire to become an entrepreneur. They did find that family members had a strong influence, but even then, the effect was strongest among those of the same gender. Their analysis is based on data from Norway from 2002 to 2012.

Not all studies entirely support the peer effect argument, however. Kim, Aldrich, and Keister (2006) explore the relative importance of net worth, education levels, and business skills in the decision to become an entrepreneur. What they find is that contrary to popular belief, net worth did not



have a statistically significant impact on the likelihood of becoming an entrepreneur. On the other hand, they did find a strong human capital effect of educational background and work experience (managerial experience and current business ownership). Perhaps most surprisingly, they find that experience with entrepreneurial family members did not promote a transition to entrepreneurship. They employed data for the United States from the Panel Study of Entrepreneurial Dynamics.

The literature on gender differences in entrepreneurship rates does help to give general support to the rank and peer effects arguments. Papers such as Manzanera-Román, and Brändle (2016), Thebaud (2010), Duehr and Bono (2006), and Gupta, Turban, Wasti, and Sikdar (2009) find that social stereotypes play a particularly harmful role in this regard, and that as more women assume managerial positions, this helps them to build skills and increase the rate of entrepreneurship among women. As women have entered the labour force to a greater degree over the past few decades, because their rates of entrepreneurship are lower than those of men, it has resulted in a statistical decline in overall entrepreneurship rates. Whether this will reverse as peer effects and human capital are built among women in the workforce is yet to be seen, but there are promising indicators globally. The Global Entrepreneurship Monitor's 2016 report for the United Kingdom found that between 2003 and 2016, the proportion of women that became entrepreneurs increased by 45 percent, almost twice as much as the increase among men (27 percent). However, men were still nearly twice as likely to be entrepreneurs (see Hart, Bonner and Levie, 2017). According to the same report, though, the United Kingdom's rates of female entrepreneurship still are much lower than other countries, such as Canada, which has the highest absolute rate of female early-stage entrepreneurs at 11.6 percent of working-aged women.

The economic reasons why entrepreneurship rates decline after middle age is also something that has been explored in the literature, independent of arguments about declining creativity. Lévesque and Minniti (2006, 2011) and Cassar (2006) argue that with age, not only does the opportunity cost of time increase as labour wages rise with experience, but also older individuals are less willing to invest time in activities that have a long

and uncertain payback period, which includes starting a business. While Cressy (1996) and Bates (1990) also documented that businesses run by older and more experienced entrepreneurs are more successful and have higher survival rates, these other economic effects dominate and result in reduced entrepreneurship rates after the peak entrepreneurship ages of 25 to 34.

In summary, while the literature is varied and there are some slight disagreements, the preponderance of evidence from other studies does indeed point to peer effects mattering, and to economic and psychological factors causing entrepreneurial tendencies to decline with age past the thirties or forties.

## A closer look at the data

With knowledge of the main arguments regarding the impact of demographic trends in age on entrepreneurship, and the factors that the prior literature has found important, we turn in this final section to the data for our countries of interest. This data will allow us to see how the variables cited in the literature reviewed above actually compare for Australia, Canada, the United Kingdom, and the United States. It will also afford an opportunity to summarize the chapter and relate it specifically to these variables.

As this chapter has shown, entrepreneurship requires a few main factors. First is the presence of profit opportunities in an economy, and perhaps more importantly the ability (e.g., human capital and knowledge) of individuals to see (and discover) these opportunities and to take advantage of them. Do individuals in our economies of interest see these entrepreneurial opportunities present and do they believe they have the skills? Table 1 shows data from the *Global Report 2016/17* by the Global Entrepreneurship Monitor.

In table 1, the “Perceived opportunities” column shows the percentage of the population between ages 18 and 64 years who say they see good opportunities to start a business in the area where they live for each of

**Table 1: Self-perceived Entrepreneurial Opportunities, Capabilities, and Intentions**

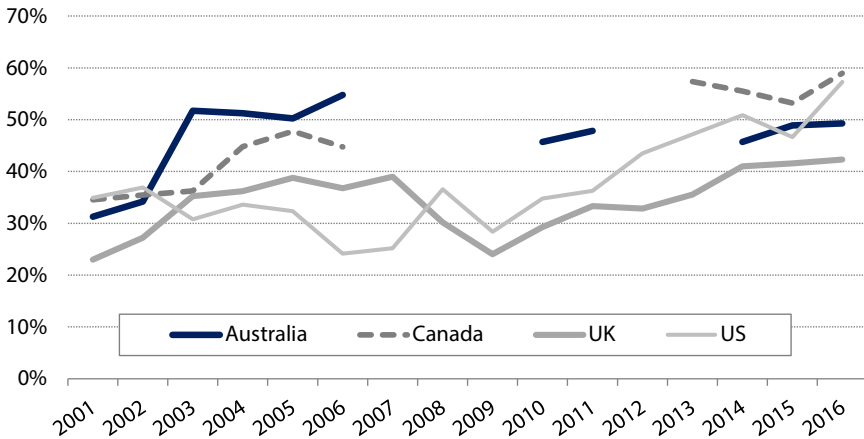
Country	Perceived Opportunities	Perceived Capabilities	Entrepreneurial Intentions
Australia	49.3%	52.3%	12.3%
Canada	59.0%	54.1%	14.0%
U.K.	42.3%	48.0%	9.1%
U.S.	57.3%	55.0%	11.7%

Source: Global Entrepreneurship Monitor (2017): 107-109.

our four countries of interest. In Canada, 59 percent of the population sees such opportunities, while it is 57 percent in the United States, 49 percent in Australia, and 42 percent in the United Kingdom. The next column shows “Perceived capabilities,” which is the percentage of population between the ages of 18 and 64 years who believe they have the required skills and knowledge to start a business. The United States and Canada again top the list at 55 and 54 percent respectively of people who feel they have the capabilities, with Australia at 52 percent and the United Kingdom at 48 percent. The final column shows “Entrepreneurial intentions,” which is the percentage of the population between 18 and 64 years of age who intend to start a business within three years (current entrepreneurs excluded). This is highest for Canada at 14 percent, followed by Australia and the United States at roughly 12 percent, and the United Kingdom at 9 percent.

The question of interest pertains not just to what these numbers are today for these economies, but how they will change in the future. Will entrepreneurial opportunities dwindle? Will the aging workforce reduce the ability of individuals to develop capabilities? Will fewer people have entrepreneurial intentions because they are older? While it is impossible to know what the future holds, the data enable us to explore recent trends. The GEM Entrepreneurial Behavior and Attitudes database compiles the answers to the above questions (and others) for as many years as are avail-

**Figure 5: Perceived Opportunities: Percentage of Population Aged 18-64 That Sees Good Opportunities to Start a Business in the Area Where They Live, 2001 – 2016**



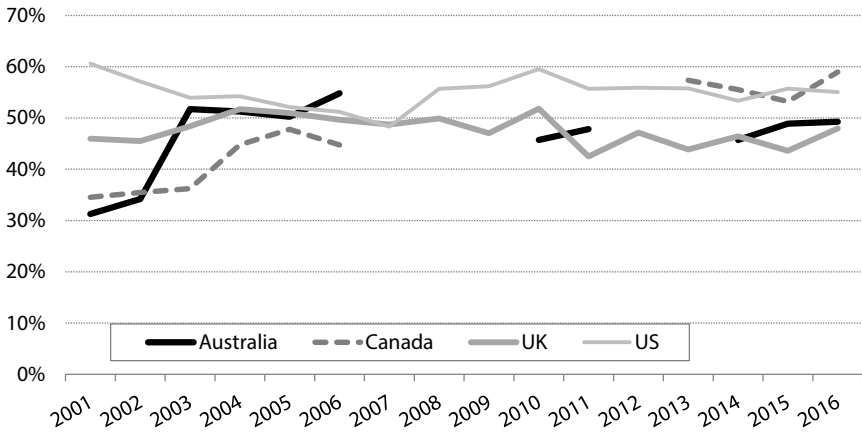
Source: GEM Entrepreneurial Behavior and Attitudes database.

able. Going back in time, however, the survey was not always done in the same years for all countries, so there are some gaps in the data that are visible in the following figures.

Figure 5 shows how the responses to the question about perceived opportunities have changed in these countries over the past 15 years. As it shows, the recent recession reduced these opportunities relative to the pre-existing trend. However, the data have rebounded. In three of the four countries, the perception of entrepreneurial opportunities is still rising. Australia is the exception; in that country the data have not yet returned to their highest mid-2000s levels. So far, recent data give no signs that entrepreneurial opportunities, or at least individuals' perceptions of those opportunities as measured by a survey technique, are starting to dwindle rapidly in these sample countries.

Figure 6 shows how the responses to the question about perceived capabilities have changed in these countries over the past 15 years. A much

**Figure 6: Perceived Capabilities: Percentage of Population Aged 18-64 That Believes They Have the Required Skills and Knowledge to Start a Business, 2001 – 2016**

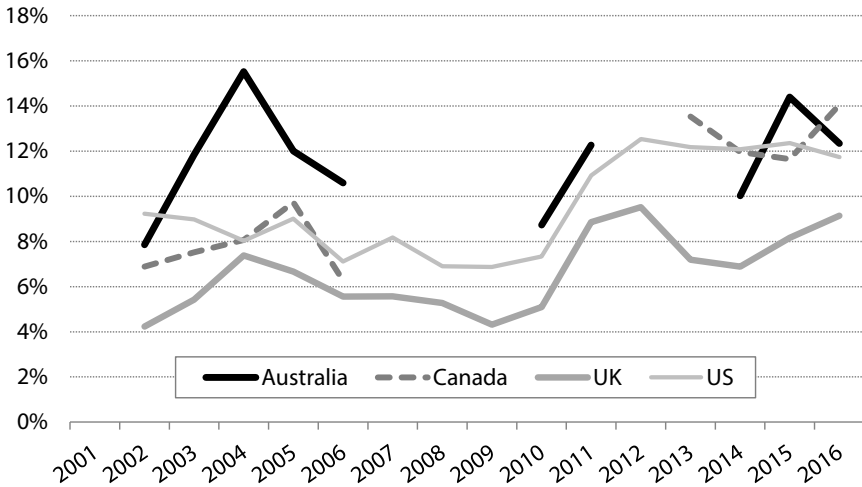


Source: GEM Entrepreneurial Behavior and Attitudes database.

different trend emerges from that shown in figure 5. With the exception of Canada, the lines in figure 6 are generally flat or dropping slightly. Only in Canada is the 2016 value higher than in any earlier year covered by the data. The perceptions of capabilities in the other three countries are currently all below the highest values reported during the period. Australia peaked at almost 55 percent in 2006, the United Kingdom peaked at almost 52 percent in 2010, and the United States peaked at almost 61 percent in 2001, the first year of the data. While declines are not steep, the perceptions of entrepreneurial capabilities definitely are not rising as fast as the perceived opportunities, a contrast with important implications that are worth expanding upon.

Generally, the incentive for individuals to invest in skills depends on whether there are lucrative opportunities available to those who learn the skills. For example, Freeman (1975) found that for every 1 percent increase in starting law salaries, there was a 2 percent increase in first-year

**Figure 7: Entrepreneurial Intentions: Percentage of the Population Aged 18-64 That Intends to Start a Business within Three Years, 2001 – 2016**



Source: GEM Entrepreneurial Behavior and Attitudes database.

law school enrolments. More recently, in the early 2000s, widely available and high paying careers in the finance industry led to a rising number of finance majors in colleges and universities. In contrast, today there are not many opportunities for skilled blacksmiths, so few people are acquiring those skills. Thus, the decline we can see in perceived entrepreneurial capabilities cannot simply be a secondary effect that has resulted from a reduced incentive to acquire those capabilities due, in turn, to fewer opportunities to become an entrepreneur. In fact, among the very same people who report declining perceived skills, perceived entrepreneurial opportunities are rising. If acquiring these skills were as straightforward as choosing a major, we should see an upward trend in skill acquisition, as opportunities in the field have risen. Instead, we see the opposite. This suggests that something exogenous, outside of the choice of the individuals in question, is becoming a barrier to the development of these skills. This is precisely what the Liang, Wang, and Lazear's (2014) "rank effect"

would cause to happen in the data, so it is clearly one possible explanation of the observed data. Alternatively, it could be a sign of something deeper as the survey question focuses on perceived capabilities, and while people may be investing in capabilities, it is also possible that they believe that the threshold of capabilities needed to be a successful entrepreneur is rising.

Figure 7 shows how the responses to the question about entrepreneurial intentions, the percent of respondents that intend to start a business, have changed. Generally, these data show that there has been a U-shaped trend since the end of the 2008-09 recession, but in general there are more potential entrepreneurs today than in the early 2000s (with the exception of Australia, where the 2004 data was the highest of the years). Fortunately, even though we have begun to see some decline in perceived entrepreneurial capabilities, the number of individuals who intend to open a business has not yet begun to fall.

## **Conclusion**

This chapter has set out to help the reader understand the complex relationship between the long-run demographic trends in age and the potential impacts it will have on entrepreneurship rates in the developed world, paying special attention to Australia, Canada, the United Kingdom, and the United States. As is well documented, the future trend is clear: these societies are aging. Not only is the average age rising steadily, but the proportion of the population in the key age group for entrepreneurship is declining. Having a smaller percentage of the population in this age group means less entrepreneurship going forward, other things constant. Because entrepreneurship is such a key factor in progress and prosperity, a decline in entrepreneurship rates could be very troubling for the future.

In addition, aging populations will lead to changes in consumption patterns that may shift revenue away from activities that are easier for first time entrepreneurs to enter, such as restaurants, and into areas that are mostly dominated by larger, longer-lived businesses and government run enterprises, such as hospitals. Finally, the presence of both peer effects and

the “rank effect” detailed by Liang, Wang, and Lazear (2014) will add to the decline in entrepreneurship rates as older individuals remaining in the workforce will reduce the opportunity for younger workers to gain skills and capabilities through occupational advancement.

Fortunately, demographics is not the only factor affecting entrepreneurship rates. The rules and laws in each country or sub-national area can also have large impacts on rates of entrepreneurship. By pursuing policies that encourage entrepreneurship, it may be possible to offset the coming declines caused by aging populations in developed countries. Later chapters in this volume explore those potential policies.

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# CHAPTER 3

## Small Business Entry Rates, Demography, and Productivity Performance in Selected Developed Countries

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### **Introduction**

Several perspectives motivate this volume of essays. One is that entrepreneurial activity is vital to the economic well-being of a nation. A second is that demography is an important determinant of entrepreneurial activity. A third is that entrepreneurial activity has been declining, and might continue to decline, in part because of recent and prospective demographic developments, and in the absence of policy initiatives that can effectively counteract demographic influences on entrepreneurial activity.

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1 The authors thank Sasha Parvani for her thorough data collection and research assistance and for her comments on earlier drafts of this paper.

This chapter provides some statistical background relevant to these perspectives. In particular, it provides some data for several developed countries indirectly bearing upon changes in entrepreneurial activity in recent years. It should be noted that available data do not allow us to construct a time series that directly measures entrepreneurial activity. Rather, our data focuses on the entry and growth of small firms over time in several OECD countries.

The relevant literature draws distinctions between entrepreneurship and small businesses, on the one hand, and between start-up businesses and small businesses, on the other. It is beyond the scope of this chapter to identify and assess the various definitions of entrepreneurship that are found in the literature. We merely note that most definitions view entrepreneurship as a process whereby individuals discover, evaluate, and exploit opportunities to create something new. In the process, they assume risks and earn rewards.<sup>2</sup> Small business ventures are often the outcome of entrepreneurial activity, although not all small firms are “entrepreneurial” in the sense that many are not established and do not grow based primarily upon innovation. Moreover, many ventures are started by entrepreneurs, but fail.<sup>3</sup> In short, identifying trends in the creation and growth of small business ventures is, at best, an approximation to measuring trends in entrepreneurial activity.

In defense of our pragmatic measurement approach, it is generally the case that successful entrepreneurial activity is associated with the creation and growth of small firms. Hence, a slowdown in the formation and growth of small businesses is also likely to reflect a slowdown in entrepreneurial

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2 See, for example, Amit, Glosten, and Muller (1993). For a comprehensive discussion of measures of entrepreneurship, see Godin, Clemens, and Veldhuis (2008).

3 The OECD (1996) notes that less than one-half of start-ups survive for more than five years and only a fraction develop into high-growth firms that make important contributions to job creation. Furthermore, it claims that between 30 and 60 percent can be characterized as innovative.



activity.<sup>4</sup> Furthermore, small and medium-sized enterprises contribute disproportionately to innovation (Iammarino and McCann, 2006) and, thereby, to improvements in productivity and standards of living. They also make important contributions to job creation.<sup>5</sup> As Gourio, Messner and Siemer put it: “New businesses contribute to growth by increasing competition, by innovating and by capturing market share from less productive incumbents” (2016: 214). As such, identifying trends in small business creation and growth rates provides important and direct information about a nation’s economic health, as well as indirect information about entrepreneurial activity that ultimately underlies innovation and the growth of new markets.

Our primary goal in this chapter, therefore, is to present evidence showing changes in the prominence of small firms over time for a number of developed countries including Canada. In doing so, we employ several measures of changes in the participation of small firms in developed economies. We find that birth rates for small firms have decreased in recent years for a sample of developed countries for which data are available. We also find that the relative economic importance of small (and medium-sized) firms has declined over a similar period, while the economic importance of relatively large firms has increased. We take this as evidence that entrepreneurial activity has also declined in recent years.

As noted above, changing demography has been implicated in recent and prospective declines in entrepreneurial activity, most notably by Liang, Wang, and Lazear (2014). Their basic argument is that an aging population suppresses entrepreneurial activity primarily because older workers occupy key positions in established organizations, thereby blocking younger workers from acquiring business skills. Also, the energy and creativity that entrepreneurs need to possess are more abundant in countries with young-

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4 Recent empirical work has also tried to measure entrepreneurial quality. (See, for example, Guzman and Stern, 2016). Improvements in entrepreneurial quality can potentially mitigate the adverse effects of slow-downs in start-up rates for small businesses.

5 Decker, Haltiwanger, Jarmin, and Miranda (2016) note that young firms, usually small, make a long-lasting contribution to aggregate employment despite high failure rates.

er populations. Hence, another piece of data that we present and consider is demographic trends in our sample countries, including projections of changes in the age distributions of the populations in those countries.<sup>6</sup>

A specific focus of Russell Sobel's chapter in this volume, as well as ours, is the change in the share of the population in the age cohort that is considered particularly entrepreneurially inclined, i.e., those in their late 20s to early 40s.<sup>7</sup> We review Sobel's evidence on recent changes in critical age cohorts, as well as projected changes in those cohorts. We also provide some additional demographic data relevant to a changing entrepreneurial cohort. Perhaps the most fundamental conclusion we draw from the data is that the age cohort(s) associated with entrepreneurial activity declined noticeably in recent years. While the most relevant age cohort promises to remain relatively stable for the near future, it will begin to decrease significantly in about 10 years' time. Hence, unless societies can elicit more entrepreneurial activity from a shrinking set of potential entrepreneurs, developed countries, unfortunately, can look forward to slower rates of innovation and other manifestations of market dynamism, other things constant.

A third set of data we examine focuses on productivity performance. As noted earlier, in the literature, productivity growth has been prominently linked to entrepreneurial activity, as discussed in the first chapter of this volume. Many observers have noted the marked slowdown in productivity growth in virtually all developed countries in the past decade compared to the period from around 1995–2005, (United Nations, 2017). We document the slowdown in this chapter. We also compare productivity performance over time in our sample countries to our data on small business start-ups and small business growth for those countries. Clearly, a careful statistical analysis is required to identify economic linkages between our

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6 The demography argument, along with relevant data on age distribution changes in several developed countries, is presented in detail in Russell Sobel's chapter in this volume.

7 We also look at a narrower age cohort, specifically, those aged 30–40 years.

data on small business activity and productivity performance.<sup>8</sup> Hence, the data comparisons we discuss and present are, at best, suggestive. With this caveat in mind, our data highlight a correspondence between decreases in the relative importance of small business activity and a slow-down in productivity growth. They also underscore the importance of linkages between demography and entrepreneurship discussed in Sobel's chapter in this volume. Specifically, policymakers need to identify and encourage initiatives to promote entrepreneurship to offset unfavorable future changes in demography and the resulting adverse impact on productivity growth.

Finally, we discuss changes in industrial concentration ratios over time to assess changes in the relative importance of large versus small firms in the US and Canada. This data analysis is complementary to that which looks at the changing start-up rates for small businesses. Indeed, the latter analysis might help shed light on the reasons for the observed recent decreases in rates of small business start-ups and the slower growth of small businesses, inasmuch as an increasing number of antitrust scholars have argued that technological change is contributing to the growth of network economies that, in turn, create competitive advantages for large firms, and make the entry and growth of small firms more difficult (Taplin, 2017). This development, to the extent it is relevant, would be manifested in, among other things, increasing market shares of large firms or, equivalently, increasing industrial concentration ratios.

Our broad conclusion is that small firms have become less important participants in our sample of developed countries in recent decades, and that notable slowdowns in productivity growth rates might be linked to this development. Furthermore, the aging of the populations of developed economies augurs poorly for a pick-up in small business start-ups and growth rates without the implementation of policy initiatives to offset this development. Finally, increasing industrial concentration ratios indirectly reinforce our conclusion about decreasing entrepreneurial activity.

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8 For a recent econometric study linking declining firm entry to US productivity performance, see Alon, Berger, Dent, and Pugsley (2017).

The chapter proceeds as follows. The next section presents some data on the changing age distribution of our sample of developed countries. The third section reviews data on recent start-up rates for small businesses in several developed countries. The fourth and fifth sections, respectively, discuss evidence bearing upon changes in productivity and the relative importance of large firms in developed economies. The final section offers a summary and conclusion.

## **Demographic developments**

Russell Sobel's chapter in this volume examines some recent demographic changes affecting Canada, the US, the UK, and Australia from 1965 to 2015. His main point is that the trends for all four countries are similar. Namely, the populations in those countries have been aging. Specifically, the median age from 1965 to 2015 has risen by an average of 9.5 years in those four countries, and it is projected to rise by an average of 5.3 more years through 2065.<sup>9</sup>

Sobel also estimates the percentages of the populations of the four countries between the ages of 25 and 49 for the three years 1965, 2015, and 2065. Given the aging of the populations from 1965 to 2015, the percentages of the populations in the four countries in the 25–49 age bracket increased over that period. Across the four countries, the percentage of the population in that age bracket increased by 2.7 percentage points. However, Sobel's projection is that the percentage of the population aged 25–49 will fall by an average of 4 percentage points over the next 50 years. By 2065, the percentage of the population in this age group will fall to between 29 and 30 percent in the four countries compared to a range of 33 to 35 percent in 2015 (Sobel, this volume, figure 2).

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9 In 2015, the median ages in the UK and Canada were slightly higher than in the US and Australia, and the differences will persist over the next 50 years. See Sobel, this volume, figure 1.

**Table 1: Average Share of the Populations Age 30–39, by Decade**

Decade	1980s	1990s	2000s	2010s	2020s	2030s	2040s
Australia	15.59%	15.90%	14.74%	14.05%	14.00%	12.47%	12.74%
Canada	16.32%	17.41%	14.46%	13.61%	13.65%	12.21%	12.05%
United States	15.66%	16.58%	14.00%	12.98%	13.69%	13.07%	12.40%
United Kingdom	13.76%	14.73%	14.70%	13.17%	13.09%	11.75%	12.10%
Germany	13.43%	16.34%	14.75%	12.18%	12.84%	11.25%	10.50%
OECD	14.96%	15.50%	14.68%	13.36%	12.75%	11.85%	11.57%

Note: The 1980s begin in 1981.

Source: Australian Bureau of Statistics, 2007, 2012, 2016; Eurostat, 2012, 2017; Statistics Canada, 2017a; US Census Bureau, 2017; author calculations.

In his chapter, Sobel thoroughly discusses the relevance of the age distribution of the population to entrepreneurship, along with some evidence on the precise nature of the relationship between the two phenomena. The vast majority of the available evidence supports the broad finding of Liang, Wang, and Lazear (2014) that the relationship between entrepreneurship and aging follows an inverted U-shape. That is, entrepreneurship rates are maximized among individuals (and populations) roughly somewhere between the ages of the late 20s and early 40s. A number of studies pinpoint the peak of the inverted U-shape to be in the 30s (Sobel, this volume).

If the peak of the inverted U-shaped relationship between age and entrepreneurship is in the 30s, it is useful to refine Sobel's age distribution data to focus specifically on the percentage of the population of our sample countries that are, or will be, in the 30–39 year age bracket. Table 1 presents this data; it reports the share of the population aged 30–39 for our four Anglo-Saxon countries as well as for Germany and for all OECD countries.<sup>10</sup>

10 Since innovation benefits associated with new start-ups in one country are likely to be captured in part by consumers in other countries, it is interesting to identify whether

In general, we are less interested in year-to-year changes in the age distributions of countries than in longer-run changes, both historical and projected. Hence, table 1 reports the percentage of the population aged 30–39 for our sample of countries averaged over decade-long intervals covering the period from the 1980s to the 2040s.

As table 1 shows, all of the developed countries it identifies show a decreasing percentage of their populations in the “prime” entrepreneurial age category from the 1980s to the 2040s. On average, in these five countries, the share of the population aged 30–39 will decline by approximately 26 percent between the 1990s (when this age group’s share of the population peaked) and the 2040s.

While these advanced industrial countries are expected to follow this general trend, a number of small differences in the patterns of the five sample countries are worth noting. Germany is expected to face the largest overall decline, as the prime entrepreneurial age share of the population is expected to drop by more than 35 percent from slightly over 16 percent of the population in the 1990s to 10.5 percent in the 2040s. Canada, in which the 30–39 age group comprised the largest share of the total population among the sample, will also experience an over 30 percent decline in this age group’s share of the population by 2040. The United Kingdom is expected to experience the smallest decline in the share of the population that is at their prime entrepreneurial age (30–39) by the 2040s. This is likely the result of the UK having the lowest share of the population in the prime entrepreneurial age category of any of our sample countries in the 1990s, when this age group’s share peaked.

It is, perhaps, good news that in four of our sample countries (Australia, Canada, the US, and the UK), the share of the population of prime entrepreneurial age will be above the OECD average. Indeed, only in Germany is the share of population aged 30–39 expected to be lower than the OECD average. Although this might be good news for Australia, Canada, the US, and the UK relatively speaking, given the linkage between demographics

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favorable or unfavorable changes in demography are widespread across countries, or whether they are specific to particular countries.

and entrepreneurship, the large decline of this age group's share within these countries should be cause for concern because of the impact that it could have on business formation and associated entrepreneurial activity.

Another small bit of good news is that there is projected to be a modest increase in the percentage of the population in the 30-39 year range in the 2020s compared to the 2010s in at least three of the individual countries identified in table 1. Hence, to the extent that the age distribution of the population is a critical determinant of entrepreneurial activity, demographic developments will either be slightly favorable, or at least not harmful, to small business start-up activity in the 2020s compared to the preceding decade. However, beyond the 2020s, there will again be a fairly marked decline in the 30-39 year old age cohort in the populations of our sample countries. One might therefore infer that policy instruments to encourage entrepreneurship will become increasingly important to the economic welfare of developing countries given the stagnant and even decreasing share of the population that is demographically predisposed toward entrepreneurial behavior.

## **Small business start-ups and growth**

This section presents and discusses data and other evidence bearing upon the issue of whether the rates of small business start-ups and growth have changed over time in the context of overall business performance. Given the demographic trends discussed above, specifically the changing age structure of the populations of advanced industrialized countries, we should expect to see some slowing of small business start-up activity, if not an outright decline.<sup>11</sup>

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11 Of course, we do not mean to say that demographic change is the sole driver of business start-up activity; however, the previously cited research of Liang, Wang, and Lazear (2014) points to the likelihood that the aging population of our sample countries will affect business start-up rates.

At least two caveats should be acknowledged before presenting any information on small business start-up activity. The first is that there is no universal definition of what constitutes a “small business.” Definitions are usually based on total employment, but the categorization of firm size classes varies across countries. For example, the European Union identifies organizations with fewer than 10 employees as being “micro enterprises,” while small enterprises are defined as organizations with between 10 and 49 employees (see Eurostat, 2009). Other developed countries, most notably the US, make no such distinction between micro enterprises and small enterprises in their reporting of data. Furthermore, there is no theoretical basis for a specific employment cut-off to distinguish a small enterprise from a medium-sized enterprise. For example, it is clearly arbitrary to set a lower limit of 10 employees to define a small enterprise and equally arbitrary to set an upper limit of 49.

Our definition of small business enterprises is implicitly dictated by the availability of published data. That is to say, we report the distribution of enterprises by the employment size classifications as given by available data. However, our view is that the spirit of the literature focusing on entrepreneurship emphasizes the relevance of a small number of individuals starting an innovative organization. Hence, our perspective is that for the purposes of this chapter, small business enterprises should be defined as being closer in size to what the European Union identifies as micro enterprises rather than what it defines as the larger small enterprises, i.e., close to 50 employees.

A second caveat is that innovative small firms have the greatest impact on the economy. In this regard, only a portion of start-up small businesses focuses on innovation. The OECD (1996) estimates that between 30 and 60 percent of small and medium-sized enterprises can be characterized as innovative. Of those, 10 percent are technology-based. However, of the innovation-focused start-ups, only a very small portion will turn out to be successful in the sense that they will grow into large businesses. Lester (2017) documents this phenomenon in the case of Canada. Hence, data focusing on small business start-ups and growth do not necessarily coincide



with the emergence and growth of small firms that will make important contributions to job creation and productivity growth.

There is no consistent time series data that allow us to identify the growth or decline in the number of successful innovative small businesses. Nor is there sufficient evidence to enable researchers to identify the characteristics of small firms that are likely to be successful businesses, at least on an *ex ante* basis. Hence, all one can infer is that a faster rate of small businesses start-ups increases the likelihood of an economy enjoying the emergence and growth of major enterprises that will create substantial increases in employment and income along the lines of Microsoft and Facebook.

We were able to obtain data on small business entry and exit for a number of developed countries, primarily Canada, the US, the UK, Germany, and Australia. Table 2 provides one broad measure of small business entry rates; it reports the number of small business entrants relative to the total number of incumbent small businesses. The available data does not permit the use of a common measurement of small business size across the few countries for which relevant data are available. Nor does it allow a comparison over an identical period of time. However, the quantitative definitions of small business enterprises and the time periods covered are sufficiently similar, in our opinion, to allow comparisons to be drawn across the sample countries. In our view, what matters most is how entry rates have been changing within the sample countries over time.<sup>12</sup>

As table 2 shows, small business entry rates declined in all five of our sample countries over our period of analysis.<sup>13</sup> Australia, in particular, ex-

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12 Cao, Salameh, Seki, and St-Amant (2017) also measure entrepreneurship as the number of new self-employed workers who hire employees. This measure provides essentially the same information as small business start-up rates, at least for Canada.

13 As noted in table 2, the definition of small business varies across countries. For Canada and the US, small businesses are defined as those having 20 or fewer employees. For the other countries, the definition of a small business is fewer than 10 employees. We also note that the time periods for the individual countries shown in table 2 are the same as those used for all subsequent data presented for the sample countries as they relate to small business entry and exit rates.

**Table 2: Small Business Entry Rates per 100 Small Business Incumbents, Three Year Averages, 2003–2014**

Period	2003–2005	2006–2008	2009–2011	2012–2014
Australia*	17.59	14.99	14.14	12.57
Canada*	15.74	15.74	14.29	13.73
United States*	13.61	13.12	10.68	11.30
Germany**§	6.06	6.62	6.36	4.76
United Kingdom**	15.48	14.72	11.60	14.94

Notes:

\* Small enterprise defined as 20 or fewer employees.

\*\* Small enterprise defined as fewer than 10 employees.

§ 2003–2005 is based on 2004 and 2005 data for Germany.

There is a break in the data for the United Kingdom and Germany, in that a new reporting system was adopted for these two countries from 2008 onwards.

Source: Australian Bureau of Statistics, 2007, 2012, 2016; Eurostat, 2012, 2017; Statistics Canada, 2017a; US Census Bureau, 2017; author calculations.

perienced a large fall-off in small business entry rates between 2003 and 2014. For example, during the 2003–2005 period there were, on average, 17.6 small business start-ups for every 100 small businesses already operating in Australia. However, from 2012 to 2014, Australia’s small business entry rate had fallen to 12.6 per 100 incumbent small businesses. While Australia experienced the largest decline of the five sample countries, the other four countries all saw decreases in small business entry rates of between 0.6 and 2.3 start-ups per 100 incumbents from the beginning of our analysis period to the end.<sup>14</sup>

It should not be surprising to find that small business entry rates declined after 2008, as this coincides with the onset of the major recession that

14 Criscuolo, Gal, and Menon (2014) document that most developed countries saw declines in young firm activity between 2001 and 2012..

commenced in the United States and, to a lesser extent, in other developed countries at the end of that year.<sup>15</sup> In particular, a decline in small business start-ups after 2008 is unsurprising given that real economic growth rates following 2008 were below those in the pre-2008 period for our sample countries. Hence, the data presented in this section of the chapter might be seen as identifying the impact of slower real economic growth on small business entry rates, since we do not explicitly account for the influence of other possible factors such as demographic changes. However, while the slower real economic growth rates after 2008 may certainly have contributed to a slowdown in business start-up activity, the declines in small business entry rates appear to be part of a longer-term trend, in that they appear to have begun years before the 2008 recession hit. This suggests that the deleterious economic effects stemming from the 2008 recession likely do not fully explain the observed declines in small business startups experienced by most of our sample countries after 2008.

One might argue that it is more meaningful and interesting to calculate the start-up growth rates for small businesses compared to the stock of all businesses rather than to the stock of small enterprises. In fact, since small businesses constitute the bulk of all active business enterprises, there would be little difference in such calculations compared to the pattern described in table 2.<sup>16</sup> It is also interesting to assess whether changes in entry rates for small businesses differ from those for medium and larger sized businesses, particularly given a prevailing view that changes in credit market conditions after 2008 have made it more difficult for small businesses to obtain financing compared to medium and larger sized businesses. We calculate an entry rate for medium and large sized enterprises and report the results in table 3. We identify medium and large sized enterprises by

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15 Sedlacek and Sterk (2017) provide some statistical evidence on how employment fluctuations in start-up companies are pro-cyclical. That is, employment in start-ups will decline during periods of relatively slow economic growth.

16 For example, in 2014, small businesses in Canada (as defined above) comprised almost 93 percent of all business enterprises. The comparable percentages for the US, UK, Germany, and Australia were 85, 79, 40, and 93, respectively.

**Table 3: Medium and Large Business Entry Rates per 100 Medium and Large Incumbents, Three Year Averages, 2003–2014**

Period	2003–2005	2006–2008	2009–2011	2012–2014
Australia*	8.28	4.49	2.68	2.75
Canada*	1.89	1.25	0.85	0.77
United States*	2.64	2.68	2.02	1.96
Germany**§	8.40	7.47	6.73	6.16
United Kingdom**	9.59	9.46	7.87	8.66

**Notes:**

\* Medium and Large enterprises defined as those with more than 20 employees.

\*\* Medium and Large enterprises defined as those with 10 or more employees.

§ 2003–2005 is based on 2004 and 2005 data for Germany.

There is a break in the data for the United Kingdom and Germany, in that a new reporting system was adopted for these two countries from 2008 onwards.

Sources: Australian Bureau of Statistics, 2007, 2012, 2016; Eurostat, 2012, 2017; Statistics Canada, 2017a; US Census Bureau, 2017; author calculations.

subtracting small enterprises from total enterprises, where small enterprises are defined as they were in table 2, and where the time period division is the same as in table 2 for the five countries for which requisite data are available: Canada, the US, the UK, Germany, and Australia.

Again, for all five countries, entry rates for medium and large businesses relative to the existing stock of similar sized businesses fell across the periods of analysis. Furthermore, the differences between the periods are comparable to those reported in table 2. That is, the decrease in entry rates of medium and large business enterprises comparing the pre and post-2008 experiences are comparable to the decreases in the relative entry rates of small businesses. To this extent, any increased barriers to the entry of small businesses after 2008 were also apparently experienced by medium and larger-sized businesses.

**Table 4: Small Business Exit Rates per 100 Small Business Incumbents, Three Year Averages, 2003–2014**

Period	2003–2005	2006–2008	2009–2011	2012–2014
Australia*	5.86	10.60	9.32	9.44
Canada*	14.95	14.91	14.52	14.07
United States*	11.89	12.76	12.97	11.26
Germany**§	2.21	2.73	2.09	1.98
United Kingdom**	12.86	13.31	14.19	11.71

Notes:

\* Small enterprise defined as 20 or fewer employees.

\*\* Small enterprise defined as fewer than 10 employees.

§ For Germany: 2003–2005 is based on 2005 data, and 2006–2008 is based on 2006 and 2007 data..

There is a break in the data for the United Kingdom and Germany, in that a new reporting system was adopted for these two countries from 2008 onwards.

Sources: Australian Bureau of Statistics, 2007, 2012, 2016; Eurostat, 2012, 2017; Statistics Canada, 2017a; US Census Bureau, 2017; author calculations.

In addition, regarding the impact on entry of small businesses resulting from the recession of 2008 and the subsequent slow economic recovery, one would expect to see relative increases in exit rates of small businesses in the post-2008 period, as well. We calculated the exit rates of small businesses as a percentage of the population of all enterprises for Canada, the US, the UK, Germany, and Australia comparable to the entry rates reported in table 2. Table 4 reports the exit rates. The results in this latter case are mixed as compared to those in table 2. Specifically, small business exit rates actually were lower for Canada, the United States, the UK, and Germany for the 2012–2014 period compared to the pre-2008 periods. The opposite was the case for Australia. In short, across four of the five sample countries, there was no tendency for exit rates of small businesses as a share of the small business population to increase in the post-recession period. One might infer that conditions in the period after 2008 were less

**Table 5: Ratio of Small Business Entries to Small Business Exits, Three Year Averages, 2003–2014**

Period	2003–2005	2006–2008	2009–2011	2012–2014
Australia*	300.01	141.39	151.77	133.25
Canada*	105.34	105.52	98.43	97.65
United States*	114.39	102.76	82.33	100.30
Germany** <sup>#</sup>	274.77	242.23	304.29	240.68
United Kingdom**	120.33	110.59	81.74	127.60

Notes:

\* Small enterprise defined as 20 or fewer employees

\*\* Small enterprise defined as fewer than 10 employees

<sup>#</sup> Due to data limitations Germany's small business entry rate for the 2003–2005 period was based on 2004 and 2005 data, while the exit rate for 2003–2005 was based only on 2005 data and the exit rate for 2006–2008 was based on data for 2007 and 2008.

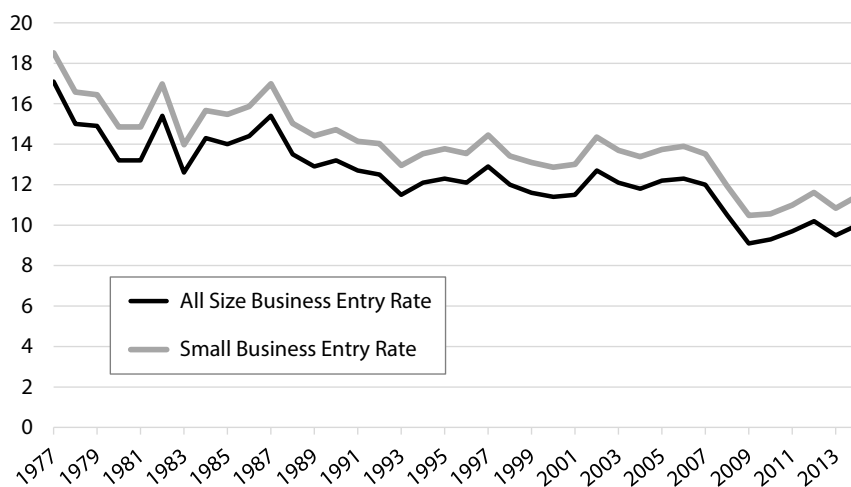
There is a break in the data for the United Kingdom and Germany, in that a new reporting system was adopted for these two countries from 2008 onwards.

Sources: Australian Bureau of Statistics, 2007, 2012, 2016; Eurostat, 2012, 2017; Statistics Canada, 2017a; US Census Bureau, 2017; author calculations.

favorable to the entry of small businesses than they were to the survival of small businesses.

Some additional evidence on this latter assertion is provided by data reported in table 5, which shows entry rates of small businesses relative to exit rates for the five sample countries for the four periods expressed as a ratio. In the case of four countries, the entry of small businesses relative to the exit of small businesses declined from the first period to the final period. The decline was especially marked for Australia. Only the UK experienced a higher small business entry-to-exit ratio at the end of our period of analysis.

All of the countries in our sample experienced declines in their small business start-up rates, a proxy measure for entrepreneurship, across the 12-year period that we examined. However, regarding the link between de-

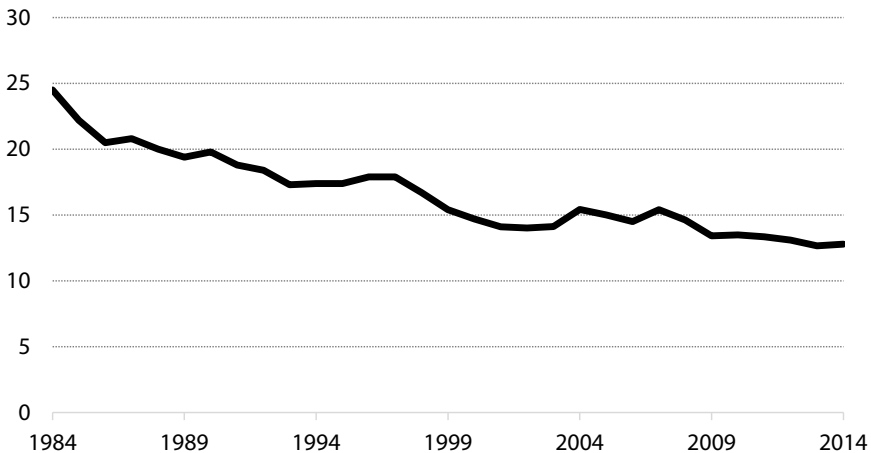
**Figure 1: United States Business and Small Business Entry Rates, 1977–2014**

Sources: US Census Bureau, 2017; author calculations.

mographic changes and entrepreneurship, it is more useful to analyze longer term trends in business entry rates, as demographic shifts take place, for the most part, over long time horizons. Unfortunately, long-term data for business entry rates is difficult to come by, and thus we are only able to present a longer term analysis for the US, Canada, and the UK.

Beginning with the United States, figure 1 displays both the “all size” business entry rate and the small business entry rate from 1977 to 2014. Both entry rates show significant declines over the almost 40-year period. More specifically, the small business entry rate for the US declined from 18.5 entrants per 100 incumbents in 1977 to 11.4 entrants per 100 incumbents in 2014, a decline of almost 40 percent.<sup>17</sup> The all-size business entry rate experienced a similar decline. It is important to reiterate that most

<sup>17</sup> Decker, Haltiwanger, Jarmin, and Miranda (2016) note that the US has experienced a decline in the employment share of young firms in most sectors since 1980, and even in the “information” sector pre-2000.

**Figure 2: Canadian Business Entry Rates, 1984-2014**

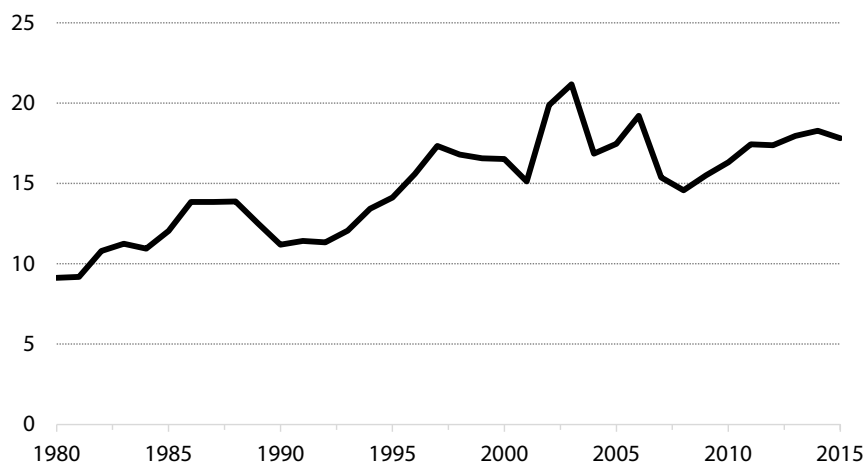
Sources: Statistics Canada, 2017a; Macdonald, 2014.

start-ups are small businesses and, further, that a slower start-up rate for small businesses decreases the likelihood that an economy will enjoy the emergence and growth of future major enterprises that will create substantial increases in employment and income.

The long-run business entry rate for Canada presented in figure 2 displays similar characteristics to that of the US. In Canada, business entry rates fell from 24.5 per 100 incumbents in 1984 to 12.8 per 100 incumbents in 2014, a decline of almost 50 percent.<sup>18</sup> It is relevant to note that the broad decline in business entry rates in both Canada and the US pre-dates the 2008 recession by decades, which suggests that a variety of factors, not

18 Similar data are presented and discussed in Cao, Salameh, Seki, and St-Amant (2017). They note that this decline was mainly shaped in the period after 1998. They also highlight that entry rates for the mining, quarrying, and oil and gas sector do not display strong declines, possibly because of relatively high commodity prices in the period after 2000.



**Figure 3: United Kingdom Business Entry Rates, 1980-2015**

Note: In October 2009 the Northern Ireland Register Merged with the register for Great Britain to Create a UK Register. UK figures are reported from 2009/10 onwards.

Sources: UK Companies Register, 2016.

simply the recession and slow economic recovery after 2008, were possible contributors to the phenomenon identified in figures 1 and 2.

Figure 3 presents data on business entry rates for the UK back to 1980. The longer term trend for the UK is much different from that for Canada and the US. Instead of showing a continuous decline, the UK's business entry rate increased for the most part, peaking in 2003. Since 2003, however, the business entry rate has fallen, and although in the latter part of this period it did increase slightly, that growth appears to have leveled off. The explanation for why business entry rates increased at the same time as they were falling in developed countries such as Canada and the US likely derives from different domestic economic conditions. Card, Blundell, and Freeman describe the economic situation in the UK before reforms were started in the 1980s as being characterized as a "highly regulated economy,

with large nationalized industries, an extensive welfare state, and exceptionally obstreperous labour-management relations” (2004: 1). After reforms in the 1980s and 1990s, the UK began to see improvements in its economic position, as both economic growth and productivity began to improve. This improvement in domestic economic conditions likely explains, at least to some extent, why business start-up rates improved throughout the 1980s and 1990s in the UK. The question that remains is whether forces that are likely to put downward pressure on business entry rates, such as demographic changes and Great Britain’s withdrawal from the European Union, will begin to exert a stronger effect on said rates.

In addition to the analysis of business entry rates, another indication of the changing environment for small business entry in recent years is the decrease in the total number of IPO (Initial Public Offerings) transactions on public stock exchanges involving small businesses. For example, Economides, Lakoue-Derant, and Smirnova (2016) discuss the recent history of Alternative Investment Market (AIM)-listed companies on the London Stock Exchange, which largely represents small-cap stocks. They report that the total number of AIM-listed companies on the London Stock Exchange was around 400 in January 1999. It hit a high of around 1,600 at the beginning of 2008 and declined to around 1,000 in September 2015. Declines in IPO activity for small firms have also been identified in the post-2000 period for the United States and Europe (Mason, 2011). Some portion of the decrease in IPO listings of small businesses is a consequence of the growth of new sources of financing, such as private equity firms. However, Ritter, Signori, and Vismara (2012) also identify as an important cause an increased difficulty of small firms to remain profitable, in part because of the growing importance of economies of scope.<sup>19</sup> These authors found that among small-firm IPOs, the percentage that are profitable in the three years after going public declined from 67.1 percent in 1995–2000 to 44.4 percent in 2001–2011. The comparable downtrend has been less pronounced for large-firm IPOs (from 91.3 percent to 80.1 percent). The

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19 Economies of scope are efficiency gains related to operating in more than one product or geographic market.

poor stock market conditions following the steep recession of 2008 are also implicated in the decline in IPO listings.

In summary, small business start-up rates appear to have slowed, certainly in the post-2008 period and earlier in Canada and the US. To be sure, start-up rates for medium and larger businesses have also slowed. Thus, Morath (2017) notes that during the latest economic expansion commencing in 2009, new businesses have accounted for a little more than 11 percent of all new private sector jobs created in the US. During the 1990s, the figure was 15 percent. However, since small businesses account for the overwhelming number of business start-ups, adverse entry conditions facing small businesses are the primary cause for concern about slower job growth.

Perhaps a more fundamental point to note here is that successful small business entry and growth is basically a “numbers game.” That is to say, the overwhelming majority of small business start-ups do not become large and successful firms. For example, Mason (2011) found that for the UK, just 6 percent of firms created 54 percent of all net new jobs in 2002–2008. One might infer that relatively robust entry rates for small businesses are necessary for an economy to experience and benefit from the emergence of a Facebook or a Microsoft, since only a very small percentage of start-ups will go on to create major economic benefits in the form of increased employment and productivity growth.

The evidence that small business start-up rates have slowed in recent years is, therefore, of real economic concern.<sup>20</sup> This evidence further motivates later chapters, which discuss possible policy initiatives to encourage faster start-up rates. In the next section of this chapter, we briefly review the link between business start-up rates and productivity.

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20 The Kauffman Foundation (2017) notes a recent (2015–2016) uptick in new firm formation for the United States but concludes that new firm formation remains in a long-run deficit. Statistics Canada (2017c) also reports a small increase in enterprise start-ups in 2015 for Canada.

## Productivity performance

In this section, we review recent developments in productivity performance. In particular, we highlight the often-discussed and worrisome decline in productivity performance in developed economies that has been implicated in stagnant real income levels of workers and relatively slow real economic growth rates. To the extent that the relative decline in start-up activity is linked to lower rates of innovation and technological change, it might also be implicated in decreasing rates of productivity growth in recent years.

Economists refer to two main measures of productivity: labour productivity and multifactor productivity. Labour productivity is defined as real output per worker hour and depends upon the quantity of services of capital used per hour of labour and the services of other inputs, primarily knowledge that is not directly embodied in physical capital. The latter is usually referred to by the shorthand description: technological change.<sup>21</sup> Multifactor productivity is typically defined as real output divided by the weighted combination of the services of labor and capital, and it approximates technological change.<sup>22</sup> While real wage changes are most directly related to changes in labour productivity, increases in a nation's overall standard of living are tied to increases in multifactor productivity. Moreover, the importance of start-up business activity, as noted earlier, is related to new products and production and organizational processes that are brought into existence by new businesses. Hence, multifactor productivity growth as an approximation to an economy's rate of technological change is of most direct interest for purposes of this chapter.

Table 6 reports the average annual rate of growth of multifactor productivity for 1986 to 2015, segmented by specific time periods. The data are reported for Australia, Canada, the US, the UK, and Germany. There

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21 Improvements in the “quality” of labour and economies of scale also contribute to productivity performance, although technological change is the single most important source of productivity growth. See Acharya (2005).

22 The weights are the shares of payments going to those two factor inputs.

**Table 6: Average Annual Multifactor Productivity Growth Rate, 1986-2015**

Period	1986-1990	1991-1995	1996-2000	2001-2005	2006-2010	2011-2015
Australia	-0.01	1.10	1.58	0.74	-0.26	0.74
Canada	-0.23	0.85	1.35	0.50	-0.18	0.67
Germany	1.68	1.50	1.13	0.67	0.39	0.83
United Kingdom	0.82	1.12	1.52	1.62	0.03	0.19
United States	0.68	0.69	1.42	1.61	0.70	0.27

Source: OECD, 2017.

are some notable differences across the sample countries in their histories of multifactor productivity growth. For example, Germany is clearly an outlier for the period 1986–1990, while the US and the UK are outliers for the period 2001–2005. However, all of the sample countries experienced a substantial decline in average multifactor productivity growth during 2006 to 2010 compared to earlier periods, which primarily reflects the depth of the recession of 2008 and 2009. While average multifactor productivity growth during the 2011–2015 period is higher than in the preceding five years, with the notable exception of the US, its recent performance still lags substantially behind the growth rates experienced during the 1990s.

Technological change is a complex phenomenon, and it is simply impossible to ascribe the relatively weak growth rate of multifactor productivity over the past 10 years or so entirely to a slower rate of growth of small business startups. Nevertheless, Alon, Berger, Dent, and Pugsley (2017) provide statistical evidence showing a negative relationship between firm age and productivity growth for the US. The magnitude of the relationship is substantial though it fades over time, such that nearly the entire effect disappears after 10 years. However, given a continued declining rate of new firm start-ups, the negative productivity effect will be renewed with each generation of new firm entry. New firm start-ups have also been found to contribute to productivity growth through the process by which

more productive firms replace less productive firms (the exit rate is also important in this process).<sup>23</sup> New firms can also be a source of innovation and can push incumbent firms to become more productive through the competitive process (Cao, Salameh, Seki, and St-Amant, 2017). Finally, Gourio, Messer, and Siemer (2016) show that economic shocks that lead to new firm entry promote productivity growth over a sustained later period. Conversely, they assert that the decline in the number of US startups observed during the period of the pronounced recession of 2008-2009 of about 25 percent is responsible for a 2.5 percent decline in GDP per capita over the same period.

In short, to the extent that small business start-ups are an important mechanism through which productivity-enhancing changes are introduced into an economy, the prolonged failure of multifactor productivity growth to return to rates that characterized the 1990s underscores the importance of understanding why small business start-up rates have slowed in recent years. It also highlights the relevance of public policies as they affect the growth rate of start-ups.

## **Industrial concentration**

The last characteristic we consider is industrial concentration. This concept is a measure of the degree of competition in an industry. The higher the concentration ratio, the weaker the presumed level of competition. Recent claims have been made that key industries, particularly in the United States, have become dominated by a relatively small number of firms, which, in turn, is making it more difficult for small firms to enter those industries and be financially successful (Dwyer, 2017; Morris and Seetharaman, 2017). The focus of this claim has been directed particularly at Internet-based industries. For example, Dwyer (2017) notes that Google gets about 77 percent of US search advertising revenue, while Google and Facebook together account for about 56 percent of the mobile ad market.

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23 For some evidence on the importance of this “churning” process, see Gu and Li (2017).

Amazon is responsible for around 30 percent of all US e-commerce, while Facebook's share of mobile social media traffic is around 75 percent. So-called network economies are alleged to be a major reason for the large market shares commanded by companies like Amazon and Facebook. Network economies are a market characteristic whereby the more people there are using a technological platform, the more valuable that platform is to new users.

Academic researchers have also identified the rise of the “superstar” firm and the possible implications for entry and survival rates of small firms.<sup>24</sup> Unfortunately, comprehensive time series data on industrial concentration is difficult to obtain for most countries. However, the evidence is quite clear that industrial concentration has increased significantly in the United States. For example, Grullon, Larkin, and Michaely (2016) document that US industries have become more concentrated since the beginning of the 21<sup>st</sup> century. By one major measure of industrial concentration, the Hirschman-Herfindahl Index (HHI), concentration has systematically increased in over 75 percent of US industries.<sup>25</sup> They also note that in real terms, the average publicly traded firm is three times larger in 2016 than it was 20 years earlier. One factor that they identify as contributing to increased industrial concentration is increasing “technological barriers to entry” which can be likened to network economies described in the preceding paragraph.

Since the emergence and growth of superstar firms is largely a US phenomenon, one would not expect other developed countries to experience increases in industrial concentration comparable to those experienced by the United States. Recent data from Statistics Canada provides some insight into this phenomenon for Canada. Specifically, it reports the percentage of employees in small and large firms over the period 2001–2016. Small firms are identified as those with 0 to 19 employees. Large firms are

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24 See, for example, Autor, Dorn, Katz, Patterson, and Van Reenan (2017).

25 Another measure of concentration, the share of industry sales accounted for by the four largest firms in an industry, documents a similar increase in industrial concentration in the US over the past two decades.

those with 500 or more employees. Statistics Canada's data show that the share of employment in Canada accounted for by large firms has increased by almost three percent since 2001, while the share of Canadian employment accounted for by small firms has declined more than seven percent in the period (Statistics Canada, 2017b). While this data is not a direct measure of changes in industrial concentration, it is consistent with the US experience of large firms becoming more prominent in the domestic economy compared to small firms, although the Canadian experience may not be as marked as the US experience.

## **Summary and conclusions**

While we can make no claim to have identified a statistical association between the aging of the populations of developed countries and the decrease in small business start-up rates over time in those countries, the circumstantial evidence is noteworthy. Specifically, the relatively sharp decrease in the share of the population most likely to be entrepreneurs is consistent with a decrease in relative start-up rates for small businesses that we identified earlier.<sup>26</sup> The decrease in start-up rates for new businesses is also consistent with diminished productivity growth rates discussed above. In this regard, Acemoglu and Restrepo (2017) highlight the importance of the rapid adoption of automation technology as an antidote to declining productivity associated with population aging. Their observation, in turn, underscores the importance of private and public sector policies to diminish the overall negative impact that population aging has on productivity growth.

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26 Cao, Salameh, Seki, and St-Amant (2017) conclude that an aging population explains a small portion of the secular decline in entrepreneurship in Canada since the early 1990s and for a more important portion since around 2000. However, they argue that demographic changes are not a dominant factor explaining the aggregate decline in the new entrepreneurship rate, at least in Canada's case.



To be sure, the causes of the declines in entrepreneurship identified earlier are unlikely to be simple and may not be identical across countries. For example, while the US evidence highlights the importance of a changing age distribution as a factor suppressing entrepreneurship (Liang, Wang, and Lazear, 2014), Cao, Salameh, Seki, and St-Amant (2017) identify a decline in entrepreneurship across all age groups for Canada, although above-average declines are identified for the 25–34 and the 35–44 age groups. There is also some contradictory evidence regarding the importance of demography *per se* to entrepreneurship.

To our knowledge, existing research has not yet identified statistically the precise contributions of various possible determinants of observed declines in entrepreneurship rates. Some observers have identified a growth in average firm size leading to increased industrial concentration as a factor increasing barriers to entry facing start-up firms. This observation has been applied especially to the US experience, and it is questionable whether it can be generalized to other developed countries that have experienced slowdowns in new business start-up rates. It is also true that increased concentration can be the consequence of slowdowns in new business-start-up rates, as well as a contributor. More research is required to understand the determinants of the recent behavior of small business start-ups. The remaining chapters of this volume are dedicated to this latter task.

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# CHAPTER 4

## Taxation and Entrepreneurship

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### Introduction

This chapter examines the relationship between tax policy and Schumpeterian entrepreneurship. The word “entrepreneur” has a long history, but Joseph Schumpeter ascribed to it new meaning. *Entrepreneur* derives from the French word *entreprendre*, meaning to undertake or initiate (*Oxford English Dictionary*). In present use, one who undertakes self-employment or starts a business is sometimes referred to as an entrepreneur. Entrepreneurship is also often synonymous with initiative and risk-taking. These definitions differ from the one put forward by Schumpeter. Schumpeterian entrepreneurs often start new businesses, display great initiative, and undertake great risk. However, these attributes do not define them.

Schumpeter describes entrepreneurs as simply individuals “carrying out innovations” (1939: 100). Usage dating to 1553 defines innovation as “the introduction of novelties; the alteration of what is established by the introduction of new elements or forms” (*Oxford English Dictionary*). This aptly denotes the process that captured Schumpeter’s attention. In drier economic parlance, Schumpeter “define[s] innovation as the setting up of

a new production function” (1939/1964: 84). In producer theory, the firm faces a production function relating output to the combination of inputs employed. The entrepreneur, through innovation, alters this relationship. In so doing, the nature of the inputs employed may fundamentally change; or, the output itself may represent a new product or an improved version of an existing product.

This chapter examines tax policies that likely influence economic growth by altering incentives for Schumpeterian entrepreneurship. Policies addressing entrepreneurship are complicated because, as Schumpeter himself notes, “It is not always easy to tell who the entrepreneur is in a given case. Nobody ever is an entrepreneur all the time, and nobody can ever be only an entrepreneur” (Schumpeter, 1939/1964: 103). For that reason—because entrepreneurship is neither a sector nor a factor of production—tax policies do not specifically target entrepreneurship, but rather focus on characteristics that are more prevalent among, or more important to, successful entrepreneurs.

The second section provides further motivation and backgrounds for this chapter. The third section focuses on the implications that taxation and capital accumulation imply for entrepreneurship. At least since John Stuart Mill’s 1848 *Principles of Political Economy*, economists have recognized that a tax on all income results in the double taxation of returns to savings (Mill, 1848, book V, ch. 2). By contrast, a tax on consumption is neutral with respect to savings versus consumption decisions. While the capitalist and the entrepreneur may be distinct individuals, access to capital (either credit or equity) is essential for entrepreneurship to flourish.<sup>1</sup> Thus, to the extent that countries tax savings more heavily than consumption, they distort the savings versus consumption decision and, in so doing, reduce the supply of capital available to entrepreneurs (as well as for investment more generally). When taxes on investment returns are very high, the negative consequences, compounded over time, can be dramatic. This is exemplified in a stylized counterfactual focusing on the growth of

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1 The capitalist is the financier or investor, whereas the entrepreneur uses backing from the capitalist to develop or disseminate innovations.

the Ford Motor Company during the first half of the 20<sup>th</sup> century. In that example, an 80 percent effective tax on the returns to savings, compounded over 40 years, reduces Ford's capital stock by 99.997 percent compared to a no-tax scenario. The lesson from this section is not that tax rates should be zero. Rather, the section emphasizes the importance of access to capital to successful entrepreneurship and how different forms of taxation affect the supply of capital. In reality, the proverbial lone inventor working from his garage, with little access to capital, is limited in the degree that he can succeed.

The fourth section discusses taxes in the presence of risk. Risk that is not easily diversifiable discourages investment. This is important for entrepreneurial ventures, which often carry high risks that are not easily diversifiable. Depending on their structure, tax systems can either exacerbate or mitigate the costs associated with this risk—or leave these costs unchanged. There are clear benefits from not exacerbating costs associated with risk and a case can be made for using taxes to reduce them. Issues that could affect risk-taking include tax progressivity, and loss carryforwards or carrybacks. Steeper progressivity discourages entrepreneurial activity for risk-neutral groups, since risk lowers expected returns. However, individuals are generally risk averse with respect to investment decisions. For the risk averse, greater progressivity, holding expected taxes constant, could actually increase risk-taking. This is because of the diminishing marginal utility of income – i.e., the utility from an additional dollar decreases with income. As a result, progressivity shifts the *ex post* burden of taxation towards outcomes where income is higher and the marginal utility of income low, and away from outcomes where income is lower and the marginal utility of income higher. The degree to which progressivity encourages risk-taking depends on the degree of risk aversion—i.e., the rate at which marginal utility diminishes with incremental income.

Another feature of tax systems that could influence risk-taking, as discussed in the fifth section, is the ability of small businesses to choose whether to be subjected to the corporate income tax—allowing owners to defer income taxes and receive preferential treatment of capital gains—or instead to have profits passed through to the owners on accrual. This is

the case in the United States. As Cullen and Gordon (2006) illustrate, the fiscal position of firms with losses is generally better when opting for pass-through status. However, smaller firms with positive profits may be able to form corporate subsidiaries that fall into the 15 percent corporate tax bracket (pre-2018). The benefit of this strategy rests on deducting losses at a relatively high rate, while paying taxes on gains at a relatively low rate. Beginning in 2018, this calculus changed. Starting in 2018, the US corporate tax rate was lowered to 21 percent and rates for the self-employed were effectively lowered by more than 20 percent.<sup>2</sup>

To reiterate my earlier caveat, lower taxes will always encourage greater entrepreneurial activity than higher ones. This is no great insight. However, the emphasis here (both for progressive rate structures and strategic use of the corporate income tax) is that, holding expected tax burdens constant, more favorable treatment of losses tends to encourage risk taking. One would be remiss in concluding that increasing overall tax burdens via greater progressivity will increase entrepreneurial activity.<sup>3</sup>

The sixth section addresses the relationship between taxes and the allocation of entrepreneurial activity between productive and unproductive channels. In a path-breaking 1990 article and subsequent 2002 book, William Baumol takes a more expansive view of entrepreneurship than the one Schumpeter espoused. Whereas Schumpeter focused on productive entrepreneurship, Baumol's notion also includes unproductive and de-

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2 This was a substantial cut from the roughly 35 percent rate faced by all but very small corporations. (Firms under the corporate tax with annual income greater than \$75,000 faced statutory rates ranging from 34 to 39 percent, with the top bracket set at 35 percent.) However, for firms with profits less than \$50,000, the new 21 percent flat rate is greater than the previous 15 percent bottom bracket.

3 Tax progressivity could also increase entrepreneurship as measured by entry into self-employment because the self-employed can more easily shelter income. That is, the self-employed can more easily evade or avoid taxes, which becomes more remunerative when tax rates are higher. Gentry and Hubbard (2005) examine this hypothesis, but their empirical analysis does not support it.

structive activities.<sup>4</sup> In Baumol's assessment, the industrial revolution was not driven so much by the great flourishing of entrepreneurial activity as it was by a redirection of entrepreneurial pursuits from primarily unproductive and destructive activities and towards productive ones. His "central hypothesis... is that it is the set of rules and not the supply of entrepreneurs or the nature of their objectives that undergoes significant changes from one period to another" (Baumol, 1990: 894, emphasis in original).

Baumol's conception of the redirection of entrepreneurial efforts has implications for tax policy. High taxes discourage productive entrepreneurship by reducing after-tax returns. At the same time, high tax rates encourage innovative methods for shifting income outside of the tax base, since the private return from this socially unproductive activity is directly proportional to the marginal tax rate. As a tax accountant quoted in the *New York Times* put it: "That's the nature of tax in general... Every time you write a rule, there are people out there who think about 'How do we get creative with it, and how do we get around it?'" (Kitroeff, 2017, December 28). One lesson from this section is that low tax rates discourage unproductive entrepreneurship. A second lesson is that, for a given rate structure, unproductive entrepreneurship will be mitigated to the extent that the tax system is resistant to both finagling by taxpayers and tinkering by legislators in response to lobbying or political donations. The Tax Reform Act of 1986 is widely heralded by tax experts. This US reform closed loopholes, broadened the tax base, and lowered rates. However, a downside of the reform was that it was susceptible to constant tinkering. As Auerbach and Slemrod (1997) noted in their review of the effects of the reform, "Even the simplification potential of radical tax reform depends on how enduring a simple, broad-based tax can be, in the face of constant political pressure to reintroduce special 'encouragements' or to redistribute the tax burden" (p. 628).

This chapter does not review the large empirical literature on taxation and entrepreneurship, though it does discuss select papers. The relevant literature is broad and includes research into economic growth

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4 In this chapter, entrepreneurship is treated as productive, unless noted otherwise.

models, patents and intellectual property, as well as self-employment decisions and small business formation. A major strand of the literature focuses on self-employment (which typifies one definition of entrepreneurship, but not necessarily the Schumpeterian notion).<sup>5</sup>

## Motivations and background

Schumpeterian entrepreneurship is central to economic growth. Further, the degree of entrepreneurship, and thus growth, is sensitive to economic and cultural institutions. William Baumol, like Schumpeter before him, emphasized the environment in which entrepreneurship and growth flourish: “what differentiates the prototype capitalist economy most sharply from all other economic systems is free-market pressures that force firms into a continuing process of innovation, *because it becomes a matter of life and death for many of them*” (Baumol, 2002: 11, emphasis in original).

### Growth

Baumol’s depiction of capitalism is different from the canonical model from welfare economics. In that model, under certain conditions, capitalism results in the efficient use of resources and a (Pareto) efficient distribution of outputs. However, economic growth in that model can occur only if the economy is initially not using all of its resources or if the production possibilities frontier (which depicts the different combinations of outputs that are possible given available resources) shifts outward. Exogenous shocks can push the frontier outward. However, such shocks (e.g., a drop in energy costs or a reduction in marginal tax rates) imply only temporary changes to the growth rate and last only until the economy reaches a new equilibrium. Likewise, in the Solow-Swan growth model, increased savings increases economic growth, but only for a time. Solow (1956) also discusses how taxes in his model affect growth. Here, too, the tax rate

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5 For a review of this literature, see Schuetze and Bruce (2004). For a recent contribution to this literature, see Bruce and Glenn (2016).

does not affect long-term growth—and only affects per capita income to the extent that it affects savings. Growth stops once a new equilibrium is achieved. Perpetual growth, of the variety observed in many parts of the world beginning in the 18<sup>th</sup> century, is possible in the Solow-Swan model only as a result of technological progress, or, as it were, innovation. Solow-Swan treats technological progress as exogenous and thus does not provide insight into the process of perpetual growth. However, the model was a great advance by, among other things, demonstrating that savings, in and of itself, is not enough for perpetual growth. The area of endogenous growth theory attempts to better understand the role of innovation in sustained growth. As Robert Solow states, with endogenous growth theory, “you don’t depend on some... poorly understood process of changing, improving technology... [Y]ou treat creating higher productivity as itself a business, with the costs and payoffs. And you try to incorporate that in the whole story of economic growth” (Solow, 2014, October 27). In Solow’s view, the restrictions needed to make such endogenous growth models tractable have also prevented them from being particularly insightful.

### ***Externalities and their magnitudes***

Externalities, often concomitant with entrepreneurship, threaten to curtail economic growth. Creative destruction is a double-edged sword. The creative aspects are central to economic growth (and tend to be associated with positive spillovers). But, the destructive side implies negative spillovers that offset some of the advances. Externalities, or spillovers, are third-party effects. That is, they are costs or benefits that accrue to people who are external to the transacting parties. People do not fully account for the costs and benefits that accrue to third parties. Thus, activities that impart negative externalities are over-produced and those imparting positive externalities are under produced. For example, a farmer may account for the negative costs she experiences from dumping waste in a stream running through her property. But, this will result in an inefficiently high level of waste because she is unlikely to fully account for costs this activity imposes on others downstream. Likewise, people weigh the private costs

and benefits from vaccination against contagious disease but tend to underweight the benefit to third parties from vaccination.

One approach for addressing externalities is Pigouvian taxation, which entails taxing activities associated with negative externalities and subsidizing those with positive externalities. Externalities can also be viewed as resulting from the absence of a market or of property rights. For example, if those living downstream from the farmer were given the right to clean water, those upstream would need to pay those downstream for the right to pollute. Those downstream would no longer be external to the transaction process, and thus the externality would be eliminated. In many cases, transacting with those harmed or helped by an activity may be impractical. Thus, simply assigning property rights when transaction costs are very high is unlikely to resolve the problems associated with externalities.

Innovation often requires substantial investment while the costs of free-riding on innovations are often small. The benefits that accrue from free-riding are positive externalities, in that free-riders are third parties who benefit from economic activity from which they are not a transacting party. For extreme examples, consider computer software. Microsoft may spend billions developing its Windows operating system, which then can be produced and distributed at near-zero marginal cost. Such externalities could severely curtail entrepreneurial activity.

What costs are imposed on innovators as a result of freeriding? Baumol employs a crude but reasonable approach to estimate the “spillover ratio” from innovation for the US from 1870 to 2000. He assumes that growth in per capita gross domestic product (GDP) over this period, conservatively estimated at 800 percent, is due to innovation. He then uses estimates of total investment and entrepreneurial investment over this period. He assumes that the risk-adjusted private returns to both types of investment are the same and that spillovers from entrepreneurial activity (i.e., gains to society not captured by those investing in entrepreneurs) are responsible for the remaining growth. This simple exercise yields a spillover ratio of 0.8, implying that 80 percent of the gains from innovation accrued to third parties. Nordhaus (2004) also develops a model for examining the returns to entrepreneurship. He estimates that for the period 1948–2001,



entrepreneurs captured just 2.2 percent of the surplus generated by their innovations. While Baumol's and Nordhaus's estimates are far apart, they point to the same conclusion: that entrepreneurial activity is nowhere near growth-maximizing levels.

Positive spillovers from innovation are counterbalanced, somewhat, by a negative externality or "business stealing" effect. That is, innovations diminish the value of assets that they marginalize or make obsolete. Aghion and Howitt (1998) demonstrate this effect in a model in which "there is a negative spillover in the form of a 'business-stealing effect,' whereby the successful monopolist destroys the surplus attributable to the previous generation of intermediate goods by making it obsolete" (Aghion and Howitt, 1998: 54). This represents the destructive aspect of creative destruction. That is, innovations impart a process of destruction, where certain types of human and physical capital are made worthless, or at least substantially less valuable.

Related to business stealing, Dasgupta and Stiglitz (1980) argue that innovation races also have negative welfare consequences. In innovation races, the innovation has benefits to society, but the race is akin to a zero-sum game between a handful of competing groups. Such races may involve duplicated efforts and extra resources to complete the project a bit faster. The competition will have salutary effects, which may lead to a superior product or a variety of products satisfying different segments of a market. Thus, innovation races involve some degree of waste, but are not true zero-sum games.

It is generally believed that positive spillover effects dominate business stealing effects and losses from innovation races. Thus, the business-stealing effect means that a portion of positive spillovers are not inefficient, but rather, offsetting negative spillovers.

### ***Distribution of gains***

Schumpeter credits capitalism and innovation for the great increase in standards of living since the Industrial Revolution, and in particular for the great gains made by the masses. Baumol and others emphasize that the breadth of these gains was not due strictly to entrepreneurship, but rather

to entrepreneurship in conjunction with positive spillovers. Researchers emphasize a sharp tradeoff between the growth effects from entrepreneurship and the distribution of that growth. Entrepreneurs cannot capture the full returns from their innovations. The prospects of free-riding discourage innovation and thus economic growth. It follows that policies to reduce freeriding should increase economic growth. However, many argue that the gains from this elevated growth will redound to only a small proportion of the population. An alternative to reducing free-riding is to provide tax preferences or Pigouvian subsidies to entrepreneurial endeavours. This should have similar distributional implications by redistributing income towards those engaged in entrepreneurship.

In fact, Baumol concludes “that the bulk of the unprecedented rise in the developed world’s living standards since the Industrial Revolution could not have occurred without that Revolution’s innovations. Consequently, a very substantial share of the benefits of innovation must have gone to persons other than the innovators in the form of spillovers.” Above some threshold, this creates an “inevitable tradeoff between the number of innovations actually produced and the standard of living of the majority of the population” (Baumol, 2002: 231–232).

The views of Baumol and others notwithstanding, it is not clear that, with zero spillovers, living standards for most of society would have remained stagnant since the Industrial Revolution while overall economic growth would have been much more rapid. The implications from reducing spillovers are complex and only briefly sketched here. Of course, eliminating spillovers is wholly impractical. However, such a thought experiment may be useful when considering options that could limit, but not eliminate, positive spillovers.

First, as a counter argument to Baumol et al., innovation, absent spillovers, may not have repugnant distributional implications because it often imparts positive shocks to physical and human capital that are complementary to new innovation. These are different from externalities (or third-party effects), since the increased returns to complementary factors need not result from free-riding, but from voluntary exchange with the owners of the new innovation.

Second, zero (or reduced) spillovers would initially increase the private returns to entrepreneurship. However, this would draw more and more labour and capital into entrepreneurial ventures. This adjustment process would continue until the risk-adjusted returns from entrepreneurial and non-entrepreneurial activity are brought back into equilibrium. As a result, the benefits from reducing spillovers would not accrue solely to entrepreneurs. Windfall gains would be competed away, and, once the dust settles, equilibrium wages should, in general, be higher for both entrepreneurial and non-entrepreneurial endeavours.

Furthermore, many innovations confer reciprocal benefits. To the extent that this is the case, the distributional consequences from positive spillovers may be lower than what would otherwise be the case, and the negative implications for economic growth smaller. With reciprocal benefits from spillovers, the returns to innovation are reduced (as with positive spillovers in general). However, the costs of innovation are also reduced by the ability to free-ride on the innovations of others. This may partly explain why many economists find that strong patent systems often have an adverse impact on innovation (Boldrin and Levine, 2013). For an example of reciprocal externalities, consider cities and agglomeration economies. Knowledge spillovers are positive spillovers associated with agglomeration economies. But, these spillovers are reciprocal. Thus, returns to firms producing positive spillovers are diminished, but this is offset by reciprocal gains that lower the costs of innovation. The fact that firm clustering is so prevalent suggests the benefits exceed the costs from these *de facto* reciprocal arrangements.

## Taxes and capital accumulation

Why is it that all of us from top to bottom, including the poorest in this country, are so much better off than we were a 100 years ago in the horse-and-buggy days? Because, instead of horses and buggies we have the railways, the automobile, the airplane, the substitution for primitive capital of small value of the gigantic capital today... not

only have we improved means of transportation, but we have better houses, better refrigerators, better clothing, better food, and better everything. Why? Because of the inventions and accumulations of capital... I feel so strongly about the destructiveness of the system that we now have... that if we had had it 50 years ago I do not think you would have today the automobile industry, because Henry Ford's plant built out of savings would not exist. If you calculate what was actually done by him and then see what the taxes would have been under the present system, he simply could not have built up his automobile industry. (Fisher, 1944: 475)

This claim by Yale economist Irving Fisher is supported by an exercise from his 1942 book, co-authored with his brother Herbert. In one section, the Fishers note that Henry Ford's wealth is reputed to have grown one-million-fold over a 40-year period, from \$1,000 to \$1 billion. Ford started out before the federal income tax. However, by 1942 the top federal individual income tax rate was 88 percent, and was to continue to rise. The Fishers estimated effective taxes on the returns to savings at 80 percent (for top income groups). Using Ford's hypothetical alter ego "Henry Forward" and a 40 percent annual rate of return, the Fishers show that, with no taxes, Forward's \$1,000 investment would grow to \$700.5 million after 40 years. With an 80 percent effective tax on savings (and no changes to behavior), Forward's investment grows to just \$21,700 after 40 years. In other words, 99.997 percent of Forward's capital stock is dissipated as a result of the compound effect of the tax. Of course, since behavior is assumed not to change, the government could have invested its annual tax proceeds. However, government's track record in picking investments is extremely poor.<sup>6</sup>

Tales abound of the independent inventor relentlessly pursuing their idea to the exclusion of all else. Thoughts of Steve Jobs and Steve Wozniak developing a personal computer from Jobs's garage come to mind. One may conclude that hard work and ingenuity are all that is required for suc-

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6 This excepts a handful of areas, such as sanitation, public health, and infrastructure, where the returns to government investment can be high.

cessful innovation. In fact, these are generally necessary, but not sufficient, conditions. That is, in order for an innovation to be manufactured on a large scale and reach large swaths of society, large infusions of capital are needed. According to Schumpeter, “one does not ordinarily attain the status of capitalist... by saving from a wage or salary in order to equip one’s factory... The means required in order to start an enterprise are typically provided by borrowing other people’s savings...” (Schumpeter, 1976/2003: 16). Capital must come from private savings or from government. Prior to the nineteenth century, government was the major financier—and, rather than the norm, growth was a short-lived aberration.

High tax rates discourage both consumption and savings. But, for a given average tax rate, taxes on an income base penalize savings more heavily than taxes on consumption. The double-taxation of savings under an income tax was a major argument behind Irving Fisher’s (1937) and Irving and Herbert Fisher’s (1942) interest in moving to a consumption tax base. As Fisher remarked, “it is the taxing of savings... which is doing the mischief” (1944: 475). Fisher’s concern is underscored by his exercise involving Henry Ford, as well as the following example.

In 1944, when Fisher was promoting the replacement of the US income tax with a consumption tax, top marginal income tax rates were 94 percent for ordinary income, 40 percent for corporations, and 25 percent for capital gains. Consider a baseline with no taxes where one invests \$100 of labour income in corporate stock and eventually realizes \$100 in capital gains. Now consider the effects of taxation. Before investing, the person would first owe \$94 in personal income taxes, leaving \$6 to invest. This \$6 would grow to \$12 (instead of \$200). This \$6 in corporate income would face 40 percent tax rate, leaving \$3.60. After realization, the capital gain of \$3.60 would face a 25 percent tax rate, leaving not \$100, as in the no-tax scenario, but rather \$2.70. Thus, the effective tax rate on the returns to savings would be 97.3 percent.<sup>7</sup>

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7 Of course, this is a highly stylized example. Effective tax rates on savings would be much lower for those in lower tax brackets and would also be lower the longer capital gains are deferred before being realized. Also, plentiful loopholes would further lower

**Table 1: Income Taxes Double Tax Returns to Savings**

	(1)	(2)	(3)	(4)
	<b>Income Tax</b>		<b>Consumption Tax</b>	
	<b>Thriftless</b>	<b>Thrifty</b>	<b>Thriftless</b>	<b>Thrifty</b>
Income, Period 1	\$1,000	\$1,000	\$1,000	\$1,000
Taxes, Period 1	500	500	500	250
Consumption, Period 1	500	246.99	500	250
Savings, Period 1	0	253.01	0	500
Interest income, Period 2	0	12.66	0	25
Taxes, Period 2	0	6.33	0	262.5
Consumption, Period 2	0	259.34	0	262.5
PDV* of Consumption	500	493.98	500	500
PDV* of Taxes	500	506.02	500	500

This assumes a 50 percent tax-inclusive tax rate and a discount and interest rate of 5 percent.

\* PDV stands for present discounted value.

When compared to an income tax, and when holding tax revenue constant, a consumption tax base is neutral between the decision to save versus consume. By contrast, an income tax base results in the double taxation of savings. To illustrate, consider Thriftless and Thrifty in table 1. Thriftless spends all of her after-tax income immediately. Thrifty, by contrast, carefully plans so as to equalize her consumption (in present-value terms) across periods. Other than preferences for savings, Thriftless and Thrifty are identical. Both earn income of \$1,000 in period 1. Each chooses consumption and pays taxes in period 1. Neither has labour earnings in

the effective tax rate. On the other hand, effective tax rates would be higher due the fact that capital gains taxes are not indexed for inflation. And, if the scenario were altered so that the investment income was realized as dividends, the effective tax rate would rise to 99.8 percent.

period 2. Consumption in period 2 (e.g., retirement) is based on savings from period 1.

Columns (1) and (2) depict a flat-rate income tax with a tax-inclusive rate of 50 percent—equivalent to a tax-exclusive rate of 100 percent.<sup>8</sup> Both pay \$500 in income taxes in period 1. Thriftless spends the remaining \$500, leaving her with no savings. Thrifty consumes \$246.99 of her after-tax income and saves the other \$253.01. In period 2, Thriftless has no income, no consumption, and pays no taxes. Thrifty has retained her \$253.01 of savings, plus receives 5 percent interest on this savings, for \$12.66 in income. She then pays \$6.33 of this additional income in taxes, leaving her with \$262.50 for consumption. In present value terms, values for period 2 must be adjusted by the discount rate. This results in the present value of Thrifty's consumption equal to \$493.98, and tax payments equal to \$506.02. Thus, while both individuals faced identical circumstances, Thrifty's discounted consumption is lower than those of Thriftless, and her tax payments are higher, solely because she chose to save. This distortion increases with the tax rate, the discount rate, and the number of periods that income is saved before being consumed.

Next, consider a consumed-income tax. Many think of a sales tax as synonymous to a consumption tax. However, a consumption tax can take many forms, of which a sales tax is just one possibility. The key distinction between an income and a consumption tax is that a consumption tax does not double tax the returns to savings, whereas an income tax does. In fact, with a consumed-income tax, for example, as proposed by Irving Fisher (1937) and Irving and Herbert Fisher (1942)—a consumption tax could maintain a similar structure as an income tax and could maintain graduated rates. However, the returns to savings would not be included in the tax base.

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8 A tax-inclusive tax rate equals taxes divided by the tax base including taxes. By contrast, a tax-exclusive tax rate equals taxes divided by the tax base net of taxes. Tax rates can be expressed in either form. However, income taxes are traditionally presented as tax-inclusive rates, whereas sales taxes are traditionally expressed as tax exclusive rates.

Returning to table 1, see columns (3) and (4). The treatment of Thriftless is identical to before. She consumes \$500 in period 1, leaving \$500 for taxes (equal to 100 percent of consumption) and no savings. Thrifty, on the other hand, consumes \$250 and also pays \$250 in taxes for period 1. In period 2, she receives interest income of \$25 on her savings. This leaves her with \$525, half of which she spends in period 2 and the other half which she pays in taxes. In present value terms, her consumption and taxes for period 2 are both \$250. Thus, the present value of her consumption and taxes over both periods combined is \$500—exactly the same as for Thriftless. Thus, unlike the income tax, the consumption tax does not impose an additional penalty on Thrifty for choosing to save.

Schumpeter and Baumol both emphasize the dearth of private capital prior to the nineteenth century. Thomas McCraw notes in his biography of Schumpeter that:

*A primitive financial system that lacked paper money, stocks, bonds, or any other credit mechanism.* This was a particularly telling reason for the late arrival of capitalism, and a key to why Schumpeter laid such heavy emphasis on the creation of credit. For well over a thousand years, long past the Middle Ages, most major religions forbade the lending of money at interest...Without funds from royal, aristocratic, or religious patronage—the sources of money not only for art and architecture but also for enterprises such as Galileo's experiments and Columbus's voyages of discovery—inventors and businesspeople could find no credit to finance their ventures. Almost by itself, this situation was enough to stifle the surges of technology and entrepreneurship that came to define modern capitalism. (2007: 147–148)

Taxing capital more heavily, as many advocate, is not going to cause modern financial systems to revert to their states in the Middle Ages. At the same time, economic institutions do matter and taxing capital more heavily will have some unpleasant consequences for entrepreneurship and growth.



## Taxes and risk

By imposing an income tax on the investor, the Treasury appoints itself as his partner, who will always share in his gains, but whose share in his losses will depend upon the investor's ability to offset losses against other income. (Domar and Musgrave, 1944: 389)

The returns to entrepreneurship are riskier than for many other investments. Since individuals are generally risk averse, riskier entrepreneurial endeavours must offer a higher expected return than less risky propositions in order to attract investors. Taxes can alter this distribution of returns, either increasing or decreasing incentives for risk-taking.<sup>9</sup>

A tax can affect behavior on two dimensions. First, a tax on income distorts the relative price between productive activities (such as work and savings) and leisure (or other untaxed activities). Second, a tax can have an implicit insurance component.

First, we'll discuss the distortion of relative prices. Through this component, the tax system discourages entrepreneurship, more or less, to the extent that it discourages productive activity more generally (Saez, Slemrod and Giertz, 2012). That is, a tax that lowers the after-tax return to labour or capital reduces both entrepreneurial and non-entrepreneurial market activities. Thus, it should come as no surprise that lowering the tax rate is going to increase economic activity, including entrepreneurship. A more challenging question asks if there are ways to structure taxes that do not reduce tax revenues but also promote entrepreneurship. To the extent that entrepreneurs can be targeted by tax policy, even if imperfectly, they can be taxed preferentially. In order to maintain revenues, this means that other groups will be taxed more heavily. This could yield a net gain because the tax burden would be shifted towards groups producing limited positive spillovers and away from groups producing substantial positive spillovers. For example, if entrepreneurs are concentrated at the top of the income distribution, reducing progressivity should disproportionately encourage

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9 For a recent study estimating tax rates on entrepreneurial income, see Toder (2017).

entrepreneurship. Consider Moretti and Wilson (2017), who examine the responsiveness of star scientists to state tax rates in the US. They find that for this group of innovators, and especially for top earners in this group, location decisions are very responsive to state taxes. In fact, for scientists in the top percentile of the income distribution, they report that a one percent increase in the average after-tax rate (i.e., after-tax income divided by pre-tax income) results in a “1.8 percent long-run increase in the net flow of star scientists moving.” Note that taxes impose costs to broader society not only from reducing the level of economic activity, but also from distorting the efficient geographic distribution of such activity. An important question is to what degree star scientists predominate among top income groups. A further question is how scientists respond to increases in national taxes, where it is more costly to move to a more favorable tax jurisdiction. For example, to what degree would star scientists (1) relocate to other countries; (2) not relocate and respond very little; or, (3) not relocate, but instead reduce their work effort or innovativeness.

Second, consider the implicit insurance component from taxation. In this respect, when government places a tax on income, it could be viewed as a silent partner—with its ownership share corresponding to the tax rate. Because the government does not actually purchase its share, it is usually a burden that distorts incentives.<sup>10</sup> Nonetheless, given that one has decided to pursue economic activity, the distribution of losses and gains are altered as a result of the tax. If the tax is proportional, this is unlikely to affect risk taking. This is because, holding expected pre-tax income constant, the expected tax burden is independent of the level of risk. However, with a progressive tax, the government’s share of returns is larger for gains than it is for losses. For loss-averse or risk-averse individuals, this should increase risk-taking.

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10 It is possible to design a business tax that does not distort investment decisions. For example, immediate expensing, as opposed to depreciation, of legitimate business expenses with full refundability results in the taxation of only inframarginal returns. Thus, investment decisions face a zero marginal tax rate. See Carroll and Viard (2012).

**Table 2: Risky Investment with a Constant 25 Percent Tax Rate**

	(1)	(2)	(3)
	Succeeds	Fails	E(\$)
Certain Income	120,000	120,000	120,000
Entrepreneur Income	400,000	-80,000	160,000
Total Pre-Tax Income	520,000	40,000	280,000
Tax	130,000	10,000	70,000
After-Tax Income	390,000	30,000	210,000

The entrepreneur has a 0.5 probability of success. Losses and gains are treated symmetrical at a 25 percent tax rate.

Note that in and of itself, risk is not an obstacle to entrepreneurship. As with investments more generally, it is undiversifiable risk that poses problems. Thus, the effectiveness of tax policies in increasing risk-taking depends on opportunities for risk pooling and on firms' access to capital in private markets. Investors could pool investments to include a broad array of entrepreneurial endeavours. Thus, while each endeavour may be quite risky, the pooled asset may not be especially risky. In such cases, taxes would not distort entrepreneurial investment any more than it distorts non-risky investments. However, asymmetric information may inhibit risk pooling. For example, firms may have a good idea as to their probability of success, but investors may not have access to this information. This could lead to adverse selection, where those with ideas that are less likely to prove fruitful are more likely to seek outside funding.

#### *Symmetrical taxes*

Taxes do not always alter incentives for risk taking. For example, Domar and Musgrave (1944) show that proportional taxation is neutral with respect to risk-taking, and thus entrepreneurial activity, so long as losses and returns are treated symmetrically. This holds with or without risk aversion.

First, consider the case of risk neutrality. Risk neutral individuals prefer the choice with highest expected income, without regard to risk.

As depicted in table 2, consider a family with \$120,000 in certain income, and entrepreneurial activity with a payoff of \$400,000 with probability 0.5, and a loss of \$80,000 with probability 0.5. A proportional 25 percent tax rate lowers expected total income from \$280,000 pre tax to \$210,000 after tax. The tax lowers expected returns for the family, providing incentives for it to shift their behavior towards leisure or other non-taxed activities. While this alters the returns to work and investment, it does so in the same proportion independent of risk. The effective (tax-inclusive) tax rate is 25 percent when the project succeeds and when it fails. The tax causes both expected income and the range of outcomes (income when the project is a success minus income when it fails) to fall by 25 percent. Thus, expected taxes in column (3) are identical to what the family would owe if they had earned \$280,000 with certainty.

If we consider risk-averse individuals (with constant relative risk aversion), the effect of a flat-rate tax remains neutral. An example of a risk-averse utility function with constant relative risk aversion is  $U = \ln(\text{income})$ . With such a utility function, moving from pre- to after-tax income in table 2 lowers certainty equivalent income by the same proportion as expected income.<sup>11</sup>

Note that while the symmetric treatment of positive and negative returns has a neutral effect when choosing between projects of various risk, a positive marginal tax rate discourages investment more generally—i.e., independent of risk. Thus, the introduction of a 25 percent tax rate on income (as opposed to accounting profit) discourages economic activity, but is neutral with respect to risk-taking.

### ***Progressive tax rates***

Under a progressive tax structure, marginal tax rates increase with income. The result is that after-tax income is a concave function of pre-tax income. (That is, the function is concave, if pre-tax income is on the x-axis and

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11 Certainty equivalent income is the minimum income that the individual would be willing to accept to move from the risky scenario to a certain one.

**Table 3: Risky Investment with a Progressive Income Tax**

	Certainty	Succeeds (\$)	Fails (\$)	E(\$)
Other Income	120,000	120,000	120,000	120,000
Entrepreneur Income	160,000	400,000	-80,000	160,000
Total Pre-Tax Income	280,000	520,000	40,000	280,000
Tax	40,000	136,000	4,000	70,000
After-Tax Income	240,000	384,000	36,000	210,000

The entrepreneur has a 0.5 probability of success. The first \$240,000 of income is taxed at a 10-percent rate. Income above \$240,000 is taxed at a 40-percent rate.

post-tax income on the y-axis.) Put another way, with progressive taxation, expected after-tax income is less than after-tax income that would result from applying the tax schedule to expected pre-tax income. For risk-neutral individuals, thus, progressive rate structures discourage risk-taking. This is an example of Jensen's inequality applying to concave functions.<sup>12</sup>

Table 3 illustrates this point. Consider the same circumstances as in table 2, except the tax rate equals 10 percent on income up to \$240,000 and 40 percent on income exceeding \$240,000. Column (1) shows the tax implications if expected income were certain. With no risk, total pre-tax income equals \$280,000 and taxes equal \$52,000. With risk, in column (4), expected pre-tax income is the same, however, taxes are \$70,000. That is, the same tax schedule and same expected income results in an average tax rate of 18.6 percent for the situation with no risk and an average tax rate

12 Confusingly, such concave functions are often referred to as "convex" because the resulting budget sets are convex sets. A *convex set* is one in which any linear combination of points in the budget set includes only points that are also in the budget set. By contrast, a *convex function* (or interval of a function) is one in which any linear combination of points lies above the function. A concave function (or interval of a function) is one in which any linear combination of points lies below the function.

**Table 4: Expected Utility and Risk Aversion with Progressive Taxation**

	(1)	(2)	(3)	(4)	(5)	(6)
	<b>Flat Tax</b>			<b>Progressive Tax</b>		
<b>Utility</b>	<b>Success</b>	<b>Fail</b>	<b>E(U)</b>	<b>Success</b>	<b>Fail</b>	<b>E(U)</b>
Pre tax	13.16	10.6	11.88	13.16	10.6	11.88
After tax	12.87	10.31	11.59	12.86	10.49	11.67

Utility equals the natural log of income. columns (2) and (3) are based on the same expected income. Income in column (2) is based on the probabilities and payoffs in table 2. Income in column (3) is certain.

of 25 percent for the situation with risk. Thus, the risky venture faces a substantial penalty.

Note: the size of the penalty for risk taking depends on various factors. All else equal, the tax penalty is greater:

- The greater the variation in (income) outcomes.
- The steeper the progressivity.
- The degree to which one's income range spans tax brackets.

While progressive tax schedules discourage risk taking for risk-neutral individuals, the opposite may be true for risk-averse individuals. Progressive taxes involve an implicit insurance component. That is, taxes are a smaller proportion of income if the entrepreneur is unsuccessful and a larger proportion of income when the entrepreneur is successful. For a given expected income, Jensen's inequality implies that expected after-tax income will be lower the greater the risk. However, diminishing marginal utility, associated with risk aversion, means that the utility value placed on a dollar of additional income in good times is less than the utility value placed on a dollar of lost income in bad times. The greater the risk, the greater the insurance value that arises from the combination of diminishing marginal utility of income in conjunction with progressive taxation.

For example, table 4 presents utility measures, based on the same incomes and probabilities used in table 2. If the project is successful, utility equals 12.87 under the flat tax, which is 0.1 percent higher than the utility of 12.86 under the progressive tax. However, when the project fails, utility equals 10.49 under the progressive tax, which is 1.8 percent higher than the utility of 10.31 under the flat tax. Expected utility will always be higher with progressive taxation versus proportional taxation. That is seen here, where expected (after-tax) utility equals 11.67 with the progressive tax and 11.59 with the proportional tax. The degree to which progressive taxation encourages risk taking depends on several factors, including the degree of progressivity of the tax system (imposed on the range of possible outcomes) and the degree of risk aversion. In addition to the assumption of risk aversion, it is important to keep in mind that progressivity only encourages risk-taking when the expected tax liability is held constant across the alternative tax scenarios. For example, if progressivity is achieved by maintaining the tax rate from the example with the proportional tax and then adding to it a new higher tax bracket, all bets are off. When holding expected tax liabilities constant, progressivity serves as partial insurance against risk. If expected tax rates are higher under the progressive tax scenario, then the progressive tax structure includes an insurance component, but also so a surtax on successful outcomes.

One approach to address the unequal treatment of risk is income averaging. With income averaging, taxes would be based on average income over multiple years, as opposed to annual income. This was allowed for personal income in the US until 1986. The Tax Reform Act of 1986 made income averaging less important, since it substantially lowered the degree of progressivity for high-income groups in the US.

### ***Government programs and tax rates***

Cullen and Gordon (2006) present several other examples of how the US tax system alters incentives for risk-taking. For example, some programs targeting low-income groups create a convex relationship between after-tax income (y-axis) and pre-tax income (x-axis). These situations increase

incentives for risk-taking. Likewise, the cap on payroll taxes for Social Security may encourage risk-taking. For those near this cap (\$118,500 for 2016), Jensen's inequality for convex functions implies that expected after-tax income will be greater when there is more variation in pre-tax income, holding expected pre-tax income constant.

Cullen and Gordon (2006) also point out a non-convexity resulting from payroll taxes.<sup>13</sup> For the self-employed, profits are subject to the payroll tax, but losses are not deductible. Thus, for those with income ranges below the Social Security tax cap, income volatility lowers expected after-tax income. Cullen and Gordon assume that half of the 12.4 percent payroll tax represents a pure tax and the other half can be thought of as contributions that result in increased Social Security benefits. Taxes for Medicare's hospital insurance are 2.9 percent. However, this component of the payroll tax is not related to benefits, so it is treated as a pure tax.<sup>14</sup> This yields an effective payroll tax rate on income of 9.1 percent with zero offset for loss. Thus, Cullen and Gordon note that "taking on extra risk to increase both potential business profits and business losses by \$100 implies a drop in expected after-tax income of \$4.55" (p. 49).

The conclusions with respect to taxes and risk-taking are more nuanced than with respect to capital accumulation. Proportional taxation does not encourage risk-taking, but it does not discourage it either. A well designed progressive tax system can encourage risk-taking. However, a progressive tax system does tax more heavily those with more volatile incomes. And, when shifting from a proportional to a progressive tax system, those with *a priori* income ranges on the higher end will experience tax increases, while those on the lower end will experi-

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13 That is, the relationship between after-tax income and pre-tax income is convex over an interval that spans the income cap for payroll taxes. In other words, over this interval, a line between points on the budget constraint lies outside of the budget constraint.

14 Medicare benefits are determined by the number of quarters one has paid into the system, independent of how much one has paid. Once the requisite number of quarters is met (usually 40), one is eligible for full benefits at age 65 (or earlier in cases of disability).



ence tax cuts. This will have the unintended effect of disproportionately discouraging economic activity from those with higher incomes—or those whose payoffs, if successful, would put them well beyond the threshold for the top tax bracket.

### **Additional tax features**

Some aspects of the tax system are relevant for risk but involve either strategic tax planning or obscure aspects of the tax code that alter tax burdens while not explicitly altering statutory tax rates. Other features of the tax system are unrelated to risk but may influence entrepreneurial activity nonetheless.

#### ***The self-employed***

Gentry and Hubbard (2005) empirically test the relationship between tax progressivity and entrepreneurship. While they focus on self-employment, their results do have implications for Schumpeterian entrepreneurship. In contrast to the stylized tax schedules used for tables 2 and 3, Gentry and Hubbard note that, for a given level of true income, effective tax rates are lower for the self-employed because they can more easily shift income outside of the tax base (both legally and illegally). Thus, progressivity aside, an increase in marginal tax rates should: 1) Discourage economic activity more generally, including entry into self-employment; 2) Encourage those who intend to remain employed to shift towards self-employment because the rewards from shifting income outside of the tax base are now greater. Gentry and Hubbard find that the first effect dominates, as higher tax rates result in reduction in entry into self-employment. By contrast, Bruce (2000) reports that a number of other studies find a positive relationship between marginal tax rates and self-employment.

Gentry and Hubbard also examine the effect of tax progressivity. Here too, they report that increased progressivity reduces entry into self-employment. This finding is at odds with the insurance effect associated with progressive taxation. They note that, compared with a proportional tax,

progressivity implies that successful firms are taxed more heavily and unsuccessful firms more lightly. Despite the insurance component of progressive taxes, the tax rate applying to successful firms may be more important in influencing behavior. It may be that potential entrants systematically overestimate their likelihood of success, and thus the low tax rates for unsuccessful outcomes may have little appeal. Or, it may be that potential entrants vary in their likelihood of success. To the extent that potential entrants are aware of their likelihood of success, progressivity results in higher expected tax rates for those most likely to succeed.

### **Business income**

Furthermore, for business income, increases in progressivity may actually represent a tax increase *ex ante*, even if changes to the tax schedule do not appear to increase expected tax burdens. This could arise because of the unequal treatment of gains and losses. Gentry and Hubbard note that losses can offset other gains, but that tax liabilities cannot be negative. Even with (limited) loss carryforwards and carrybacks, many firms are never able to take advantage of their losses. The imperfect treatment of losses is an issue even with proportional taxes. But, it is more important when taxes on successful firms are high, either because of high proportional-rate taxes or because successful firms face high tax burdens because of progressive tax schedules. In order to address the issue of innovation, Gentry and Hubbard identify characteristics, based on factors such as occupation, industry, and education, that they posit are correlated with innovation. They then test whether responses to the changing tax parameters vary across these groups more likely to pursue innovation. In general, they find differences in responsiveness between the more and less innovative groups to be negligible.

A positive feature of Gentry and Hubbard is that they go beyond examining self-employment to also assess factors associated with innovation. However, a downside of the study is that it does not measure the economy-wide effects of tax structure on Schumpeterian entrepreneurship because it does not measure changes to these activities in the overall economy, but rather only among the self-employed.

### ***Strategic use of the corporate tax***

A possibility raised by Cullen and Gordon (2006) relates to firms' ability to strategically switch between corporate and pass-through status. For example, limited liability companies (LLCs) can choose to be taxed under the corporate income tax, as opposed to the individual income tax. This decision is made once the year has ended, and thus profits and losses for the year should be known. However, once opting for corporate tax treatment, the firm cannot switch back for five years. For larger firms, it is often presumed to be more advantageous for firms to forego the corporate income tax, and instead have firm profits pass through to the owners. This has generally been true since the US Tax Reform Act of 1986, after which many firms switched from subchapter-C corporations to pass-through entities (such as subchapter S).

This notwithstanding, for many small businesses, corporate tax treatment may be the more favorable choice. At first glance, the corporate tax does not appear to offer much of an advantage. Prior to 2018, corporate income generally faced a 35 percent tax rate, and then was taxed a second time when it was realized by the individual (as dividends or capital gains, for instance). However, while 35 percent was the usually the stated corporate tax rate for many, the US corporate tax was graduated, with rates beginning at 15 percent for corporations with income under \$50,000. In practice, the 15 percent corporate bracket extended well beyond \$50,000. As Cullen and Gordon note, "a firm can be divided into multiple corporations, with each filing corporate taxes separately" (p. 50). Starting in 2018, the benefits from this strategy were greatly reduced, if not eliminated. US corporate income now faces a proportional tax rate of 21 percent and tax rates for unincorporated businesses have also been cut substantially. These changes will surely induce those in business to rethink their choice of organizational form. The tax changes will reduce, but not eliminate, the potential benefits from the schemes discussed by Gordon and Cullen.

To see the advantages of the corporate tax, consider a firm that pays 15 percent tax on its income with the remainder eventually realized as

long-term capital gains by the owners. Assuming positive firm income, owners in the 15 percent (or lower) tax bracket owe no additional tax, leaving an overall tax rate of 15 percent. By contrast, if this income were passed through to the owners, it would avoid the corporate tax, but would be subjected to the 15 percent individual income tax rate plus self-employment taxes at an effective rate of 9.1 percent. As noted earlier, self-employment taxes total 15.3 percent, which results in 9.1 percent after adjusting for future benefits tied to the employment taxes. Also, note that half of this 15.3 percent in self-employment taxes are deductible from taxable income. Thus, if one forgoes the corporate tax, the effective tax rate is:  $0.15 \times \left(1 - \frac{0.153}{2}\right) + 0.091 = 0.23$ , or 23 percent.

Now consider a taxpayer in the 25 percent federal tax bracket. Owners in the 25 to 35 percent regular income tax brackets face a long-term capital gains tax rate of 15 percent.<sup>15</sup> This plus an effective capital gains tax rate of 1.6 percent yields an overall effective tax rate of 16.6 percent. The 1.6 percent effective rate for capital gains is calculated using the same assumptions employed by Cullen and Gordon; namely, 50 percent of capital gains from the sale of small business stock is excluded from taxation, and the benefit from deferral—i.e., from delaying taxation until the asset is sold, as opposed to paying taxes when the gains accrue—lowers the effective capital gains tax rate by 75 percent. Thus, the effective rate on capital gains is  $0.5 \times 0.15 \times (1 - 0.75) = 0.01875$ . After deducting the 15 percent of profits that were paid in corporate taxes, this becomes  $0.01875 \times (1 - 0.15) = 0.016$ . Meanwhile, the corresponding effective tax rate for the pass-through option is 32.2 percent. The effective rate for the pass-through case adheres to the same assumptions used for the 15 percent case, only substituting in 25 percent for the tax rate:  $\left(1 - \frac{0.153}{2}\right) + 0.091 = 0.322$ .

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15 Those paying the Alternative Minimum Tax could face effective capital gains rates of 22 percent. And, those in the 39.6 percent regular income-tax bracket face capital gains rates of between 20 and 23.8 percent.

In contrast to firms with profits, for firms with losses, pass-through status is generally preferable, since losses can be subtracted from other income sources when calculating personal taxable income. Additionally, losses can be carried forward or backward. For those with higher individual income tax rates, losses are even more valuable. Under the corporate tax, losses are only deductible against firm losses, but can also be carried forward or backward. This may be of no benefit to many firms that never have sufficient income to take advantage of their losses.<sup>16</sup>

### **Taxes and unproductive entrepreneurship**

A free life cannot acquire many possessions, because this is not easy to do without servility to mobs or monarchs.

—Epicurus, 341BC–270BC (Epicurus, undated/1957: 43)

[T]he problem with high-tax societies is not that it is impossible to become rich there, but that it is difficult to do so by way of productive effort in the ordinary production system. (Lindbeck (1988: 27)

Baumol claims that “entrepreneurs as a group do not just appear or disappear in some primordial ooze. Rather, they... are reallocated by economic conditions... into (or out of) activities that appear not to be entrepreneurial because of the preconception that enterprising activity is necessarily productive” (2002: 10). Baumol contends that for most of human history, institutions were similar to those alluded to by Epicurus some 2,300 years ago, and thus not conducive to productive entrepreneurship. In fact, as Baumol chronicles, there were great innovations over thousands of years. However, institutional and cultural forces were such that there was little private gain from producing or marketing these advances to the masses. Likewise, other innovations had little prospect for advancing the broad-

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16 Cullen and Gordon also point out that capital losses on the sale of small business stock are deductible against ordinary income.

er society. For example, Baumol cites incentives set by rulers during the Hundred Years' War, which diverted creative activity away from socially productive pursuits and towards more lethal techniques for a war whose outcome was chiefly futile for those outside the aristocracy.

While by no means the only factor, Baumol recognized that "tax rules can be used to rechannel entrepreneurial effort" (1990: 917). Much research on taxation and entrepreneurship looks at how taxes could rechannel effort between entrepreneurial and non-entrepreneurial endeavours. However, Baumol contends that taxes could also rechannel effort between productive and unproductive or destructive entrepreneurial activities.

In this section, I discuss three important channels through which taxes can affect (innovative) rent seeking. Rent seeking, as defined by Gordon Tullock, is "the use of resources for the purpose of obtaining rents for people where the rents themselves come from some activity that has negative social value" (Tullock, 2002: 43). Disentangling entrepreneurial and non-entrepreneurial efforts is complicated. This is true of productive entrepreneurship as well as unproductive endeavours. Factors that encourage risk-taking, for example, encourage entrepreneurial activity, along with other risky endeavours, such as using established methods to search for oil or minerals for extraction. Likewise, factors that promote innovations in rent-seeking also promote rent-seeking through traditional, non-innovative, means.

### ***The market for tax avoidance and evasion***

John Maynard Keynes purportedly quipped that "The avoidance of taxes is the only intellectual pursuit that still carries any reward" (Mackay, 1991/2002: 140). For high-income British citizens during periods of the twentieth century, this may not have been an exaggeration. During World War II, the UK's income tax rate topped out at 99.25 percent. Post-war, taxes on investment reached as high as 98 percent.

Tax avoidance and evasion are both responses to taxation. The difference between the two terms is that avoidance is legal, whereas evasion is illegal. Both are socially wasteful activities, in that the activities are not costless and do not enlarge the economic pie. In fact, under certain as-

sumptions, the waste per marginal dollar shifted out of the tax base equals the marginal tax rate (Feldstein, 1999). For example, at a 70 percent tax rate, a taxpayer would experience a net gain from incurring costs up to \$0.70 to shift one more dollar outside of the tax base.

Not all methods for reducing taxes are innovative. For example, taking out a larger home mortgage or failing to report self-employment income are rather pedestrian. On the other hand, tax accountants, lawyers, and financial planners reap large rewards for developing elaborate and ingenious methods of lowering tax bills. These professionals work to exploit many areas of the tax code. Perhaps the most notorious schemes are in the areas of corporate and estate taxation. With respect to corporate taxation, it is routine for some of the world's richest US firms to pay effective tax rates that are just tiny fraction of US statutory rates. For example, consider Apple Inc., one of the world's most profitable corporations with a market capitalization in the neighborhood of \$900 billion. Apple is headquartered in California, where their combined federal plus state statutory corporate tax rate equals more than 43 percent. Apple invests tremendous resources in iPhones, Macs, and is constantly looking to spread into other industries, such as driverless cars. However, Apple also invests heavily in tax planning.

As a result, Apple does not pay 43 percent of its profits in taxes, but rather less than 3 percent! Apple is not alone. Google, Microsoft and many other tech companies also benefit immensely from tax planning. More traditional firms, relying less on intellectual property, are less able to shift profits.

According to a 2013 congressional hearing,

Apple Inc. has created three offshore corporations, entities that receive tens of billions of dollars in income, but which have no tax residence—not in Ireland, where they are incorporated, and not in the United States, where the Apple executives who run them are located. Apple has arranged matters so that it can claim that these ghost companies, for tax purposes, exist nowhere. One has paid no corporate income tax to any nation for the last 5 years; another pays tax to Ireland equivalent to a tiny fraction of 1 percent of its total income. (United States Senate, 2013: 3)

This innovation employed by Apple and many others has been dubbed the “Double Irish with a Dutch sandwich.” The technique involves a US headquartered firm setting up an Irish subsidiary, which is headquartered in a tax haven, such as Bermuda. This holding company sets up two additional subsidiaries, an operating company in Ireland and a holding company in the Netherlands. The US firm’s intellectual property licenses are then distributed and royalty rates set across the subsidiaries in order to minimize tax liability. Such techniques result in what is sometimes called “stateless income.” More precisely, this income is not escaping taxation, but rather deferring taxation until firms repatriate profits to the US parent company. In practice, however, firms often leave this money outside of the US for seemingly in perpetuity, or until penalties for repatriation are lowered.

The Double Irish with a Dutch sandwich has many variants. This is just one of a panoply of sophisticated techniques used to reduce corporate tax burdens. In fact, a major focus of the Organization for Economic Cooperation and Development (OECD) in recent years has been exploring ways to reduce base erosion and profit shifting (BEPS).

The estate tax is another area that fosters sophisticated innovations. Tax professionals have been quite successful in developing methods for exploiting ambiguities or oversights in the tax code. The methods for avoiding estate taxation are constantly changing, with court rulings, legislative responses, and the development of new techniques. Techniques vary depending on the size of the estates. For the very wealthy, a popular approach involves Grantor Retained Annuity Trusts (GRATs), which can involve the creation of a series of rolling GRATs that courts have ruled can be used to transfer wealth to heirs without triggering estate or gift taxes.

### ***Bargaining and executive compensation***

The efficiency and social welfare implications from altering top tax rates depends heavily on both the responsiveness of top incomes to taxes *and* to the avenues by which they respond. In recent years, several scholars, most notably Thomas Piketty and Emmanuel Saez, have emphasized that executives respond to lower tax rates by increasing their efforts in bargain-



ing for higher compensation. While large behavioral responses to taxation generally imply greater inefficiency and lend support for lower marginal tax rates, the authors focus on a response where the opposite is the case. This leads them to support top individual income tax rates in the neighborhood of 80 percent.

In a 2014 paper, Piketty and Saez, along with Stantcheva, examine three avenues by which top income groups may respond to taxes. One avenue is simply reducing work hours or effort. A second response involves shifting resources away from productive activity towards tax avoidance efforts—for example, by shifting income towards tax-exempt fringe benefits or exploiting numerous loopholes for reducing taxation. Their third avenue focuses on the relationship between top tax rates and bargaining or exerting influence to secure a larger share of firm revenues for themselves.

Piketty, Saez, and Stantcheva argue that if traditional effort responses are substantial, then we should have observed stronger relationships between economic growth and top tax rates over the second half of the twentieth century—a period over which top tax rates varied greatly, both within and across countries. They then argue that tax avoidance responses are important, but can be curbed by closing loopholes and improving tax administration. They conclude that the residual in high income responses to taxation takes the form of bargaining by executives, a form of rent seeking.

Executives can bolster their incomes by increasing firm profits or by taking advantage of principal-agent information asymmetries (or ineffective corporate governance) to secure a greater share of firm revenues. High tax rates discourage this form of rent-seeking, since they lower the after-tax return from bargaining within the firm. Of course, high tax rates also discourage socially productive efforts and encourage socially unproductive tax avoidance strategies. However, if, as Piketty et al. conclude, effort and avoidance responses are either very small or can be curbed by other means, while bargaining responses are large, there can be net gains to society from higher top tax rates. In their paper, they employ an optimal-tax model, which is an abstract mathematical model used to compute tax rates (and levels of redistribution) that maximize an assumed mathematical function of social welfare. They report that accounting for bargaining responses

raises their optimal top tax rate calculation by 26 percentage points (from 57 to 83 percent). Piketty, Saez, and Stantcheva's finding that executive compensation practices are inefficient is by no means a settled issue. In a critical review of this literature, Edmans and Gabaix (2016) conclude that "Whether observed contracts result from efficiency or rent extraction is still an open question" (2014: 1277).

It should be noted that optimal tax theory has yielded a large literature and vast range of optimal tax rates, depending on model assumptions. See Mankiw, Weinzierl, and Yagan (2009). Furthermore, the importance of bargaining, as noted earlier, is generally inferred from subtracting other tax responses from the overall elasticity, and assuming the avoidance response can be reduced to close to 0 through other policy changes. Also, our understanding of the relationship between top tax rates and economic growth is nebulous. While Piketty, Saez and Stantcheva find no relationship, the broader literature includes papers that find that tax rates may be important for growth, while also includes others suggesting that they are not so important.

### ***The market for tax preferences***

While high tax rates provide a deterrent to bargaining over compensation within the firm, they also provide an incentive to appeal to government for tax preferences. In this respect, higher marginal tax rates increase rent seeking, since the benefits from exemptions, deductions, etc., increase with the tax rate. Uncertainty surrounding policy increases rent seeking further. As a case in point, consider the events leading to the passage of the Tax Reform Act of 1986. In *Showdown at Gucci Gulch*, Murray and Birnbaum chronicle the efforts of lobbyists to prevent or steer the reform. They write that

The amount of time, money, and effort expended on tax lobbying throughout 1985 and 1986 was enough to overwhelm even the most cynical congressional observer. With billions of dollars of tax breaks on the line, major corporations, trade associations, and pressure groups hired the biggest names in Washington to protect

themselves... Some wags began to refer to the bill as the “Lobbyists’ Relief Act of 1986. (Murray and Birnbaum, 1988: 177)

Giertz and Feldman (2013) argue that policy uncertainty, and tax policy uncertainty in particular, is one of Baumol’s institutional features that fosters unproductive entrepreneurship. They view uncertainty as a signal that politicians are receptive to policy changes. With little policy uncertainty, higher returns may be sought from investing in productive activities. However, when government is receptive to policy changes, the returns from rent seeking (through lobbying, Political Action Committees, etc.) may be more appealing. When policy uncertainty does not otherwise exist, politicians manufacture it. For example, legislators have devised “milk bills.” These bills are not intended to actually become law, but rather to extort or “milk” rents from interested parties in exchange for killing the proposal. Thus, even a period with stable policies may contain substantial policy uncertainty and concomitant losses to the economy from this type of unproductive entrepreneurship.

There is good reason to believe that tax policy continues to be an important factor in rent seeking. Consider tax expenditures. Estimates for tax expenditures for 2012 amount to \$1.3 trillion (Marron, 2012) and over the next ten years tax expenditures are projected to equal 5.8 percent of GDP (CBO, 2012, February 3). Tax expenditures are often akin to government spending and represent tax revenues foregone because of things like tax credits, exclusions, and deductions. Each tax preference has a constituency that supports and lobbies for it. Real estate groups argue for maintaining or expanding the mortgage interest deduction and the exclusion from taxation capital gains income on the sale of owner-occupied housing. Charitable organizations lobby for higher marginal tax rates to spur giving. Businesses lobby for more generous depreciation allowances, etc. On top of this, a hodgepodge of 80 or so tax extenders is enacted for a short period of time (often for one year) and thus is a continual sources of uncertainty. CBO (relying on analysis from Joint Committee on Taxation projects that a 10-year extension of these tax extenders would lower revenues by \$839 billion, excluding additional debt service (CBO, 2012, January: 21).

While not focusing explicitly on taxation, Murphy, Shleifer, and Vishny (1991) report evidence supporting Baumol's conception of unproductive entrepreneurship. They look at career decisions across different countries. They argue that occupational choice is influenced by the relative returns in different sectors of the economy. In environments where rent seeking is dominant, they posit that relatively more individuals will be drawn into law. In societies where the dominant path to wealth is through the marketplace, fields such as engineering will be relatively more attractive. Indeed, they find that nations with more law students grow more slowly than nations with more engineering students. They suggest that the slowdown in economic growth over the past 40 years in the US may be in part due to a shift in the allocation of human capital towards disciplines that are more likely to be involved in rent seeking or other nonproductive activities.

Certainly, much rent seeking, while unproductive, is not especially innovative. However, innovation is important. Sometimes innovation can focus on carrying out illegal acts without getting caught. Other times, entrepreneurial rent seeking may involve devising a legal scheme for carrying out what otherwise would be illegal. In this respect, Robert Moses, the great, and now largely reviled, builder and power broker, was an entrepreneur. According to biographer Robert Caro,

What Moses had succeeded in doing, really, was to replace graft with benefits that could be derived with legality from a public works project... Corruption before Moses had been unorganized, based on a multitude of selfish, private ends. Moses' genius for organizing it and focusing it at a central source gave it a new force, a force so powerful that it bent the entire city government off the democratic bias. (1974: 18–19)

Like other entrepreneurs, Moses did not develop his innovations from scratch. He borrowed from others, in particular from his protégé, former New York Governor, Al Smith. As Caro recounts,

Strolling through a law-school library one day, the Governor noticed a student poring intently over his books. “There,” he said with a smile, “is a young man studying how to take a bribe and call it a fee.” By the Twenties, most honest graft was being worked through “fees,” mostly through legal fees (more politicians belong to the legal than any other profession), but also through the real estate brokers’ fees called “commissions,” the insurance brokers’ fees called “premiums” and the public relations fees called “retainers”... In the post-La Guardia era, there was no more “Tin Box” Brigade. It was the Retainer Regiment now. (1974: 713)

## Conclusion

Schumpeterian entrepreneurship is essential for robust economic growth. This is doubly true for developed countries, where the ability to grow from adopting existing technology is limited. Taxes generally inhibit productive entrepreneurship, while encouraging the unproductive variety. Nevertheless, tax systems can be structured so as to attenuate these negative consequences. To this end, this chapter emphasized three major features of tax policy that are important for entrepreneurship.

First, capital accumulation and access to capital is essential for innovation to have a big impact. Despite this, tax systems generally tax savings more heavily than consumption. While countries often lessen this double taxation with preferences for some types of savings, the approaches are often clumsy, tending to distort incentives by type of investment and sources of financing. It is possible for countries to maintain desired revenue levels, while applying neutral tax treatment to savings and consumption. For example, consider the Bradford X-Tax (Carroll and Viard, 2012).

Second, the tax treatment of risk affects incentives for entrepreneurship, since entrepreneurship tends to entail high risk. When risk is substantial, the shape of the tax schedule affects incentives for entrepreneurship. Greater progressivity (over a taxpayer’s range of potential pre-tax income) results in heavier expected (*ex ante*) tax burdens the higher the

standard deviation of earnings. However, risk aversion implies that, for a given expected tax burden, greater progressivity encourages risk taking. This is because, again holding the expected tax burden constant, progressivity acts as insurance against bad outcomes. That is, greater progressivity implies lower tax burdens when income is low and thus the marginal utility of income high; and, tax burdens are heavier when income is high and the marginal utility of income low. This notwithstanding, progressivity can sometimes discourage entrepreneurship. This is because tax systems do not afford full offsets for losses, making progressivity effectively a tax increase. Furthermore, entrepreneurs may overestimate their likelihood of success, which implies that they will pay more attention to the high tax rates associated with successful endeavours.

In sum, with respect to risk, research suggests that some progressivity is reasonable and may even encourage entrepreneurship. Note again, progressivity holding expected tax burdens constant can encourage risk-taking. This is likely not the case when progressivity entails increasing expected tax burdens. With respect to imperfect offsets for losses, a solution is to liberalize rules for carrying losses across time, possibly allowing income averaging, or allowing negative taxes for those with losses. In one sense, negative taxes for losses is ideal. In another sense, actually paying firms with losses poses problems. Some firms would surely abuse the system, claiming losses that exceed expenses incurred for phony businesses designed to generate negative taxes.

Third, tax policy can lead entrepreneurial activity to shift from productive toward unproductive or destructive aims. Productive entrepreneurship tends to flourish when the route to great wealth is achieved primarily through private markets subject to competition, and where capital is plentiful, and whose access arises from relatively unfettered private markets. High taxes reduce the rewards from productive entrepreneurship. All too often, smart, talented, and innovative people are drawn out of socially productive endeavours and into unproductive ones because the private returns from devising an innovative tax scheme—or lobbying government for special tax preferences—are greater than those for building the proverbial better mousetrap.

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## CHAPTER 5

# Spurring Entrepreneurship through Capital Gains Tax Reform

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### **Introduction**

Entrepreneurship is critical for economies to grow, become more productive, and create new jobs. But as has been discussed elsewhere in this book, demographics are changing in advanced industrial economies and this will likely lead to lower levels of entrepreneurship, while at the same time increasing the strain on social welfare programs and the political need for a strong economy to produce sufficient tax revenue to sustain them. This leads to the question of what can be done to stem the *likely* coming decline in entrepreneurship.

An area of policy reform that could contribute to higher levels of entrepreneurship is capital gains taxation reform. A wealth of research shows that capital gains tax reform can increase the incentives for individuals to engage in entrepreneurship, while also increasing the financing available

for entrepreneurial endeavors. Together, this would lead to higher levels of entrepreneurship and thus economic growth, increased productivity, and job creation.

Demographic changes are expected to reduce the relative level of entrepreneurship across advanced economies. This chapter responds to this situation by discussing how reforming capital gains taxes could partly counteract this phenomenon. The chapter proceeds as follows. The first section is an abbreviated reminder of the economics of growth and the impact of taxation. The second section broadly reviews the scholarly literature on the economic costs of capital gains taxes. The third section analyses the negative effects that capital gains have on entrepreneurship and the fourth reviews data on capital gains taxation in developed nations. The final section presents policy recommendations for how governments could reform capital gains taxes to spur entrepreneurship.

## **1. The economics of growth**

A critical goal for policymakers is to create the conditions that enable rising levels of national income, i.e., economic growth. One of the more uncontroversial propositions in economics is that output is a function of labor (the workforce) and capital (machines, technology, land, etc.). Indeed, it is almost a tautology to say that growth exists when people provide more labor or more capital to the economy, or when—thanks to vital role of entrepreneurs—labor and capital are allocated more productively.

In other words, labor and capital are the two “factors of production,” and the key for policymakers is to figure out the policy recipe that will increase the quantity and quality of those two resources.

Incentives play an important role. People want to consume, so that gives them a reason to earn income (for current consumption) and to save and invest (for future consumption). On the other hand, they prefer leisure over labor, and they also prefer immediate consumption over saving and investment.

In the absence of taxation, people provide labor to the economy so long as they value the income they earn more than they value the foregone leisure. And they provide capital to the economy (i.e., they save and invest) so long as they value future consumption (presumably augmented by earnings on capital) more than they value current consumption.

All of this is correct, but this discussion also helps illustrate why entrepreneurship is so important. The preceding analysis basically focused on achieving growth by increasing the *quantity* of capital and labor. Such growth is real, but it has significant “opportunity costs” in that people must forego leisure and/or current consumption in order to have more disposable income.

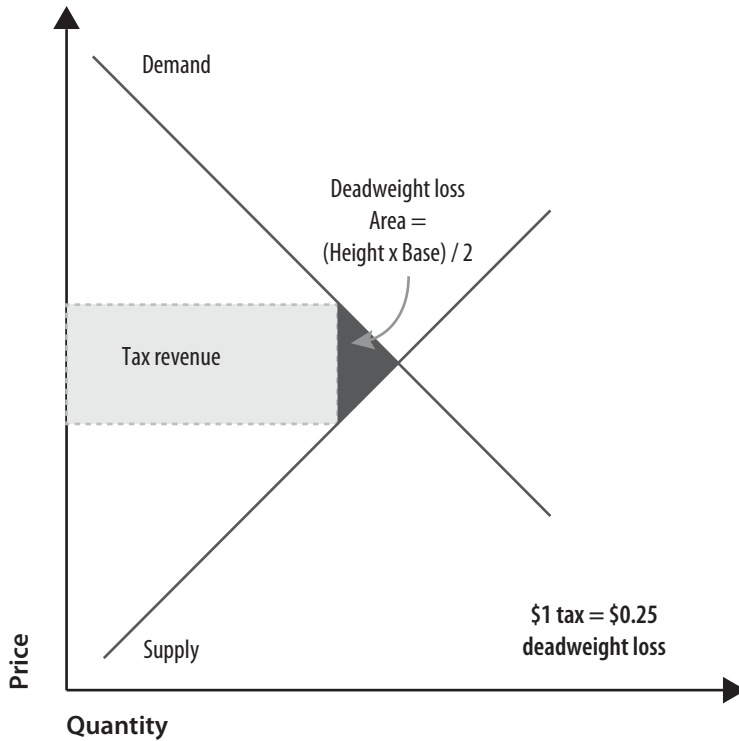
Entrepreneurs, by contrast, figure out how to increase the *quality* of capital and labor. More specifically, entrepreneurs earn profits by satisfying consumer desires with new and previously unknown or underused combinations of labor and capital. In their pursuit of profit, they come up with ways of generating more or better output from the same amount of labor and capital.

This explains why we have much higher living standards today even though we work far fewer hours than our ancestors. And with less punitive tax policy, we can ensure that our descendants will have even better lives in the future.

### ***Tax rates***

Taxation distorts normal incentives by driving a wedge between pre-tax income and post-tax consumption. In other words, people have less incentive to earn income when taxes lower their ability to enjoy the fruits of their labor. What matters in particular is the “marginal tax rate” on additional economic activity. In other words, what affects incentives is not someone’s overall tax rate (the share of their total income that gets taken by government), but how much they will get to keep if they earn, say, an additional unit of income.

Moreover, the disincentive effect gets much larger as tax rates increase. Indeed, it gets disproportionately larger. Consider the conventional supply and demand graph showing how the imposition of a \$1 tax leads to less

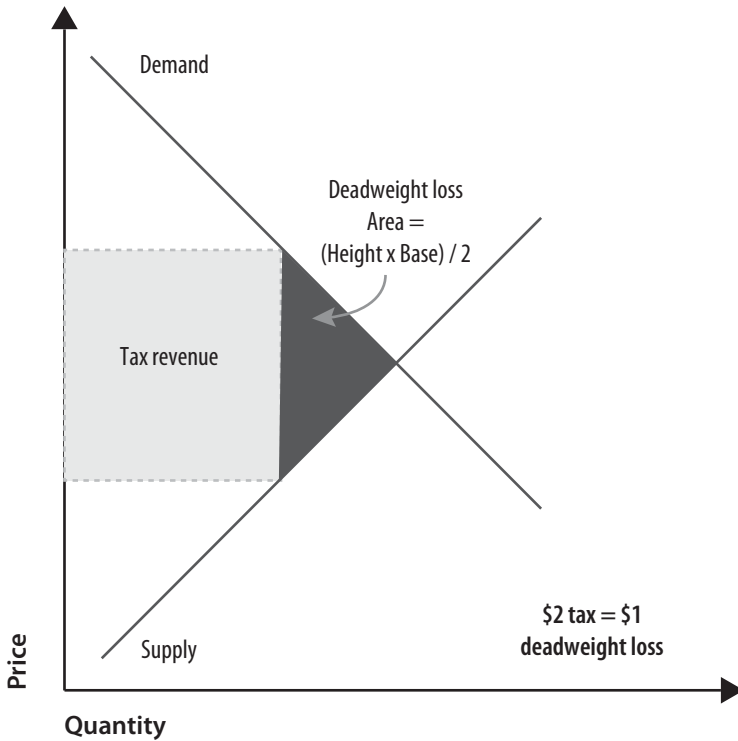
**Figure 1: The Effect of the Imposition of a \$1 Tax**

economic activity (the triangle that economists refer to as a “deadweight loss”) (figure 1).

Now consider the same supply and demand graph with a \$2 tax (figure 2). The tax has doubled, but the deadweight loss has more than doubled. And if the tax was increased to \$3 and then \$4, the same thing would happen. The economic cost (as represented by foregone economic output) gets much bigger with each incremental tax increase.

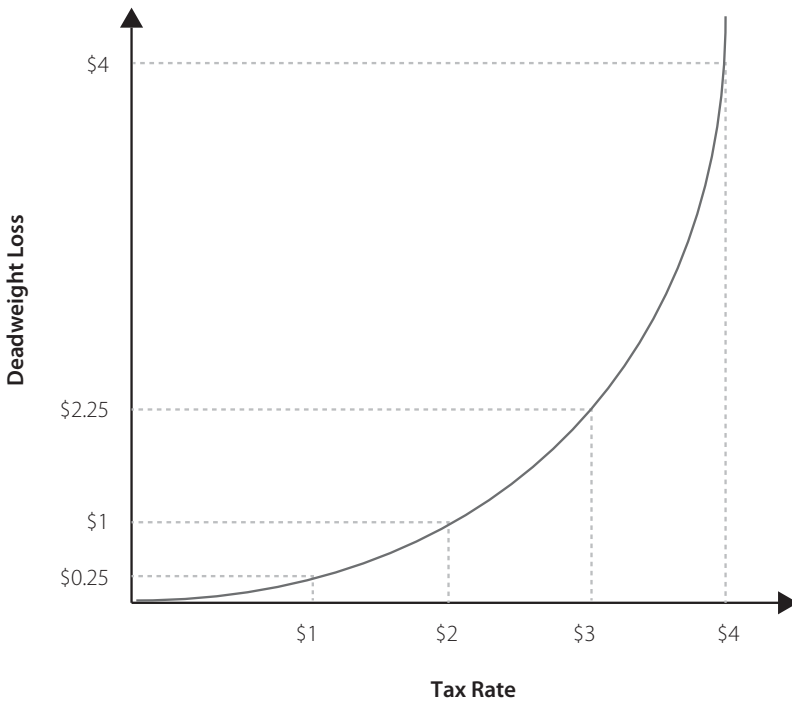
Figure 3 shows another way of illustrating the disproportionate damage imposed as tax rates increase. The deadweight loss is in the vertical axis, and it increases much faster than the tax burden, which is shown on the



**Figure 2: The Effect of the Imposition of a \$2 Tax**

horizontal axis. This is a very simple example, of course, which assumes supply and demand curves are straight lines. It's also possible, depending on what is being taxed, that the supply and demand curves could be steeper or flatter. Regardless of assumptions, though, the deadweight loss will always increase much faster than the tax.

So why would anyone want higher tax rates when the economic damage is disproportionately larger? The answer depends on the goal. Arthur Okun wrote a book for the Brookings Institution in 1975 that posited a trade-off between equality and efficiency (Okun, 1975). Some people don't like wide variations in income, so they favor high tax rates even though it

**Figure 3: Deadweight Loss versus the Tax Rate**

reduces overall economic performance (i.e., more deadweight loss). Others want more economic growth and don't think governments should worry if some people get richer faster than other people do.

### **Double taxation**

Tax rates are a particularly important concern when considering taxes on capital. Most developed nations have tax systems that impose higher effective tax rates on income that is saved and invested than on income that is immediately consumed. More specifically, capital gains taxes and estate taxes, combined with a tendency of nations to tax business income at both the firm level and the shareholder level, produce tax systems that dispropo-

portionately penalize capital. Such policies often are known as “double taxation” and are illustrated in figure 4 using the US tax code as an example.

In other words, the effective marginal tax rate on saving and investment is considerably higher than the effective marginal tax rate on consumption. This double taxation is understandably controversial since all economic theories—even Marxism and socialism—agree that capital is critical for long-run growth and higher living standards.

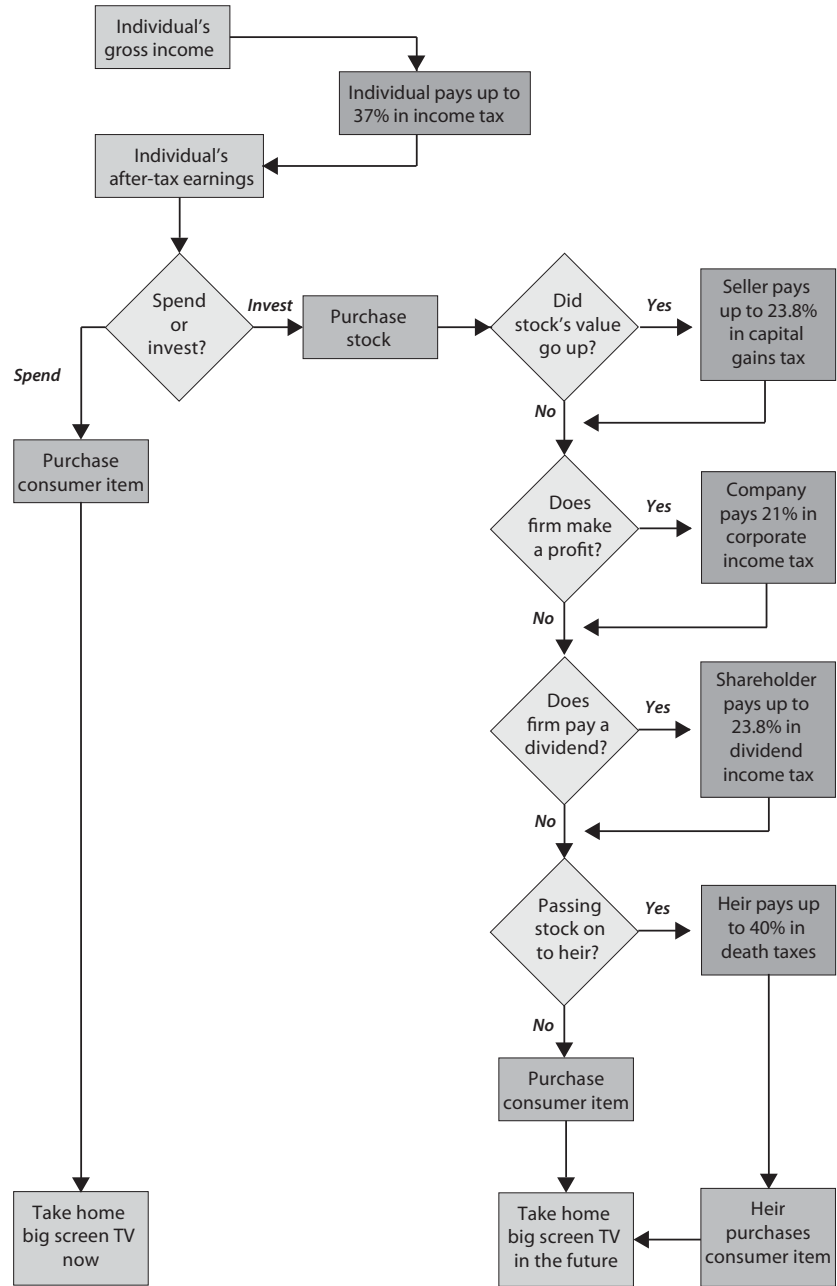
So why do some policymakers enact and maintain tax policies that create a bias against saving and investment? The simple answer is that higher-income taxpayers are more likely to save and invest, and politicians impose harsh tax burdens on capital for reasons of “fairness.” In other words, recalling Okun’s equality-efficiency trade-off, they are willing to sacrifice growth to achieve redistributive goals.<sup>1</sup>

This analysis does not suggest that the ideal tax rate on labor or capital should be zero. From a broader public-finance perspective, taxes may finance “public goods” such as law enforcement and infrastructure that may improve people’s ability to earn income. And policymakers may decide that slower growth is an acceptable price to pay to achieve a more equal distribution of income. Instead, this is simply to say that taxation imposes

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1 There’s a debate among public finance economists about the correct tax base. At the risk of oversimplifying, those on the left believe in the Haig-Simons approach, which embraces double taxation (and was the inspiration for Canada’s Royal Commission on Taxation, aka, the Carter Commission). Supporters of this approach basically believe that changes in net worth should count as income, so this is used to justify the existence of capital gains taxes and other forms of taxation that discriminate against income that is saved and invested. The alternative theoretical construct is neutral taxation, generally supported by those on the right, which often is referred to as consumption-based taxation. The core principle of this theory is that the tax system should be neutral about how current consumption and future consumption are taxed. This is the approach that is incorporated in the Hall-Rabushka flat tax, although it’s also possible to have a system of neutral taxation and graduated tax rates. Such a system is conceptually similar to a sales tax or value-added tax since the incidence is the same regardless of whether income is taxed as it is earned or taxed as it is spent.

Figure 4: Tax Bias against Saving and Investment in the United States



a cost and that policymakers should be cognizant that higher levels of tax are especially costly.

## 2. Economic consequences of capital gains taxation

In addition to the downsides shared with other forms of taxation, capital gains taxes harm economies in ways unique to the levy. This section will explain the theory of such taxes and review the literature on the economic costs of capital gains taxation. There is strong evidence for the view that the limited revenues collected from taxing capital gains come at significant cost to economic growth.

A capital gain occurs when a piece of property is sold for more than its original purchase price. The property can be physical property, such as a piece of land or a personal possession, or it can be an income-producing financial asset, such as a stock or bond.

Figure 4 from the previous section shows that taxing such gains is a form of double taxation, assuming the property is acquired with after-tax earnings. But is it justifiable double taxation? Let's consider the example of a capital gains tax on shares of stock.

Imagine an individual uses after-tax income to buy company stock. Further imagine that the stock rises in value because of changes that lead investors to believe that the company will enjoy higher future profits. If the individual sells the stock, a capital gains tax will be imposed. Yet the future income (the expectation of which caused the value of the stock to climb) will be taxed when it actually occurs. So, the same income effectively gets taxed twice (and maybe even three times in nations that tax business income at both the firm level and shareholder level).

Yet capital gains taxes are not just another form of double taxation. The levy is particularly troublesome for several reasons.

- 1 As previously mentioned, entrepreneurs play a vital role in the economy since they figure out more efficient ways to allocate labor and capital. Like the rest of us, they are motivated by a desire for

personal success rather than some amorphous wish to boost macro-economic performance. The potential for a capital gain is a big reason for the risk they incur and the effort they expend. Thus, the existence of capital gains taxes discourages some entrepreneurial activity from ever happening.

- 2 Some entrepreneurial activity will still occur, of course, but another problem stems from the fact that the capital gains tax is more easily avoidable than other forms of taxation. Entrepreneurs who generate wealth with good ideas can avoid the levy by simply choosing not to sell. This “lock-in effect” is not good for the overall economy, but it’s often the most rational choice for the individual. Some supporters of capital gains taxation admit this problem and claim it can be solved by taxing unrealized capital gains (i.e., impose a tax even if an asset is not sold). Yet this would result in substantial compliance burdens and no government has ever tried this approach.
- 3 Most governments do not allow taxpayers to adjust the value of property for inflation when calculating capital gains. Even in a low-inflation environment, this can produce perverse results. Imagine that there is 30 percent inflation over a 20-year period and a taxpayer wants to sell some property that was purchased at the start of the period. If the asset is sold for 30 percent more than the purchase price, there is no real gain. Yet a tax is imposed. Depending on the specifics, taxpayers can sometimes pay tax even when assets have lost value in real terms. And it is very common for capital gains taxes to consume large amounts of any real gain that has occurred, which is yet another reason for the lock-in effect. Aldridge and Pomerleau (2013) show that the average effective capital gains rate in the US between 1950 and 2012 was 42.5 percent, almost double the statutory rate and higher than the top personal income rate.<sup>2</sup>

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2 This understates the case, as it excludes years where the average effective rate was infinite.

- 4 Capital gains taxes contribute to the problem of “debt bias,” which occurs when there is a tax advantage for corporate investments to be financed by debt instead of equity. This distorts economic behavior by leading businesses to take on more debt than they otherwise would. Excessive debt increases the probability of bankruptcy for the firm and contributes to systemic risk.

The bottom line is that capital gains taxes raise revenues for government (often very little), but they do so with considerable economic costs. The tax reduces returns on investment and entrepreneurship, thus distorting decision making by individuals and businesses. This can have a substantial impact on the reallocation of capital, the available stock of capital, compliance costs, and the level of entrepreneurship. We now turn to a review of the research on the economic consequences of capital gains taxes.

***Academic research on the economic costs of capital gains taxes***

Veldhuis, Godin, and Clemens (2007) and Clemens, Lammam, and Lo (2014) carried out extensive literature reviews on the economic costs of capital gains taxes with a particular focus on the reallocation of capital, the stock of capital, compliance costs, and the marginal efficiency cost. This section draws heavily on their work and incorporates new empirical and theoretical research to summarize the key findings of academic research on the general economic impacts of capital gains taxes.

***The “user cost of capital” and the stock of capital:*** Several studies have investigated the link between capital gains taxation, the cost of venture capital financing and the supply of capital, and found theoretical and empirical evidence suggesting a direct causality between a lower tax rate and a greater supply of venture capital.<sup>3</sup> Other research has shown how venture capital affects not only the quantity, but also the quality of entre-

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3 See Poterba (1989a, 1989b); Gompers and Lerner (1998), Jeng and Wells (2000), Keuschnigg (2003, 2004), Keuschnigg and Nielsen (2001, 2003a, 2003b, 2004a, 2004b, 2004c), and Armour and Cumming (2006).

preneurial development. Hellmann and Puri (2000) found that obtaining venture capital is associated with a faster time to market, especially for innovator firms,<sup>4</sup> and that firms backed by venture capital introduce more radical innovations. Audretsch and Lehmann (2004) found evidence that small and innovative German firms are more likely to be financed by venture capital, and that the presence of venture capitalists positively affected the growth rate of firms. David Guenther and Michael Willenborg (1999) found that the US government's 1993 decision to reduce the capital gains tax rate on small business increased the price that small businesses were able to charge for their stock, consistent with past research findings that capital gains tax rate reductions lower the cost of capital for such businesses. Harry Huizinga, Johannes Voget, and Wolf Wagner (2012) measured the impact of capital gains taxes on the cost of capital in the context of international corporate mergers and acquisitions and found that the effective tax rate on capital gains reflected in takeover prices (after accounting for deductions of realized losses on other shares) is 7 percent, and that it raises the cost of capital by 5.3 percent. This indicates that capital gains taxation is a significant cost to firms when issuing new equity.

**Marginal efficiency costs:** All taxes impose efficiency (economic) costs on society by distorting behavior. Numerous studies have estimated the economic costs of different types of taxes using what is referred to as the marginal efficiency cost. The goal is to understand which types of taxes impose the least (or highest) cost on the economy. The empirical literature on marginal efficiency cost finds that capital-based taxes impose greater economic costs than other forms of taxation. The most widely cited calculations of marginal efficiency costs include those by Dale Jorgensen and Kun-Young Yun (1991), who found that US capital-based taxes (such as capital gains taxes) impose a marginal cost of \$0.92 for one additional dollar of revenue compared to \$0.26 for consumption taxes. In 2004, the Canadian government's department of finance published a study by

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4 Defined as those firms that are the first to introduce new products or services for which no close substitute can be found in the market, in contrast to imitator firms.



Maximilian Baylor and Louis Beausejour, which found that a \$1 decrease in personal income taxes on capital (such as capital gains, dividends, and interest income) increases society's well-being by \$1.30; by comparison, a similar decrease in consumption taxes only produces a \$0.10 benefit. The efficiency of taxation was also explored and discussed by the Quebec government's Ministry of Finance in the province's 2005–2006 budget, which found that a reduction in capital gains taxes yields more economic benefits than a reduction in other types of taxes, such as sales taxes. Reducing the capital gains tax by \$1 would yield a \$1.21 increase in GDP, whereas a decrease of \$1 in the sales tax would only increase GDP by \$0.54.<sup>5</sup> Erwin Diewert and Denis Lawrence (1998) found that the costs to the economy of raising revenue in Australia through taxes on capital tend to be high, and they recommended that Australia significantly reduce its capital gains tax rate. Peter Kugler and Carlos Lenz (2001) examined the experience of regional governments (cantons) in Switzerland that eliminated their capital gains taxes and showed that the economy was 1 to 3 percent larger due to the elimination of capital gains taxes. These comparisons underscore the economic benefits that are lost with significant capital gains taxation.

- *Lock-in effect:* The capital gains tax is only imposed when an investor opts to withdraw his or her investment from the market and realize the capital gain. One of the most significant resulting economic effects is the incentive this creates for owners of capital to retain their current investments, even if more profitable and productive opportunities are available. Economists refer to this result as the “lock-in” effect. Capital that is locked into suboptimal investments and not reallocated to more profitable opportunities hinders growth in the economy. While the magnitude of the lock-in effect depends on numerous factors (such as the rate of return on the initial and new investments and the investor's time horizon), economic costs result because capital gains taxes discourage the reallocation of capital from lower to higher yielding uses. Numerous academic studies

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5 The GDP refers to inflation-adjusted (real) GDP.

have investigated the lock-in effect.<sup>6</sup> An influential paper by Harvard economist Martin Feldstein and his colleagues Joel Slemrod and Shlomo Yitzhaki (1980) was one of the first to provide an empirical analysis of the effect of taxation on the realization of capital gains, using the sale of corporate stocks at a profit as their test. The authors found that the realizing of capital gains is sensitive to the marginal tax rate and concluded that a 10.0 percentage point increase in the capital gains tax rate reduced the probability of selling a stock by 6.5 percentage points. Paul Bolster, Lawrence Lindsey, and Andrew Mitrusi (1989) found that an expected increase in the capital gains tax rate induced US investors to reallocate capital prior to the change to avoid higher taxes. James Chyz and Oliver Li (2012) found that tax-sensitive investors<sup>7</sup> reduced holdings of shares with embedded gains after the 1997 Taxpayer Relief Act in the US was enacted. Benjamin Ayers, Craig Lefanowicz, and John Robinson (2007) showed that not only do capital gains taxes affect asset prices and market activity, they also influence corporate acquisition activity and the movement of capital across different organizations.

- *Compliance costs:* In addition to the economic costs imposed by changing incentives for productive behavior as demonstrated by the lock-in effect and reductions in the availability of capital, as well as other effects yet to be discussed, capital gains taxes also impose direct costs related to compliance and administration. The Fraser

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6 Many studies provide empirical evidence of the lock-in effect. For instance, Jog (1995) finds evidence of a lock-in effect in Canada by examining the change in capital gains realizations after the 1985 introduction of a capital gains exemption. See also Landsman and Shackelford (1995), Shackelford (2000), Blouin et al. (2000), and Dai et al. (2006), for empirical evidence of the lock-in effect.

7 Tax-sensitive institutional investors include mutual funds and their managers and investment advisors. Less tax-sensitive institutional investors included tax-exempt institutions such as pension funds, university endowments, and foundations, as well as insurance companies, which are less likely to exhibit trading behavior that is influenced by changes in individual tax rates.

Institute has published research that measures compliance costs, such as expenses related to professional services and reporting, and calculating and remitting tax payments. This research estimates the extent to which different factors—such as socio-demographic characteristics, the use of different tax provisions, and different types of income including capital gains income—influence tax compliance costs. The most recent study (Speer et al., 2014) finds that Canadian individuals who reported capital gains income incurred, on average, higher compliance costs than did those who did not report any such income. Specifically, the direct compliance costs for those individuals reporting capital gains income was, on average, 13.8 percent higher. These findings are consistent with research in other jurisdictions on the compliance costs associated with capital gains taxes. For instance, Blumenthal and Slemrod (1992) found that American tax filers who received capital gains income incurred higher compliance costs than those who reported no such income. Capital gains income increased the time that individuals spent complying with the tax system by 7.9 hours, increased the financial resources they spent on professional tax services by about \$21, and increased the total cost of compliance by \$143 (all figures in 1989 US dollars). Likewise, Binh Tran-Nam et al. (2000) found that capital gains taxes imposed significant costs on Australian firms—6.8 percent of total income tax revenue collected (including income tax revenue generated from capital gains)—and that for individuals, low-income groups bore disproportionately high compliance costs.

- *Revenue from capital gains taxes:* In addition to the many deleterious economic effects associated with capital gains taxes discussed above, they also tend to raise only small amounts of revenue for governments. For example, according to data from the OECD, in 2016 capital gains taxes levied on individuals represented only 1.1 percent of total government tax revenue in the United Kingdom and 3.3 percent of total tax revenues in the United States (OECD, 2017). Data on the percentage of tax revenue raised by capital gains taxes on individuals in Australia and Canada is more difficult to attain.

However, according to Canada's federal department of finance, in 2011, the federal tax revenue gained from capital gains taxation was \$2.8 billion, compared with the revenue gained from all personal income taxes of \$120.5 billion, and total revenue of \$249.1 billion.<sup>8</sup> This means that capital gains taxes only represent 2.3 percent of the federal income tax revenue and 1.1 percent of overall federal government revenue (Clemens, Lammam, and Lo, 2014). Even these figures likely overstate the true revenue returns of capital gains taxation, as they do not account for the economic effects of the tax on the overall tax base. In other words, slower economic growth reduces revenues collected through other taxes, thereby offsetting some, if not all, of the revenues directly collected through capital gains taxation. And due to global capital mobility and tax competition, high capital gains rates will drive investment toward more favorable jurisdictions.<sup>9</sup>

To conclude, capital gains taxes carry considerable economic costs, while raising comparatively little revenue for governments, and for some governments are likely even subtracting from net revenues. Although this section has focused more on the general economic impacts of capital gains taxes rather than on specifically how capital gains taxes directly affect entrepreneurship, issues like the lock-in effect, the stock of capital, and compliance costs all have important consequences for entrepreneurs.

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8 The figures were obtained during an exchange between Fraser Institute researchers and the department of finance Canada on May 30, 2014.

9 When taxpayers can shift productive activities to lower tax environments, governments must compete to attract investment. Such competition serves as a constraint on the desire of politicians to over tax, and the long-run result is a political and economic environment better for both taxpayers and the global economy.

### 3. Capital gains taxation and entrepreneurship

Entrepreneurs risk their own capital (and that of venture capitalists and other financiers) and spend time in the hopes of ultimately profiting from an unproven technology, product, or service. The trade-off is that they expect to be compensated if the business matures and generates financial returns. This process is key to a successful economy because it produces new technologies, products, and services, and ultimately leads to job creation and increased prosperity thanks to a better allocation of labor and capital.

Capital gains taxes reduce the return that entrepreneurs and investors receive when selling some or all of a new technology or business. This diminishes the reward for entrepreneurial risk-taking and reduces the number of entrepreneurs and the investors that support them.

Capital gains taxes also affect an entrepreneur's ability to attract managers from traditional business sectors. Start-up firms cannot typically offer salaries that are competitive with established businesses and therefore often recruit managers using equity stakes. Capital gains taxes reduce the returns that these managers receive, thereby diminishing the likelihood that start-ups will be able to attract the talent that growth requires. Research has also found that capital gains taxes can lengthen the time that entrepreneurs hold on to their businesses instead of selling them to professional managers.

There is a growing body of academic research investigating the impact of capital gains taxes on entrepreneurship. Most studies focus on how a lower rate of return due to capital gains taxes affects the actors in the entrepreneurial process—the entrepreneurs and their financiers. New research has also sought to better understand the impact of capital gains taxes on entrepreneurial innovation and the development of new ideas.

#### ***Effect on entrepreneurial demand***

Professor James Poterba (1989a) highlighted an important link between capital gains taxes and the demand for venture capital funding—potential entrepreneurs compared the compensation obtained from employment at an established firm to the expected pay-off from a start-up where a larger

share of their compensation would consist of a capital gain. Poterba concluded that by changing the relative tax burden between wages and capital gains, a reduction in capital gains taxes would lead more skilled people into entrepreneurship and increase the demand for venture capital.

Christian Keuschnigg and Soren Bo Nielsen (2003a) carried out a unique theoretical study to understand what policies encourage individuals to seek regular employment and which ones lead them to pursue entrepreneurial activities (or enter the “entrepreneurial market” as the authors described it).<sup>10</sup> Similar to Poterba, the study found that capital income taxation reduces the supply of entrepreneurs in the market. Keuschnigg and Nielsen later revisited this topic and found that “even a small capital gains tax... diminishes incentives to provide entrepreneurial effort and managerial support” (2004b: 1033).

Donald Bruce and Mahammed Mohsin (2006) examined the effect of US personal income tax rates, capital gains taxes, and corporate income tax rates on self-employment rates—a proxy for entrepreneurship. They found that a one percentage point reduction in the capital gains tax rate is associated with a 0.11 to 0.15 percentage point increase in the self-employment rate.

V.V. Chari, Mikhail Golosov, and Aleh Tsyvinski (2004) examined how the “lock-in effect” can affect the efficient management of entrepreneurial firms under the assumption that some individuals have a comparative advantage in starting new business enterprises, while others have a comparative advantage in managing and growing firms. This model implies that those who are better at starting firms should sell their successful start-ups to professional managers and start new business enterprises. Chari, Golosov, and Tsyvinski specifically evaluated the effect that capital gains taxes have in creating transaction costs that lead entrepreneurs to remain a part of their existing business longer than would be considered efficient. The result of their analysis was that eliminating a capital gains tax rate of

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10 The entrepreneurial market refers to the entrepreneurial labor market, where households can choose to be either normal workers facing fewer risks and lower returns, or entrepreneurs who face greater risks and higher returns.

20 percent would increase the percentage of entrepreneurs who sell their businesses from 10 to 29 percent. The implication of this result is that more entrepreneurs would be free to start new business ventures, thus increasing the level of entrepreneurship in the economy.

Ricardo Cavalcanti and Andrés Erosa (2007) estimated the effect capital gains taxes have on business turnover. They identify two sources of value for closely-held firms: the common value that can be transferred to other owners, and the idiosyncratic component that depends on the specific owner. There is thus a societal benefit to business turnover because it provides an opportunity for new owners with potentially higher idiosyncratic value to acquire a firm. In their model, Cavalcanti and Erosa consider the effect that two possible changes in capital gains taxation—(1) a halving of the capital gains tax rate (28 percent to 14 percent) and (2) allowing capital gains to be indexed for inflation—could have on business turnover. The results of their study were that decreasing the capital gains tax rate by 50 percent would result in an increase in business turnover by 11 percent, and allowing gains to be indexed to inflation would increase business turnover by 7 percent. Cavalcanti and Erosa also estimated that eliminating the capital gains tax and replacing the revenues with a lump sum tax would increase total output by 0.48 percent, while capital gains taxes in their model only raise revenue equivalent to 0.03 percent.

The research cited above has focused exclusively on the effect of capital gains taxes on whether one decides to engage in entrepreneurial risk-taking. However, it is also important to consider how marginal income tax rates in general affect incentives to become self-employed or engage in entrepreneurial activity, as countries such as Australia and Canada tax capital gains based on their income tax rates.

A study by William Gentry and Glenn Hubbard (2000) used US data from 1979 to 1992 to analyze the impact of tax progressivity on the decision to become an entrepreneur (defined as self-employed). The authors found evidence that a more progressive tax structure reduced the probability of entering self-employment since, if tax rates are more progressive, entrepreneurs pay substantial taxes on profits earned, but save little through

taxes reduced by writing off losses incurred. In other words, progressivity with imperfect loss offsets creates a tax on “success” that discourages entry.

Herbert Schuetze (2000) looked at the effect of changes in marginal tax rates on the likelihood of self-employment in the United States and Canada. Using data for the period between 1983 and 1994, the author found that a 10 percent increase in marginal tax rates in a given year induced, for Canadian males, a 1.6 to 3.0 percent increase in the probability of being self-employed the following year, and a 2.1 to 3.7 percent increase in the probability of male self-employment in the US a year after the tax rate increase. Shuetze speculates that under-reporting of income when self-employed is a motivating factor. Schuetze and Gentry and Hubbard both found evidence that taxes affect decisions to become self-employed, but together show that increases in marginal taxes rates and convexity of the tax system push in opposite directions.

Based on the idea that individuals are attracted to entrepreneurial activity when the relative tax treatment of self-employment becomes favorable compared to taxes on wages and salaries, Tami Gurley-Calvez and Donald Bruce (2008) used US tax return data from 1979 to 1990, covering over 200,000 tax returns and 6,000 tax filers, to show that reducing marginal tax rates on wages and salaries reduces the duration of entrepreneurial activity by making wage-earning more attractive. The authors find that a one percentage point decrease in the marginal tax rate on wages and salaries increases the probability that entrepreneurial activity will cease by 9.17 percent for single tax filers and 3.98 percent for married tax filers. Similarly, reducing marginal tax rates faced by entrepreneurs lengthens the time spent on entrepreneurial activity. A one percentage point decrease in the marginal tax rate on entrepreneurship or self-employment income reduced the likelihood of ending entrepreneurial activity by 17.32 percent for single tax filers and by 7.81 percent for married tax filers. The relative magnitude of the effects is such that even across-the-board cuts would increase the longevity of entrepreneurial activity.



### ***Effect on entrepreneurial financing***

Another important effect that capital gains taxes can have on entrepreneurship is the availability of entrepreneurial financing, most often through venture capital funds. Harvard economists Paul Gompers and Josh Lerner (1998) investigated this by undertaking an empirical examination of the key drivers of venture capital funding. Analyzing the stock of venture capital and tax rates on capital gains from 1972 to 1994, Gompers and Lerner found that a one percentage point increase in the rate of the capital gains tax was associated with a 3.8 percent reduction in venture capital funding.

Gentry (2016) investigated the effect of capital gains tax rates on the disbursement of venture capital funding. He identified an asymmetry between the typical tax treatment of capital gains versus capital losses. Specifically, taxpayers under most systems can deduct their capital losses for a given year, but the benefit requires the realization of positive gains against which to be deducted, with minor exceptions. Beyond that, the losses may usually be carried forward to be claimed against future gains (and sometimes carried back for a limited number of years against prior gains). This means that while gains are taxed immediately in the tax year that they are realized, losses may not always yield an immediate tax benefit. Indeed, they may prove non-recoverable if the carry-forwards expire or the firm fails. The tax benefit also diminishes the longer that losses must be carried forward before they can be deducted. The result is a penalty on risky investments. Gentry's model largely followed that of Gompers and Lerner (1998) but used a longer time series of data from US states that dated back to 1969. He found that a one percentage point increase in the marginal tax rate on capital gains was associated with a decrease in the disbursement of venture capital funds of \$1.28 per capita to \$3.48 per capital, depending on the model specification. Gentry then estimated that a one percentage point increase in the capital gains tax rate decreases venture capital investment into U.S. states by 5.4 to 14.6 percent.

## 4. Global capital gains tax rates

As discussed above, capital gains taxes place a high cost on entrepreneurial activities, thereby contributing to lower levels of entrepreneurship. This section will compare personal capital gains tax rates in Organisation for Economic Co-operation and Development (OECD) countries.

The structure and rates of capital gains vary considerably by country. Some countries like the United States and United Kingdom have a separate and distinct tax on capital gains; while others such as Australia and Canada tax capital gains through the regular income tax system. Some countries also tax gains from the sale of property or investment at differential rates. The rates of tax and levels of income at which those rates apply also differ among countries.

Figure 5 displays the top personal marginal capital gains tax rate on securities, investments, shares, etc., for 2016/17 in 35 OECD countries.<sup>11</sup> France has the highest top marginal tax rate on capital gains in the OECD at 60.5 percent.<sup>12</sup> Seven OECD countries—Belgium, Czech Republic, Luxembourg, Netherlands, New Zealand, Switzerland, and Turkey—do not levy personal capital gains tax rates. The population-weighted average top personal capital gains tax rate for the OECD in 2016/17 was 25.5 percent.

The United States had the 9<sup>th</sup> highest capital gains tax rate in the OECD in 2016/17.<sup>13</sup> Canada's average top capital gains tax rate of 26.5 percent ranked as the 12<sup>th</sup> highest in the OECD and was higher than the OECD average of 25.5 percent.<sup>14</sup> At 24.5 percent, Australia's top capital gains tax rate was only slightly lower than Canada's and the United States's. Com-

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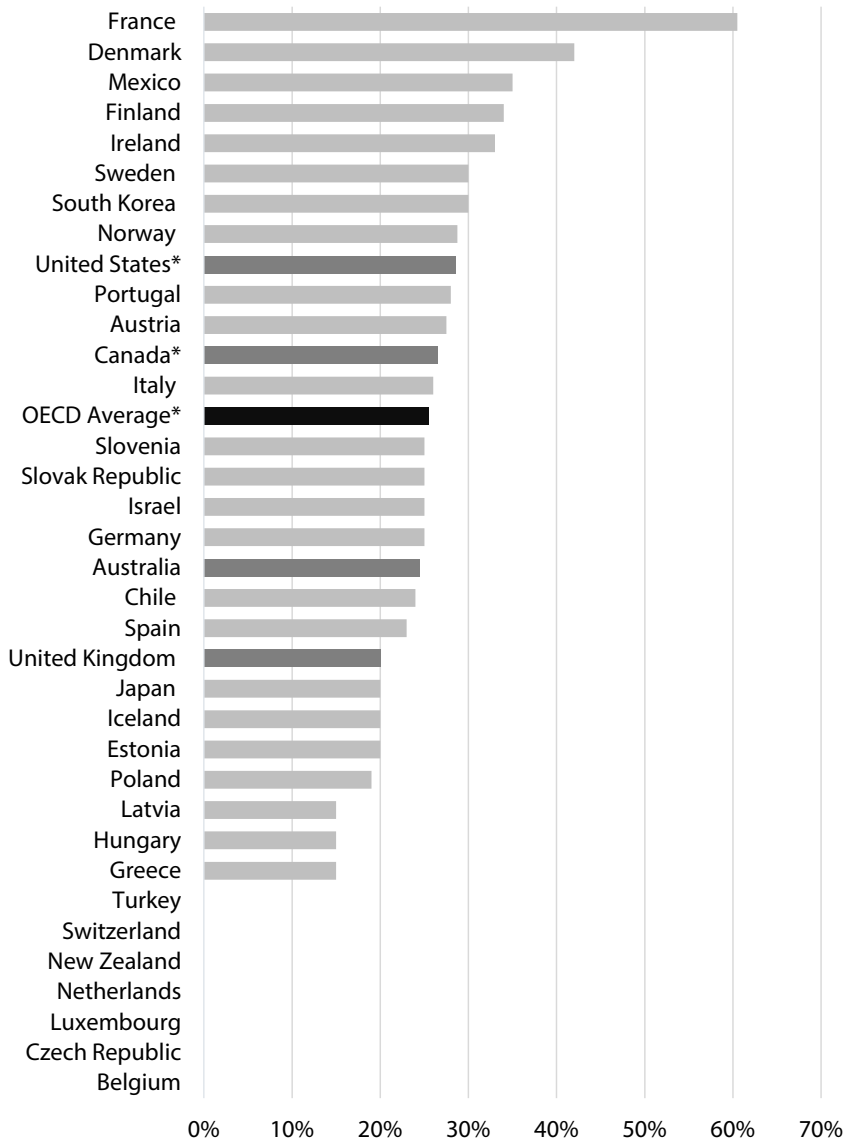
11 The capital gains tax rates discussed in this section refer to rates on personal capital gains, not corporate capital gains.

12 This rate for France includes both the top capital gains tax rate of 45 percent and the special social security surcharge of approximately 15.5 percent.

13 The top US capital gains tax rate presented here is a population-weighted average of the top combined federal and state capital gains tax rates.

14 Similar to the US, Canada's top capital gains tax rate is representative of a population weighted combined federal and provincial average.

**Figure 5: Top Personal Marginal Capital Gains  
Tax Rate in OECD Countries, 2016/17**



\* Population weighted average

Sources: Deloitte, 2016; EY, 2016; World Bank, 2017.

pared to Australia, Canada, and the United States, the United Kingdom had a relatively lower top capital gains tax rate in 2016/17 at 20 percent.<sup>15</sup>

It is important to note that the capital gains tax rates presented in Figure 5 apply at different levels of income in the various countries. That is, while the tax rates may be the same in two countries, the level of income at which those rates apply could be markedly different. In addition, when assessing Canada and the United States, it is important to remember that the capital gains tax rates presented for those two countries are weighted averages of the top combined federal and state or provincial capital gains tax rates. Indeed, within Canada and the United States there are substantial sub-national differences in both the top rates and the income at which those rates apply. For example, California has the top combined capital gains tax rate in the United States at 33 percent, which ties the western US state with Ireland for the 5<sup>th</sup> highest capital gains tax rate in the OECD. This is in contrast to a number of states which levy no state income taxes and thus have top capital gains tax rates of close to 25 percent.

Compared to other countries in the OECD, Australia, Canada, the United Kingdom, and the United States all have room for improvement when it comes to their top personal capital gains tax rates. The United States and Canada, for example, have top capital gains tax rates above the OECD average and rank in the top third of countries with the highest top capital gains tax rates in the OECD. While Australia and the United Kingdom have top capital gains tax rates under the OECD average, they, too, still have room for improvement as 11 and 14 countries have top capital gains tax rates lower than those in the United Kingdom and Australia, respectively. All four countries are thus able to improve their position on capital gains taxes in order to spur entrepreneurship.

It is also important to remember that the capital gains tax is a form of double taxation. In a new 2018 publication on the taxation of capital, the OECD acknowledged that, "...capital gain income on shares that is derived

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15 For a more in-depth overview of the structure of capital gains taxes in Australia, Canada, the United Kingdom, and the United States, as well as a breakdown by Canadian provinces and US states, see the appendix.

from reinvested corporate profits is taxed first as corporate income and then again at the shareholder level when realised” (Harding and Marten, 2018).

Table 1 is from the study and shows details on tax rates and double taxation (though the data is from July 2016 and does not include, for instance, the 14 percentage-point reduction in the US corporate income tax).

Figure 6 is from the same OECD report. As with table 1, it doesn’t reflect changes since July of 2016. For instance, in the United States, the combined tax rate is now down to 46.2 percent, so the country no longer has the dubious honor of having the highest combined rate in the industrialized world.<sup>16</sup>

## 5. Options for capital gains tax reform

As demographic changes exert downward pressure on entrepreneurship in different economies, policymakers should consider reforming capital gains taxation to help counteract the effect. There are a number of different policy options with regards to capital gains taxes that governments could use in order to increase entrepreneurship.

### *Eliminate capital gains taxes*

One such option would be to completely eliminate capital gains taxes. As discussed above, capital gains taxes impose high costs on the economy and tend to represent a small share of tax revenues for governments. In other words, eliminating the capital gains tax could provide a considerable boost to economies at a small short-run fiscal cost, and potentially a large gain in tax revenues in the long-run. It would unlock capital for new and expanding firms, bolster entrepreneurship, and support investment and job creation. Moreover, the elimination of capital gains taxes would be the most comprehensive way to address the disincentive effects that capital gains

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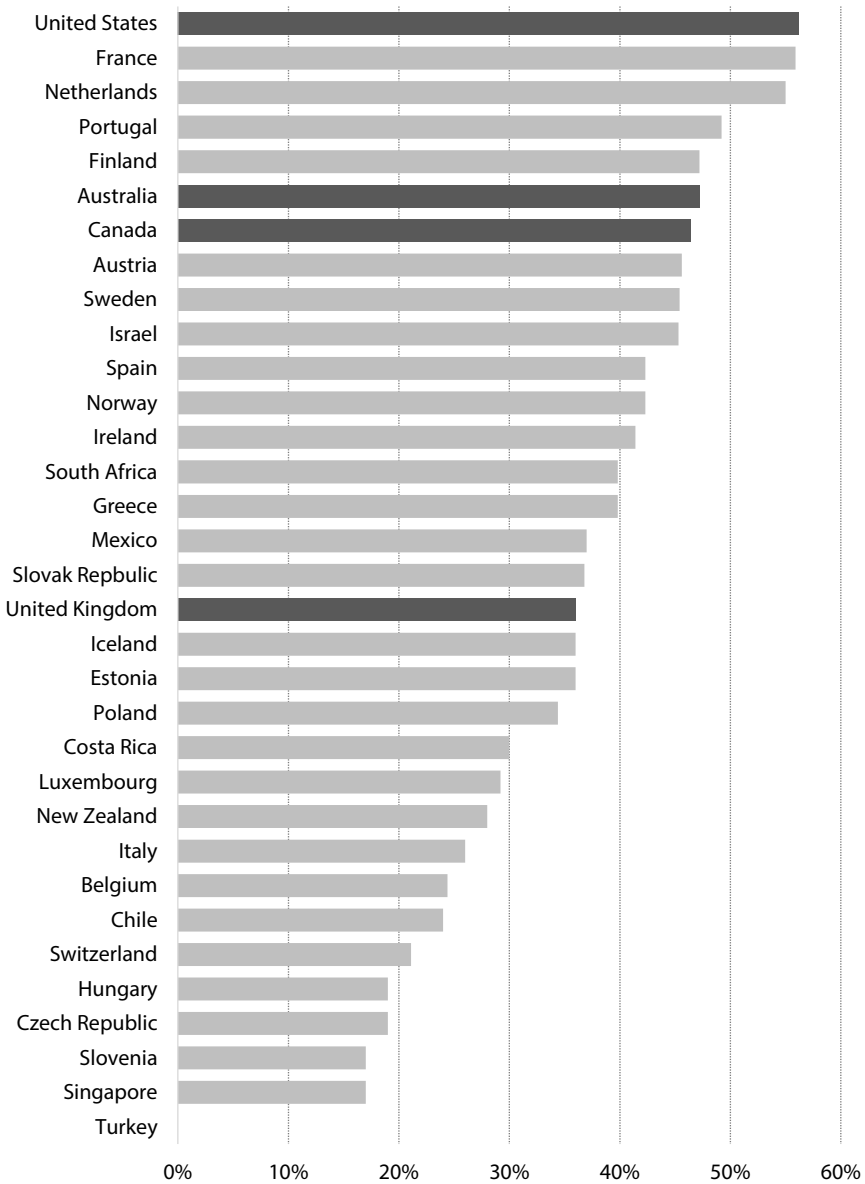
16 It appears the OECD does not include the social security surcharge when calculating the overall capital gains burden in France.

**Table 1: Tax Payable on Capital Gains on Long-held Shares at the Corporate and Personal Levels, as of July 1, 2016**

Country	Corporate Tax Rate (%)	Longest Holding Period (yrs)	Proportion Included in Income (%)	Final Withholding Tax Rate (%)	Shareholder Tax Rate (5)	Combined Tax Rate (%)
Australia	30.0	1	50	—	49.0	47.2
Austria	25.0	—	100	27.5	—	45.6
Belgium	34.0	—	—	—	—	24.4
Canada	26.8	—	50	—	53.5	46.4
Chile	24.0	1	—	—	—	24.0
Costa Rica	30.0	—	—	—	—	30.0
Czech Republic	19.0	3	—	—	—	19.0
Estonia	20.0	0	100	—	20.0	36.0
Finland	20.0	10	100	—	34.0	47.2
France	34.4	8	100	—	32.8	55.9
Greece	29.0	—	100	—	15.2	39.8
Hungary	19.0	5	—	—	—	19.0
Iceland	20.0	—	100	—	20.0	36.0
Ireland	12.5	—	100	—	33.0	41.4
Israel	25.0	—	100	—	27.0	45.3
Italy	31.3	—	100	—	26.0	26.0
Luxembourg	29.2	0.5	—	—	—	29.2
Mexico	30.0	—	100	—	10.0	37.0
Netherlands	25.0	—	100	—	30.0	55.0
New Zealand	28.0	—	—	—	—	28.0
Norway	25.0	—	100	—	28.8	42.3
Poland	19.0	—	100	—	19.0	34.4
Portugal	29.5	—	100	28	—	49.2
Singapore	17.0	—	—	—	—	17.0
Slovak Republic	22.0	—	100	19	—	36.8
Slovenia	17.0	20	—	—	—	17.0
South Africa	28.0	—	40	—	41.0	39.8
Spain	25.0	—	100	—	23.0	42.3
Sweden	22.0	—	100	—	30.0	45.4
Switzerland	21.1	—	—	—	—	21.1
Turkey	20.0	1	100	—	—	0.0
United Kingdom	20.0	1	100	—	20.0	36.0
United States	38.9	1	100	—	28.3	56.2

Source: Harding and Marten (2018).

**Figure 6: Combined Tax Rates on Capital Gains on Long-held Shares, as of July 1, 2016**



Source: Harding and Marten (2018)

taxes have on one's willingness to engage in entrepreneurial activities and self-employment. In addition, the elimination of capital gains taxes would also remove the deleterious effects that these taxes have on the availability of financing for entrepreneurial endeavors. Indeed, as shown in Figure 5, seven OECD countries already levy no tax on personal capital gains.

Consider the experiences of Hong Kong, New Zealand, and Switzerland, which currently do not impose capital gains taxes. There are slight differences between each of the jurisdictions with respect to the treatment of different types of assets (for instance, some Swiss cantons impose special taxes on capital gains realized on immovable business property), but overall all three of them have deliberately chosen a zero-rated capital gains tax rate as their general policy.

The choice to maintain zero-rated capital gains taxes is motivated in part by the research on the optimal structure of taxes and the marginal efficiency cost research with respect to capital gains taxes relative to other forms of taxation. But the issue of economic and tax competitiveness also looms large as jurisdictions compete to attract business activity and investment (see Stacey, 2014; Kirchner, 2014; Schaltegger and Winistoerfer, 2014; and Edwards and Mitchell, 2008).

In regards to Hong Kong in particular, economist Bill Stacey (2014) has discussed how the jurisdiction's zero capital gains tax rate has been a key part of Hong Kong's efforts to build itself as a financial centre and a location for regional corporate headquarters. The example of Hong Kong's zero capital gains tax rate and its attraction of financial capital is an important one for entrepreneurship, given that the availability of financial capital is often essential for the establishment of entrepreneurial firms.

### ***Lower capital gains tax rates***

As has been discussed, economic research shows that high capital taxes can discourage both the willingness of individuals to engage in entrepreneurial activities and the willingness of others to finance entrepreneurial endeavors. If governments did not want to eliminate capital gains taxes completely, another option to spur entrepreneurship through capital gains



taxes would be to lower capital gains tax rates. However, the way governments would lower capital gains tax rates would depend on the country.

Countries that have capital gains taxes separate from their income taxes—such as the United Kingdom and the United States—could simply lower their capital gains tax rates. The United Kingdom, for example, could lower its 20 percent capital gains tax rate on gains other than those from residential property to 10 percent, which would give the United Kingdom the lowest capital gains tax rate in the OECD out of the countries that levy capital gains taxes.

Countries that do not index capital gains for inflation, like the United States and most others, could choose to do so. Failing to index capital gains for inflation leads to higher effective rates and tax inequities, such as the potential to impose an infinite effective tax rate.

In the United States's federal system, either the federal government or the states could choose to lower their capital gains tax rates. Given that the majority of the top combined marginal capital gains tax rates in US states are the result of the federal capital gains tax rate, the broadest and largest lowering of capital gains tax rates in the United States would come from the federal government. One option for the US federal government would be to extend the capital gains tax rate applicable to individuals in lower income tax brackets to those in higher income tax brackets.

For example, in 2016 in the United States, those in the 10 and 15 percent tax brackets paid no tax on the sale of long term capital gains, while those in the 25, 28, 33, or 35 percent income tax brackets paid a tax rate of 15 percent on the sale of long-term capital gains, and those in the top tax bracket of 39.6 percent paid a capital gains tax rate of 20 percent.<sup>17</sup> The US federal government could tax the capital gains of those in the highest income bracket the same as those in lower income tax brackets, or they could reduce the statutory capital gains tax rates for those in all income tax brackets.

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17 Note that high income earners are subject to additional taxes on their capital gains, making their effective capital gains tax rate higher than 20 percent.

In Australia and Canada, capital gains are treated as taxable income, meaning that capital gains are taxed under personal marginal tax rates. Both countries, however, have a 50 percent inclusion rate, meaning that only 50 percent of a capital gain is taxable. This effectively means that the top marginal tax rate on capital gains in each country is 50 percent of the top marginal personal tax rate.

That capital gains are taxed this way in Australia and Canada leaves two options for the countries to cut their capital gains tax rates. The first option would be for the Australian federal government and the Canadian federal or provincial governments to lower their personal income tax rates. The second option would be for governments in Australia and Canada to lower their capital gains inclusion rates. If Australia's government lowered their inclusion rate from 50 percent to 25 percent, they would have a top marginal capital gains tax rate of 12.3 percent, giving Australia the lowest rate in the OECD when comparing it to OECD countries which levy capital gains taxes (see table 2). Similarly, for Canada if the capital gains inclusion rate was lowered to 25 percent, the top combined average capital gains tax rate would be 13.2 percent. Lowering the inclusion rate to 25 percent would provide a significant boost to each country's competitiveness when it comes to attracting capital investment and likely also help spur entrepreneurship.

### ***Capital gains rollover***

A third policy option would be for governments to introduce rollover mechanisms for capital gains investment. This type of policy reform has already been enacted to some extent in places like the United States, meaning that other countries could draw from international experience in order to help design their policies.

Introducing a rollover mechanism would effectively keep the basic parameters of the capital gains tax regime in place but allow for a deferral of capital gains taxes for individuals on the sale of assets when the proceeds are reinvested within a certain timeframe, perhaps six months. The purpose of such a policy would be to mitigate the lock-in effect and encourage investors to shift capital from less productive investments to new,

**Table 2: Top Marginal Capital Gains Tax Rate with  
a 25 Percent Inclusion Rate, 2016/17**

Jurisdiction	Current Top Marginal Capital Gains Tax Rate	Top Marginal Capital Gains Tax Rate (25% inclusion)
Australia	24.5%	12.3%
Canada*	26.5%	13.2%
British Columbia	23.9%	11.9%
Alberta	24.0%	12.0%
Saskatchewan	24.0%	12.0%
Manitoba	25.2%	12.6%
Ontario	26.8%	13.4%
Quebec	29.4%	14.7%
New Brunswick	26.7%	13.3%
Nova Scotia	27.0%	13.5%
Prince Edward Island	25.7%	12.8%
Newfoundland & Labrador	24.9%	12.5%
Note: Population weighted average		

Sources: Deloitte, 2016; EY, 2016; ATO, 2017; Canada 2017a, 2017b; PwC, 2016; authors calculations

more productive opportunities. In effect, this policy would not eliminate or change the capital gains tax rate but rather defer the tax if the accumulated proceeds are reinvested in eligible assets—like entrepreneurial endeavors—in the name of encouraging capital activity.

A rollover mechanism could be enacted in different ways. One of the more compelling proposals is set out by Mintz and Wilson (2006) and involves the creation of Capital Gains Deferral Accounts (CGDAs), which would allow individuals to roll over investments within the account without having to pay capital gains until assets are fully withdrawn. Their proposal involves differentiated rates that would apply as the assets are withdrawn and a lifetime limit on the amounts to which investors can contribute to their CGDAs.

The specific details of their plan could be flexible, varying by country, and there would be room for governments to impose different rate structures or investment limits than those set out in the proposal. But a key feature of the CGDA model is the ability to track investments and asset sales for the purpose of implementing a rollover mechanism. This model could go a long way towards addressing legitimate concerns about the complexity of introducing a capital gains rollover and the need for significant bureaucratic oversight and enforcement. The CGDA model could produce the upside of mitigating the lock-in effect, and encouraging capital reallocation and entrepreneurial financing with minimal downside of tax complexity and high administration costs.

## **6. Conclusion**

Reforming capital gains taxes is one way in which governments could try to stem likely reductions in entrepreneurship resulting from demographic changes. As has been discussed throughout this chapter, capital gains taxes impose high economic costs and reduce the incentives for entrepreneurial risk-taking and the level of financing available to entrepreneurs.

In order to boost entrepreneurship through capital gains tax reform, this chapter has outlined three policy options for governments. The first option is to eliminate capital gains taxes. Evidence from OECD countries which levy no capital gains taxes suggests that such a move could be beneficial for various aspects of the entrepreneurial process. Eliminating capital gains taxes also removes from the tax code an anti-growth bias against savings and investment. Another option for governments would be to lower their capital gains tax rates, which can be accomplished by lowering the capital gains or inclusion rate directly, or by indexing for inflation. This would help lower the economic costs that capital gains taxes place on entrepreneurship. A final option for governments would be to introduce a rollover mechanism for capital gains. Enacting this policy would allow earners of capital gains to defer the taxes on those gains if they are reinvested, thereby mitigating some of lock-in effects that result from capital gains taxes.

As governments consider policy responses to spur entrepreneurship in the wake of demographic changes, capital gains tax reform offers considerable potential, as the economic evidence is clear that these types of taxes constrain the level of entrepreneurship in an economy. Reforming capital gains taxes would also have only a minimal impact on government revenues. Most countries, thanks to the pressure of international tax competition and the need to remain economically competitive and to mitigate the damage of double taxation, already discount capital gains taxation to some degree or another compared to wage income. Further reductions—or taking the evidence to its logical conclusion and eliminating capital gains taxes altogether—would be a logical next step.

## **Appendix: Capital gains taxes in Australia, Canada, the United Kingdom, and the United States**

The structure of capital gains taxes can vary widely between countries. This appendix provides an overview of capital gains taxes in Australia, Canada, the United Kingdom, and the United States. This section focuses on personal capital gains taxes applicable to residents in each country.

### ***Australia***

In Australia, gains realized from the sale of taxable assets—including real estate, personal property, and shares acquired for personal investment—are treated taxable income, and income taxes are levied by the Commonwealth (federal government). If the asset was held for less than 12 months, the entire gain is taxable. However, if the asset was held for more than 12 months before its disposal, the individual may receive a 50 percent capital gains tax discount, where 50 percent of the capital gain will be disregarded. Assets acquired before September 19, 1985, are generally exempt from the

**Table A1: Australian Top Marginal Capital Gains Tax Rate, 2016/17 (in AU\$)**

	Personal Income Tax		Capital Gains Tax
	Top Marginal Rate	Threshold for Top Marginal Rate	Top Marginal Rate
Federal (Commonwealth)	49%	\$180,000	24.5%

Sources: Deloitte, 2016; EY, 2016; ATO, 2017.

capital gains tax in Australia. As table A1 shows, the top marginal capital gains tax rate in Australia for 2016/17 was 23.5 percent.<sup>18</sup>

### **Canada**

Capital gains for residents in Canada are treated as taxable income at the applicable combined federal and provincial marginal tax rate. Capital gains taxes are levied on real estate, personal property, and shares for personal investment, although the sale of a principal residence is exempted from the capital gains tax. Similar to other countries, only 50 percent of the year's capital gains are subjected to the tax.

Due to the provincial component of capital gains taxation in Canada, capital gains tax rates and income thresholds in particular vary widely across the country (see table A2). The Canadian province with the highest top combined marginal capital gains tax rate in 2016/17 was Quebec at 29.4 percent. British Columbia had the lowest top marginal tax rate on capital gains at 23.9 percent. For 2016/17, the population-weighted average top marginal tax rate on capital gains in Canada was 26.5 percent.

18 The stated top marginal income tax rate for Australia in 2015/16 is 45 percent. However, effective July 1, 2014, Australians with taxable income above AU\$180,000 are subject an additional two percent Temporary Budget Repair Levy on their income. In addition, resident taxpayers in Australia are subject to a two percent Medicare Levy on their income.

**Table A2: Canadian Top Marginal Capital Gains Tax Rate, 2016/17 (in CA\$)**

	Personal Income Tax		Capital Gains Tax	
	Top Marginal Rate	Threshold for Top Marginal Rate	Top Marginal Rate	Top Marginal Combined Rate
Federal	33.0%	\$200,000	16.5%	—
British Columbia	14.7%	\$106,543	7.4%	23.9%
Alberta	15.0%	\$300,000	7.5%	24.0%
Saskatchewan	15.0%	\$127,430	7.5%	24.0%
Manitoba	17.4%	\$67,000	8.7%	25.2%
Ontario	20.5%	\$220,000	10.3%	26.8%
Quebec	25.8%	\$103,150	12.9%	29.4%
New Brunswick	20.3%	\$150,000	10.2%	26.7%
Nova Scotia	21.0%	\$150,000	10.5%	27.0%
Prince Edward Island	18.4%	\$98,314	9.2%	25.7%
Newfoundland & Labrador	16.8%	\$175,700	8.4%	24.9%

Note: Includes surtax rates for Ontario and PEI.

Sources: Canada 2017a, 2017b; Deloitte, 2016; EY, 2016; PwC, 2016.

Manitoba had the lowest threshold at which the top marginal tax rate for capital gains applied (\$67,000), meaning that income over that amount would be taxed at the highest marginal rate. Alberta had the highest income threshold for the top marginal rate at \$300,000.

### **United Kingdom**

In the United Kingdom, capital gains are taxed under a schedule different from income. As of April 6, 2016, if taxable income is within the basic rate tax bracket,<sup>19</sup> an individual is subject to a capital gains tax of either 10 or 18

<sup>19</sup> The United Kingdom has three income tax brackets in 2016/17. The first is known as the basic rate, which is on the first £32,000 of income. Income in this bracket is taxed at a rate of 20 percent. The next income tax bracket, known as the higher rate, applies

**Table A3: United Kingdom Top Capital Gains Tax Rate, 2016/17 (in £)**

	Income Tax Threshold	Top Capital Gains Tax Rate
United Kingdom	£32,000	20%/28%

Note: As of April 6, 2016, an additional capital gains tax rate has been introduced into the UK. Individuals in the income thresholds to which the top capital gains tax rates apply pay 28% on your gains from residential property and 20% on your gains from other chargeable assets.

Source: EY, 2016.

percent depending on the type of asset that is sold. If taxable income is in the higher or additional tax bracket, the capital gains tax is either 20 or 28 percent depending on the asset (see table A3). Any capital gain above the £11,100 individual annual exemption is taxed at its full amount.

### **United States**

Federally, in the United States, short-term capital gains realized on assets held for less than 12 months are subject to ordinary income tax rates. Capital gains realized on assets held over 12 months are taxed at lower preferential rates than income taxes. For example, those with income placing them in the 10 or 15 percent income tax brackets<sup>20</sup> have capital gains tax rates on long term assets of zero percent. Those in the top income tax bracket have their capital gains taxed at a rate of 20 percent. And there is also a separate tax from the Obamacare legislation that effectively increases the capital gains rate tax on high-income investors by another 3.8

to income between £32,001–150,000 and has a tax rate of 40 percent. The final income tax bracket, known as the additional rate band, applies to income over £150,000 and has a rate of 45 percent (UK, 2015).

20 In the United States, the income threshold for each tax bracket differs depending on whether the taxes are filed by an individual, a married couple filing a joint return, a married couple filing separate returns, or a head of household. See EY (2016) for a breakdown of income tax brackets by the status of the tax filer(s).



**Table A4: United States Top Combined  
Capital Gains Tax Rate, 2016/17**

State	Top Combined Marginal Capital Gains Tax Rate
Alabama	27.7%
Alaska	25.0%
Arizona	27.7%
Arkansas	27.1%
California	33.0%
Colorado	27.8%
Connecticut	29.1%
Delaware	29.3%
District of Columbia	30.4%
Florida	25.0%
Georgia	28.6%
Hawaii	29.2%
Idaho	29.4%
Illinois	27.2%
Indiana	27.9%
Iowa	29.7%
Kansas	27.8%
Kentucky	29.9%
Louisiana	27.9%
Maine	29.3%
Maryland	30.2%
Massachusetts	28.1%
Michigan	27.7%
Minnesota	30.9%
Mississippi	28.0%
Missouri	28.6%
Montana	27.9%
Nebraska	29.1%
Nevada	25.0%
New Hampshire	25.0%
New Jersey	30.7%
New Mexico	26.5%
New York	31.6%

*continued next page*

**Table A4 (continued)**

State	Top Combined Marginal Capital Gains Tax Rate
North Carolina	28.5%
North Dakota	26.3%
Ohio	29.4%
Oklahoma	28.2%
Oregon	31.2%
Pennsylvania	28.6%
Rhode Island	28.6%
South Carolina	27.3%
South Dakota	25.0%
Tennessee	25.0%
Texas	25.0%
Utah	28.0%
Vermont	30.4%
Virginia	28.5%
Washington	25.0%
West Virginia	28.9%
Wisconsin	28.2%
Wyoming	25.0%

Source: Potosky, 2016.

percentage points (Internal Revenue Service, 2017). The capital gains tax rate for those in any other income tax brackets is 15 percent in 2016/17.

Most states in the United States also levy capital gains taxes on the gains from the disposal of assets. The top combined marginal capital gains tax rates range from a low of 25 percent in states with no state personal income tax to a high of 33 percent in California (see table A4).<sup>21</sup> The pop-

21 The states with no state personal income tax are Alaska, Florida, Nevada, New Hampshire, South Dakota, Tennessee, Texas, Washington, and Wyoming. Note that the lowest top combined marginal capital gains tax rates are higher than the top federal

ulation-weighted average top combined marginal capital gains tax rate for the United States in 2016 was 28.5 percent.

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# CHAPTER 6

## Financial Markets, Laws, and Entrepreneurship<sup>1</sup>

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### 1. Introduction

Since the global financial crisis of 2008 and 2009, markets for entrepreneurial finance have been in a state of flux in two respects. First, there have been massive innovations in financial technology (“fintech”). Second, there have been evolving regulations that affect fintech and other more traditional areas of entrepreneurial finance. The purpose of this chapter is to provide an overview of theory and evidence to assess what we know about these developments at the intersection of financial markets, laws, and entrepreneurial finance. To do so, we evaluate prior research trends from 2000 to 2017, highlight the state of knowledge of key drivers in promoting entrepreneurial finance markets, and offer policy recommendations based on the state of knowledge. Also, we identify gaps in our understanding and offer some suggestions for future research.

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1 We are indebted to the helpful comments and suggestions of Steven Globerman, Christian Keuschnigg, and the conference participants at the 5<sup>th</sup> Crowdfunding Symposium in Berlin, October 6, 2017.

Entrepreneurial finance is a wide and segmented area of scholarly examination (Cumming and Vismara, 2017). The field includes, but is not limited to, donations crowdfunding, rewards crowdfunding, debt crowdfunding (sometimes referred to as “marketplace lending”), equity crowdfunding, government granting agencies, incubators and technology parks, angel investors, venture capital funds, private equity funds, private debt funds, hedge funds, and initial public offerings. The field is segmented insofar as most empirical research on entrepreneurial finance is based on datasets that are derived from the source of capital. For example, those who study venture capital markets typically obtain their data from vendors such as Thomson SDC, Pitchbook, Venture Source, or similar data vendors, which offer information about venture capital finance without offering any information about other sources of finance. In turn, our understanding of public policy towards entrepreneurial finance is typically segmented, without many insights as to how policies pertinent to one form of finance may have spillovers towards other forms of entrepreneurial finance (Cumming, Johan and Zhang, 2018).

The comparative importance of different sources of entrepreneurial finance has been changing over time. For example, worldwide investment from angel investors has steadily grown from approximately \$19 billion in 2009 to \$25 billion in 2015, while global venture capital has increased more sharply from \$20.5 billion in 2009 to \$48 billion in 2015; and crowdfunding has had exponential growth, more than doubling each year in recent years from much less than \$1 billion in 2009 to \$34 billion in 2015 ([www.crowdfunder.com](http://www.crowdfunder.com)). While more recent global crowdfunding data had not been formally assembled at the time this chapter was being prepared, projections have suggested that crowdfunding is now more important in terms of the aggregate worldwide amounts invested than both venture capital and angel investment.

The growth in crowdfunding is one of a number of changes affecting entrepreneurs with the rise of fintech more generally and the evolving regulatory landscape. In this chapter, we discuss the prior theoretical and empirical research on the impact of laws and public policy on both the quantity and quality of different sources of capital. We focus this discussion in

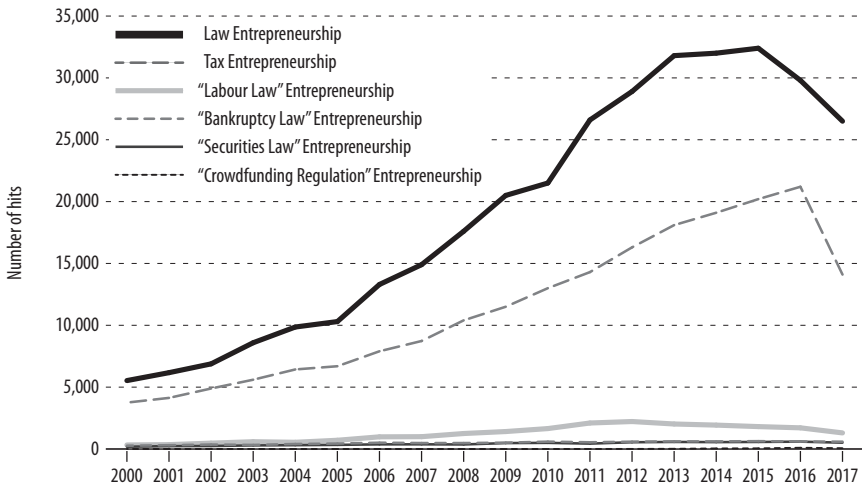
section 3 but, to put the state of knowledge into context, it is instructive to examine the relative focus in the literature and how that focus has evolved over time. To this end, in section 2 we provide a historical analysis of Google Scholar trends in research documents on topics at the intersection of law, entrepreneurship, and finance. After the review of the state of knowledge in section 3, in section 4 we summarize the main policy lessons for the efficient provision of entrepreneurial finance and promotion of entrepreneurship and startup growth. A conclusion giving a summary is provided in section 5.

## 2. Research trends on law, finance, and entrepreneurship

This section provides evidence from Google Scholar to show the *quantity* of research in different areas at the intersection of law, finance, and entrepreneurship from 2000 to 2017. What academic researchers focus on is a strong indicator of changes in policy and market conditions over time, albeit with some gaps that need filling. Below in section 3, we focus on the most influential contributions—those of high *quality*—that provide theory about, and evidence on, how law and policy can improve access to entrepreneurial finance and spur entrepreneurial activity. Section 4 highlights key policy lessons and needs for future research, taking into account the trends discussed in sections 2 and 3.

Figure 1 shows with evidence from Google Scholar that research at the intersection of law and entrepreneurship was typically focused on the role of taxation over the years from 2000 to 2017. In fact, the growth in the interest in tax and entrepreneurship was substantially more pronounced from 2000 to 2017 than any other topic area, and explains most of the growth in topics pertaining to law and entrepreneurship. The second most referenced topic is labor law and entrepreneurship although, in any given year from 2000 to 2017, there tends to be over 10 times the number of research papers that deal with tax and entrepreneurship compared to those that deal with labor law and entrepreneurship. Furthermore, labor law and entrepreneurship is examined in two to three times the number of research works compared to bankruptcy law and entrepreneurship, and securities

**Figure 1: Google Scholar Hits to Documents on Topics Pertinent to Law and Entrepreneurship, 2000–2017**

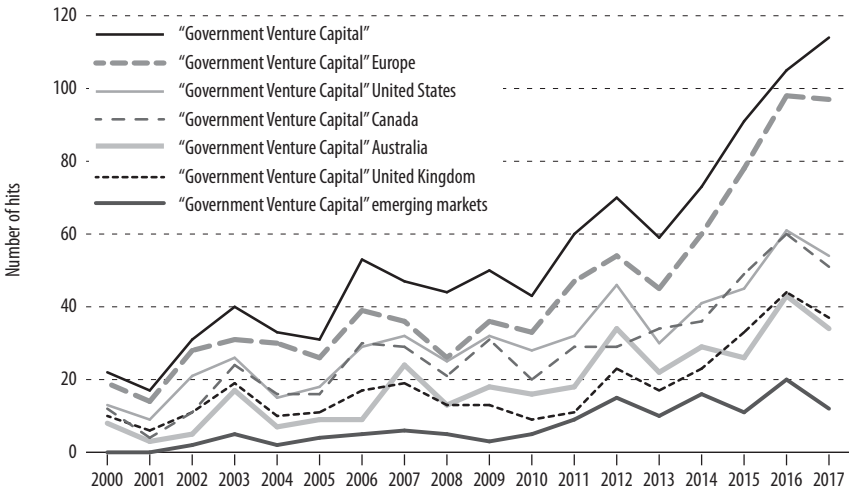


Note: This figure presents the number of Google Scholar hits to documents that have select keywords that include entrepreneurship and different types of laws and regulations for each year from 2000 to 2017.

law and entrepreneurship. Finally, there has been close to no work at all, ever, on crowdfunding regulation and entrepreneurship.

Figure 2 shows that an even smaller number of papers per year deal with government venture capital funds, and only in 2016 and 2017 were there more than 100 papers per year on that topic. Most of this work references Europe. There are roughly an equal number of papers each year that deal with government venture capital in Canada and the United States, which is surprising given the much larger size of the market in the United States. Perhaps the finding is attributable to the large presence of government venture capital in Canada (discussed further below in section 4). After Canada and the United States, there are roughly an equal number of papers per year dealing with the United Kingdom and Australia. Finally, there are notably fewer (less than 20 papers per year) dealing with government venture capital in emerging markets.

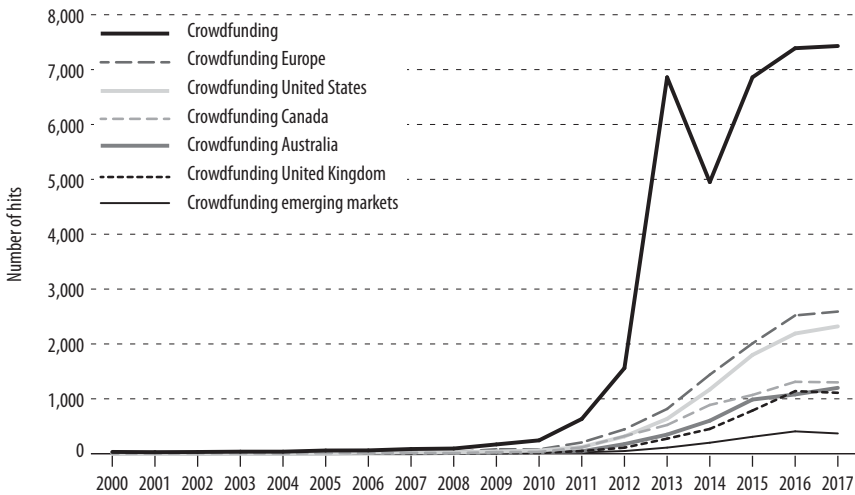
**Figure 2: Google Scholar Hits to Documents on Topics Pertinent to Government Venture Capital, 2000–2017**



Note: This figure presents the number of Google Scholar hits to documents that have the keywords "government venture capital" alongside various regional keywords for each year from 2000 to 2017.

Figure 3 presents Google Scholar data on crowdfunding. While the global crowdfunding market itself has roughly doubled every year from 2008 to 2016 ([www.crowdfunder.com](http://www.crowdfunder.com)), the growth in research on crowdfunding has grown at an even more rapid pace over the years from 2008 to 2013. Growth in research into crowdfunding was exponential to 2013, with fewer than 100 papers on the topic in 2008 and close to 7,000 in 2013. Since 2013, crowdfunding research has drastically tapered off at approximately 7,500 papers per year. Crowdfunding offers empirical researchers an interesting setting to test many economic theories about signaling, investment decisions, marketing, communication, equality, regulation, and regulatory changes, among other topics, as discussed below in section 4. Furthermore, crowdfunding, unlike other areas of entrepreneurship and entrepreneurial finance, offers plenty of datasets that facilitate doing empirical work on large samples. Figure 3 shows that crowdfunding work is more commonly done in reference to Europe, likely as a result of their longer established

**Figure 3: Google Scholar Hits to Documents on Topics Pertinent to Crowdfunding, 2000–2017**



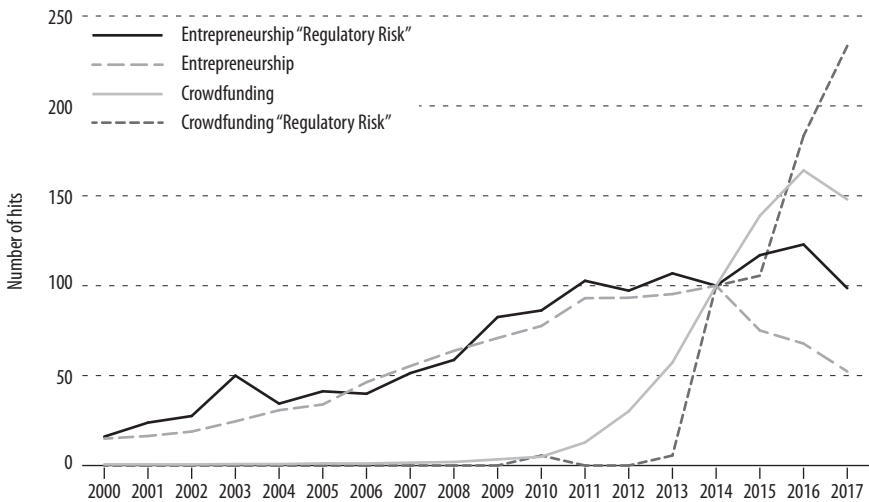
Note: This figure presents the number of Google Scholar hits to documents that have the keyword “crowdfunding” alongside various regional keywords for each year from 2000 to 2017.

crowdfunding centers, including equity crowdfunding and other forms of crowdfunding. After Europe, research is more often done on crowdfunding in the United States, then Canada, Australia, the United Kingdom, and emerging markets.

Figures 4 to 8 present trends in research on topics pertinent to entrepreneurship and regulatory risk. The focus on “regulatory risk” is distinct from “regulation”, such as that presented in figure 1, in order to capture work that recognizes there are risks to entrepreneurship that arise from uncertainty about changing regulations. Figure 4 shows that work on regulatory risk and entrepreneurship is growing at a faster rate than research on entrepreneurship that does not deal with regulatory risk, although the volume of work on regulatory risk and entrepreneurship is still comparatively small. As indicated in the note to figure 4, in 2014 (base year set to 100 for the index), there were 96,900 papers touching on all aspects entrepreneurship, and only 218 papers dealing with entrepreneurship and regulatory risk. Figure 4 further shows that work on regulatory risk and crowdfunding is growing



**Figure 4: Google Scholar Hits to Documents on Topics Pertinent to Entrepreneurship, Crowdfunding, and Regulatory Risk, 2000–2017**



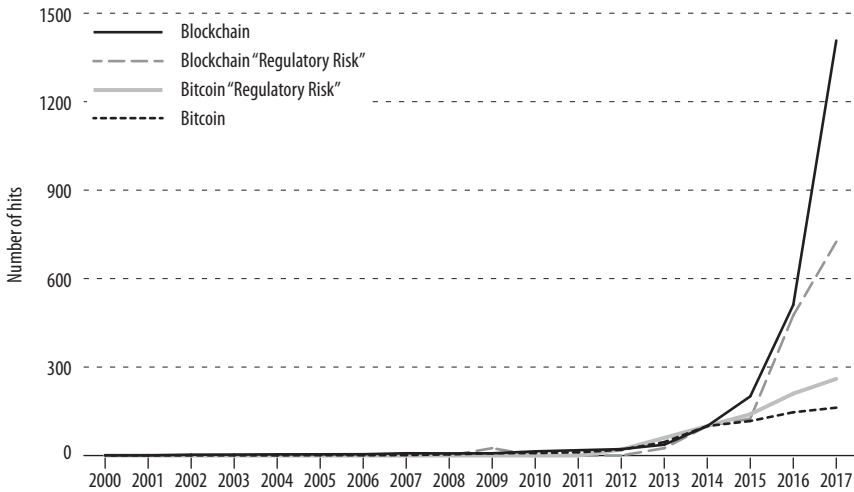
Note: This figure presents the number of Google Scholar hits to documents that have select keywords that are pertinent to entrepreneurship, crowdfunding, and regulatory risk from each year from 2000 to 2017. Hits are benchmarked to an index value of 100 in the year 2014. The actual numbers of hits in 2014 are: 96,900 for entrepreneurship; 218 for entrepreneurship "regulatory risk"; 4,940 for crowdfunding; and 18 for crowdfunding "regulatory risk".

at a much more rapid rate than work on crowdfunding in general, or on work on entrepreneurship, or work on entrepreneurship and regulatory risk.

Figure 5 presents Google Scholar statistics for work on Bitcoin, blockchain, and regulatory risk. Somewhat surprisingly, work on Bitcoin has been substantially more common than work on blockchain: in 2014, there were 3,870 papers referencing Bitcoin and only 648 referencing blockchain; however, in 2017, there were 6,280 papers referencing Bitcoin and 9,120 referencing blockchain. The emphasis on Bitcoin is surprising because Bitcoin is an application of blockchain, which is the important underlying platform technology. The comparatively frequent focus on Bitcoin in prior years might be attributable to the fact that blockchain had not been well understood in past years.<sup>2</sup> Research on blockchain and Bitcoin grew at a

<sup>2</sup> Numerous commentators have conveyed this sentiment. For example, see commentary by Campbell Harvey in Harvey, 2015.

**Figure 5: Google Scholar Hits to Documents on Topics Pertinent to Bitcoin, Blockchain, and Regulatory Risk, 2000–2017**



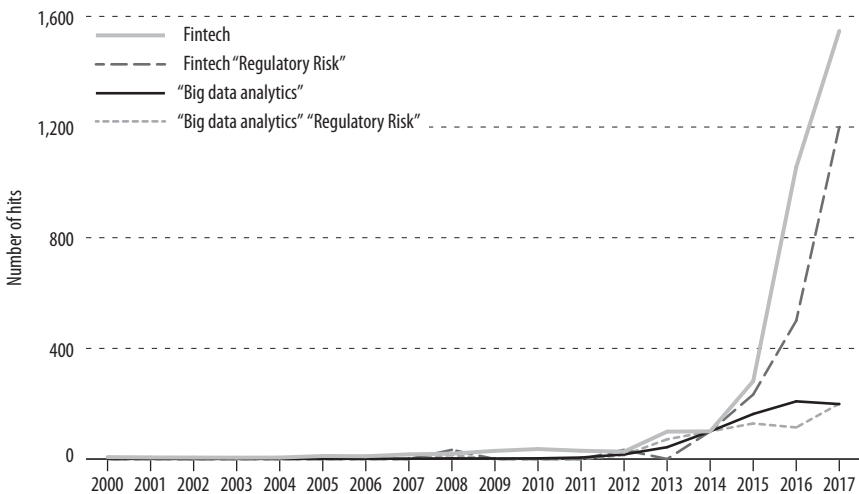
Note: This figure presents the number of Google Scholar hits to documents that have select keywords that are pertinent to Bitcoin, blockchain and regulatory risk from each year from 2000 to 2017. Hits are benchmarked to an index value of 100 in the year 2014. The actual numbers of hits in 2014 are: 3,870 for Bitcoin; 10 for entrepreneurship "regulatory risk"; 648 for blockchain; and 4 for blockchain "regulatory risk".

comparable rate until 2014 but, from 2015 to 2017, work on blockchain has grown tremendously compared to work on Bitcoin.

Figure 5 also shows that work on regulatory risk associated with Bitcoin has grown at a faster rate than work on Bitcoin generally, while work on regulatory risk and blockchain has grown at a slower rate than work on blockchain generally. Below in section 4, we discuss the volatility of Bitcoin and cryptocurrencies more generally, including bans of Bitcoin and a growing concern associated with fraud and cryptocurrencies. It is not surprising that researchers are taking a pronounced interest in regulatory risk associated with Bitcoin.

Figure 6 presents information on the volume of research on topics pertaining to fintech, big-data analytics, and regulatory risk. There has been substantially more work in reference to big-data analytics than fintech: for

**Figure 6: Google Scholar Hits to Documents on Topics Pertinent to Fintech, Big Data Analytics and Regulatory Risk, 2000–2017**

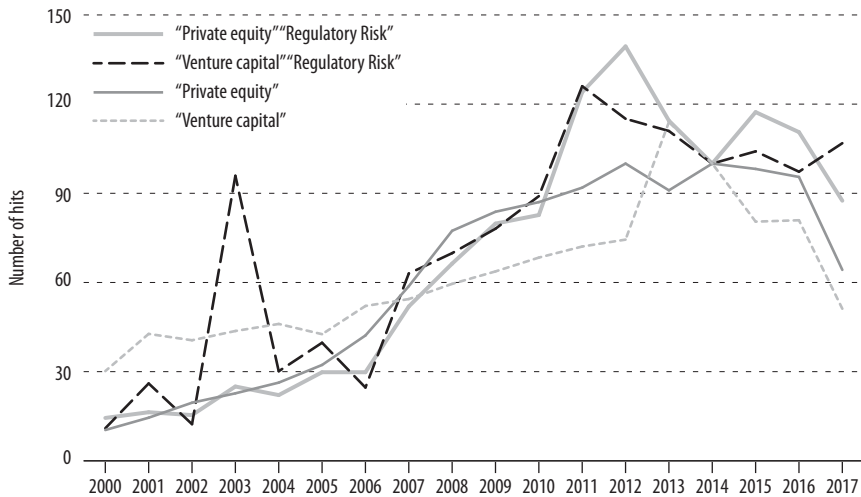


Note: This figure presents the number of Google Scholar hits to documents that have select keywords that are pertinent to fintech, big data analytics and regulatory risk from each year from 2000 to 2017. Hits are benchmarked to an index value of 100 in the year 2014. The actual numbers of hits in 2014 are: 254 for fintech; 3 for fintech "regulatory risk"; 6,090 for "big data analytics"; and 7 for "big data analytics" "regulatory risk".

example, there were 6,090 papers referencing big-data analytics in 2014 and only 254 on fintech. However, since 2014, fintech work has grown much faster, and in 2017, there were 12,100 papers on big-data analytics and 3,930 papers on fintech. Regulatory risk on both topics has been scant with only 50 papers in 2017 on both topics (36 on fintech regulatory risk and 14 on big-data regulatory risk) and fewer in prior years, but there has been more growth in work on fintech regulatory risk than big-data regulatory risk.

Figure 7 presents Google Scholar data on venture capital, private equity, and regulatory risk. Venture capital and private equity are very popular research topics, with 21,500 documents on venture capital and 11,100 documents on private equity found by Google Scholar in 2014. Regulatory risk associated with these topics has received scant attention, peaking in

**Figure 7: Google Scholar Hits to Documents on Topics Pertinent to Venture Capital, Private Equity, and Regulatory Risk, 2000–2017**



Note: This figure presents the number of Google Scholar hits to documents that have select keywords that are pertinent to venture capital, private equity, and regulatory risk from each year from 2000 to 2017. Hits are benchmarked to an index value of 100 in the year 2014. The actual numbers of hits in 2014 are: 21,500 for "venture capital"; 73 for "venture capital" "regulatory risk"; 11,100 for "private equity"; and 104 for "private equity" "regulatory risk".

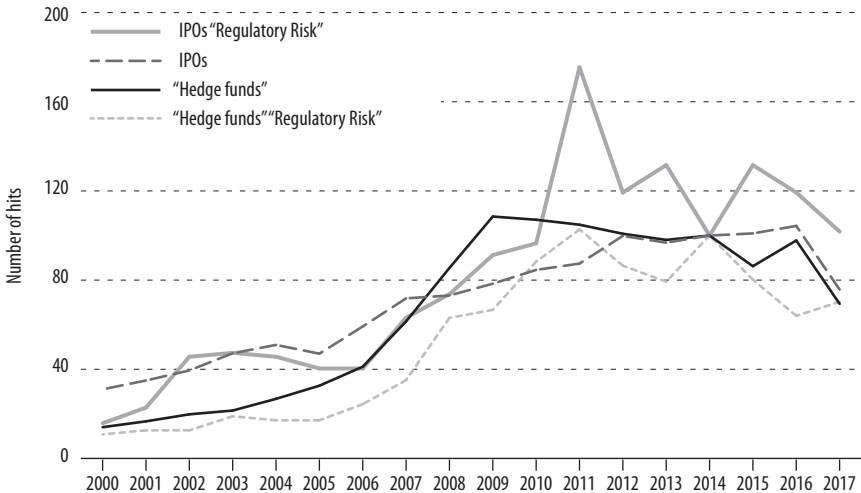
popularity in 2010 and 2011, most likely as a result of regulatory concerns for venture capital and private equity funds that followed the financial crisis.<sup>3</sup>

Figure 8 shows similar trends for hedge funds and IPOs. Research on regulatory risk in IPOs and hedge funds peaked in 2011.<sup>4</sup> Again, work on regulatory risk has been relatively scant for hedge funds and IPOs compared

3 Cumming and Johan, 2013a. While venture capital and private equity funds did not cause the financial crisis, the crisis gave rise to the opportunity to impose regulations on these funds. The *Economist* magazine (2009) explained this attention to venture capital and private equity around the crisis in a colorful way as follows: when you are in a bar fight, you don't hit the person that started the fight but instead you hit the person that you hate the most.

4 This interest in regulatory risk in hedge funds and IPOs is consistent with the impact of the financial crisis. See Cumming and Johan (2013a) for IPOs; Cumming and Johan (2013b) for hedge funds.

**Figure 8: Google Scholar Hits to Documents on Topics Pertinent to IPOs, Hedge Funds, and Regulatory Risk, 2000–2017**



Note: This figure presents the number of Google Scholar hits to documents that have select keywords that are pertinent to IPOs, hedge funds, and regulatory risk from each year from 2000 to 2017. Hits are benchmarked to an index value of 100 in the year 2014. The actual numbers of hits in 2014 are: 5,320 for IPOs; 57 for IPOs "regulatory risk"; 7,630 for "hedge funds"; and 111 for "hedge funds" "regulatory risk".

to general research on these topic areas, as indicated in the note to figure 8. Below, we show that the focus of research is perhaps a bit misplaced, as there are important implications of regulatory risk in each of these topic areas insofar as they have enormous effects on entrepreneurship and entrepreneurial finance.

### 3. Public policy and entrepreneurial finance

Section 3 examines substantive lessons from the most influential research at the intersection of law, finance, and entrepreneurship. At the outset, we note that the overriding goal of public policy towards entrepreneurial finance is to correct market failures. Lerner (2009), Cumming and Johan (2013), and

others explain that there some potential market failures, or justifications, for public policy to support entrepreneurial finance. Below are some examples.<sup>5</sup>

- ♦ Small, private, innovative firms contribute disproportionately to research and development (although there is debate on this topic and the evidence varies over time and across studies).
- ♦ The social rate of return to innovation (the benefit to society) is greater than the private rate of return, which means that an optimal degree of innovation requires government support.
- ♦ Financing innovation is too risky for small, private firms (only 0.8% of companies obtain VC backing in the United States, and the percentage is smaller in other countries, and external finance for innovative companies is tough to obtain generally as a result of agency problems), and/or their employees do not always have appropriate incentives to take on the risk (companies not backed by venture capital typically do not use stock-option plans as incentives for their employees).
- ♦ It is difficult for private investors to develop the requisite skill set to be good venture capitalists. Government programs provide a way to train individuals to become good venture capitalists.
- ♦ Government awards to entrepreneurs certify their quality and, in turn, enable them to overcome information asymmetries and obtain funding from other investors in the future (although, as discussed below, government failure is a concern as these programs often do not work).

As we discuss herein, some government programs in response to these possible market failures have been successful and other no so. In view of

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<sup>5</sup> We do not necessarily agree with each item on this list, as explained below, but mention them here as these arguments have been put forth in the literature.

the popularity of research into tax in conjunction with entrepreneurship documented above (figure 1), we begin this section by discussing that topic. Then, we examine work on (3.2) entrepreneurship and bankruptcy law, (3.3) labor regulation, (3.4) securities laws, and (3.5) various other regulations. Subsection 3.6 provides an overview of direct government expenditure programs. Based on the analysis in section 3, section 4 then summarizes the most important lessons from prior work through offering policy recommendations to promote entrepreneurship and small business start-ups and growth.

### **3.1. Tax and entrepreneurship**

Taxation is clearly an important policy tool that can enhance or inhibit entrepreneurship. The two primary forms of taxation are income taxation and capital gains taxation.<sup>6</sup> These forms of taxation can influence the level and quality of entrepreneurship, as well as the level and quality of entrepreneurial finance (Kanniainen and Keuschnigg, 2004; Keuschnigg, 2004a, b; Keuschnigg and Nielsen, 2001, 2003a, b, 2004a, b, c). In general, lower levels of taxation promote entrepreneurial activity as entrepreneurs keep a greater share of their efforts. However, taxation cannot be so low as to cause distortions to overall economic infrastructure and public support, which in turn hurts economic activity and the environment for entrepreneurship. Higher levels of income taxation and lower levels of capital gains taxation encourage more employees to engage in entrepreneurship, as the relative costs of taxation are higher by remaining an employee.

There are number of important insights about the effect of taxes upon entrepreneurial finance, and venture capital in particular, in Poterba (1989a, b), Kanniainen and Keuschnigg (2004), Keuschnigg (2004a, b), Keuschnigg and Nielsen (2001, 2003a, b, c) and Armour and Cumming (2006). Low capital gains taxes are critical to a large and vibrant venture capital market. Venture capitalists do not invest for the purpose of collecting dividends on equity or interest on debt, but instead seek capital gains, normally by way of an IPO or acquisition sale after investing in a start-up for 3 to 5 years

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6 The reader should also see the chapters by Giertz and by Mitchell et al. in this volume that discuss the effects of income and capital gains taxation on entrepreneurship.

(Cumming and Johan, 2013a). Keuschnigg and Nielsen (2004a, b, c) show that lowering capital gains taxes is in fact more important than other policy levers for encouraging venture capital activity. Empirical evidence from around the world in Jeng and Wells (2000) and Armour and Cumming (2006) is consistent with this finding. The intuition is straightforward. Tax relief associated with capital gains strengthens incentives to generate economic returns. Capital gains tax relief is equally important to private equity as it is to venture capital, as both types of funds invest for the sole purpose of achieving capital gains. Over the past few years, as deal sizes get larger for start-ups, and investee firms quickly grow to “unicorns” with over \$1 billion in valuation, larger private-equity funds have played an increasingly important role in the financing of start-ups.

Government subsidies not related to performance, by contrast, do encourage entrepreneurial entry but do not encourage entrepreneurial performance (Keuschnigg and Nielsen, 2001, 2003a, b, 2004a, b, c); instead, subsidies encourage rent-seeking behavior and do not mitigate the problems of moral hazard and, in fact, reduce incentives to perform. It is possible that some firms seek repeated non-performance-related subsidies, which might mitigate moral hazard; however, the allocation of such subsidies tends to be across firms and not to the same firm over time because governmental organizations are not typically in the business of “staged” subsidies to the same firm and instead seek to spread subsidies across different firms in order to spread benefits widely to voting stakeholders. Capital gains tax relief is therefore associated with superior entrepreneurial performance, while subsidies are associated with lower performing entrepreneurial and venture capital markets.<sup>7</sup>

#### Canadian Labour Sponsored Venture Capital Corporations (LSVCCs)

Canada provides the perfect lesson on failed tax policy towards entrepreneurship and entrepreneurial finance. Cumming and MacIntosh (2006, 2007) and Cumming, Johan, and MacIntosh (2017) provide theory and evidence on the impact of Canadian Labour Sponsored Venture Capital

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<sup>7</sup> Lee and Gordon (2005) also note the importance of loss offset or loss carry-forward policies, which encourage entrepreneurial activity and risk taking.



Corporations (LSVCCs). LSVCCs are retail venture capital funds; that is, they source capital from retail (individual) investors. Retail investors have incentives to invest as a result of massive tax incentives: the after-tax cost of a \$5,000 investment is slightly over \$1,100, thereby giving investors a 323% rate of return on investment in the year of investment, as long as the LSVCC does not lose any of the invested capital. Capital is locked up with the LSVCC for a period of 5 years (at times it has been as high as 8 years). The tax incentives have worked insofar as retail investors have contributed billions to LSVCCs over the years, starting in Quebec in the early 1980s, and other provinces (except Alberta and Newfoundland & Labrador) in the late 1980s and early 1990s. LSVCCs have been the dominant form of venture capital in most Canadian provinces since the mid-1990s. Cumming and MacIntosh (2006, 2007) and Cumming, MacIntosh, and Godin (2007) explain the problems with LSVCCs as follows:

- LSVCCs compete with private venture capital funds for deal flow.
- LSVCCs are not accountable to institutional investors demanding a significant rate of return.
- Capital flows to LSVCCs regardless of performance as a result of the tax incentives.

LSVCCs have so much capital that their portfolio size per manager (the number of investee firms per manager) is substantially higher than that of private venture capitalists (Cumming and Johan, 2013a). In turn, LSVCCs do not add as much value to their investee firms. LSVCC managers have limited time to invest money contributed by retail investors (roughly 18 months to the end of the next calendar year) or risk paying a fine or losing their license to operate a LSVCC. LSVCCs also do not have the governance structures that private venture capitalists do in the form of limited partnership covenants (Cumming and Johan, 2013a). Overall, therefore, the structure, governance, due diligence, and value-added of LSVCCs are much worse than those of private venture capitalists.

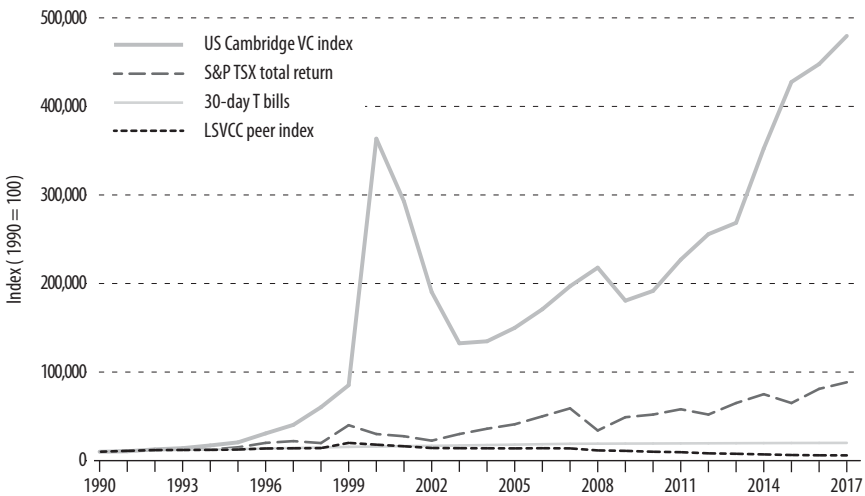
The performance implications of LSVCC's poor structure and governance are shown in figure 9. LSVCCs are collectively negative value-added, such that investors that put \$1 into LSVCCs would have substantially less than \$1 in 2017 (actually, they would have about \$0.50). LSVCCs have performed worse than 30-day T-bills, except during the Internet bubble in the late 1990s (figure 9). The absence of economic returns to LSVCCs highlights their direct cost. Some commentators apologize or excuse their poor performance by claiming that LSVCCs create jobs. However, the absence of the economic rate of return clearly shows that any job created is not sustainable in the long run in the absence of the LSVCC tax subsidy.

Cumming and MacIntosh (2006, 2007a, b) and Cumming, Johan, and MacIntosh (2017) show an additional cost to LSVCCs: they crowd out private investment. Simply put, more LSVCCs means fewer private venture capitalists, since LSVCCs compete with private venture capitalists for deal flow and lower returns in the market. And, if institutional investors are risk averse and cannot predict growth in LSVCCs from one year to the next, then they will overestimate the presence of LSVCCs in the market (because of their risk aversion), reduce their commitments to private venture capitalists by more than 100%, and thereby contribute to a reduction in total venture capital. If LSVCCs were a superior organizational design with fewer organization and governance problems and lower agency costs, then such crowding out might not be problematic. However, the evidence in figure 9 and elsewhere from other research shows that LSVCCs are not a superior organizational form, and hence crowding out is particularly problematic.

Ontario announced the phase-out of the LSVCC tax credit in 2005; this became effective in 2011. The removal was met with significant resistance, and LSVCC shareholders have been further damaged as a result (Johan, Schweizer, and Zhan, 2014; Jacob, Johan, Schweizer, and Zhan, 2016). Nevertheless, the removal made way for the introduction of other and better designed programs in Ontario, as discussed further in subsection 2.6 below.

The federal government in Canada tried to phase out the LSVCC tax credit in 2011. However, the federal Liberal election campaign promises in 2016 included a promise to reinstate the federal LSVCC tax credit, an election promise that appears to be consistent with the strong ties between

**Figure 9: Performance of \$10,000 in Venture Capital Sponsored by the Canadian Government, 1990 to 2017**



Sources: Cumming, Johan, and Zhang, 2018; *Globe and Mail*

<[http://globefunddb.theglobeandmail.com/gishome/plsql/gis.fund\\_filter?pi\\_type=B](http://globefunddb.theglobeandmail.com/gishome/plsql/gis.fund_filter?pi_type=B)>; Cambridge Associates LLC <<https://www.cambridgeassociates.com/benchmarks/>>.

Note: "LSVCC" refers to venture capital sponsored by the Canadian government under the Labour Sponsored Venture Capital Tax Credit. "TSX" refers to the Canadian Toronto Stock Exchange Index. "VC" refers to venture capital.

Quebec politicians and LSVCCs in the political arena. The Solidarity Fund is the largest and oldest LSVCC in Canada, manages more than \$10 billion in capital, and is a very influential entity in Quebec economics and politics. The Liberal reinstatement of the LSVCC tax credit has taken effect, an event that highlights the difficulty of removing legislation that inflicts capital losses on particular segments of society.

LSVCCs are not unique. There are tax subsidy programs similar to LSVCCs in other countries, such as the Venture Capital Trust program in the United Kingdom. These programs have similar organizational design flaws and consequences (Cumming and Johan, 2013a).

### Small business tax programs

Apart from tax-subsidized venture capital programs, similar lessons are gleaned from the structure of taxes designed to encourage or give relief to small firms. Small business tax programs such as the Canadian program, which allows a lower corporate tax rate when revenues are less than \$500,000, do not encourage firms to grow beyond \$500,000. This rate will be lowered by the Trudeau liberal government, pursuant to their 2016 election promises, from 10.5% to 9% (CBC News, 2017), while the regular corporate tax rate is typically around 26% (Trading Economics, 2018). These policies are widely seen to encourage small firms to stay small and do little to promote growth and an increase in capacity (Chen and Mintz, 2011).

Just as tax relief for small firms causes problems, taxes directed towards mature firms, such as dividend taxes, also cause problems for smaller firms. Keuschnigg and Nielsen nicely explain that the returns to high-growth venture capital investment need to account for mature firms as follows:

Another lesson is that looking at taxes directly levied on young firms cuts too short in fully defining the tax environment for start-up investment. The average tax burden on mature firms is capitalized in firm value and thereby reduces venture returns, which drives the discrete investment choice by startup firms. This is most clearly demonstrated by the dividend tax. According to the “new view”, the dividend tax is fully neutral with respect to capital accumulation of mature firms. However, it clearly reduces firm value because of tax capitalization and thereby discourages start-up entrepreneurship as part of the economy-wide investment. By reducing venture returns, it also discourages effort and VC support and thereby contributes to a higher rate of business failure. To put it more provocatively, the dividend tax harms mostly those firms which actually don’t pay the tax. (Keuschnigg and Nielsen, 2004a: 386–387)

In short, tax policy has the potential to do tremendous good for entrepreneurship. However, tax policy can also cause serious harm to entrepreneurship and entrepreneurial finance. Tax policies need to be structured in

ways that strengthen incentives. Otherwise, if tax policies are distortionary and provide relief in the absence of strengthening incentives, they can cause more problems and even undermine their legislative intent. Canada's experience is representative.

### **3.2. Bankruptcy law, entrepreneurship, and entrepreneurial finance**

It is well accepted that personal bankruptcy law encourages entrepreneurship (Fan and White, 2003; Armour and Cumming, 2008; Jia, 2015) and entrepreneurial finance (Armour and Cumming, 2006). Personal bankruptcy law matters more than corporate bankruptcy law (Cumming, 2012) because lenders and other sources of capital can write contracts with entrepreneurs personally, not through the corporate entity, which ordinarily requires them to make personal guarantees.

The impact of bankruptcy laws is large. For example, in many European countries in the late 1990s and early 2000s, discharge from bankruptcy was introduced for the first time, and/or the number of years to obtain a discharge was lowered. As a consequence, entrepreneurial activity increased dramatically (Armour and Cumming, 2006). Similar effects have been empirically demonstrated for bankruptcy-friendly states in the United States (Fan and White, 2003). Cumming and Li (2013), however, have noted that the impact of bankruptcy on entrepreneurship might change over time, and the effect appears to be different if one includes extreme changes in economic conditions, such as those during the financial crisis in the late 2000s. Bankruptcy-friendly regimes did not encourage entrepreneurship during the financial crisis (Cumming and Li, 2013). Further research with evidence from longer time series and more detailed data on the types of entrepreneurial activity that are created under more entrepreneur-friendly bankruptcy regimes is warranted.

### **3.3. Labor regulation and entrepreneurial finance**

Prior evidence is consistent with the view that stringent labor regulations hurt entrepreneurship and entrepreneurial finance.<sup>8</sup> Sobel (2008) pro-

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8 Wayne Crews' chapter in this volume talks more generally about the relationship between regulations and entrepreneurship.

vides the first evidence using the indexes published in the Fraser Institute's *Economic Freedom of the World* (EFW) for a cross-section of US states. Cumming and Li (2013) provide similar evidence from the EFW indexes, and note that it is quite important to make use of the time series of this data, and not merely the cross section. That is, if you use only a cross section of data, then the results will vary depending on the year that you pick. With the cross section and time series of data, labor market restrictions matter more than any other element in the EFW indexes for creating new business starts. Labor market frictions constrain entrepreneurs' ability to make human resource decisions, thereby discouraging start-up formation and growth. Moreover, they can hamper the quality of entrepreneurship as proxied by wage growth (Cole, Cumming, and Li, 2016).

Labor market restrictions vary internationally, and particularly across Europe. These restrictions significantly lower the quality and quantity of venture capital in Europe. Labor frictions are more important than any other type of international differences in regulation in the study by Bozkaya and Kerr (2014) on venture capital over time and across a number of countries in Europe.

### **3.4. Securities law and entrepreneurial finance**

Securities laws are extremely important for promoting entrepreneurship in a variety of ways. First, the quality of listing standards (Johan, 2010) and rules regarding prospectus disclosure (La Porta, Lopez-de-Silanes, and Shleifer, 2006) and enforcement (Cumming and Johan, 2008; Jackson and Roe, 2009) influence the number of IPOs each year that an exchange will attract, and the underpricing (first-day return) and long-term performance of the IPOs. Canadian listing standards on the TSX-V, for example, are so low that underpricing of IPOs is over 40% on average, and long-run performance is much weaker on average than on other exchanges because firms appear simply under-prepared to be publicly listed (Johan, 2010). Johan (2010) explains that lower listing standards—being able to list your company on an exchange with minimal size, operating profits, operating history, share prices, and trading activity—reduce the certification of quality of the exchange and companies on the exchange, thereby leading investors

to demand more pronounced underpricing to encourage investment. With massive underpricing, firms raise less capital than they otherwise would have raised, which is a cost to the issuing firm, and hurts their long-term performance. Furthermore, lower listing standards discourage many investors from participating on the exchange as a result of the exacerbated risks; this, in turn, limits the ability of companies on the exchange to attract long-term investors and continued trading activity and share liquidity, which further hampers long-term performance. IPOs are a critical exit channel for venture capitalists (Cumming and Johan, 2013a) and poorly performing IPO markets therefore cause poor venture capital markets. IPOs are likewise important for entrepreneurs and non-venture capital investors that seek to scale up their businesses and investments.

Second, the quality of the rules that protect creditors, shareholders, minority investors (La Porta, Lopez-de-Silanes, and Shleifer, 1999; La Porta, Lopez-de-Silanes, Shleifer, and Vishny, 1997, 1998, 2002) and trading rules on stock exchanges (Cumming, Johan and Li, 2011) has massive implications for the proper functioning of stock markets. Without proper functioning stock markets with active trading and means to invest and save capital, earlier-stage investments suffer.

Third, the quality of securities laws that enables efficient operation of intermediaries is very important to encourage entrepreneurial finance. For example, rules that encourage reporting from hedge funds to their investors such as through the Delaware Limited Partnership Act promote scale-up investment (Cumming, Dai, and Johan, 2015). By contrast, rules that increase the cost of intermediation such as the Dodd-Frank Act in the United States discourage intermediation and lead to a shift of investment activities to other countries; and give rise to comparatively lower returns to investment for those that did not shift to other countries (Cumming, Dai and Johan, 2018).

Fourth, recent efforts to promote entrepreneurial finance through regulatory changes have failed. For example, in the United States, the JOBS Act of 2014 brought a number of changes to enable more private investment in order to encourage entrepreneurship, including investments of a larger scale with a greater number of shareholders, without having to make public

disclosures. Partly, these regulatory changes were designed to encourage equity crowdfunding in the United States. They have done so but they have also had unintended effects that include venture capital investments on a massive scale with valuations over \$1 billion per investee firm, which is not a bad outcome in itself depending on your point of view and emphasis, but can change the landscape of investment and focus of venture capital funds to larger and fewer investments. Other unintended effects are fewer IPOs and greater underpricing of IPOs, both bad outcomes for entrepreneurship (Chaplinsky, Weiss Hanley, and Moon, 2017).

Unlike the success of US crowdfunding since May 2016, recent efforts to promote entrepreneurial finance through the introduction of equity crowdfunding in Canada have not attracted entrepreneurs raising capital through crowdfunding portals. There are a few reasons for this lack of interest in Canada. First, there are many regulations imposed on portals, which calls into question their economic viability. Second, social media is not permitted in Canada in conjunction with equity crowdfunding, which makes marketing to “the crowd” difficult, impracticable, or impossible. Third, audited financial statements are required to engage in equity crowdfunding, and taken together with the limits on capital raised in any given year, the costs of audited financial statements are too large relative to the benefit from equity crowdfunding capital.

### ***3.5. Other regulations pertinent to entrepreneurship***

A variety of other legal rules have an impact on entrepreneurship and entrepreneurial finance. Here are a few notable examples. First, similar to equity crowdfunding rules, there are rules pertaining to new technologies in fintech. Some, such as the Basel regulations, are faced by large institutions, as well as small. Unfortunately, compliance with many of these rules have associated fixed costs, and hence the costs relative to the asset base of a large established firm are much smaller than the costs relative to the asset base of a small firm. Notably, Cumming and Schwienbacher (2016) find that the growth in fintech venture capital investments is much more pronounced in countries around the world that do not have a major financial center, as



those countries are reputed to have significantly less severe or stringent enforcement of fintech-related regulations.

Second, there have been bans on certain activities related to fintech. These bans create massive regulatory risk. For example, Bitcoin was recently banned in China, which caused massive disruption in trading activity of Bitcoin and reductions in the price of Bitcoin (*Economist*, 2018). These regulatory changes are important to entrepreneurs, not only in China, but also in the rest of the world. Regulatory changes such as this have spillover effects across countries, and the growth in the number of entrepreneurs in the fintech market, and many other markets influenced by fintech, is highly affected by regulatory risk. Such regulatory risk damages financing through cryptocurrencies by making cryptocurrency markets less liquid.

The markets for cryptocurrencies are ever evolving and time will tell how they perform. For example, crowdfunding has enabled a recent spate of Initial Coin Offerings (ICOs) in the United States (Hincks, 2017). The market for ICOs is highly risky and highly unstable, and not confined to geographic or national boundaries. Furthermore, academics (Gandal, Hamrick, Moore, and Obermanm, 2018) and media (Biggs, 2018) are becoming increasingly aware of the pronounced degree to which Bitcoin is easily manipulated, and regulators will, one hopes, find ways to curtail such manipulation. The most important developments in curtailing risk and manipulation in these markets is through electronic computer surveillance linking text-mining software on message boards that are used to pump up offerings with real-time monitoring of trading activities. This type of monitoring through computer surveillance (Cumming and Johan, 2008) and trading regulation (Cumming, Johan and Li, 2011) has been successful in improving trading activity and reducing fraud on stock exchanges (Cumming, Dannhauser, and Johan, 2015) and it has the potential to be invoked to a greater degree in the alternative forums that are used to launch ICOs.

Third, there are varieties of legal rules pertaining to starting up a business that differ around the world. These regulations and the quality of regulations in different countries around the world are best summarized by the World Bank's *Doing Business* project (<http://www.doingbusiness.org>). These rules include, but are not limited to, the number of procedures required

to start a business, the difficulty in enforcing contracts, and other related items.

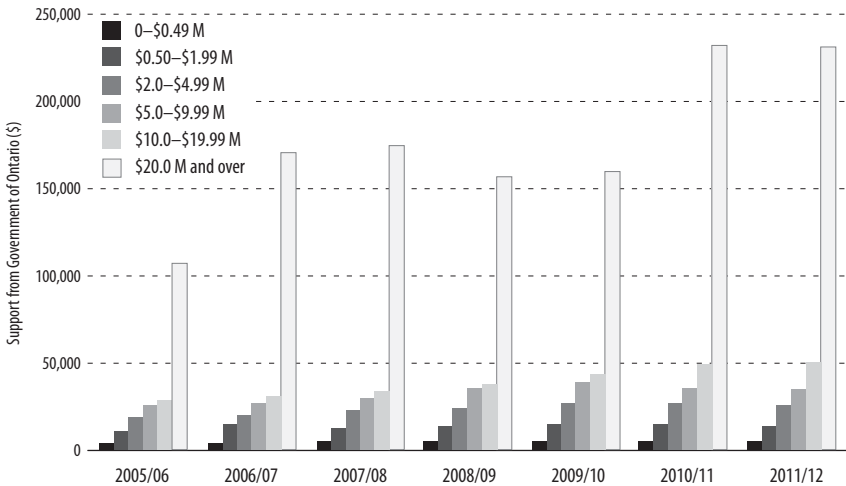
Fourth, there are significant differences in corruption around the world, which can have enormous implications for starting and growing new firms. Taking away the ability to bribe through regulations such as those designed to limit foreign corrupt practices imposes costs on large firms (Zeume, 2017). However, corruption exacerbates opportunism and agency problems by limiting unfettered access to market and distorting the efficient allocation of capital to the entrepreneurial investments offering the best opportunity, thereby reducing access to external capital for the average (non-corrupt) market participant and worsening the quality and quantity of entrepreneurship in a region (Tonoyan, Strohmeyer, Habib, Perlitz, 2010).

### **3.6. Government expenditure programs**

Governments spend an enormous amount of taxpayer funds each year subsidizing businesses through direct expenditure programs. For example, in the province of Ontario, Canada, roughly \$4 billion per year (over the years from 2005 to 2012) was spent on over 80 programs to help businesses. The number of programs tends to increase over time, as politicians create new programs to show change for a political gain, but do not want to take away old programs at a political cost. Unfortunately, the largest political gains come from creating programs that benefit larger organizations with greater numbers of voters. Therefore, in Ontario, businesses are much more likely to receive support and receive more support if they are larger, with more revenues, and if they have been in business longer (Cumming, Daziel, and Wolf, 2014). See figure 10 and figure 11 for the direct evidence from Ontario official records.

Keuschnigg and Nielsen (2001, 2003a, b, 2004a, b, c) remark that there can be benefits associated with subsidy programs as they tend to lower the cost of capital for firms. Subsidy programs include subsidized loans, credit guarantees, favorable depreciation rules, or direct subsidies to R&D and start-up investment spending. These subsidy programs, however, are typically not as efficient as tax programs that create incentives for, and reward, effort (Keuschnigg and Nielsen, 2001, 2003a, b, 2004a, b, c) (for reasons

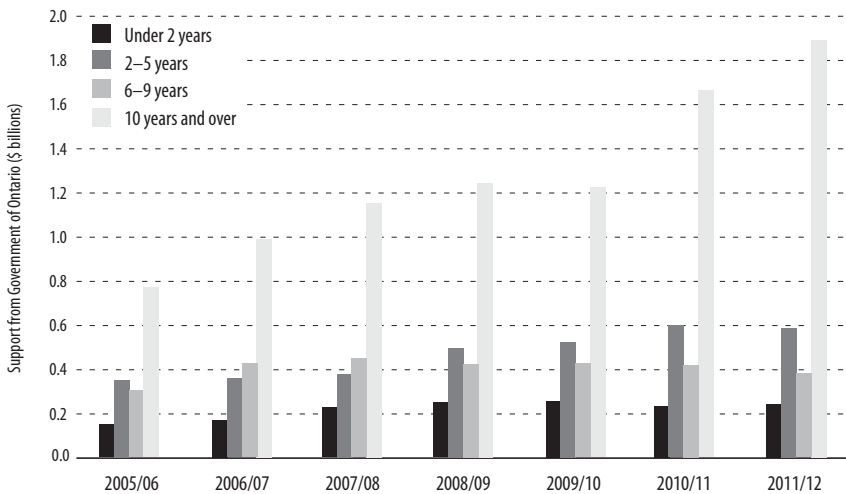
**Figure 10: Total Business Support from Government of Ontario, by Company Revenue, across All Types of Support Programs, 2005/06–2011/12**



Source: Cumming, Daziel, and Wolf, 2014.

Note: This figure presents the average dollar value of support from the Ontario government in real 2012 dollars (horizontal axis) for different firms based on the revenues of the firm.

**Figure 11: Total Business Support from Government of Ontario, by Company Age, across All Types of Support Programs, 2005/06–2011/12**



Source: Cumming, Daziel, and Wolf, 2014.

Note: This figure presents the average dollar value of support from the Ontario government in real 2012 dollars (horizontal axis) for different firms based on the age of the firm.

discussed above in subsection 3.1), though some have been more effective than tax programs, depending on how those programs are structured. For example, the tax policies that subsidize retail venture capital are ineffective at best or more likely downright harmful.

Another way to structure government venture capital is to have the government act as a limited partner in privately managed venture capital funds with payback rights subordinated to private institutional investors. This type of structure has been used in Ontario with the Ontario Venture Capital Fund (OCVF) as part of the program to phase out LSVCCs in Ontario (Cumming, Johan and MacIntosh, 2017), and in Canada through the Venture Capital Action Plan (VCAP). These types of structures have worked well in Australia (Cumming, 2009; Cumming and Johan, 2009) and Israel (Avnimelech and Teubal, 2006). However, Standaert and Manigart (2018) find that venture capital funds backed by the government as a fund-of-funds<sup>9</sup> in Belgium are worse at creating employment than private funds without government involvement.

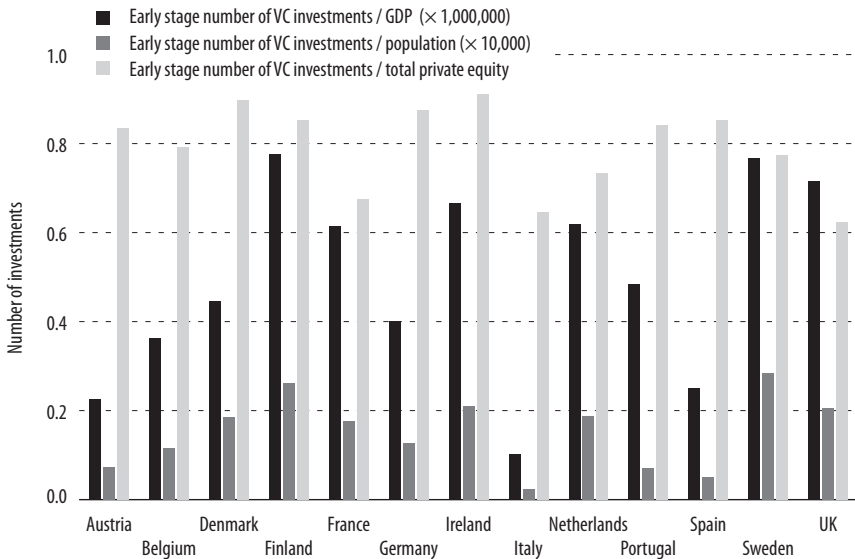
There have been some concerns about how the VCAP allocates public funds to venture capital funds. First, anecdotally, some practitioners have expressed concerns that those funds that received public funding were the ones that artificially inflated valuations on companies in their past portfolios that had not yet been sold. These types of artificially inflated values distort capital in private institutional venture capital fundraising from institutional investors (Cumming and Walz, 2010; Johan and Zhang, 2016). Indeed, government employees may be at a comparative disadvantage in addressing these concerns about the valuation of private companies because they lack expertise and experience in valuing private companies, which is not part of their regular tasks, and which makes valuation risks more pronounced among government disbursements to venture capital funds. Second, it has been noted that the size of these programs, at least in Canada, are trivial compared to what would be required to enable Canada to have levels of investment comparable on per-capita and per-GDP bases to what exists in some US jurisdictions (Cumming, Johan, and MacIntosh, 2010).

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9 A fund-of-funds is an umbrella fund that invests in other venture capital funds.

Other expenditure programs focused on innovation centers have shown promising success in past studies, as reported in Cumming and Fischer (2012) for the VentureLab in Markham, Ontario. However, there is insufficient systematic data on the topic to provide a full policy assessment. Further research is warranted. Further research on the success of government expenditure programs in venture capital and other types of entrepreneurial finance markets is also desirable as additional time series data become available. Moreover, there is scope for better policy assessment. Surprisingly, many studies have evaluated the success of government venture capital programs on the basis of investment level statistics that compare early- to late-stage venture capital (for example, Lerner, 2009). As explained by Cumming (2011a, b), this metric is clearly wrong, as it means countries do better with their government venture capital programs when the country has a poorly performing late stage (Cumming, 2013). Figure 12

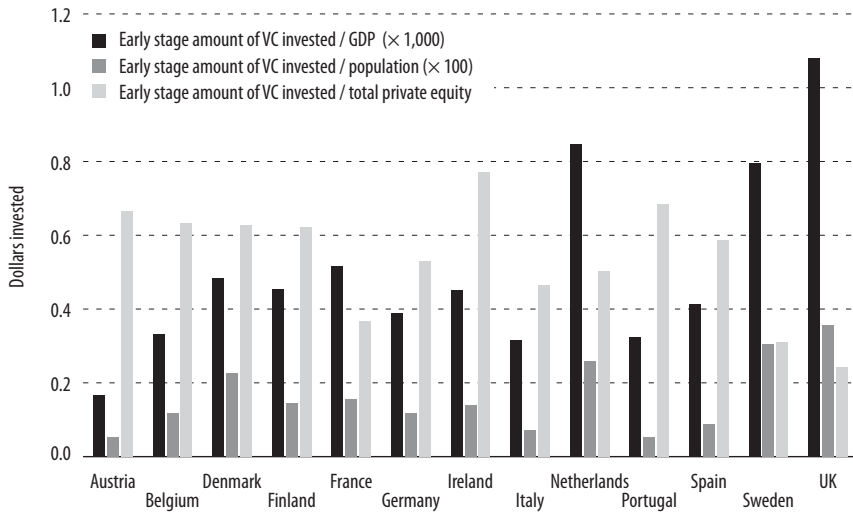
**Figure 12: Comparison of Number of Venture Capital Investments by Total Private Equity versus GDP and Population, 1989–2011**



Source: Cumming and Johan, 2013.

Note: This figure shows the differences across countries in terms of numbers of deals in early-stage VC/total PE, early-stage VC/GDP, and early-stage VC/population.

**Figure 13: Comparison of Venture Capital Dollars Invested by Total Private Equity versus GDP and Population, 1989–2011**

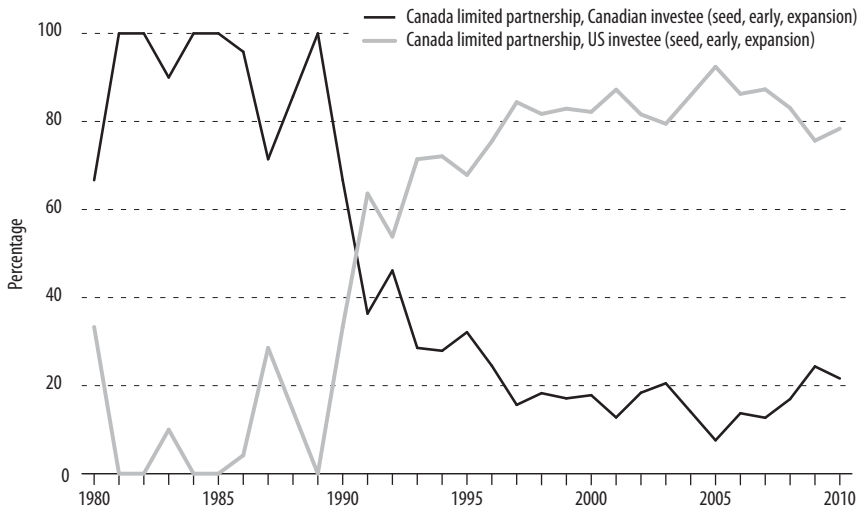


Source: Cumming and Johan, 2013.

Note: This figure shows the differences across countries in terms of dollar value of deals in early-stage VC/total PE, early-stage VC/GDP, and early-stage VC/population.

and figure 13 show that the United Kingdom, based on the early-to-late-stage ratio, is the worst-performing venture capital market in Europe but, based on the ratio of early stage VC to GDP and early stage VC to population, the best-performing. Policy conclusions are completely reversed when one picks the wrong ratio (Cumming, 2014). Furthermore, Lerner (2009) mistakenly asserts that poorly performing government venture capital funds in Canada have not caused as much damage as previously thought in terms of crowding out, since investors may have directed their capital to US investees. That assertion is wrong as well (figure 14). Mistakes like these in policy assessment exacerbate the harm caused by misinformed public policy expenditure programs, and more needs to be done to monitor assessors and speak up when research about program evaluation is clearly misguided and blatantly false.

**Figure 14: Canadian Limited Partnership Cross-Border Investment into the United States versus Domestic Canadian Investment, 1980–2010**



Sources: Cumming, 2011a, b.

Note: Graph shows all available venture capital transactions from Thompson Financial VentureXpert, January 1980 to March 2010.

#### 4. Summary of key policy mechanisms and recommendations

Prior research is consistent with the following policy recommendations designed to create a vibrant environment for long-term entrepreneurship that will encourage start-ups and facilitate access to entrepreneurial finance.

1. Tax policy, particularly low capital-gains taxation, is the most efficient way to encourage high-growth entrepreneurship and access to entrepreneurial finance.
2. Special tax rates for small business do not encourage businesses to scale-up. At best, they encourage entrepreneurial starts, but subsequently lead to reduced incentives to grow, or incentives to move to different jurisdictions after reaching a certain scale.

3. Tax programs that encourage retail investors to invest in venture capital funds that are structured like mutual funds, such as the LSVCC and the VCT, do not work and have the potential to be extremely harmful.
4. Entrepreneur friendly bankruptcy laws, low labor frictions, healthy securities laws that promote IPOs and enable intermediaries such as venture capital and private equity companies, and hedge funds, encourage entrepreneurial activity and enable scale-up investment.
5. Equity crowdfunding rules in the United States with the JOBS Act have had negative externalities on the US IPO market. The JOBS Act has given rise to fewer IPOs and greater underpricing of IPOs, contrary to the objectives of the JOBS Act (Chaplinsky, Weiss Hanley, and Moon, 2017).
6. Equity crowdfunding rules in Canada are too stringent, and no entrepreneur has made use of this new form of finance. By contrast, equity crowdfunding has been successful in other countries, including Australia (Ahlers, Cumming, C. Guenther, and D. Schweizer (2015)) and the United Kingdom (Vismara, 2017; Signori, A., and Vismara, 2018).
7. Some government subsidy and direct expenditure programs, such as those where governments act as limited partners in venture capital funds, have been successful but the success is highly dependent on the way in which the program is implemented. This poses risks for both entrepreneurs and the broader entrepreneurial finance marketplace in the region.
8. Policy programs to stimulate entrepreneurship and entrepreneurial finance should not be evaluated in isolation, but should be assessed with consideration for their possible spillovers and unintended consequences. For example, a tax subsidy to LSVCCs can



have negative consequences for private VCs. As another example, regulation changes affecting crowdfunding can also affect other forms of entrepreneurial finance such as angel investment, venture capital, and IPOs. Cumming, Johan and Zhang (2018) document the extent of our knowledge on spillovers to date, and point out that what we know is quite limited; further empirical work is warranted.

## 5. Conclusion

In this chapter, we provide new evidence from Google Scholar to show that academic research has been focused on tax and entrepreneurship. There has been relatively scant attention paid to other policy mechanisms and how those mechanisms influence entrepreneurship. For example, there has been less interest on topics relating to bankruptcy regulation, labor market regulation, and securities regulation. Likewise, there has been comparatively little work on other policy levers such as government expenditure programs, which includes, but is not limited to, government venture capital programs. And, the work that has been done on government policy programs in venture capital has to a notable degree been wrong as a result of the use of improper methods and metrics, leading some commentators to reach incorrect conclusions and inferences (see Cumming, 2011a, b; 2014, for an extended discussion). We documented a significant change in focus since 2013 towards research on regulatory risk around topics pertaining to fintech, including Bitcoin, blockchain, crowdfunding, and big-data analytics, and explained how regulation and regulatory risk have an impact on financial markets that affects entrepreneurship.

Policy interventions to spur entrepreneurship and entrepreneurial finance should be put in place to correct market failures. More successful policy interventions are those that provide incentives for performance and not mere existence. We offered a number of policy suggestions based on our review of the literature and suggest avenues for future research based on gaps in the literature.

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# CHAPTER 7

## Universities and the Entrepreneurship Ecosystem

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### **Introduction**

Over the last decade, scholars and policymakers have often referred to the environment surrounding entrepreneurial activity as the entrepreneurship ecosystem (EE) (Isenberg, 2011, 2014; Hechavaria and Ingram, 2014). The basic logic is that if the ecosystem—or the interactive and interrelated environment surrounding nascent and active entrepreneurs—is healthy, then the outputs and outcomes desired from entrepreneurs, including start-ups, will potentially result in improved economic and non-economic performance for the societies in which they exist.

This chapter will focus on the university within the entrepreneurship ecosystem and aims to draw implications from the literature for, and inform, policymakers, university leaders, and academics. Besides serving as a literature review, the chapter is meant to be a solid introduction to the entrepreneurial ecosystem from the perspective of the university and its connection to the broader community.

Universities make multiple contributions to the larger entrepreneurship ecosystem, including creating a stock of knowledge and then providing knowledge and resources to the public space. Knowledge creation and dissemination via multiple strategies is a primary contribution to the overall entrepreneurship ecosystem. Universities create, accumulate, and disseminate this knowledge via knowledge spillover (Audretsch, 2007), meaning that knowledge spills from the university stockpile into the public space and may be acquirable by entrepreneurs for less than the total cost it took to create the knowledge in the first place. This takes place through strategies such as technology transfer and developing entrepreneurial capital through methods such as entrepreneurship education.

A critical factor to consider for university leadership, policymakers, and academics relates to knowledge filters that impede this creation, development, and dissemination of knowledge (Audretsch, 2007). Knowledge filters are obstacles that block or reduce the flow of knowledge from the university into the public space. These “stand between investment in knowledge, science, and ideas on the one hand and commercialization, which ultimately leads to economic growth, on the other” (Audretsch, 2007: 107).

Specifically, my purpose is fourfold. First is to provide an overview of the EE and to describe the university’s place and importance within it. Second is to dive deeper and discuss the university itself including the way it influences the EE, its roles, and the strategies/tactics employed by universities to contribute to the EE from isolated activities to building intentional University-Based Entrepreneurship Ecosystems (UBEE; Fetters et al., 2010). Third, while measurement approaches and performance data are still underdeveloped within the literature, an overview of metrics and performance will be offered. Fourth is to draw out the implications for practice and research.

To achieve these purposes, I will first provide a background description of the EE perspective, linking it to its root literature and offering an inventory of its major components. From there, I will focus specifically on the university as a key participant, including its importance, and offer a fresh model that can be used to describe and understand its components, influ-

ences, roles, strategies, and tactics, that directly and indirectly impact the university EE processes, outputs, and outcomes, both on and off campus. Next, I will review metrics and performance data of EEs generally, highlighting the findings of multiple major review articles specifically related to the university. Finally, I will draw out and discuss practical implications for university leaders, and policymakers, as well as research implications for academics.

## **Entrepreneurship ecosystems**

The EE perspective developed from several earlier literature streams including the strategy and regional development literatures (Acs et al., 2017). Multiple attempts have been made to define the EE. Stam (2015) defines an EE as a “set of interdependent actors and factors coordinated in such a way that they enable productive entrepreneurship” (p. 1765). Acs et al. (2017) recently cited Stam and Spigel (2015) with a similar definition, quoting the authors work in a yet unpublished source which contains the addition of “within a particular territory” (p. 3).

Mason and Brown (2014) define the entrepreneurship ecosystem as a “set of interconnected entrepreneurial actors, entrepreneurial organizations, institutions and entrepreneurial processes which formally and informally coalesce to connect, mediate and govern the performance within the local entrepreneurial environment” (p. 5).

There are key parallels between these definitions that highlight multiple aspects of the EE that are important. Four recurring elements include: actors, resources, formal and informal interactions, and performance outputs and outcomes.

Building on Isenberg (2011) and Brown and Mason (2017), figure 1 depicts the participants in the EE and the resources and interactions that connect stakeholders who in turn, formally and informally interact with entrepreneurs and each other through various processes, including the acquisition and application of resources. The interactions between entre-

preneurs and other stakeholders ultimately produce outputs, presumably including new business enterprises.

Figure 1 shows the main actor participants in the EE, the entrepreneurs themselves, as well as representatives from various organizations such as universities, government, and the private sector (financial, corporate, etc.). The interaction of these sets of participants constitutes the “Triple Helix” first introduced by Etzkowitz and Leydesdorff (1995). It is important to note that while entrepreneurs exist independently of the three organizational stakeholders, they also exist within the organizations (intrapreneurs—meaning people who act entrepreneurially on the inside of existing organizations).

Resources include the obvious such as financial capital, property, plant and equipment, infrastructure, technology, and human capital. Resources also include intangible knowledge, particularly “how-to processes” for entrepreneurship such as lean start-up and business modelling.

Interactions among EE stakeholders may be formal or informal. Formal interactions include buyer-supplier relationships, shared board membership, co-working arrangements,<sup>1</sup> consulting, and strategic alliances ranging from licensing agreements to joint ventures. Informal interactions include networking events, chance meetups at conferences, community and training events, trade shows, and gatherings after work.

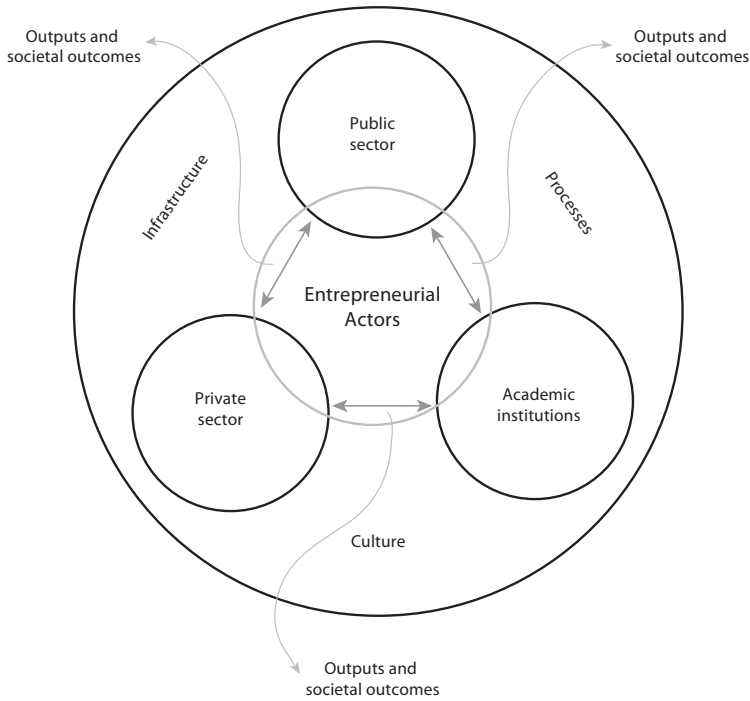
EE participants, resources, and interactions result in some amount of outputs and outcomes. Outputs are akin to counting what is created, such as the number of start-ups, people trained, agreements signed, inventions created, patents received, and so forth. Outcomes are akin to the impact of the created outputs, such as employment, wealth creation, and the broader inclusion of members of society in opportunities offered in the EE.

As figure 1 illustrates, academic institutions are important stakeholders of the EE. The remainder of this chapter focuses on the university as a stakeholder in the larger EE, while acknowledging that the university exists within a broader domain of academic institutions. The focus on the

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1 Co-working arrangements can vary from sharing the expenses of an office space to those of a laboratory or production facility.

**Figure 1: Entrepreneurship Ecosystem Incorporating the Key Stakeholder Groups of the Triple Helix**

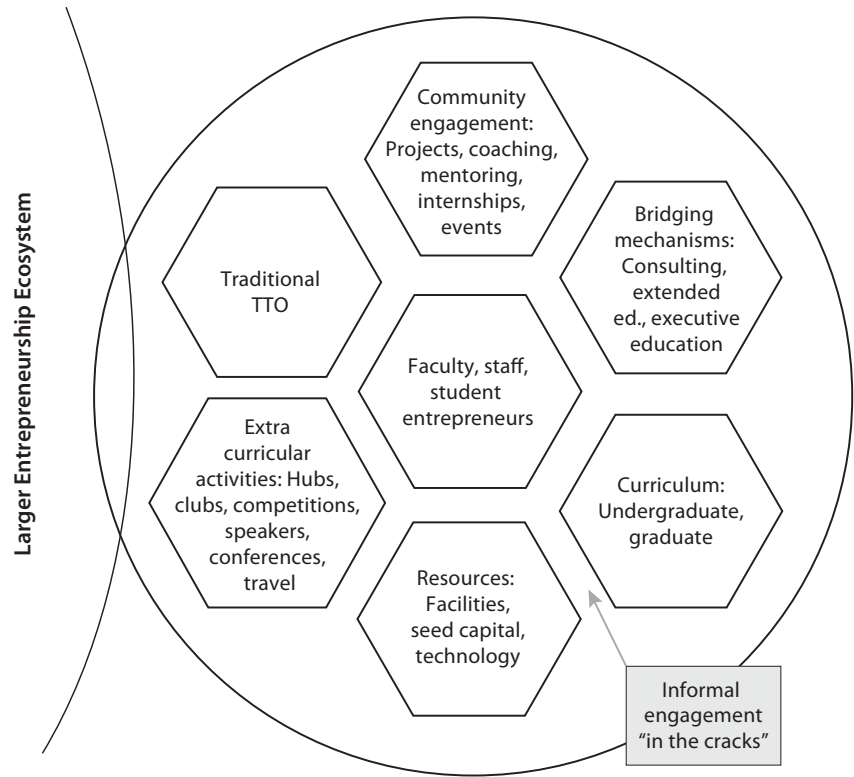


Source: This original figure is built on the work of multiple authors including Isenberg (2011), Brown and Mason (2017), and Etzkowitz and Leydesdorff (1995, 1997).

university reflects an assessment that it is the most prominent institution under the academic domain, insofar as the EE is concerned.

Finally, entrepreneurship ecosystems can range from less to more developed. Brown and Mason (2017) developed a taxonomy that they describe in a dichotomous fashion from embryonic to scaled-up.

**Figure 2: The components of the University-Based Entrepreneurship Ecosystem: Curriculum, Extra-Curricular, Traditional TTO, Bridging Mechanisms, Resources and Community Engagement, Informal Engagement**



Source: This original figure is based on multiple sources describing the UBEE including Fetter et al. (2010), Miller and Acs (2017), Morris et al. (2013), and Hechavarria and Ingram (2014).

## Universities in the entrepreneurship ecosystem

Scholars and practitioners discussing EEs consistently recognize the potential and demonstrated importance that higher education generally, and universities specifically, play in building and maintaining a growing and thriving EE (Hechavarria and Ingram, 2014).

Fetter et al. (2010) coined the term University-Based Entrepreneurship Ecosystem, or UBEE. Like the larger EE, UBEEs can range from less to more developed. On the embryonic end, you might see limited offerings (such as single courses and/or a student club), while on the scaled-up end, you might see a full range of formal and informal components at play (such

**Table 1: Components and Sub-Components of the UBEE**

UBEE Component	Description
Curriculum	For-credit courses for undergraduate and graduate students.
Extra-curricular activities	Hubs such as incubators, “makers spaces”, accelerators; student clubs; competitions such as pitches, business plan, innovation/design sprints; speakers such as experienced entrepreneurs; conferences; travel experiences such as study abroad.
Traditional TTO	Technology transfer offices that support academics in commercialization through licensing, patenting etc.
Bridging Mechanisms	Extended education/lifelong learning; faculty/staff consulting; executive education programs; research/service centers such as economics, global information systems mapping.
Resources	Facilities; technology; equipment; seed capital; public relations and marketing.
Community Engagement	Coaching and mentoring programs; student consulting via classes; service learning; internships; career services.
Informal Engagement	The connections and interactions happening all the time “in the cracks” between formal and informal components.

as active Technology Transfer Offices, widespread faculty consulting, majors/minors, workshop series, social gatherings, makers' spaces, and incubators/accelerators).

Figure 2 illustrates the potentially significant components of the UBEE. In this case, entrepreneurs are centered on a field of university-related resources surrounded by supporting or contributing stakeholders that ultimately results in outputs and outcomes. The entrepreneurs may include faculty, staff, and students located within a campus with connections bridging to the broader community.

Later in this chapter, more detailed descriptions of the various components and sub-components of the UBEE will be given along with strategies that universities use to contribute to the UBEE as in figure 2; these components are summarized in table 1.

### **Knowledge spillover and filters: The university as a (sort of) leaky bucket**

Universities have the potential to significantly influence the EE in multiple ways, many of which deal with disseminating the knowledge that is generated and stockpiled within the university out to the ecosystem where it can ultimately have an impact. Scholars have often referred to this phenomenon as *knowledge spillover*.

"Knowledge spillovers refer to knowledge that is created in one organizational context and is accessed and utilized by a different organization at a cost less than the economic value of that knowledge" (Audretsch, 2017: 7). In other words, it is knowledge about products and processes that has been created or researched by the university personnel that is utilized but not purchased for the actual commercial value (including variable and overhead costs incurred by the university) to produce the knowledge. Universities in many ways are designed to be a "leaky bucket" of knowledge in that knowledge is often created and shared freely or for a nominal price through teaching, research publications, conference presentations, and service by faculty, staff, and students. Additionally, universities employ



technology transfer strategies where technology may be transferred for less than its commercial value if commercial value is calculated based on the cost to produce the technology plus margin or if the purchaser is able to interact with university personnel beyond the legal needs of the transfer.

The challenge faced here is that while university actors may be acting entrepreneurially, often allowing their knowledge to spill over into the public domain, the likelihood of this knowledge spillover turning into value creating enterprise activities is problematic. In fact, it likely takes more intentional creation of strategies to do this beyond the activities of the traditional technology transfer office in universities. Audretsch (2017) notes: “Just as in the case of private companies, new knowledge and ideas generated from research and human capital at a university can often only be commercialized through the start-up of a new firm” (p. 7).

The barriers that slow or stop knowledge flow has been named the *knowledge filter*. “It stands between investment in knowledge, science and ideas on the one hand and commercialization, which ultimately leads to economic growth, on the other. The knowledge filter impedes the spillover of knowledge and ideas” (Audretsch, 2006: 107) thus preventing the knowledge from becoming a good or service or serving to support those that are attempting to use the knowledge to the good of society.

## University strategies to influence the UBEE

Early studies focus narrowly on one area of academic entrepreneurship, namely, technology transfer. Scholars have since argued that the university has many more strategies at its disposal, including additional intellectual property mechanisms for commercialization such as copyrights (Sandström et al., 2016) and other mechanisms beyond the transactional tools, such as technology licensing, used by technology transfer personnel.

Audretsch (2017) recognized this and discusses additional critical areas including knowledge spillover and entrepreneurial capital as influence strategies that can be employed. These are important as they are the major areas of influence a university can have on an EE. In these areas of influ-

ence, university personnel can act directly as entrepreneurs, teachers and sources of technical and other resources.

While Audretsch (2017) distinguishes conceptually among different sources of influence, in practice, it is apparent that many of the strategies and mechanisms employed by universities provide influence across the areas of academic entrepreneurship. In other words, you get two or more influence areas for the price of one strategy or mechanism. For example, an incubation strategy can be used to support and impact faculty work, students on campus, and graduated students who are now entrepreneurs, and create a hub for building connections and community.

Thus, to effectively describe influence areas and strategies here, I treat technology transfer and entrepreneurial capital development separately, while discussing knowledge spillover throughout. The conceptualization differs from Audretsch's (2017) as it does not separate knowledge spillover from either technology transfer or building entrepreneurship capital, because in each situation, you have knowledge that is likely being transferring at less than its commercial value. To assume otherwise would imply that universities are able to fully and accurately price the technology and protect that which has not been purchased. While universities may be able to do this for some simple technologies transferred at arms-length, much university knowledge has both explicit and tacit components requiring interactions between university and private personnel (Sherwood and Cavin, 2008). The deeper these interactions, the more likely that unpaid for knowledge will spill over. Thus, even when money is exchanged with a set price (e.g., a licensing fee), the knowledge transfer will likely take place at an effective price that is less than its real commercial value.

Another reason for the separation is that the influence strategies themselves can be divided into roles that the university plays. The university may play the role of a) the academic entrepreneur, b) the supporter of the academic entrepreneur who is part of the permanent faculty/staff, or c) the supporter and facilitator of entrepreneurs that are not part of the permanent faculty and staff such as students, alumni and the community.

Of the different strategies employed, two appear to dominate the academic literature in terms of empirical studies related to outcomes; the two

might be called the traditional use of a Technology Transfer Office (TTO; technology transfer strategy) and entrepreneurship education (entrepreneurial capital strategy). Both strategies have been reviewed extensively in the academic literature and I summarize the most recent reviews below. A comprehensive literature review covering less well discussed strategies of universities to promote entrepreneurship is beyond the scope of this chapter. Nevertheless, I will give a brief overview of some relevant studies, including several focused on incubators.

### **Supporting academic entrepreneurship: Technology transfer**

The university engages in a variety of activities that directly or indirectly support the development and commercialization of technology, which have the potential for significant influence on the entrepreneurial ecosystem.

Academic entrepreneurship occurs when university actors themselves are entrepreneurs, influencing the UBEE through technology transfer. Specific activities include conducting research, protecting the resulting intellectual property, and then commercializing innovation via formal mechanisms such as licensing. In traditional technology transfer situations, the participants include research faculty and their associated students, as well as university agents from the technology transfer office. This is what has often been referred to as academic entrepreneurship involving scientist entrepreneurs (Shane, 2003).

“Technology transfer generally refers to technology which is created and owned by a university which is transferred to a private or non-profit organization for a price, which in principle, reflects the value of that technology” (Audretsch, 2017: 5). In fact, as pointed out earlier, while in principle it is unlikely that the transfer price will cover the overhead costs required to provide the assets that the scientist, inventor, or researcher uses to create the relevant technology, nor will it likely reflect the full commercial value of the technology.

University personnel also create technology transfer outside the university TTO setting as well. Many university actors transfer technologi-

cal knowledge by creating and selling programs such as training, seminars, and workshops often delivered through extended education. They also author books and engage in consulting work. Each of these involves the sale of technological knowledge owned by the university, or a university actor, into the marketplace.

The university plays a supporting role for academic entrepreneurs, influencing the UBEE by technology transfer through the TTO. The practice is widely held and supported by associations such as AUTM (the Association of University Technology Managers) whose mission is to support academic technology transfer globally.<sup>2</sup> A TTO typically “serves as the broker between technology resulting from university research and its commercialization through private interests” (Audretsch, 2017: 5). In addition, there are multiple other entities on campus that support technological knowledge transfer. These include extended education programs that might take the form of independent entities on campus or that are embedded within individual colleges such as executive education programs widely found in business schools. The latter are not typically thought of as technology transfer mechanisms, yet they are market-based approaches that leverage the commercial and social impacts of innovations created by university personnel.

Technological knowledge is often embodied in physical materials, compounds, and the like; however, knowledge also includes the information and know-how related to how a firm manufactures a particular product or provides a particular service and may be explicit or tacit (Sherwood and Covin, 2008). Tacit knowledge has been referred to as “knowing-how” and explicit knowledge as “knowing-about” (Grant, 1996; Kogut and Zander, 1993). This can be related specifically to direct manufacturing of a product or provision of a service as well as the process of how to take an idea all the way through to commercial or social impact through entrepreneurial activities.

The university has a traditional role of providing resources for knowledge-creating activities. In most cases, this is a set of physical (and social as described above) resources *that already exists*. This represents an

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2 <<https://www.autm.net/autm-info/about-autm/vision,-mission-values/>>

enormous potential opportunity for creating a cluster as the university can bring existing resources to bear on creating a robust and vibrant ecosystem. Many universities ultimately build out extensive and specialized facilities dedicated to entrepreneurship specifically. Yet, all universities have the basics in place including spaces to gather (classrooms), places/equipment to ideate and experiment (science labs and conference rooms with white boards), and knowledge (libraries, data sets, computer labs with software and access to the internet). As described below, the relevant resources go beyond the physical to include the financial as well.

The university provides resources, thereby influencing the UBEE through formal technology transfer. For example, many universities provide the resources to run a technology transfer office including space and technology transfer professionals. Even those universities without a TTO typically have some level of support for research activities, such as staff dedicated to reviewing research involving human subjects. Additional resources take the form of space and staff for internal accelerators and incubators meant specifically to support technological knowledge development and transfer.

## **Technology transfer: Metrics and outcomes**

Technology transfer is a phenomenon occurring at universities throughout the world. Munari et al. (2016) note that “University–industry technology transfer (TT) has become increasingly institutionalized and is supported by numerous reforms and initiatives at the national, regional and university levels. Most countries have implemented a policy mix involving a range of instruments to support the commercialization of research.” (p. 1377).

According to the Association for University Technology Transfer, nearly 5,000 research institution (university/non-profit) spin-off ventures still operate of those founded between 1993 and 2013. AUTM surveys US and Canadian members annually, with the following 2015 survey data being received from 308 US institutions, 169 of which were universities: 1,012 start-ups formed with 735 residing in the home state, 15,953 patent ap-

plications submitted (6,680 granted), 25,313 inventions disclosed with 879 new products introduced, and \$28.7 billion in net sales from existing and new products. Thirty-six Canadian institutions reported 521 start-ups still operational (ninety alone started in 2015 with 82 in the home province), 1,026 new patents applied for (271 issued), and \$62 million in licensing revenues received. Overall, AUTM reports that 3.8 million jobs were created by university and non-profit patent licensing between 1996 and 2013.<sup>3</sup>

A recent major literature review was conducted by Gerbin and Drnovsek (2016). The authors' purpose was to provide answers to the research question, "what factors need to be considered when assessing the effectiveness of academic-industry knowledge transfer activities and their impact on public science?" (p. 981). Focusing on the life sciences, they identified three major activities transferring technology and knowledge from academics to industry, including:

(1) collaborative research projects, including consulting and sponsored research; (2) patenting and licensing inventions to existing companies, charging royalties for the use of the patent as well as splitting the realized income among the participants in the process (Henderson, Jaffe and Trajtenberg (1998), and (3) establishing of new spin-off companies for commercialization of academic research results (see Bozeman 2000; Lockett et al. 2005). Each process can be facilitated by the third key stakeholder, technology transfer offices (TTOs) or administrators of the university's intellectual property (Siegel et al. 2004). (Gerbin and Drnovsek, 2016: 980).

The authors reviewed 15 articles published in peer-reviewed academic journals between 1980 and 2014. All the articles were empirical and used a range of quantitative and qualitative methods for a combined 10,276 iden-

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3 See <<http://www.autm.net/fy2015-survey/>>. Multiple literature reviews regarding technology transfer have been conducted including Djokovic and Souitaris (2008), Markman et al. (2008), Narayanan, Colwell, and Douglas (2009), Rothaermel, Agung, and Jiang (2007), and Siegel, Veugelers, and Wright (2007).

tified citations as of November 2014. It is worth noting that much of the research completed focused primarily on the US, followed by Europe, with an emphasis on a small number of overall universities. There is evidence in countries outside the US that run parallel and counter to findings at major research institutions.

The authors found six main research topic clusters related to academic knowledge transfer including (a) involvement predictors and motivations, (b) awarding mechanisms, (c) performance level and success factors, (d) institutionalization, and (e) academic-industry knowledge transfer and open science. Topic clusters (a) and (b) focus on the who and why of participation in technology transfer. Obviously, if UBEEs are to be successful, they need the effective participation of researchers and other experts.

For predictors and motivations of involvement of researchers in academic-industry knowledge and technology transfer, they found that “[a] vast number of studies agree that more productive scientists, male, with permanent positions, applied research orientation, extensive networks of collaborators, previous knowledge transfer experience and supportive institutions are more likely to start involving in all types of academic-industry knowledge transfer” (p. 989). Yet the authors also suggest that these very same enablers can act as inhibitors. They particularly note that policies and the approaches to institutional support may create barriers. It is also possible that there are systemic barriers in place explaining the finding that most researchers are male and permanent faculty including systems for recruiting, retention, and support.

Topic cluster (b) led to observations that several types of incentives were in place, generally broken into financial and non-financial. Financial included performance-based (e.g., royalties, equity for the specific project) and non-performance-based incentives (e.g., promotions, impact on reputation not specifically tied to a specific project). The review showed that financial incentives were relatively weak predictors of academics engaging in technology transfer, and that concern for publication, the time needed for applied science, and the need for being involved with later development efforts are all likely disincentives. The authors do note that while this

appeared to be true overall, there are many exceptions at specific institutions given the technology transfer culture found there.

Topic cluster (c) is about performance levels and success factors. Overall, the review appeared to show mixed results related to performance outcomes for technology transfer. The authors note that determination is made more challenging due to the varied methods of measurement. These included intellectual property exploitation-based indicators (e.g., invention disclosures, patent applications, granted patents, licenses, and revenue from licensing). Others included patent relevance, scope intensity of industry collaboration, and academic entrepreneurship performance indicators such as number and success of spin-offs. The authors noted that some qualitative measures were used, although in limited fashion due to the difficulty of collecting qualitative data.

The authors add:

[W]e observe that most universities in the USA and Europe are actually not successful in knowledge transfer, since the costs related to such activities significantly exceed the obtained revenues (Arundel et al. 2013). Also, the distribution of income from commercialization is highly skewed (Carlsson and Fridh 2002; Campbell et al. 2004; Geuna and Nesta 2006). Interestingly, several studies point to the trend of a general decline in university patenting over the past 10 years, both in Europe and in the USA, and argue that this is due to the lack of institutional incentives or changes of policies towards university ownership of patents (Leydesdorff and Meyer 2010; Geuna and Rossi 2011). In any case, a recent study reveals that the USA still outperforms Europe when it comes to most knowledge transfer efficiency indicators, except for the number of founded spin-offs and number of executed licenses (Arundel et al. 2013). (Gerbin and Drnovsek, 2016: 992).

From their review of the university technology transfer performance literature, Gerbin and Drnovsek (2016: 992–95) identified six main factors influencing the success of knowledge/technology transfer (table 2), which



**Table 2: Six Major Factors Influencing the Success of Knowledge/Technology Transfer**

Factor	Impact
(1) Characteristics/quality of the researchers	Large majority of studies indicate high quality knowledge base positively related to all types of knowledge transfer.
(2) Characteristics and quality of inventions and technologies	Characteristics including novelty, technological radicalness, market attractiveness, patent complexity positively related to spin-off survival.
(3) Institutional capabilities and resources, and 4) Policies	Support structures, skills, and incentives of institutional support and departmental management critical for patent activities and academic entrepreneurship. Particular focus has been on skills, incentives and structures related to linchpins or champions of the process and the human interactions in the process important to facilitate knowledge flow. Often, these champions or linchpins serve as boundary spanners between industry and the university. No straightforward evidence regarding the role of TTO age, size, or structure was found regarding transfer performance, although size tended to be positively related. University and industry funding tended to be positively related to knowledge transfer outputs.
(5) Prior knowledge transfer experience	Positive relationships found for collaboration, academic entrepreneurship and composite.
(6) Geographic proximity to supporting infrastructure and industry	Closer proximity tended to have positive relationships with outputs with several negative relationships found, including access to venture capital on academic entrepreneurship and local R&D intensity on Intellectual property-based output.

Source: Adapted from Gerbin and Drnovsek (2016: 992–95).

in turn, influence four knowledge transfer performance areas including industry collaboration, Intellectual property-based, academic entrepreneurship, and composite outputs. Industry collaboration includes consulting, sponsored research, and joint projects. Intellectual property-based output includes invention disclosures, patenting, and licensing. Academic entrepreneurship includes spin-off founding/equity holding, product marketing and launch, and the perceptions of technology managers regarding success of new products. Finally, composite includes a broad mix of outputs including industry collaboration, number of invention disclosures, licensing, spin-offs, and patenting.

Overall, the authors summarize, “[i]n order to be successful in knowledge transfer, academic institutions should focus on the individual researchers and their inventions, and their own knowledge transfer capabilities, resources, experience and strategies” (p. 996).

More specifically related to policy decisions, the authors highlight the role technology transfer professionals play at the university including how they organize themselves, their experience, and the resources available for the Technology Transfer Office as well as institutional R&D in general. Funding from multiple sources can be important including that from industry. And the authors emphasize the critical role of researcher involvement stating the evidence is in line with the claim that “whatever the route of technology transfer is, central to its success will be the role played by the creator of the intellectual property, the individual scientist” (p. 997).

Topic cluster (d) focuses on how academic knowledge transfer itself becomes institutionalized at universities. This occurs when knowledge and technology transfer become the norm, which in turn reduces the filter created by a culture of resistance to technology transfer practices themselves. Based on Colyvas (2007), Gerbin and Drnovsek (2016) describe the role model offered by Stanford University in the US, which shifted the social norms to acceptance of the connection between commercialization and science, and how this was eventually emulated by other US universities. “Factors influencing the institutionalization included faculty advocacy and authority, the career structure of science, technological change, and re-

sources” (p. 998). Citing Etzkowitz (2003), the authors describe how it has also become an accepted norm in Europe and Latin America.

Topic cluster (e) concerns potential downside implications of technology transfer for scientific output. Gerbin and Drnovsek (2016) cite Baldini (2008), who identifies multiple threats including: “threat to scientific progress due to increasing disclosure restrictions; declining patents’ and publications’ quality, biasing research efforts toward commercial priorities, crowding-out between patents and publications and reducing the relevance and quality of teaching activity in academia” (p. 999).

Studies reviewed contradict this potential threat, indicating that rather than slowing down research output, faculty involved in entrepreneurial behaviors are often the most cited and respected in their fields (with variation between fields). The studies reviewed found, more often than not, more research productivity from faculty when involved with technology transfer, rather than less:

Even though no consensus has been reached with respect to this subtopic, there is no apparent trade-off between patenting or knowledge transfer in general and either quantity or quality of research output (Agrawal and Henderson 2002; Van Looy et al. 2006; Fabrizio and Di Minin 2008): scientists with better patenting performance tend to exhibit superior publication scores with no decrease in the quality of output and exactly the most productive scientists are those most likely to become inventors (Caulfield and Ogbogu 2008; Breschi and Catalini, 2010). (Gerbin and Drnovsek, 2016: 1000).

They propose the potential explanation that industry may fund already productive faculty and thus productivity increases. I would add that experience closer to the market place may also give researchers insights they would not otherwise have. Gerbin and Drnovsek (2016) did focus on certain types of output while apparently not finding studies supporting or validating the variety of threats raised by Baldini (2008).

Finally, topic cluster (f) concerns the impact on open science. Public universities are expected to create public knowledge, causing concerns

about reduced access to knowledge created by university personnel. The reviews by Gerbin and Drnovsek (2016) indicated widespread withholding of research findings by faculty, yet explanations were mixed and suffer from a narrow focus on patents. While some studies did attribute withholding (e.g., not responding to requests by other academics or through delayed publication) to commercialization motives, most tended to explain this phenomenon as more to do with academic rivalry or logistical barriers (i.e., it is too much effort to share).

In summary, there has been considerable academic attention paid to university to industry technology transfer in the context of formal approaches as through licensing and TTOs. While having a skilled and active TTO at the university overall appears to positively impact knowledge transfer output, there are many variables within and surrounding these entities that are also at play, including institutional support and culture, policies related to knowledge transfer, and support resources and connections with industry.

## **Beyond formal, traditional technology transfer**

While there is an extensive literature on what might be considered formal or traditional technology transfer, the literature regarding university knowledge transfer via other mechanisms is much less studied.

As has been discussed, university personnel themselves act as entrepreneurs, influencing the UBEE through knowledge spillovers beyond traditional technology transfer. Entrepreneurs are often asked to engage in activities that expose their technological knowhow to outside entities without attempts at protecting it from being acquired without compensation. University entrepreneurs, whether they be physical or social scientists, students or administration and staff, often create innovations and then share these through a variety of venues including scholarly articles, practitioner outlets, speaking engagements, conferences and posted findings on their websites.

While much of this technological knowledge theoretically could be protected and commercialized, the vast majority of innovation that occurs within the UBEE is either created and sitting idle waiting to be accessed (e.g., dissertations), actively being implemented and available for the asking (e.g., pedagogical innovations), or actively being shared without expectation of compensation (e.g., scholarly publishing, participating in competitions, presentations at conferences).

The volume and diversity of knowledge spillover is a significant differentiator from traditional commercial or non-profit enterprises. Indeed, it is arguably the critical contribution of the UBEE to the larger Entrepreneurial Ecosystems. This takes place both locally and globally, as university entrepreneurs often seek to gain a larger audience through the vast networks of universities that have been in place for decades.

Multiple actions are also taken by university entrepreneurs to build entrepreneurial capital within the UBEE. Entrepreneurs can act as mentors and coaches to their colleagues, helping them to understand how to develop innovations and connecting them to the marketplace. They also act as instructors in workshops hosted by university entities, such as the office of technology transfer, entrepreneurship institutes, or community-based organizations. Finally, they create start-ups on campus that allow students to become part of the entrepreneurial network, including activities such as cafés, retail outlets, and food stands (Morris, Kuratko, and Cornwall: 126).

### **Supporting entrepreneurial capital and knowledge spillover: Empowering people to act entrepreneurially and encouraging the leaky bucket**

In this section, I discuss strategies for encouraging knowledge spillover through building entrepreneurial capital, where the university plays a facilitation and support role for the people engaged in entrepreneurial and innovative activities. I specifically focus on entrepreneurship education, a dominant strategy meant to directly support entrepreneurs and innovators. I then shift focus to incubators as a non-curricular, intentional strategy to

encourage knowledge spillover and social capital that ultimately can impact the entrepreneurship ecosystem. Both curricular and non-curricular strategies are entrepreneurial capital and knowledge spillover influencers.

“Entrepreneurship capital is a type of social capital (Coleman, 1988) that is conducive to entrepreneurship ... While social capital endows an individual, organization, or place with access to other people and organizations within a social context, entrepreneurship capital is a type of social capital that enhances the ability of individuals, organizations and places to behave entrepreneurial” (Audretsch, 2017: 9). This might include a variety of influence strategies that connect people and increase their social capital as a result.

The university plays a supporting role for entrepreneurs, influencing the UBEE through the development of entrepreneurial capital. Building entrepreneurial capital does not require deep research capabilities, thus, it is a set of activities that are more easily shared between different types of higher education institutions (for example, through sharing pedagogical innovations and program design best practices at conferences/workshops and in journals). Universities engage in extensive support strategies that result in knowledge spillover. Much of the spillover takes place when those that hold the knowledge (faculty, advanced students, staff, invited guests such as local entrepreneurs and innovators) interact with those that receive the knowledge or through acts that put the knowledge into the public space. Each of these interactions can be designed and strategies can be built to create intentional spillover.

The most visible strategies include formal education programs at the undergraduate, masters, and doctoral levels in some direct form of entrepreneurship for current or nascent entrepreneurs. Offerings can include certificates, concentrations, minors, majors, and study abroad. These strategies might be implemented within specific colleges/schools or may be campus wide. These programs might cover general entrepreneurship or be focused on specific areas such as high tech, social, innovation, and the like which have different labels but still contribute directly to entrepreneurship (Morris et al., 2016).

Curricular strategies also include less direct studies that prepare the entrepreneurial workforce (Spigel, 2015) to enter the marketplace not as the founding entrepreneurs, but rather as the needed talent to work for the start-up and scaling ventures. These include, for example, students who might major in traditional subjects such as business, liberal arts, creative arts, design, engineering, computer science, and so forth, who are exposed to entrepreneurs and entrepreneurship as members of the ecosystem.

Additionally, ongoing curricular innovation is an important part of the process. This curricular innovation is critical as it feeds new thinking about entrepreneurship into the supply chain that eventually is injected and spilled over into the larger ecosystem via student learning.

Universities also employ a variety of extra-curricular strategies that build the UBEE, many of which also result in knowledge spillover as discussed above. These include events such as speakers' series, pitch/business model/venture plan competitions, and start-up boot camps. They also include ongoing programs such as hatcheries, incubators, accelerators, student clubs, and support of entities such as Small Business Development Centers.

Community engagement (social network) strategies also play an important role. These include the university acting as a bridge from campus to community and between community entities, as well as links to larger regional, country-wide and global entrepreneurship groups (e.g., Ashoka, USASBE<sup>4</sup>).

Finally, as a university with its inherent design and purpose, the campus acts as an entrepreneurial laboratory that provides for the gathering and connecting of diverse people (Miller and Acs, 2017). As a laboratory, universities allow students to experiment and practice activities in a lower-risk environment than exists in actual business ventures, from starting student clubs to attempting to make innovative change happen on campus. Additionally, universities tend to be magnets for diverse people from places outside the immediate locality, thus bringing fresh perspectives and new

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4 Ashoka is a global organization focused on social innovation and entrepreneurship; see <<https://www.ashoka.org/en>>. USASBE is the United States Association for Small Business and Entrepreneurship; see <<http://www.usasbe.org/>>.

ideas (Miller and Acs, 2017). The university also acts as a learning ground for how to understand diversity and how it can be a critical contributor to entrepreneurship and innovation. The campus is a place to try new things, to make mistakes, and to learn when the risks of failure are much lower than in the commercial marketplace.

Universities act to put knowledge into the public space, often at a fraction of what it costs to create the knowledge. Knowledge diffusion and distribution outlets include web sites, white papers, journal articles, conference proceedings, books, and video. Diffusion and distribution also take place when university and broader ecosystem participants interact via entrepreneurship clubs, learning communities, hatcheries, incubators, accelerators, networking events, conferences, symposia, competitions, and membership in entrepreneurially focused regional, national, and international organizations.

The university also provides resources, influencing the UBEE through knowledge spillovers. Physical resources include providing space for meetings, clubs, hatcheries, incubators, accelerators and conferences where knowledge holders might interact with others resulting in knowledge spillover. Universities also often become the physical and digital homes of associations and journals. Human resources include faculty and staff that support the formation of groups such as student clubs, that in turn, engage with holders of knowledge through speakers' series and the like. This may also include provision of staff to support the physical plant and provision of homes for the associations and journals.

Additionally, university resources influence the UBEE through building entrepreneurial capital. The university works to provide connections to funders. The effect is often to create a mentoring relationship between funder and the university faculty and students involved in the venture resulting in both knowledge spillover and specific development of entrepreneurial capital. Universities may also provide direct funding themselves through grants, loans, equity investment, joint ventures, and the acquisition of existing entities. These could range from student investment funds to large scale research projects constituting public-private partnerships.

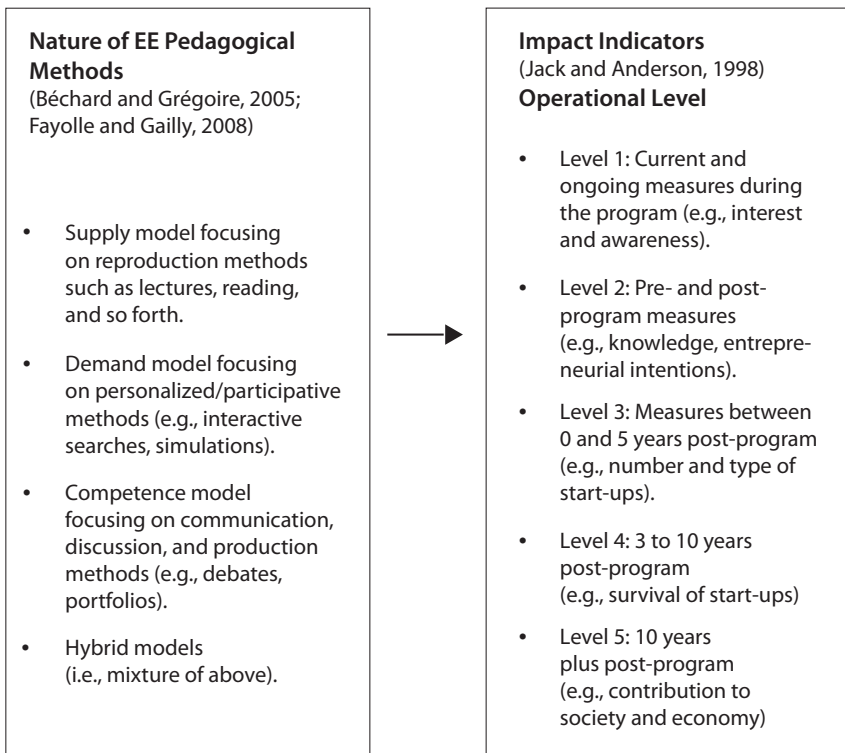


Finally, universities often provide physical, financial, and staff resources to support experiential education through student-run ventures.

## Metrics and outcomes

In this section, I concentrate specifically on the effects of curricular entrepreneurship education as well as specific extracurricular strategies to build entrepreneurial capital which, in turn, may impact the UBEE.

**Figure 3: Integrated Teaching Model Framework from Nabi et al (2016)**



Nabi and colleagues (2016) conducted a literature review of the impact of entrepreneurship education at the university level. Their research purpose was to build on prior literature reviews of the impact of entrepreneurship education, and they covered 100 articles. Past reviews had mixed results regarding measures of impact and were not specifically focused on higher education. Major reviews that do focus on higher education include Pittaway and Cope (2007) and Rideout and Gray (2013), together covering the years 1970–2011. With the tremendous proliferation of programs, the authors argue that another systematic review of the most recent five years is important.

One of the major contributions offered by Nabi et al. (2016) is what they call their integrated teaching model framework (figure 3). The framework is useful in that it identifies types of pedagogical models being used to ultimately create desired types of impacts and the related measures of those impacts. The literature review found most researchers focused on Levels 1–2; using the full set of levels allows for a more structured and comprehensive set of impact indicators.

Nabi et al (2016) found that studies continue to focus on short term, subjective impact measures (Levels 1–2). For example, they identify attitudes and intentions as a frequent measure, as opposed to venture creation behavior and business performance. “[T]he most common impact indicators are related to lower level indicators of subjective/ personal change: attitude (32 articles), skills and knowledge (34 articles), perceived feasibility (42 articles), and entrepreneurial intention (81 articles). By contrast, higher level indicators of longer term, objective, or socioeconomic impact are much less frequent: 21 articles study start-ups and 8 articles consider venture performance, both typically within 10 years of the program” (p. 281).

In terms of outcomes, the authors report that most articles reviewed indicate positive links between entrepreneurship education and subjective or objective impact measures. Overall, entrepreneurial intention was by far the most commonly used subjective measure and was generally found to be positively related outcome to entrepreneurship education (61 of 81 articles reviewed reported a positive link). However, the results are mixed,

and the authors point out that we know little about the other contributors to entrepreneurial intent such as culture or gender.

There were 25 articles in their review that used objective impact measures. These studies typically ranged over the higher levels 3–5 and found positive relationships between entrepreneurship education and start-ups.

The authors conclude: “Overall, the review suggests reasonable evidence of positive [entrepreneurial education] impact. This holds especially for entrepreneurial attitudes and intentions (impact Levels 1 and 2 of our framework), but even here some examples demonstrate differential impact depending on context and the background of participants (Fayolle and Gailly, 2015; Fayolle et al., 2006)” (p. 284). While the reviewers make the case that there need to be novel measures of impact, they remained silent on impact measures related to the entrepreneurship ecosystem beyond the level of the individual entrepreneur or entrepreneurial firm.

### ***Incubators as an example of a non-curricular strategy***

University-based incubators are a popular economic development policy option globally and a growing strategy used to promote business start-ups and growth (Lasrado et al., 2016).

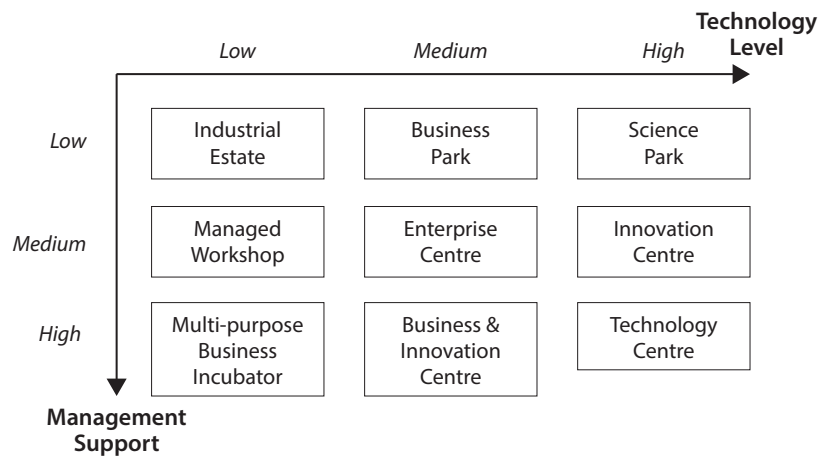
The European Commission's *Benchmarking Report on Business Incubation* cites the National Business Incubation Association definition:

Business Incubation is a dynamic business development process. It is a term which covers a wide variety of processes which help to reduce the failure rate of early stage companies and speed the growth of companies which have the potential to become substantial generators of employment and wealth. A business incubator is usually a property with small work units which provide an instructive and supportive environment to entrepreneurs at start-up and during the early stages of businesses. Incubators provide three main ingredients for growing successful businesses—an entrepreneurial and learning environment, ready access to mentors and investors, visibility in the marketplace. (European Commission, 2002: 5)

The report also offers a typology of business incubators, indicating the varied levels of comprehensiveness in terms of the technology and the services provided (figure 4). The matrix indicates that Technology Centers offer the most comprehensive set of management support and levels of technology.

There has been “an explosive growth in the number of business incubators in the United States and the European Union. For every incubator that existed in 1980 there are now more than 100—the total number of business incubators has grown from 12 to over 1400 (Amezcuca et al., 2011) and about 900 in the European Union (Bruneel et al., 2012). Furthermore, because most incubators are publicly funded (Lewis and Edward, 2001), many policymakers have positioned incubators to play a central role in economic development and rejuvenation programs (Bruneel et al. 2012)” (Lasrado et al., 2016: 206).

**Figure 4: A Typology of Business Incubators**



Source: European Commission Benchmarking report on Business Incubators, 2002.

Universities are regularly engaged in creating and running business incubators. I give these some attention here because I believe Insight into incubators provides insight into other potential non-curricular ecosystem strategies to help academic entrepreneurs be successful by contributing to a thriving start-up and business environment.

Lasrado and colleagues (2016) examined a key policy concern for both university and government leaders. They studied whether firms that graduate from a university incubator ultimately perform better than graduates from non-university-based incubators. The authors found that compared to non-university affiliated firms, university incubator graduates had significantly higher job and sales growth over time. The authors note:

We believe that university resources do make a difference in how well firms are likely to perform, and in fact this is what our results indicate. We have theorized that amongst incubators, university incubators provide firms with the most comprehensive set of resources. We propose that incubators vary in the services and resources they offer, and that university incubators typically provide greater connectivity and legitimacy with respect to important contingencies associated with key industry and community stakeholders. This leads us to propose that university affiliation is an important contingency that affects the relationship between firms' participation in incubators and their subsequent performance. This study shows that firms from university incubators outperform their matched cohort of firms not from university incubators. Being in an incubator is not the issue for the firm. Whether the firm can acquire the necessary resources is of prime importance. Hence, if an incubator is well endowed with resources that the firm can acquire then there is a greater likelihood that these firms will perform well. (Lasrado et al., 2016: 217)

This is quite interesting in that it identifies an important synergistic effect of having an incubator associated with the larger University Based Entrepreneurship Ecosystem. It is very likely that knowledge spillover into the incubator is happening and that the participants are receiving much

more from being associated with the resource rich university environment than if they were in a relatively isolated incubator in the larger entrepreneurship ecosystem. It is possible that the university environment enables thick connections to the needed resources that come from outside the incubator itself. The larger takeaway is that non-curricular strategies are likely to benefit from the spillover of knowledge and resources if embedded within, or officially associated with, a university.

### **Implications for university leaders, policymakers, and academics**

This section will discuss implications for university leaders including administrators and faculty, policymakers, builders from other domains in the larger entrepreneurship ecosystem who want to leverage and support a healthy UBEE, as well as academic researchers.

#### ***Overall***

One overall implication for university leaders, policymakers, and academics is the importance of recognizing the University-Based Entrepreneurship Ecosystem in its entirety, rather than simply as a collection of unrelated parts. Being able to describe and understand the UBEE holistically allows leaders to better design, build, and change it. Additionally, these parts are likely to have synergistic effects and thus intentional connection and affiliation are important (e.g., as with business incubators).

This holistic view is important as there are often policy trade-offs, meaning that in taking a piecemeal approach to policy, gains found may be offset by unintentional losses. Sandström and colleagues (2016) found at least 13 articles in the academic literature discussing concerns about such trade-offs. They discussed striking a balance between education and commercialization, academic entrepreneurship potentially crowding out private sector entrepreneurs, and universities investing in spin-offs creating disincentives for private sector actors to do so. They state, “[r]obust [academic entrepreneurship] initiatives need to be both internally and externally consistent. When internally inconsistent policies are deployed,

gains are fully or partly offset by losses elsewhere as the policy incentivises conflicting behaviour.” They go on to say, “Well functioning AE initiatives require that several different actors such as researchers, incubators, university officials and venture capitalists are aligned (Mian et al., 2016). Our literature review indicates that these actors often differ both in terms of incentives and competencies, and thus the overall system may not generate the intended outcomes” (p. 11).

It is also important to understand the concepts of knowledge spillover and knowledge filters. If one were to evaluate universities simply on their commercial transactions involving technology transfer, one would conclude that the investment made is much greater than the gain received in terms of money paid or spin-off start-ups created. If one instead considers this from the perspective of working to achieve knowledge spillover into the public sphere, the impact assessment is likely to be much different (i.e., the social value created is greater than the cost of creating the knowledge). The challenge is that we have limited research regarding public benefits because of limited tools for measurement.<sup>5</sup>

Additionally, if we understand that there are filters that create resistance to knowledge transfer and we can identify and describe them, the possibilities to remove or reduce them goes up considerably. The long-standing tongue-in-cheek joke among academics about how nobody reads the papers we write except other academics illustrates this point.

Thus, the themes of taking a broader view and acting with intention to build the entrepreneurship ecosystem, and understanding knowledge spillover and knowledge filters, run throughout the implications below.

### ***Implications for university leaders***

Upon reviewing or describing UBEEs, multiple scholars have identified implications for university leaders desiring to build and support Universi-

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5 Thus, we see patent data but not data on the outcomes affecting the health of the ecosystem which, in turn, is manifested in stronger support systems, stronger community, and increased quantity and quality of start-ups that may be multiple degrees separated from the university itself.

ty-Based Entrepreneurship Ecosystems. These implications are about the opportunity and then what is needed to pursue the opportunity.

Universities have the opportunity to build a UBEE that will not only advance their institutional mission, but also have potentially significant and lasting economic and social impacts on local, state, regional, national, and international communities. Universities have the bones upon which to build a UBEE that can lead to these impacts, yet it is not enough to passively sit back and hope that it will develop. Universities must act with intention.

Scholars have identified how universities can intentionally act to build and grow their UBEE. Fetters et al. (2010) offer three findings and seven key success factors. The authors found that a) there are multiple pathways for developing a UBEE, b) UBEEs share common elements, and c) the experience of existing programs yields insights for building, maintaining, and growing UBEEs. Morris, Kuratko, and Cornwall (2013), in their book about entrepreneurship programs and the modern university, also offer critical building blocks for building university wide entrepreneurship.

Table 3 lists key success factors and the critical building blocks offered by Fetters et al. (2010) and Morris et al. (2013). Upon examination of the key success factors, patterns emerge that give rise to critical implications for university leaders who are determined to build a vibrant, robust, resilient UBEE, namely, leadership and commitment.

The first implication is the importance of leadership. The first two of the seven key success factors and the first through third of the critical building blocks are the job of leaders. To make this happen, it takes leadership from high in the university administration and it takes a dedicated “champion” faculty who are willing to not only do the traditional work of teaching and research but to play the role of entrepreneur themselves on campus, seeking opportunities to build and grow the UBEE and then seeking the people and resources to make it happen.

The second implication is that it takes long term commitment from the leaders and the institution. This commitment takes a variety of forms that appear in table 3. These include substantial, stable financial resources, designing and building appropriate organizational structure and infra-



**Table 3: Key success factors and critical building blocks for UBEEs****Seven Key Success Factors\***

1. Senior Leadership Vision, Engagement, and Sponsorship
2. Strong Programmatic and Faculty Leadership
3. Sustained Commitment over a Long Period of Time
4. Commitment of Substantial Financial Resources
5. Commitment to Continuing Innovation in Curriculum and Programming
6. An Appropriate Organizational Infrastructure
7. Commitment to Building the Extended Enterprise and Achieving Critical Mass

**Critical Building Blocks for University Wide Entrepreneurship\*\***

1. You need an academic champion
2. You need a definition
3. You need a purpose
4. You need a structure
5. You need supporting infrastructure
6. You need a curricular model
7. You need co-curricular programming
8. You need a resource model
9. You need incentives
10. You need publicity
11. You need metrics and outcomes

\*Derived from in depth case studies of Babson, EM Lyon Business School, University of Southern California, The University of Texas at Austin, Tecnológico de Monterrey and National University of Singapore (Fetters et al., 2016)

\*\*Morris et al, 2013.

structure, building and innovating around cross-disciplinary programs that are both curricular and co-curricular, and a commitment to building and implementing a robust performance measurement system. It is clear that if a university wants to be on the winning side of a UBEE, it will need leadership and commitment for the long haul.

***Encouraging academic entrepreneurship***

As for encouraging academic entrepreneurship by faculty and staff, it is important to broaden thinking from what has been considered the domain

of a TTO to include the vast array of intellectual property and knowledge being created by faculty and staff that either is already being commercialized (e.g., executive education programs) or lying dormant to some degree with no attention to knowledge transfer beyond the typical academic publishing.

It is possible that much of the knowledge that is dormant or under-transferred suffers from a knowledge filter relating to culture, know-how, and performance expectations. For some academics, commercialization or even public sharing may feel incongruent as being either ethically suspect or as grandstanding and self-promoting. If the culture and performance expectations of the institution are not aligned for knowledge transfer beyond traditional academic means, it is likely that a very large amount of knowledge will remain inaccessible to the public spillover effect. Additionally, as has been seen with TTOs, it is likely that faculty and staff know-how and experience related to commercializing or sharing knowledge in different ways is limited to the degree that faculty and staff are simply not sure what to do. It is worth considering public investment in training and development to help academics start a wide-ranging set of small businesses from campus.

Finally, it is likely to take an interdisciplinary paradigm shift to understand the importance of being entrepreneurial and innovative and how this differs from simply starting up a business. There is likely confusion for many faculty, staff, and administrative leadership on how entrepreneurship even applies to their area of expertise. Broadening the areas in which entrepreneurship is taught and integrating this across the curriculum (as many have attempted with leadership, cultural awareness, ethics, and so forth), will lend itself to a stronger UBEE and, within that, more start-up ventures.

### ***Implications for policymakers***

One major implication for policymakers is the importance of understanding universities and their contribution to the overall local, regional, state, national, and international entrepreneurship ecosystems. Universities offer much more than is typically measured by patent counts, licensing dollars, and identifiable launches of business ventures from campus. If these ready measures are all one considered, it would be tempting to conclude

that the university contribution to entrepreneurship does not have a net positive financial return. Yet there are other university-related outcomes having positive social impacts, albeit ones that are difficult to measure.

Policymakers should consider universities as assets, whose contributions have yet to be maximized regarding their own UBEE as well as impacts on the larger entrepreneurship ecosystem. Understanding the ecosystem will allow policymakers to work with stakeholders to create supportive policy frameworks that contribute to a comprehensive ecosystem development.

To support this impact on development, universities need policies and resources that are put in place in a comprehensive rather than a piecemeal way. Simply funding a TTO or an incubator space is helpful, yet likely insufficient to unleash the full potential of the university. This emphasizes the importance of coordinating with university and local leadership in order to bring the right stakeholders to the table to develop resource support solutions.

The foregoing implies that public policy has the job of reducing or removing the knowledge filters that exist.<sup>6</sup> How might current and future policy be used to support the creation and distribution of knowledge from universities? These assets are already in place and efforts to maximize this large investment make sense. Scott Andes (2016), writing for the Brookings Institute, argues that “knowledge transfer occurs best over city blocks, not across the country” and that universities do not suffer from poor research, but rather from inadequate relationships with firms and other key ecosystem players. The public policy implications may run in parallel in

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6 One of the early major pieces of legislation was the Baye-Dole Act of 1980 in the US. It was specifically designed to reduce what we now know as knowledge filters (Audretsch, 2007). This act allowed universities to commercialize knowledge/technology and provided financial incentives to commercialize research. After the act passed, TTOs expanded rapidly.

that the solutions may very well be in the hands of city and state governments<sup>7, 8</sup>, rather than at the federal level.

Policymakers also need to understand that universities are difficult to change, which is both a negative and a positive. The negative is that it takes considerable effort to get movement in these large, bureaucratic organizations. The positive is that once the needed shifts are in place, these too become difficult to undo and have a higher likelihood of sticking.

### ***Implications for academic researchers***

An important implication for researchers studying entrepreneurship ecosystems generally and UBEEs specifically is the need to consolidate and deepen our understanding and modeling of the linkages between universities and entrepreneurship, as well as to adapt a more comprehensive approach to process and outcome measurement. We are at the early stages of contributing to the understanding that will allow both university leaders and policymakers to make good decisions related to the UBEE. When reading the implications for each above, it is apparent that university leaders and policymakers need better metrics and data, as well as better understanding of the data, in order to make good decisions. Academic researchers can play a leading role in providing what is needed.

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7 Audretsch (2015) describes research that shows no relationship between policy and desired outcomes. Yet he also goes on to describe multiple well-known cases where specific geographical regions built public policy strategies to impact entrepreneurship and innovation, including the research triangle in North Carolina that linked three universities with the community, the city-states of Hong Kong and Singapore, and efforts taking place in regions within the EU (pp. 104–107).

8 A well-known initiative for economic development policy is called Economic Gardening (<<https://www.nationalcentereg.org/>>) where policymakers choose to “grow their own” rather than simply work to attract business from elsewhere. If a university is in place, financially and programmatically supporting connections between high potential entrepreneurs/ventures to university resources can be a core component of these initiatives.

Multiple gaps are apparent from a review of the literature. Much of the research to date is US-centric with some growth in European research and a sprinkling of studies from other countries around the world. There is a considerable opportunity to expand our understanding of the UBEE across the globe, thus bringing in variables such as culture, politics, and geography. Doing so will likely require cross-disciplinary and cross-cultural research.

Finally, most of the available research is focused on universities, with most of this focused on research-oriented universities. How does the UBEE vary when focused on mid-sized teaching-focused universities? Community colleges? Pre-university/college? Much remains to be investigated.

## Summary

This chapter had four purposes including (1) introducing the reader to the entrepreneurship ecosystem perspective with a particular focus on the university, (2) taking a closer look at the ways that universities influence the ecosystem, (3) assessing performance metrics, and (4) discussing implications for practice and research.

The chapter provided an overview of entrepreneurship ecosystems, touching on their literature lineages and describing the larger component parts. It also took a closer look at the University-Based Entrepreneurship Ecosystem, offering several advanced illustrations of the component parts and relationships. Next, the chapter discussed literature reviews of multiple ways in which universities influence the ecosystem, including traditional technology transfer, entrepreneurship education, and incubators. Knowledge spillovers and filters are discussed throughout the chapter, given their importance. Finally, the chapter presented and discussed implications for both practitioners and researchers.

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## CHAPTER 8

# Liberty's Unfinished Business: How to Eliminate Political Barriers to Global Entrepreneurship

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### **Introduction: Economic liberty inspires global entrepreneurship**

It is hard to start a business that works.<sup>1</sup> Most people do not attempt it. The reasons are complex, but the World Bank's *Doing Business* (2017) report finds only a handful per 1,000 adults worldwide start new ventures.

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Alexander S. Kritikos (2014: 1) notes just how rare it is: “Even in innovation-driven economies, only 1–2% of the work force starts a business in any given year.” In addition, given that most who try do not succeed, woe is compounded when failures are due to excessive regulation by governments. Some signs in wealthier countries seem discouraging with respect to boosting entrepreneurship; for example, the US Census Bureau recently found startups in America at a 40-year low (Long, 2016).

It was never inevitable that humanity would figure out how to create wealth. However, it did, albeit not yet for everyone. Fortunately, in today’s hyper-connected world, the pursuit of economic liberty has moved to the international level as economic freedom in any one country can influence policies in others, and as countries become more interdependent in their efforts to increase wealth. However, so too have the gravest threats to wealth creation given that so few carry the load. In this chapter, we make a 21<sup>st</sup> century case for completing *Liberty’s Unfinished Business*: That business consists of affirming linkages between the regulatory climate and entrepreneurship, and then taking action to maximize global economic freedoms and, in turn, the prospects for entrepreneurship, wealth, and job creation. Most policymakers have bid good-riddance to the 20<sup>th</sup> century’s dark age of central planning; but they must likewise reject planning’s little brother—the presumptuous administrative state—before it takes root in emerging economies and those recently free of dictatorship. They must also uproot the administrative states in advanced nations experiencing declining rates of entrepreneurship.

Pioneering entrepreneurship and innovation economists Israel Kirzner and Joseph Schumpeter did not fret about entrepreneurship’s “antecedents, institutional or otherwise” (Bradley and Klein, 2016: 215) when describing the centrality of the all-important judgmental role of an entrepreneurial prime mover with free will. Nonetheless, the linkages between regulation

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presume their valuable assistance necessarily signifies agreement with my analysis or recommendations.

in a society and the presence of entrepreneurship and economic growth<sup>2</sup> appear to be as well documented as regression analysis and correlations allow. Researchers employ a great many (imperfect) proxies for both dependent variables (those quantities we want to say are gauges of entrepreneurship) and the innumerable independent variables that influence entrepreneurship. Naturally, the analytical enterprise suffers from left/right and partisan disputes, as manifested in questions over, say, regulation's impact on jobs and the concepts of market failure and agency "expertise" (controversies we'll address in our recommendations).

Cronyism meanwhile impedes both entrepreneurship itself and the measurement of it. Even where agreement exists that regulation affects entrepreneurship, we quickly realize that there are wildly different institutions and different categories of regulation, just as there are different categories of entrepreneur. Cultural attitudes matter to budding entrepreneurs, and those attitudes can be affected by many things, as the intercollegiate-consortium based (and encyclopedic, covering over 60 countries for nearly two decades) Global Entrepreneurship Monitor (GEM, 2017) describes. Impressions of how a society treats entrepreneurs, whether or not people believe entrepreneurs are respected, how the media treats them, whether or not becoming an entrepreneur is a good career choice, the status accorded being an innovator, and impressions of whether or not society makes it harder than necessary on entrepreneurs, can lead to the choice to bag it and work for someone else instead.

Naturally, we would like a working definition of entrepreneurship; yet of course there are different shades of meaning and emphasis. The entrepreneurship of being one's own boss is most obvious, as some see entrepreneurship as startup activity and the act of creation itself; others might include in the definition being an employer of others or even creativity and innovation on the part of going concerns. Still others might credit a going concern reacting to competition by keeping abreast of and surpassing it. There can even be entrepreneurial behavior by employees, activity that

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2 A September 2017 search of Google Scholar would have given you "about 159,000 results" <<http://bit.ly/2hhhIO1>>.

also differs from country to country and culture to culture, as highlighted in the GEM. Indeed, “[w]hile research has grown considerably in the last two decades, there is still no consensus regarding the meaning of entrepreneurship” (Godin, Clemens, and Veldhuis, 2008). Of course, in classical liberal movement, the archetypal formulation by Israel Kirzner (1973) emphasizes the entrepreneur’s alertness to the dispersed knowledge that classical economics tended to treat as perfectly known and assumed to be unimportant. Jim Blasingame of the Small Business Advocate, author of *Age of the Customer*, gives a solid definition useful for academics and practitioners alike: “An entrepreneur attempts to create a new product, service or solution while accepting responsibility for the results” (2012). Unfortunately, government regulation can both undermine responsibility and interfere with good results. Indeed, “political entrepreneurship” can negate the real thing.

Global regulators should recognize that as an institution, capitalism doesn’t just make the world richer, but fairer and safer (Smith, 2016). While we acknowledge frequent rent-seeking by corporations, in its essence, the corporate configuration is one of the most democratizing forces yet devised (Smith, 2017). Indeed, it is arguably the prominent form of voluntary organization for allocating risk, fostering shareholder wealth accumulation, and enabling economic interactions between strangers (the latter mimicking the “connections” the well-off have always had and always will have in non-free societies; if you’re well-known or rich or powerful, you can always transact). Despite disdain for capitalism among the millennials who will be leaders in short order, the institutions of economic freedom are necessary for entrepreneurship, prosperity and well-being, and for creating the level playing field statisticians claim to champion.

These assertions are not merely theoretical. Long-term trends toward more material wealth (and one hopes more freedom and liberty) show things objectively better than ever (Burkeman, 2017). “Until about 1800, the vast bulk of people on this planet were poor. And when I say poor, I mean they were on the brink of physical starvation for most of their lives,” according to Joel Mokyr (quoted in Swanson, 2016). The World Bank (2016) classified less than 10 percent of the global population as living in extreme



poverty, compared to 37 percent in 1990 and 44 percent in 1981. No matter where one resides in the world, our grandparents or great grandparents had no refrigeration, no air conditioning—often no indoor toilet if you go back only two or three generations. Technologies in the hands of the poorest today would astonish our forebears. The first successful transatlantic cable carried eight to 17 words per minute, and it was expensive (Colburn, 2016). Today, for the price of connection, the Internet cheaply provides luxuries that prior generations had to pay for (news, maps, entertainment, networking, publishing). Such advantages may arrive even more rapidly in the developing world as these nations embrace wireless versions of the expensive wireline network infrastructures that western nations had to build.

By and large, “technology we take for granted was worth billions not long ago” (Kessler, 2016), and the hours of labor it takes to earn things like a washing machine or 2000 calories continually drop (Boudreaux, 2016). Thus real wealth, if not dividends or income streams collected, is gigantic in terms of the explosion of material conditions and life expectancies that had been abysmal before 1800 (Swanson, 2016). Such “externalities” of global wealth increasingly enrich everyone, but of course, interference matters, such as taxes and regulation that render the poor who do manage to build assets unable to invest creatively, start entrepreneurial ventures, or transfer that wealth to descendants, thereby aggravating income inequality.

In this chapter, we will highlight research pointing to well established (typically but not always inverse) connections between regulations and entrepreneurship, and the well-trod importance of institutions of economic liberty and their positive relationship to entrepreneurship. In the process, we cover a slice of the profusion of global governmental reports and academic and scholarly articles detailing current inquiry into measures and determinants of entrepreneurship. We also discuss limitations of modeling (“infinite” variables, the upending of the entrepreneurial landscape by networking and automation, and endogeneity) and other variables. We then make extensive observations and recommendations on why and how regulations and barriers to investment need to be reduced and reformed in order to improve incentives for entrepreneurs. More than anything, a framework of economic freedom within the rule of law, whatever other

root causes of entrepreneurship there may be, is needed to afford the best possible opportunity for those who take that all-too-rare and courageous step to be entrepreneurs. In making these recommendations, we explore the tensions created by inadequate institutions, the stubborn prevalence of rent-seeking, and the related insistence on the part of even those doing the measuring of entrepreneurship that regulation performs as intended rather than being undermined by unintended consequences (or that regulation can be largely counted on to “behave” rather than misbehave). Finally, our recommendations do not let the private sector off the hook; we spell out the business and entrepreneurial sector’s own duty to defend economic liberty in the face of wide opposition and opportunism.

### **Conceptual linkages between regulation and entrepreneurship**

We know that institutions matter. They have to, because the phrase returns over 200,000 Google search results. There rightly exists abundant interest in “how scholars can theorize and study the effects of institutions and institutional change on entrepreneurship, and the effects of entrepreneurship on institutions, at and across different levels of analysis” (Bradley and Klein, 2016). Regulation, specifically, “as an important part of the institutional environment, is a central aspect of the ecosystem for innovation and entrepreneurial engagement” (Zárate Moreno, 2015: 8). Indeed as Margareta Drzeniek-Hanouz of the World Economic Forum (2015) put it, “If you want to predict the prosperity of a country, just look at its institutions.”

Anna Maria Zárate Moreno (2015) stressed the particular vulnerability of entrepreneurs to “administrative regulation that creates entry barriers,” and quoted the OECD’s *Entrepreneurship at a Glance*: “A combination of opportunity, capabilities and resources does not necessarily lead to entrepreneurship if opportunity costs (e.g. forgone salary and loss of health insurance) and start-up costs outweigh the potential benefits. The regulatory framework is therefore a critical factor affecting countries’ entrepreneurial performance” (OECD, 2016). On the plus side, despite millennial support of the welfare state and large government programs, and

“Eurocrat” dreams of more regulation, “[a]cross Europe more voters would rather Brussels return power to the member states than increase its own” (Micklethwait, 2017). Similarly, a 2011 Gallup Poll found small businesses putting government regulation at the top of a list of complaints (Jacobe, 2011), while the latest National Federation of Independent Business’s *Small Business Optimism Index* shows “soaring optimism, in not-insignificant part related to the Trump Administration’s roll-back of Obama-era regulations?” (NFIB, 2017). Of course, it is impossible to collect statistics and opinions from businesses that never formed thanks to regulation. This is one of our measurement problems in assessing the linkages between regulation and entrepreneurship.

Favorable institutions (rule of law and property rights preeminent among them) can enable and advance liberty and entrepreneurship/innovation—and poor institutions can curtail these values. For example, in *Why Nations Fail: The Origins of Power, Prosperity, and Poverty*, Daron Acemoglu and James Robinson (2012) demonstrate the power of political and economic institutions in contributing to economic success or failure (the North and South Korea contrast features prominently). There is an expansive literature on informal and formal rules, that is, norms, customs, taboos, and conventions, as well as constitutions, laws/regulations, and court rulings that provide the “constraints” that allow stable market economies to expand and urbanize (North, 1991). There is also a rich history of private institutions and rules as alternatives to governmental ones in influencing entrepreneurship. These include early stock markets evolving via entrepreneurial choices rather than planning and regulation, as Edward Stringham (2015) describes in *Private Governance: Creating Order in Economic and Social Life*, and voluntary and private ordering of the commons, as shown in work by Elinor Ostrom (Osorio, 2012).

With respect to the policy preconditions enabling sprightly entrepreneurship, and the cultural factors that lie even deeper, Joel Mokyr asserts that “culture is not independent of political and institutional circumstances” (Swanson, 2016). He gives the example of Europe’s fragmentation relative to China, a condition which meant that those with radical ideas could “pack their suitcase and go across the border.” Reformations occurred,

Mokyr notes, not just in religion but also in “astronomy, chemistry, medicine, mathematics and philosophy” that filtered down to the manufacture of everyday goods. The change, Mokyr continues, was the emphasis on everyday betterment: “Before the Industrial Revolution, learned people in Europe changed the agenda. They say, ‘Look, we should study nature, but we should do so to improve our material welfare.’” Obvious now, not so much in 1600, notes Mokyr.

While most assert “institutions matter,” the sentiment is not universal. Dierdre McCloskey emerges to say, no, it is “[n]ot Douglass North and his institutions,”<sup>3</sup> but rhetoric and the power of language and ideas to convert rude middle class material strivings into talked-about virtues, or, put another way, *Bourgeois Dignity* (2010).

Likewise ensnared in the entrepreneurship debate, especially with respect to declines in entrepreneurship in wealthier nations, is the broader dispute over whether *homo sapiens* has already grabbed the low-hanging economic-growth fruit. This debate was typified in a Federal Reserve Bank of Richmond (Steelman and Weinberg, 2015) discussion of “gloomy” Robert J. Gordon’s *Rise and Fall of American Growth* and Tyler Cowen’s *The Great Stagnation*, in contrast to the “we’ve-only-just-begun” attitude of cornucopian economists like *Culture of Growth* author Joel Mokyr. Let us just say that whatever the root influences of institutions and culture, and whatever becomes of the stagnation debate, societies and entrepreneurship fare better with the institutions of economic freedom. Wise policies will open up opportunities for all, and allow people to learn, across borders and oceans, from one another’s successes.

Fortunately, today’s entrepreneurs largely operate in a world that wishes them the best, as seen for example in the European Commission’s Eurobarometer surveys of social attitudes (e.g., European Commission, 2010), and in the aforementioned Global Entrepreneurship Monitor (2017). Entrepreneurs, in turn, anticipate creating jobs in the next five years at rates

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3 For a treat, see the *Cato Unbound* (2010) exchange on this topic between McCloskey, Gregory Clark, Matt Ridley, and Jonathan Feinstein.

of between 44 and 46 percent (GEM, 2017: 9). Notable again is how developed, wealthier countries fare worse by some metrics.

The GEM survey measures:

- 1 *Societal values about entrepreneurship.* Generally, entrepreneurs are well-regarded by 60 percent or more in poorer and wealthier societies alike;
- 2 *Entrepreneurship as a career-choice.* An interesting contrast is that three-fourths of working age respondents in Africa consider entrepreneurship a good career choice, but less than 60 percent in Europe does.
- 3 *Self-perceptions about entrepreneurship.* A healthy 40 percent overall appear to perceive opportunities for entrepreneurship, with 22 percent across all economy types saying they intend to act. Europeans express the lowest intent to act.
- 4 *Phases/types of entrepreneurial activity.* Interestingly, the greater the level of economic development, the lower the “Total Early-stage Entrepreneurial” (TEA) activity. “[T]he average TEA rate for the factor-driven economies in 2016 was almost double that for the innovation-driven economies (17% compared to 9%).” In Latin American and Africa/Caribbean, “just under a fifth of working-age adults are engaged in early-stage entrepreneurial activity,” while the rate for Europe is lowest of all, “in line with its low entrepreneurial intention rates.”<sup>4</sup>

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4 The GEM uses World Economic Forum (WEF) classifications: (1) factor-driven (subsistence agriculture and extraction businesses dominance, high unskilled labor); (2) efficiency-driven (more efficient production processes and better product quality); (3) innovation (knowledge-intensive, expanded service sector) (p. 13).

Where entrepreneurship takes place varies across economies, something highly likely to be influenced by regulation, as well as other factors. “Around half of the entrepreneurs in factor- and efficiency-driven economies operate in the wholesale/retail sector compared to a third of entrepreneurs in innovation-driven economies. In contrast, 46% of entrepreneurs in the innovation-driven economies are in information and communications, financial, professional and other services—twice as many as in the other two development groups” (GEM, 2017: 10).

Employee “entrepreneurship” and where it happens is noteworthy, too. According to the GEM survey, “Entrepreneurial Employee Activity (EEA) is negligible in both the factor- and efficiency-driven economies; however, it accounts for a substantial portion of entrepreneurial activity in the innovation-driven group [highest in North America and Europe], reaching more than half the average TEA level in this group” (GEM, 2017: 8). Despite regulatory barriers to employment in the US, it turns out employees are important to innovation.

For regulators, an important finding concerns “The Divide between Subsistence and Transformational Entrepreneurship,” which describes in its abstract “two very distinct sets of entrepreneurs” (Schoar, 2010: 57). Policymakers should recognize that “evidence suggests that ... only a negligible fraction of them transition from subsistence to transformational entrepreneurship” and that the two dissimilar groups respond differently to “policy changes and economic cycles.” The challenge according to this line of research is that “most development policies aimed at fostering entrepreneurship focus on subsistence entrepreneurship in the hope of creating transformational entrepreneurs” (p. 57), which could backfire.

A related concept is that of opportunity-motivated entrepreneurial activity (OME) and necessity-motivated entrepreneurial activity (NME). One study (McMullen, Bagby, and Palich, 2008) looked at the effect on these of an assortment of 10 factors representing economic freedom, as well as gross domestic product (GDP) per capita for 37 countries. The study found OME and NME to be negatively associated with GDP per capita (this seems to conform with Europe scoring lower than Africa in some respects in the GEM survey, and with entrepreneurship rates being

lower in wealthier counties) and positively associated with labor freedom. Others results also find entrepreneurship to be sensitive to particular local circumstances: OME “was positively associated with property rights, while NME was “positively associated with fiscal freedom and monetary freedom.” The authors concluded that “governmental restrictions of economic freedom appear to impact entrepreneurial activity differently depending on the particular freedom restricted by government and the entrepreneur’s motive for engaging in entrepreneurial action.”

### **Evidence: The more red tape and regulation, the less entrepreneurship and innovation**

If getting things done requires too many steps, there will be fewer entrepreneurs. The counterintuitive examples one finds to the maxim that increases in regulatory restrictions reduce entrepreneurship may not seem as counterintuitive when rent-seeking and political predation are taken into account. This section assesses some of the literature’s empirical evidence regarding the conceptual linkages between regulation and entrepreneurship (and characteristics of the entrepreneur and his economy) discussed above. We also address some problems in measurement, such as difficulties in holding constant moderating and mediating variables that can influence the empirical relationship between regulation and entrepreneurship. However, the attempt to measure matters for good governing. As the World Bank stated in *Doing Business* (2017), “[Hernando] de Soto’s conjecture, which turned out to be right, was that measuring and reporting would create pressure for improvements in the efficiency of government.”

A decade and a half ago, the prominent article “The Regulation of Entry” examined 85 countries, and found that freer countries tend to have less onerous business entry regulation:

Countries with heavier regulation of entry have higher corruption and larger unofficial economies, but not better quality of public or private goods. Countries with more democratic and limited

governments have lighter regulation of entry. The evidence is inconsistent with public interest theories of regulation, but supports the public choice view that entry regulation benefits politicians and bureaucrats. (Djankov et al., 2002: 1)

The Djankov et al. study did not examine naked corruption, but rather “all procedures that are officially required of an entrepreneur in order to obtain all necessary permits and to notify and file with all requisite authorities” along with official costs and time (Djankov et al., 2002: 5–6). What are these sorts of procedures one might find required for startup? Headings from Djankov’s highly detailed list (p. 11) illustrate:

1. Screening procedures
2. Tax-related requirements
3. Labor/social security-related requirements
4. Safety and health requirements
5. Environment-related requirements

Djankov et al. tell us: “For an entrepreneur, legal entry is extremely cumbersome, time-consuming, and expensive in most countries in the world” (p. 4), and that “better governments regulate entry less” (p. 5). The typical research tool in such studies is regression analysis (Gallo, 2015), the examination of what effects specific independent variables (like the list of procedures and permitting in Djankov) have on the dependent variable(s), which, for present purposes, would be some gauge or proxy of entrepreneurship (or often, innovation).

In a later related study, Klapper et al. (2006) found an inverse relationship between regulation and entry in European limited-liability firms in industries featuring high entry. More procedures resulted in fewer new businesses. Furthermore, Klapper et al. note that regulation induces larger entrants and lower productivity among incumbents (which conforms to a public choice interpretation of regulation being motivated by disadvantaging smaller firms rather than by public interest concerns):



We find that costly regulations hamper the creation of new firms, especially in industries that should naturally have high entry. These regulations also force new entrants to be larger and cause incumbent firms in naturally high-entry industries to grow more slowly. (pp. 591-592)

Calcagno and Sobel (2014), focusing on the relative sizes of firms, note the range of studies on business climate and the number of firms. They demonstrate that higher levels of regulation hurt precisely the smallest firms. Regulatory burdens could induce firms to stay smaller, such as through outsourcing regulated functions, and to maintain threshold sizes to remain officially exempt from regulations. On the other hand, regulation may cause establishments to be somewhat less small, to the extent it operates as a fixed cost.

Consistent with such findings, Bruce et al. (2009) examined the effect of US state business activity metrics (such as annual counts of firms, establishments, and employees, the dollar value of payroll expenses, and annual births and deaths of establishments) on gross state product between 1988 and 2002. They tested linkages between state entrepreneurial activity and overall business conditions while “account[ing] for the simultaneity of business activity and overall growth.” Such business conditions would include both tax-related concerns and regulation, and the study found all such elements matter to entrepreneurship. As one might surmise, “overall economic growth is faster when the net birth rate of new small firm establishments is positive.” In the wake of these and other pioneering reports, Bailey and Thomas (2015), remarking that “the institution that theoretically matters most for the creation of new firms is regulation of entry,” sought an estimate that doesn’t just get at the “effect of regulation of entry on naturally high-entry industries only” but rather a “better estimate of the absolute effect of regulation on new firm creation and employment growth by industry” (p. 4).

Bailey and Thomas find that a half-percent reduction in firm startups results from a 10 percent increase in regulatory intensity (as measured by

the RegData index<sup>5</sup>) over a 1998–2011 interval (p. 11). The authors find no statistically significant effect on firm deaths, supporting the familiar notion that incumbents benefit while new firm births decline (p. 12). The researchers also found that regulation deters hiring at a magnitude similar to that of the decline in startups (p. 13).

Perhaps most well-known is the wide-ranging annual World Bank (2017) *Doing Business* report,<sup>6</sup> with roots in Djankov and colleagues' work, which ranks nations on business climate with respect to "regulation that affects small and medium-size enterprises, operating in the largest business city of an economy" (p. 1). The report also presents "quantitative indicators on the regulations that apply to firms at different stages of their life cycle" (p. 13). Embracing Hernando de Soto's basic contention that disclosure matters when it comes to holding officials accountable, the report underscores the dramatic effect the number of steps involved in starting a business can have on a comparative basis. In Argentina compared to the country of Georgia, for instance:

... it takes 14 procedures to start a new business, double the global average of just seven. So it is perhaps unsurprising that there are only 0.43 formal new businesses per 1,000 adults in Argentina. By contrast, in Georgia—where three procedures are sufficient to start a business—there are over 5.65 formal new businesses per 1,000 adults. (World Bank, 2017: 1)

There are 11 core quantitative measures of business regulation examined in *Doing Business* (see table 1).

Nations now seek to do better, and "compete" with one another on fostering an entrepreneurial environment: "*Doing Business* has recorded over 2,900 regulatory reforms across 186 economies since 2004. Europe

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5 <<http://regdata.org/>>

6 The report "relies on four main sources of information: the relevant laws and regulations, *Doing Business* respondents, the governments of the economies covered and the World Bank Group regional staff" (World Bank, 2017: 13).

**Table 1: What Doing Business Measures—11 Areas of Business Regulation That Are Incorporated into the “Ease of Doing Business” Ranking**

Indicator set	What is measured
1. Starting a business	Procedures, time, cost and paid-in minimum capital to start a limited liability company.
2. Dealing with construction permits	Procedures, time, and cost to complete all formalities to build a warehouse and the quality control and safety mechanisms in the construction permitting system.
3. Getting electricity	Procedures, time and cost to get connected to the electrical grid, the reliability of the electricity supply and the transparency of tariffs.
4. Registering property	Procedures, time, and cost to transfer a property and the quality of the land administration system.
5. Getting credit	Movable collateral laws and credit information systems.
6. Protecting minority investors	Minority shareholders' rights in related-party transactions and in corporate governance.
7. Paying taxes	Payments, time, and total tax rate for a firm to comply with all tax regulations as well as post-filing processes.
8. Trading across borders	Time and cost to export the product of comparative advantage and import auto parts.
9. Enforcing contracts	Time and cost to resolve a commercial dispute and the quality of judicial processes.
10. Resolving insolvency	Time, cost, outcome, and recovery rate for a commercial insolvency and the strength of the legal framework for insolvency.
11. Labor market regulation	Flexibility in employment regulation and aspects of job quality.

Source: World Bank, 2017: Table 2.1, p. 14.

and Central Asia has consistently been the region with the highest average number of reforms per economy; the region is now close to having the same good practices in place as the OECD high-income economies” (World Bank, 2017: 1). Currently sub-Saharan economies’ *Doing Business*

rankings are improving at a rate triple that of OECD established wealthy economies, likely attributable to “a doubling in the number of countries in Sub-Saharan Africa that are engaged in one or more business regulatory reforms—a total of 37 economies in this year’s report” (World Bank, 2017: v.). Overall, “[a] record 137 economies around the world have adopted key reforms that make it easier to start and operate small and medium-sized businesses.”

Given its scope and depth, the *Doing Business* Index has become the basis of much global research on entrepreneurship:

Starting a business [that is, procedures, time, and cost involved] is the indicator set most widely used, followed by labor market regulation and paying taxes. These indexes typically combine Doing Business data with data from other sources to assess an economy along a particular aggregate dimension such as competitiveness or innovation. The Heritage Foundation’s Index of Economic Freedom, for example, has used six Doing Business indicators to measure the degree of economic freedom in the world. Economies that score better in these six areas also tend to have a high degree of economic freedom. Similarly, the World Economic Forum uses Doing Business data in its Global Competitiveness Index to demonstrate how competitiveness is a global driver of economic growth. (World Bank, 2017: 22)

A particularly useful roundup of 13 empirical analyses (all published between 2005 and 2014) by Ana Maria Zárate Moreno (2015) notes over half (55 percent) used the World Bank’s *Doing Business* regulatory indicators, and the “related” Djankov (2002) measures, as independent variables. Related economic freedom metrics also feature prominently in scholarly and public policy analyses. On the dependent variable side representing entrepreneurial activity (such as change in the number of firms, proportion of new firms, birth/death rates), Zárate Moreno (p. 5) notes that half employ the above-referenced Global Entrepreneurship Monitor (GEM)’s Total Entrepreneurial Activity (TEA) and incorporate its components linking entrepreneurship to opportunity and necessity.

Note that not every category of regulation is captured, even in the grandest of surveys. *Doing Business* appears to lessen emphasis on safety

and environmental regulations, which are major concerns in advanced economies (some might see “going green” as a luxury good). However, those regulatory classes that are surveyed lead to still deeper layers, like peeling an onion, and analyses can become extraordinarily detailed. For example, the “quality of judicial proceedings” metric under “Enforcing Contracts” in the *Doing Business* table above gets broken into several additional categories. As well, data on the World Bank’s labor market regulation contains several sub-categories within the classifications Hiring, Working Hours, Redundancy, and Job Quality (the latter contains social policy goals favorably viewed by *Doing Business* (p. 161) that we will revisit shortly). *Doing Business* also gauges government hurdles to social as well as economic concerns like women getting hired or starting businesses (p. iv.) and whether they face additional requirements in starting new businesses; and progress in reducing income inequality (p. v.).

Naturally, not all are on board with the “explicit link made by Djankov et al ... between the speed and ease with which businesses may be established in a country and its economic performance” (van Stel, Storey, and Thurik, 2007). Some left of center academics are more inclined to blame big business and Chicago School economics’ hands-off policies rather than regulation for declines in small business vibrancy (AAI, 2016). Typical in the public-interest spirit of regulation, for example, Alvarez, Amorós, and Urbano (2014) study 49 countries between 2001 and 2010 and find “a positive influence of government spending and entrepreneurship legislation on entrepreneurial activity,” and that “regulations may have different impacts on entrepreneurship according to the country’s economic development.” This analysis still concluded, however, that “developing economies should rationally organize their formal institutions in order to remove unnecessary barriers and controls that obstruct entrepreneurship activities.”

Other studies examine special cases of regulatory impacts on entrepreneurship. For example, a Goldwater Institute study (Slivinski, 2015) found a statistically significant inverse correlation between rates of low-income entrepreneurship/startup rates and occupational licensing burdens. This research was cited in a report on occupational licensing by President Barack Obama’s Council of Economic Advisers (The White House, 2015),

showing that the recognition that regulatory zeal dampens entrepreneurship sometimes crosses the left-right boundary. Indeed, one sensible prophylactic response to escalating fears of automation is “eliminating excessive occupational licensing regulations that make it hard to start the sort of businesses—interior design, hair-dressing, beauty treatment—that are robot-resilient and provide a first step up the opportunity ladder” (Pethokoukis, 2015). In related research findings, “providers of occupational licensing training, namely, schools, are larger and seem to be more profitable in states with more stringent occupational licensing regulation” (Zapletal, 2014). Related to such findings, housing regulation, land use laws, and occupational licensing (among other things) impede mobility and thus economic growth, as well as employment and entrepreneurship (Schleicher, 2017). Relatedly, a 175-nation analysis of entry regulations by McLaughlin and Stanley (2016) finds regressive effects and artificial aggravation of income inequality.

Many researchers regard economic freedom broadly construed as playing the central role in entrepreneurship. Joshua Hall, Robert A. Lawson, and Saurav Roychoudhury (2015) assert that “the ability of people to freely trade, enter into contracts, and start businesses in a system of private property and the rule of law is crucial for productive entrepreneurship.” As a wider measure, “[e]conomic freedom incorporates, and is broader than related concepts and measures such as the ease of doing business ... and the origin of a country’s legal system [such as the World Bank index]” according to Bradley and Klein (2016: 212, fn. 1). These authors characterize economic freedom as “a summary measure capturing the freedom to engage in economic activity without undue restrictions or subsidies. The institutions, or ‘rules of the game,’ most strongly associated with economic freedom include property rights, the rule of law, open markets, and incentives to innovate.” (Bradley and Klein, 2016: 211). The collaborative (Cato Institute, Fraser Institute, and dozens of other think tanks) *Economic Freedom of the World* report (Gwartney, Lawson, and Hall 2016) exemplifies this approach, wherein many dozens of underlying component data points contribute to assessments of economic freedom (and in turn rankings of nations) in five key areas:

1. Size of government: expenditures, taxes, and enterprises;
2. Legal structure and security of property rights;
3. Access to sound money;
4. Freedom to trade internationally; and
5. Regulation of credit, labor, and business.

Further study is likely to identify more reliably which specific regulations in which specific industries most impede entrepreneurship. Zárate Moreno (2015: 7) noted that, with respect to innovation, regulation's effects vary among sectors and industries, as well as over the short and long run. An illustration of this phenomenon for the US is provided by Patrick McLaughlin and Oliver Sherouse (2016), who examined the number of "restrictions" (as proxied by terms representing mandates or prohibitions expressed in the Code of Federal Regulations) to identify the top 10 most heavily regulated sectors by North American Industry Classification System. Their findings for the most heavily regulated are as follows:

**NAICS    Industry Sector  
Code**

3241	Petroleum and coal products manufacturing
2211	Electric power generation, transmission, and distribution
3361	Motor vehicle manufacturing
5222	Nondepository credit intermediation
5221	Depository credit intermediation
4811	Scheduled air transportation
1141	Fishing
5239	Other financial investment activities
2111	Oil and gas extraction
3254	Pharmaceutical and medicine manufacturing

Unsurprisingly, the global environment for entrepreneurship presents a mixed picture. According to the World Bank, "OECD high-income economies have on average the most business-friendly regulatory systems, followed by Europe and Central Asia" (2017: 6). On the other hand, there

has been a slowdown in some of these wealthier economies. In terms of the global “ecosystem” for entrepreneurship, “both the factor- and efficiency-driven groups report several unfavorable conditions. In factor-driven economies, R&D transfer, entrepreneurial finance and internal market burdens/entry regulations are highlighted as areas constraining entrepreneurship; in efficiency-driven economies, R&D transfer also features, as well as government policy, and taxes and bureaucracy” (World Bank, 2017: 11).

Academics have taken an interest in the boundary between scholarly research and practical entrepreneurial training, which should aid economic liberalization efforts. For example, Guatemala’s Francisco Marroquín University, through the aforementioned Global Entrepreneurship Monitor project, maintains a research venture aimed at making evident the negative effect of over-regulation on the entrepreneurial process.<sup>7</sup> Their efforts include furthering research into how labor market regulation and other growth constraints affect formal job creation in small and medium-sized enterprises (SMEs). In the United States, the University of Louisville’s John H. Schnatter Center for Free Enterprise engages in “research and teaching that explores the role of enterprise and entrepreneurship in advancing the well-being of society.”<sup>8</sup>

***Modeling sophistication notwithstanding, the ability to “measure” regulation and entrepreneurship will always be imperfect***

The measurements of regulation we surveyed above are imperfect, of course. Even more fundamentally, no one knows (or can know) what the dollar cost of regulation is to the world’s entrepreneurs, going concerns, and consumers. Certain burdens can be rather obvious (compliance paperwork, perhaps), but much is unseen, such as the cost of innovations sacrificed. Michael Mandel of the Progressive Policy Institute (Dearie, 2013: 108) observed that while individual regulations may well pass a cost-benefit test, the cumulative effect could be that of “pebbles in the stream” that eventually clog the flow. An extensive OpenEurope study (Persson,

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7 <<http://gem.ufm.edu/>>

8 <<http://business.louisville.edu/schnattercenter/>>



2009) found the cumulative cost of UK regulations introduced between 1998 and 2008 to be between £148 billion, or 10 percent of GDP, with 72 percent of those regulatory costs coming from European Union legislation. In the US, John W. Dawson and John J. Seater (2013) contend that rules affecting growth rates compound, and that Americans are less than half as rich as would otherwise be the case in the absence of much of the regulatory state. Another study, “The Cumulative Cost of Regulations” (Coffey, McLaughlin, and Peretto 2016), models regulations’ effect on firms’ investment choices using a 22-industry dataset covering 1977 through 2012, and concludes that the 2012 US economy was \$4 trillion smaller than it would have been in the absence of cumulative regulatory growth since 1980. Regulation affects not only current jobs but also the inclination for entrepreneurs to create them in the future. That complicates measurement, since nations cannot “lose” jobs that haven’t been created, and thus cannot measure them as the real losses they actually are. Indeed, much of the regulatory enterprise is altogether immeasurable (Crews, 2017a), and unavailable to incorporate into studies of entrepreneurship.

This author employs a placeholder for US regulatory costs of \$1.9 trillion annually (Crews, 2017a). Interestingly, not counting the US itself, only six nations’ GDPs exceed that amount, and US regulatory costs by this metric exceed the 2015 GDPs of neighbors Canada (\$1.55 trillion) and Mexico (\$1.144 trillion). Interesting also, given our concern with global economic freedom surveys, is that US regulatory costs exceed the GDP of the world’s major economies ranked as most free by both the Heritage Foundation’s *Index of Economic Freedom* (Miller and Kim, 2017) and the Fraser Institute and Cato Institute *Economic Freedom of the World* reports. (Of the top 10 most-free countries in these publications, eight are common to both.)

As distinct from the specific countable regulations published in a given category, one ought not to overlook “intervention” as a concept, that of government steering while markets merely row (the presence of the anti-trust threat and public-private partnerships are examples). This concept is difficult to model. Furthermore, sometimes government mandates assume the form of “regulatory dark matter” (Crews, 2017c). These informal

decrees (like memoranda, guidance, notices, circulars, bulletins, administrative interpretations, and the like) are not captured in oft-studied independent variable sets, since countable regulations are not available to point to as a cause of stagnation. Indeed, regulation can profoundly redirect the market discovery process along new involuntary paths, as Bruce Benson describes in “Opportunities Forgone: The Unmeasurable Costs of Regulation” (2004), meaning discoveries which might have been made in the absence of the regulation may never occur. In the extreme, regulation can shift entrepreneurial activity to underground or shadow economies, further confounding measurement. Studies of such informal entrepreneurship globally are beginning to show that such underprivileged entrepreneurs are not lacking in ability or “spirit,” but in legitimization (Williams and Nadin, 2010), and that “economic freedom promotes formal entrepreneurship relative to informal entrepreneurship” while increasing both overall. A recent analysis of Africa by Iain Murray and Daniel Press (2017), for example, stresses the importance of economic freedom but also a need to “legitimize beneficial but currently technically illegal activities” in a region where the shadow economy accounts for over half of both GDP and employment, and most new jobs.

### ***An infinity of variables influence entrepreneurship***

The prior discussion emphasized *independent* variables like procedures and permitting complexity and economic freedom measures. There are likewise countless ways to select *dependent* variables, our measures of entrepreneurship. The OECD’s *Entrepreneurship at a Glance 2016*, for example, lists the following indicators (some highly developed in the literature, some less so since, such data is not collected everywhere) “for measuring the state of entrepreneurship” (OECD, 2016: 10):

- A. New enterprise creations
- B. Enterprise exits
- C. Bankruptcies
- D. Self-employment
- E. Outlook and prospects of job creation

- F. Enterprises by size
- G. Employment by enterprise size
- H. Value added by enterprise size
- I. Turnover by enterprise size
- J. Compensation of employees by enterprise size
- K. Labor productivity by enterprise size
- L. Birth rate of enterprises
- M. Death rate of enterprises
- N. Survival of enterprises
- O. Employment creation and destruction by enterprise births and deaths
- P. High-growth enterprises rate
- Q. Incidents of traders
- R. Trade concentration
- S. Exports and imports by enterprise size
- T. Market proximity
- U. Exports and imports by enterprise ownership
- V. Self-employment by gender
- W. Self-employment among the youth
- X. Earnings from self-employment
- Y. Inventors by gender
- Z. Perception of entrepreneurial risk
- AA. Venture capital investments

Like the OECD *Glance* data, one can find related projects attempting to capture entrepreneurial activity (the dependent variable). One example is the United Kingdom's Office of National Statistics' "Trends in Self-Employment" report.<sup>9</sup> Others include the Eurostat-OECD entrepreneurship indicator program (EIP) which began in 2007 to "collect internationally com-

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9 <<https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetypes/articles/trendsinselfemploymentintheuk/2001to2015>>

parable statistics to enable the ‘measurement’ of entrepreneurship,”<sup>10</sup> and the non-profit World Economic Forum’s *Global Competitiveness Report*.<sup>11</sup>

Putting “measurement” in quotes makes sense in the EIP or any other program. As regulatory cost measurement is imperfect, so too is gauging causality. Authors generally freely acknowledge limitations (note the appendix compilation in Zárate Moreno (2015), for example). While startups/births are a major examined variable, correlations that could be proposed and tested as independent variables affecting entrepreneurship indicators on a list like the OECD’s *Entrepreneurship at a Glance* seem unlimited. Even the OECD’s list of indicators alone exceeds the number of letters in the alphabet. Further, the regulation of entrepreneurship proceeds from many fronts: state, local, national, and international. Once one pulls a thread, there is no stopping, hence the perpetual calls for “future research.”

Complexity in measuring regulation’s effect on entrepreneurship is further heightened by the preeminence of the formal legal environment and escalation of litigation, as economies grow wealthier. One study (Dixon et al., 2006) outlined categories of laws and regulations affecting small business, including:

- ♦ Corporate law (liability exposure, organizational form, such as LLC or not);
- ♦ Securities law and regulation (concerns such as bankruptcy rules);
- ♦ Environmental protection (compliance variables such as equipment and monitoring, statutory applicability, enforcement stringency and prevalence of negotiated agreements);
- ♦ Employment law (administrative agency enforcement stringency, court enforcement policies and the litigation environment, costs of workers’ compensation/unemployment insurance, regulation of employment contracts);

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10 <<http://ec.europa.eu/eurostat/web/structural-business-statistics/entrepreneurship/indicators>>

11 <<https://www.weforum.org/reports/the-global-competitiveness-report-2016-2017-1>>

- Health regulation (variation in coverage requirements and premium costs).

The US Congress and overseas bodies alike respond to such concerns with exemptions for small business and other analysis and mitigation of regulatory effects (see for example United States Senate, 2017). Regulation's effects will vary at the individual, firm/industry, group, and national levels, and then cross-nationally. Measurement complications arise from mere state and local differences in the US. "Although federal regulation applies in the same way in all states, each state's economy includes a unique mix of industries. As a result, federal policies that target specific sectors of the economy will affect states in different ways" (McLaughlin and Sherouse 2016: 3).<sup>12</sup> For example, federal financial regulations would matter more to New York than Virginia (p. 4). One might presume an international corollary to this principle, that the ability to set up shop in nations with superior manufacturing environments, more lax antitrust regulation, or more friendly privacy policies all would have an impact.

### ***Personal characteristics matter in the study of entrepreneurship***

Like the country (and industry) characteristics so much under exploration, characteristics of the entrepreneur him or herself also influence the association between regulation and entrepreneurial activity. Just a handful of entrepreneurs often transform society when it comes to subsistence versus innovation, as noted earlier. Free will belongs there somewhere, something reflected in the different behaviors among siblings raised in the same home environment (Harris, 2009) and the chicken or egg question of whether an entrepreneur is born or made. A firm's early years depend on momentum and speed and the "energy, focus and flexibility of their leaders" (Dearie, 2013: 109). As we've established, "[t]here are many available aggregate measures of entrepreneurship, such as the number of start-ups

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12 In this report, Mercatus scholars describe the use of the Center's RegData catalog to create a federal regulation and state enterprise (FRASE) index, capturing "relative impact of federal regulation among the states" (p. 5).

and the percentage of the population that is self-employed” (Bradley and Klein, 2016: 216), “but these do not necessarily capture abstract concepts of alertness, judgment, and innovation.”

Who finally takes the entrepreneurial leap and what influences them? Noting the already “burgeoning” nature of the literature on the “influence of regulation of product and labor markets on GDP growth, TFP [total factor productivity], investment, and employment using macro data,” Ardagna and Lusardi (2008) took advantage of the earlier days of the GEM micro dataset to study “how a country’s regulatory and legal environment affect individuals’ decisions to engage in new entrepreneurial activity.” They look at “regulation of entry, regulation of contract enforcement, and regulation of labor” noting that regulation can have both public-interest and public choice motivations.” Their research finds that “individual characteristics, such as gender, age, and status in the workforce are important determinants of entrepreneurship,” and that “social networks, self-assessed skills, and attitudes toward risk,” along with regulation, play roles:

Consistent with the public choice model, we find that regulation acts as a detriment to entrepreneurship, particularly for those individuals who become entrepreneurs to pursue a business opportunity. In our empirical analysis, we estimate the effect of regulation via its impact on individual characteristics. Regulation has the greatest impact on the effects of social network, business skills, attitudes toward risk, and working status. Specifically, regulation attenuates the effect of social networks, business skills, and working status on entrepreneurship while it strengthens the impact of attitudes toward risk. We find also that several individual characteristics—gender, age, and education—are important determinants of entrepreneurship, though their effects differ across types of entrepreneurship. For example, the estimates of education are positive and statistically significant for individuals who become entrepreneurs to pursue a business opportunity, while they are negative and statistically significant for those whose entrepreneurial activity is simply remedial. This finding further

highlights the importance of being able to distinguish between types of entrepreneurs. (Ardagna and Lusardi, 2008: 4)

Related work (Ardagna and Lusardi, 2009) strongly indicates that remedial entrepreneurship—that engaged in when no other options exist—is “accentuated” for the disadvantaged by entry regulation. For example, “women are more likely to enter into entrepreneurship in countries with higher levels of entry regulation, but mainly because they cannot find better work,” something pronounced in “less financially developed” countries. Appropriately, avenues for future research on gender and other aspects continue to be noted as datasets like GEM expand and improve in usefulness (Sánchez-Escobedo et al., 2016).

### ***The networked economy and automation upend entrepreneurship dynamics***

We noted the changing nature of work via the sharing economy and automation and networking above as one in the profusion of variables affecting entrepreneurship, but it is worth separately reflecting upon this phenomenon. These changes have been revolutionary, even since the seminal entrepreneurship studies of the early 2000s that undergird so much current scholarly research.

The point is, revolutionary developments like instantaneous communication and handheld devices doubling as libraries of all human knowledge have democratized the availability of information and access to skills one might need to engage in entrepreneurship (or to carry out duties as an employee or contractor). Notable for example, is how some in the developing world skipped over telephone landline infrastructure straight to the smartphone. If the smartphone had not come upon the scene, we would be having a different discussion entirely with respect to developing nation entrepreneurship, yet this seems unappreciated in the literature. In a sense there is vastly more tangible and intangible raw material available than there had been for those who came before, since the wealthy developed world never had the technological advantages that developing nations now have; these “inputs” to the entrepreneurial and production processes,

one might say. That doesn't necessarily make things easier; timing and resources matter and one likely can't build a search engine or PayPal now as the time for such one-time innovations has now come and gone (not to re-litigate first-mover advantages and "lock-in" here (Liebowitz and Margolis, 1995)). Still, entrepreneurs will increasingly respond to counterparts worldwide. An economy starting from a lower base of poorer institutions can grow faster and improve entrepreneurship (Bradley and Klein, 2016: 215) relative to others; perhaps part of the reason would be cross-fertilization, learning from the institutions of others, enabled by technology.

Trade is one of many potential determinants of entrepreneurship, as is unprecedented proximity to markets. Indeed, if one is comparing decades rather than year to year, the rise of eBay, Alibaba, and Amazon Associates in concert with the shipping container revolution demonstrated in *The Box: How the Shipping Container Made the World Smaller and the World Economy Bigger* (Levinson, 2016) put entrepreneurship in a new realm. Are those in China selling aftermarket chrome auto trim over eBay appreciated in entrepreneurial studies? We have a global economy transformed not just by the intangible Internet, but also by something as humble as a container combined with cheaper manufacturing and automation. Automation, in fact, has led to calls for Guaranteed Minimum Income (or Universal Basic Income) allegedly to ease social turmoil in the face of predictions that "currently demonstrated technologies could automate 45 percent of the activities people are paid to perform" (Chui et al, 2016).

Accelerated creative destruction doesn't just happen to the powerful, but to the mom and pop and individual enterprises (Segran, 2017). Many are understandably ambivalent about technology-driven contract or remote work, just as others would prefer full-time work but are relegated to part-time by regulation that makes employers reluctant to hire. Scholars studying entrepreneurship will increasingly need to isolate trends influenced by regulation on the one hand, and the changing networked/automated economy on the other.



***Endogeneity, or causality that goes both ways***

Are entrepreneurs creating the growing economy, or is the growing economy enabling entrepreneurs?

Metrics seeking to explain entrepreneurship may not capture precisely what one expects. “[E]ndogeneity problems between innovation or technological change and regulation persist,” asserts Zárte Moreno (2015: 7). That is the technical way of saying cause and effect can potentially run both ways. For example, regulation affects firm startups and sizes; but firms also affect regulations (which we will note again in recommendations on averting rent-seeking). Some dependent variables might be employed by scholars as independent variables. Nyström (2010), for example, describes how “the regulatory quality and amount of business regulation may also be influenced by the amount of entrepreneurial activities in the society since policymakers and bureaucrats tend to respond to changing conditions in the society.” Also, Bailey and Thomas (2015: 4) note that “studies suffer from the problem that healthy economies usually score well on a number of different institutional variables, making it difficult to isolate the specific effect of a particular variable.”

In another manifestation of endogeneity, the political power of those inclined toward laissez-faire in entrepreneurship likely affects institutions, as does, unfortunately, growth in rent-seeking in pursuit of suppression of competition. Some studies link regulatory intensity to industry decline—implying that regulation is the cause and declining productivity is the effect. But in some instances it may be the reverse, such as the familiar case of declining industries supporting regulation that shields them from competition from innovators, which ultimately feeds back to declining productivity. There remains the familiar longstanding “unholy alliance of anti-market intellectuals and rent-seeking businesses” (Smith, 2012). One can conceive, however, of liberalization-oriented lobbying spawning entrepreneurship. Those one-time entrepreneurs may eventually embrace zero-sum lobbying, but one can hope.

So clearly, studying regulation’s effect on entrepreneurship means looking at imperfect empirical relationships. One takeaway is that regression models cannot be the only tool policymakers employ. But we mustn’t

despair; if the classical liberals among us believed economies could be modeled, we would be socialists and central planners instead. I noted earlier that costs of regulations and interventions cannot be precisely measured. We can likewise comfortably acknowledge that we cannot precisely measure the effects of regulation on innovation and entrepreneurship. However, imperfect measurement is not necessarily a failure; it is a feature, not a bug.

### **Unleashing entrepreneurship: Recommendations for policymakers**

The bureaucratic reflex treats every matter as a public policy concern, when the task instead is asking, “What can I do to take myself further out of the economic picture?” The role of policymakers, as Peter Klein puts it, is “don’t constrain entrepreneurs with bad policies, but don’t try to subsidize them either. Let the market sort it out” (Mariotti, 2014).

Laissez-faire is the exception, however. For example, governments often seek to boost entrepreneurship by trying to attract venture investment funds, under the assumption that “more venture capital will cause an increase in successful entrepreneurial activity” (Kreft and Sobel, 2005). This tends not to work; Kreft and Sobel find instead that “entrepreneurial activity causes an inflow of venture funding, and not vice versa.” The lesson is that “economic development policies should focus on creating an environment attractive to individual entrepreneurs, rather than on attracting venture capital.”

The United States—now only 242 years old—became richer than the rest of the world in a historical blink of an eye. Policymakers know how that remarkable achievement occurred, and know that it can be sustained by embracing the institutions of liberty that allow entrepreneurialism to flourish. What halts economic booms? Matt Ridley’s four “Ps”: piracy, predation, parasitism, or plunder (Cato Unbound, 2010). The path to expanding economic freedom is not complicated: Repeal or amend laws that sustain a particular objectionable regulatory enterprise or program; and abolish, downsize, reduce the budgets of, and deny appropriations

to regulators, sub-agencies, and programs that pursue regulatory actions not authorized by elected legislative bodies. Such solutions are resisted, of course; as Schumpeter's work notes, once the intellectual class is seduced by the state, restraining Leviathan is difficult (Smith, 2017).

A flawed presumption prevails that regulation "works."<sup>13</sup> But fixed regulations bind us to the past; they can impoverish, and sideline entrepreneurs. For many market failures invoked to justify government intervention, one can often find some political and bureaucratic failure instead. It is a government failure, not a market failure, when rent-seeking occurs; when price regulation creates shortages; when Internet neutrality regulation undermines communications infrastructure; and when endangered species regulation harms endangered species. The benefits regulators seek to command into existence are also forms of *wealth* that require markets—and entrepreneurs—to flourish. Examples include financial stability, food safety, privacy and cybersecurity, access to broadband, and environmental amenities. Such benefits can be undermined by political regulation, just as political regulation can decrease dollar wealth.

Friendly rivalries among nations to boost entrepreneurship are long underway and healthy. Nations can and do learn from one another. As Bradley and Klein (2016) assert, "there is much variation within countries and over time. As a result, there are opportunities for studying institutional evolution and change, and examining causal relationships between firm and industry characteristics and institutional characteristics at multiple levels." Across the globe, however, maximizing entrepreneurship will often mean limiting government and halting over-delegation of legislative power to unaccountable regulators. In the US, House Speaker Paul Ryan's "Article I" task force report is a recent candid acknowledgement by politicians that they hadn't been living up to such ideals of economic and social liberty.<sup>14</sup> We need better measurement, but also a deliberate unwinding of the excessive administrative state where it exists, and the refusal to erect

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13 IronLawofRegulation.com, *Theory and Evidence on Competing Hypotheses* <<http://ironlawofregulation.com/>>.

14 See <<https://abetterway.speaker.gov/>>.

it in developing realms where it does not. Rent-seeking notwithstanding, business, too, has a role in legitimizing widespread economic liberty.

***Policymakers must expand rule of law and democratic accountability, starting with better regulatory disclosure and predictability***

To provide entrepreneurship its best possible footing, policymakers' pre-eminent task is to expand institutions of liberty that allow free enterprise to flourish. Unfortunately, after the Progressive era's imposition of rule by experts, extending those institutions into new realms (such as airsheds, spectrum, watersheds, and large-scale private network ownership) has been set back decades. Capitalism and liberal ideas are relatively young, so perhaps it is too much to have expected the legitimization of laissez-faire in a "pre-historic" year like 2018. As nations attempt to control taxes via institutions restraining the state, the hidden taxes of regulation also need control, greater disclosure, and especially greater democratic accountability (Crews, 2015, 2017a). Providing better predictability and reporting on regulatory costs and trends in ways that help to prioritize regulatory cost minimization is probably the easiest step for policymakers.

In an examination of the effect of federalism (devolving regulatory activity to the lowest governmental level that can internalize costs/externalities) on entrepreneurship and innovation, Dove and Sobel (2017) call for stable and predictable regulation. They note the variability in legal risks and therefore the disproportionate impacts firms can face both in geography and in type of business regulations from various jurisdictions (such as environmental regulation, corporate law/chartering, banking/financial regulation, antitrust, each of which has a deep body of research the authors cite). The lesson for both business and policymakers is that predictability matters for increasing transnational competitiveness. "Because entrepreneurs constantly create new products that require new interpretations of existing statutory law (or the creation of new statutory law)," Dove and Sobel "argue that it is the predictability of the dynamic application of the law into new areas that matters most in attracting entrepreneurs to an area and supporting innovation within an economy."

We have known for a long time that such predictability matters to entrepreneurship. The OECD's 1998 Better Regulation Task Force publication noted similar basic principles (transparency, accountability, targeting, consistency, proportionality). 2010's *Better Regulation in Europe* stressed lessening complexity; for the UK in particular, "[a]n effective balance has been achieved between policies to address the stock and flow of regulations" with success "on two key fronts—simplification of existing regulations through the reduction of administrative burdens on business, and ex ante impact assessment of new regulations" (OECD 2010: 38). OECD dialogues on simplification and measurement of regulation continue today.<sup>15</sup>

The reports we have surveyed in this chapter, such as the indices of economic freedom and the World Bank and GEM reports, all continue to improve. The GEM recommendations (pp. 34–35), for example, include reforming the regulatory environment to ease new business registration and operation, reducing bureaucracy and red tape, and easing access for SMEs to prepare business documentation (human resources, insurance) via web resources. Assorted government hand-holding elements lurk, such as recommendations to offer advice and education to budding entrepreneurs and to offer government programs, mentorship, incubators, microfunding, government seed capital access, incentives for technology ventures, IT infrastructure investment and the like. Examples include the European Commission's "Entrepreneurship 2020 Action Plan,"<sup>16</sup> which asserts that "[t]o bring Europe back to growth and create new jobs, we need more entrepreneurs," and calls for "removing existing administrative barriers"; but the report raises red flags with such declarations of intent as "supporting entrepreneurs in crucial phases of the business lifecycle." In the wrong hands, such "support" means interventions, favors, and subsidies, not the economic freedom counseled here.

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15 See <<http://www.oecd.org/regreform/events-publications.htm>>.

16 See <<http://ec.europa.eu/growth/smes/promoting-entrepreneurship/action-plan/>>.

Everyone has their villains list as far as regulations, bureaucracy, and red tape are concerned, such as OpenEurope's Top 100,<sup>17</sup> and the traditional US New Year's Day list of craziest regulations. Examples of documenting said red tape (apart from US examples noted earlier) include OpenEurope's "Measuring a Decade of EU Regulation (Persson, Booth, and Gaskell 2009). With these and others disclosures, governments can set about breaking up the regulatory burden into manageable pieces and reducing it, and providing more certainty and predictability to entrepreneurs. The following provides some universally applicable options.

### **Break the Regulatory Elephant into Bites**

**Regulations past:** Implement a regulatory reduction commission and task it with reviewing the entire federal regulatory edifice and preparing a comprehensive package of cuts, to be voted up or down in expedited fashion; undertake oversight hearings, reviews and sunsets of legacy rules.

**Regulations present:** Implement freezes/moratoria on regulations; cut numbers of rules issued by agencies; systematize review and sunseting for each new rule; supply the public with an annual Regulatory Transparency Report Card (a summary paralleling fiscal budget disclosures) that includes costs, counts, and flows in the various classes of regulations (social economic, environmental, health/safety, and paperwork); implement pay-go (rule-in, rules-out procedures); codify cost analysis.

**Regulations future:** Avoid regulating altogether; require legislative votes on costly or controversial rules; experiment with regulatory cost budgeting. (Crews, 2011)

Such steps are underway. The Netherlands and the United Kingdom both set up autonomous, non-governmental bodies to review regulation (the Regulatory Reduction Committee in the Netherlands and the Better

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17 Foreexample, OpenEurope's "100 most burdensome EU-derived regulations:" <<https://open-europe.org.uk/intelligence/britain-and-the-eu/top-100-eu-rules-cost-britain-33-3bn/>>.

Regulation Commission in the UK). Both set goals to reduce regulatory burdens by 25 percent for four-year periods, which appears to have been achieved with some success. (See the OECD “Better Regulation” reports for the UK and the Netherlands.<sup>18</sup>)

Related to sunseting and available for borrowing from the UK experience is a “one in, one out” procedure, and more recently, a “one in, two out” procedure.<sup>19</sup> Like the reduction commission, this idea holds bipartisan appeal; proposals exist from the left and right. In the United States, Sen. Mark Warner (D-Virginia) suggested a one-in, one-out reform, recommending the offsetting of every new rule via the elimination of one somewhere else within an agency itself or elsewhere (Warner, 2010). “One in, one out” amounts to a status quo regulatory “budget,” or a freeze at current cost levels, with the caveat that cost neutrality depends on what ultimately goes in and what comes out.

Finally, technology can help standardize, automate, and eliminate redundancy in compliance data reporting burdens required from the various agencies (White, 2017), as well as assist in agencies carrying out their own disclosure. The government of Australia is one pioneer in so-called “standard business reporting.”<sup>20</sup> All these steps can boost entrepreneurship.

### ***Measure, reduce, and forbid “regulatory dark matter”***

When researchers count regulations, assemble trends, or input data into models, one of the increasingly significant means of regulating in today’s world may be missed. Some of the barriers to entrepreneurship are not countable in obvious ways, and thus are omitted from economic models. In the United States, for example, along with the laws from Congress and the rules from agencies that are subject to public notice and comment, there are many agency sub-regulatory proclamations that end up having

18 <<http://www.oecd.org/gov/regulatory-policy/betterregulationineuropeeu15countryfinder.htm>>

19 See <<https://www.gov.uk/government/policies/reducing-the-impact-of-regulation-on-business>>.

20 See <<http://dictionary.sbr.gov.au/>>.

real force and effect. These go by various names: guidance documents, memoranda, notices, bulletins, circulars, Dear Colleague letters, and more. Examples included Obama-era Labor Department “Administrator’s Interpretations” on franchising and on independent contracting (since revoked by the Trump administration), and the high profile transgender restrooms skirmish (over a “Dear Colleague” letter from the Justice Department and the Department of Education). There are thousands of such guidance documents in the US, and, one presumes, internationally. This off-the-books-regulation phenomenon is poised to grow. The Internet-of-Things, for example, may allow regulators to regulate from afar by mouse click (your car emits too much, or your drone is too low; see for example Dorrier, 2015) rather than bother with notice-and-comment rulemaking. Solutions to dark matter range from banning it altogether, to reporting on it in the fashion just described for regulations. In yet another area for future research, scholars and policymakers should study the extent to which the phenomenon exists globally and account for its effect on entrepreneurship, and, by all means, lessen its abuse.

### ***Incorporate specific targets for regulatory reductions***

In boosting entrepreneurship, administrative, “good government” reforms are no substitute for embracing genuinely limited government, accountability, and economic freedom. Nevertheless, they can help increase the likelihood that we or our descendants achieve these ends. Therefore, one important step in regulatory reductions is to have targets. Even without a specific target, Ronald Reagan brought both numbers of regulations and pages in the Federal Register (the US’s daily depository for rules and proclamations and other bureaucratic miscellany) down by over a third, but both edged back upward later (Crews, 2016). Without Congress acting, Donald Trump has effectively frozen regulation in the US, but congressional action will be needed to make that permanent. In a recent analysis, James Broughel (2017b) stressed the importance of goals in the example of British Columbia, which in 2001 sought to cut regulatory requirements by one-third within three years, and bested that target. Similar campaigns



should be tested globally—and nations should compete in meeting targets that improve the entrepreneurial climate.

***Beware the tension between rent-seeking and regulatory “quality” aspirations***

Undermining the institutions of liberty are the institutions of disruption, whether accidental or deliberate. These can manifest in old-school rent-seeking, in abuse of the “precautionary” principle, in political exploitation of the regulation and jobs/entrepreneurship linkage, and even in the priestly pursuit of regulatory “quality.”

Basic rule of law functions are vital, but endlessly debated is the statutory and regulatory framework that evolves atop that foundation. Advanced societies have, alas, long been seduced by the idea of regulatory “expertise,” such that good government and rent-seeking too easily clash in the formation of institutions suitable for sustained liberty and entrepreneurship. A central bank, for example, is an expert “institution” viewed with suspicion. On the third attempt, the United States got its Federal Reserve System (Bernanke, 2008), an entity to this day that escapes blame for the business cycle downturns it was established to prevent. It also remains unaudited (Nelson, 2015). “Institutions” also include government-sponsored enterprises (GSEs) like Fannie Mae and Freddie Mac that figured in America’s housing crisis. The administrative state itself (anchored in the 1946 Administrative Procedure Act) is most assuredly an institution, guarded by the “New Deal fundamentalism” (Gasaway and Parrish, 2017) preventing challenges to its authority and democratic legitimacy.

Indeed, poor political and legal institutions indirectly lead not just to poorer or lower rates of productive entrepreneurship, but actually channel energies into unproductive and destructive entrepreneurship (Sobel 2008). A classic modern example of regulation-induced “entrepreneurship” is highly paid regulatory compliance officers in financial services; the wrong kind of white-collar job growth, one might say. There are many of these folks employed, but they are a cost of doing (the same) business, not an indicator of added wealth.

The public interest defense of regulation is that it is vital to establish a level playing field, while the public choice conclusion is that regulation tilts that field. With respect to the role of entry restrictions and international trade barriers in reducing entrepreneurship, Sobel, Clark, and Lee (2007) found that while “entrepreneurs benefit from unrestricted free entry into markets, they have a time-inconsistent incentive to lobby for government entry restrictions once they become successful.” As they appropriately assert, “[b]ad institutions yield to these [protectionist] demands.” Still, despite regulatory capture, some liberal observers maintain that intervention is good for entrepreneurship and job creation. Meanwhile conservatives praise antitrust and heavy government investment (Crews, 2010).

Arguably, the technology sector has remained comparatively less regulated, allowing greater entrepreneurship. In a wide-ranging discussion of “imposed” versus “organic” regulations, and of how regulations crowd startups into less-regulated areas at the expense of vitality in others, John Chisholm (2015: 322) notes: “There are hundreds of thousands of start-ups in mobile apps but relatively few in pharmaceuticals, aviation, construction, consumer banking, and medical devices. Why?” Unfortunately, the light-touch tech regulatory climate is changing given the likes of Internet neutrality campaigns that would undermine telecommunications investment and the connectivity entrepreneurs need (Bolema, 2017). The latest development here in the US is that the 2015 effort by the Federal Communications Commission under President Obama is in the process of being reversed by the Trump Administration. But the ultimate outcome is unclear. Like the antitrust policy the US unwisely exported to Europe (Crews, 2014), so, too, the “no blocking, no throttling” anti-property rights regime of Internet “neutrality” is embraced in Europe (European Commission, 2015). Worryingly, Silicon Valley is beginning to appear less regulation averse than previous generations of entrepreneurs (McArdle, 20117).

Indeed, 36 years after revealing the Baptists and Bootleggers alliance (Yandle, 1983), something as simple as alcohol remains mired in rent seeking globally. This is found from Lithuania’s “strictest in the European Union” regulations on consumption (Vilnius Students for Liberty, 2017) to the tamping down on entrepreneurial craft breweries in the southern

US where “the number of breweries is negatively associated with higher campaign contributions from big breweries” (Gohmann, 2016; see also John Locke Foundation, 2016). The craft breweries are then forced to organize and fight back, from petitions (craftfreedom.org) to lawsuits (Morrill, 2017). If the ancient practice of fermenting grain is something entrepreneurs must fight regulators to do, it is easy to see why modern predatory practices like “competition policy” and “antitrust” get traction with the professional administrator class and rent-seekers, and it is easy to see why the technology sector is increasingly vulnerable. That is a problem for entrepreneurs.

Realities of rent-seeking notwithstanding, the notion that regulation remains objective, above the fray, public interested, persists. For example, a significant emphasis in the entrepreneurship literature is the effects of regulatory “quality” on countries’ entrepreneurial outcomes. The notion that parties can agree what quality is, or that quality is a central achievable feature of political regulation, is taken for granted. So in that spirit, efforts are unhesitatingly made to “explore the relationship between “better” regulation [in terms of consistency, transparency, accountability, targeting and proportionality] and innovation and entrepreneurship” (Zárate Moreno, 2015). A problem is that even the best regulation cannot impart *quality* if disciplines other than political or administrative ones are required (such as competition-driven processes like insurance, liability, or warranties/guarantees), or if, as it says there, benefits sought are forms of wealth rather than features easily molded by bureaucrats. Firms are subject to discipline from competitors, suppliers, consumers—a variety of stakeholders. Furthermore, cost-benefit analysis, presumably needed to assure quality, rarely happens for individual regulations in the US, and never at the aggregate level anymore (Crews, 2017a).

Fortunately, studies employing the *Doing Business* database have tended to conclude that regulation exhibits public choice rather than public interest results. In addition, we can certainly acknowledge that assuring regulatory quality does play a legitimate role properly construed. For example: “Over time, *Doing Business* has evolved from focusing mainly on the efficiency of regulatory processes to also measure the quality of business regulation. *Doing Business* not only measures whether there is, for

example, a fast, simple and affordable process for transferring property but also whether the land administration has systems in place that ensure the accuracy of the information about that transfer” (World Bank, 2017: 2). That is, “*Doing Business* measures the quality of regulation by focusing on whether an economy has in place the rules and processes that can lead to good outcomes” (World Bank, 2017: 6). This version of “quality” makes sense.

However, “quality” is not likely to be so constrained, as the World Bank is on board with the philosophy of goal-oriented political regulation as a high ideal. “*Doing Business* scores reward economies that apply a risk-based approach to regulation as a way to address social and environmental concerns—such as by imposing a greater regulatory burden on activities that pose a high risk to the population and a lesser one on lower-risk activities. Thus, the economies that rank highest on the ease of doing business are not those where there is no regulation—but those where governments have managed to create rules that facilitate interactions in the marketplace without needlessly hindering the development of the private sector” (World Bank, 2017: 14).

Still further, *Doing Business* exhibits a strong inclination toward progressive social-economic regulation purportedly aimed at leveling the playing field between classes and sexes but that can be vulnerable to abuse. For example, the World Bank intones (p. v.), “regulation can also be used as an intervention when market transactions have led to socially unacceptable outcomes such as improper wealth distribution and inequality. Governments have the ability to design and enforce regulation to help ensure the existence of a level playing field for citizens and economic actors within a society. Business regulations are a specific type of regulation that can encourage growth and protect individuals in the private sector.” In addition, “well-functioning markets—that are properly regulated so that distortions are minimized—are crucial. Governments play a pivotal role in establishing these well-functioning markets through regulation” (p. 1).

The caution for policymakers here is that social, safety, and environmental command policies are as vulnerable to political predation as economic regulation is. In this respect, today’s most prominent tool for studying entrepreneurship, the World Bank report, is vulnerable to embracing

the presumption that governments are the source of the social/humanitarian values of individual well-being rather than a centuries-old impediment to individual rights and human flourishing. Again, institutions matter, and the track record of actual rather than *imagined* governmental institutions matters.

The viewpoint insisting that regulation spurs economic innovation is extremely resilient. Anna Maria Zárata-Moreno (2015: 5) reports on research finding that “regulatory complexity has a negative effect on the high growth entrepreneurship in low income countries, and positive effect on high income ones. To explain this, researchers hypothesize that ‘the presence of complex regulations in richer countries may actually spur attempts by entrepreneurs to overcome administrative hurdles, and increase their motivation to fulfill their growth ambitions.’” Separately (p. 7), “[Knut] Blind reported on six separate regression analyses which found that non-restrictive price regulation, and efficient enforcement of intellectual property rights [we noted a libertarian rift on this issue earlier] and a legal and regulatory framework that fosters competitiveness all have a positive effect on innovation. Blind also concluded that product and service legislation and environmental laws and compliance that are perceived to hinder business activity have a positive impact on innovation, confirming [Michael] Porter’s Hypothesis for OECD countries.” (The Porter conjecture is that “strict environmental regulations can induce efficiency and encourage innovations that help improve commercial competitiveness.”<sup>21</sup>) One could more readily envision these “beneficial” results for individual firms or sectors, rather than economies as a whole; still, the regulation-as-springboard viewpoint remains widespread (Stewart, 2010). One sees this pro regulation, visible hand booster-ism everywhere still in the 21<sup>st</sup> Century. This default stance can create significant problems for entrepreneurial prospects in wealthier countries and countries that become wealthy, since, as other research finds, “less corruption, a characteristic associated with more developed countries, and rule of law tend to make the negative impacts of regulation more pronounced” (Zárata-Moreno, 2015: 5-6). Policymakers

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21 <[https://en.wikipedia.org/wiki/Porter\\_hypothesis](https://en.wikipedia.org/wiki/Porter_hypothesis)>

should recognize that, to the extent regulation negatively affects entrepreneurship, it can be more of an “insult” where rule of law otherwise prevails.

Precaution, or regulatory risk-aversion, is another regulatory “quality” stance that can be counterproductive to entrepreneurship and health itself if deployed recklessly. In medicine, David R. Henderson (2015) writes of the importance of Kirzner’s “entrepreneurial alertness” even in regulated medical field markets where regulation gets utterly in the way. While in the US user fees have decreased approval times for drugs and devices, Richard Williams (2015a, 2016) shows there has been little increase in medical product invention and innovation because the Food and Drug Administration has found ways to keep processes expensive and lengthy overall. Similarly, the global tendency to compel GMO labeling raises costs and reduces availability (Williams, 2015b), and outright opposition to GM crops costs lives (Ridley, 2014). The pharmaceutical market structure now almost appears to be one of firms specializing in regulatory compliance and outsourcing innovation to other firms (Shepherd, 2017). Similarly, European Union chemical REACH (Registration, Evaluation, Authorization and Restriction of Chemicals) helps ensure minimal entrepreneurship in that sector. These outcomes hardly constitute regulatory “quality.”

### ***Acknowledge and avoid job losses induced by regulation***

Accounting for the job losses induced by regulation is imprecise in the U.S. and likely worldwide, but doing so can aid in advancing entrepreneurship. The sensible idea that regulation dampens entrepreneurship must contend with the ever-present claim that regulation creates jobs or is neutral. While entrepreneurs will affirm that governments dis-incentivize employment, and despite (for example) US President Donald Trump’s many references to “job-killing regulations,” (e.g., The White House, 2017) it is all but official policy among governmental agencies and mainstream academics that regulations have little overall employment effect. It is claimed that regulations that displace employment in one area likely grow it in another. One much-cited study, “Jobs versus the Environment,” intones, “increased environmental spending generally does not cause a significant change in industry-level employment.” Rather, environmental spending renders a

“net gain of 1.5 jobs per \$1 million in additional environmental spending.” (Morgenstern et al., 1998). The book *Does Regulation Kill Jobs* is similarly cornucopian about regulating without end: “Leading legal scholars, economists, political scientists, and policy analysts show that individual regulations can at times induce employment shifts across firms, sectors, and regions—but regulation overall is neither a prime job killer nor a key job creator” (Coglianese et al, 2014).

Mainstream media salutes. In 2011, a *Washington Post* story assured readers: “Economists who have studied the matter say that there is little evidence that regulations cause massive job loss in the economy, and that rolling them back would not lead to a boom in job creation.” Regulations may even have generally beneficial employment effects, the *Post* story says: “Firms sometimes hire workers to help them comply with new rules. In some cases, more heavily regulated businesses such as coal shrink, giving an opportunity for cleaner industries such as natural gas to grow” (Yang, 2011). In 2017, *The Atlantic* looked at environmental rules, asked “Do Regulations Kill Jobs?” and assured readers “the idea that regulations stunt job growth more broadly is not supported by research” (Semuels, 2017). Somewhat better, Cass Sunstein, the former director of the White House Office of Management and Budget’s Office of Information and Regulatory Affairs under President Barack Obama, regards whether regulation can kill jobs an “empirical question” (Sunstein, 2014), and called for separate treatment of job impacts in the regulatory analysis phase. In that mode, Executive Order 13563 issued by Obama had called for assessing adverse effects on employment, but without great vigor (United States, 2011).

Policymakers should keep in mind that, from the entrepreneur’s standpoint, jobs are not an end in themselves but an input; one that increases the cost of final goods or services compared to doing the same with fewer employees. As Bill Frezza (2011) argues, “[i]n any rationally managed business the payroll is a burden, not a benefit. Entrepreneurs and hiring managers only add staff if they think additional employees will produce more value than they consume. The challenge gets compounded when companies are forced to devote ever more of their employees’ time to activities that deliver no benefit beyond keeping the expanding army of fed-



eral bureaucrats and regulators at bay.” In today’s wealthier societies, the sometimes lifetime liability that an employee represents compared to at-will relationships is a significant consideration, that likely influences their comparatively lower rates of entrepreneurship. Whether viewed as a dependent or independent variable, jobs are a *cost*. And if all jobs are already a cost, regulation-induced “jobs” are more so, since they are not services the producer required or that consumers demanded. The amount spent on each regulation-induced job is observable; but, as Frederic Bastiat says in *What Is Seen and What is Not Seen*, in reference to the broken window regarded as magically creating employment for the glazier, “[t]o break, to destroy, to dissipate is not to encourage national employment.”<sup>22</sup> In the current regulatory job impact debate, “*Society has lost the value*” of the unnecessary “jobs” (to borrow the Bastiat phrasing).

All that said, from a social policy standpoint, we want more jobs, and we genuinely do make more of them feasible and desirable when we advance an economic liberalization and entrepreneurship agenda.

Regulation’s defenders sometimes acknowledge that regulation can cause employment problems when there is recession, such that it might be harder for workers to relocate and/or find other employment, but default to slack demand as an explanation (Konczal and Steinbaum, 2016) and the “remedy” of more government spending (Kessler, 2013). Unemployment’s possible linkage to the accumulated body of regulation rarely registers, except in politically driven instances like President Obama directing the Environmental Protection Agency in 2011 to back off \$1 trillion ozone regulations during the election cycle (CEI, 2011). In another reality check with respect to labor regulation, Seattle, Washington recently faced some blowback over minimum wage passions as jobs declined. The city got a taste of what economist Clifford Thies (1991, 2002) argues: If a price control merely moves price a little from its equilibrium level, there will be offsets. So, moderate minimum wage laws will appear to raise wages for low-wage workers, but there will be hidden effects in terms of reduced slack in scheduling that neutralize the effect. But, if the minimum wages moves

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22 See <<http://www.econlib.org/library/Bastiat/basEss1.html>>.



price significantly from equilibrium, the market will not be able to neutralize it and reduced employment among the most vulnerable low-wage workers results. Similar situations exist with rent control (Gerlowski and Thies, 1990; Thies 1993), consumer goods and services regulation (Manger and Thies, 1988), and price gouging prohibitions (Giberson, 2012) that ensure shortages. Unfortunately, expansions of labor-related regulations are steady apart from minor retrenchments (an example was Trump's Department of Labor revoking Obama-era "Administrator's Interpretations" constraining independent contracting and franchising/joint employment).

Entrepreneur and investor John Chisholm (2015) writes of regulations' deterrent effect at key stages of entrepreneurship and job creation. These steps include getting started (worker status regulations and occupational licensing), innovation (resources being dedicated to R&D vs. being diverted to compliance), and business expansion. After an inflexible rulemaking is imposed, Chisholm explains, "[r]egulations stay fixed while advances in knowledge, technology and cooperation enable more dimensions of human needs to be satisfied that the regulation precludes." This is an example of the harm of "quality" regulation that the proponents of *Doing Business*-style surveys appear to downplay. Next, according to Chisholm, confusion sets in because "regulations are not clear, flat boundaries between what is allowed and disallowed but irregular and complex surfaces" (p. 322). The time and money barriers-to-entry mean only the well-connected can cope.

As Richard Williams (undated) explains: "From an economic perspective ... the total number of jobs can be a misleading measure of the costs and benefits of regulation. Bad policies can increase total jobs, and good policies can decrease total jobs." Regulation may increase the number of administrators engaged in activity unrelated to consumer demand for the product or service in question, or raise the number of employees actually required to develop the end product. Rent seeking, prominent in the mixed economy, resurfaces here. To the extent that regulation may boost employment in certain sectors via redirection, special interests ("green jobs") climb aboard. At the least, when regulations do "create jobs" or "cause" hiring, policymakers should account for this as a *cost* of regulation. Unfortunately, the political manipulation of employment will likely

intensify as automation and entrepreneurship both expand. One can predict that AI, robotics, and automation will be exploited by politicians to implement social and economic regulation, even if these innovations are not overly disruptive.

### ***Dispel the presumption of administrative state expertise***

Whether the matter at hand is health, safety, or economic regulation, regulators legitimize their role based on presumed expertise. Particularly given the prominence of regulatory dark matter or informal decrees, policymakers seeking to advance entrepreneurship should view regulation based on expertise, particularly of frontier technology sectors, with healthy skepticism.

The administrative state and the accompanying rule by experts was always controversial, but it is increasingly inappropriate to the modern era in which it undermines not just wealth creation but risk mitigation. Technology can render obsolete the market failure arguments that undergirded Pigouvian regulation, such as Federal Communications Commission regulation of airwave “scarcity” in the name of protecting the “public interest.”

Worldwide, resources not privatized or integrated into wealth-creating institutions of the free competitive marketplace prior to the onset of the progressive era—airsheds, watersheds, lands, ocean resources, environmental entities, low-earth orbit—remain under control of the expert state. The desire to retain that control presents perhaps the greatest obstacle for tomorrow’s entrepreneurship. For example, drones and driverless cars are arriving on the scene in an era in which governments have secured their control of airspace and roads. In other words, at just the moment the Internet and digital technologies stand poised to overcome the alleged market failure rationales used to justify airspace and roadway regulation, these sectors are being channeled into pre-existing public utility regulatory frameworks. When technology can, at long last, begin to allow superior tracking and allocate airspace and road-space, and when roads could be tolled and privatized, agencies take steps like impeding commercial drone deployment, and seeking to regulate vehicle-to-vehicle (V2V) and vehicle to infrastructure (V2I) communications in ways that would pre-

clude the private sector from assuming the role. Similarly, with respect to emergent private space flight, the Federal Aviation Administration's regulation of "commercial space activities" will foster a rent-seeking bonanza. In addition, distortionary government investment in technology projects, displacement of private research (Crews, 2010), and having to compete with government are ongoing challenges for would-be entrepreneurs. For example, now that supersonic private commercial aircraft are on the drawing board, NASA is entering the field.

Entire *categories* of regulatory intervention, and not just agencies and their rule-of-the-day, need to be challenged internationally, because true expertise consists of moving endeavors from central regulatory control to competitive enterprise. However, policymakers seem to lack the vocabulary.

Alongside questioning such fallbacks as the market failure rationale, avoiding abuse of the precautionary principle<sup>23</sup> and embracing *Permissionless Innovation* (Thierer, 2016) should be a priority. Entrepreneurs cowering in a "Mother-may-I" posture helps enable regulators despite their lack of expertise. For one example, technology could lower costs and expand entrepreneurialism in medical care if the well-to-do could adopt an informed consent approach like that governing "qualified investors" in complex financial instruments, allowing the rich and well-informed to be "the white mice of the medical profession" (Smith, 2010). This would increase affordability and access for others. Regulators tend to erect precautionary barriers to Uber and Airbnb, payday lending, the flying cars that were invented decades ago, needed pesticides, and golden rice (unavailable decades after its discovery). By the time environmental groups and governments are done protecting charismatic megafauna like elephants and rare rhinos with regulation, there won't be any left; but entrepreneurial approaches could have saved them (DeAlessi, 2000). Indeed, regulatory barriers to entry ultimately limit which fields can even *have* entrepreneurs. Over-precaution means there cannot be a Bill Gates of biotechnology, as

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23 The precautionary principle is defined in Collins English Dictionary as "the precept that an action should not be taken if the consequences are uncertain and potentially dangerous." <<http://www.dictionary.com/browse/precautionary-principle>>

the Competitive Enterprise Institute's Fred L. Smith Jr. often notes, because each individual innovation requires a time-consuming regulatory stamp of approval, unlike writing software or creating an app for an iPhone or Android device. Of course, regulators attempt to hobble even the latter, already targeting augmented reality technologies (Crecente, 2017), for example.

### ***Avoid antitrust regulatory adventurism***

Tightly related to the above discussions on rent seeking and agency expertise, but worth special emphasis, is to resist antitrust rent-seeking/corporate welfare (Crews, 1997) and related intervention based on alleged inefficient technological lock-in or market power. Antitrust represents one of the largest, most visible, but widely condoned interventions into free markets. Regulators gain power and prestige from an imprudent century-old policy that is unfortunately gaining new strength in the age of Google, Amazon, and Facebook. Antitrust regulation's recent rise from the not-quite-dead represents a serious impediment to free competitive enterprise and entrepreneurship because of the greater damage it can do now in frontier sectors and on a global rather than national scale.

More probable than purported anti-competitive abuse on the part of private firms is coercive regulation that precludes new, unseen, or unpredictable avenues of competitive response, or prevents some entrepreneurs from becoming first movers. Geoff Manne and Joshua Wright (2010) explain the high social costs that accompany antitrust intervention in poorly understood innovations and innovative business practices. To remedy the harms of intervention, they propose "simple rules that minimize error costs," including per se legality for new product introductions, requiring direct proof of anticompetitive effects, eliminating treble damages, and per se legality for unconditional refusal to share intellectual property. Prohibiting competitor suits in predatory behavior cases is an overdue step (Boudreaux and Kleit, 1996) to begin putting the antitrust episode in the rear-view mirror.

Entire future categories of entrepreneurship, innovation, and wealth creation may be preempted or constrained by intervention in frontier sectors.

Largely by design owing to progressivism, most nations lack clarity in property rights in frontier sectors, network industries, and vast global “commons” such as spectrum. It will be catastrophic for entrepreneurship and wealth creation if governments worldwide steer, while markets merely row.

### ***Embrace changes in the future of work***

Social changes driven by technology and innovation in the sharing economy are accelerating and promise to have profound effects on entrepreneurship. However, those effects can be negative if regulators over-react. Korok Ray (2017) cites an ambitious projection of 40 percent of freelancing workers in 2020, compared to 25 percent in 2014. Some are thrilled with such changes; but there is discontent, evidenced in debates over the treatment of workers as employees or as contractors. Part-time workers seeking full-time work with benefits may not yet share enthusiasm for either the “gig” economy (matching local buyers and sellers) or even the older outsourcing economy. However, the location-independent nature of tomorrow’s working arrangements is real and is not going to reverse. Naturally, legitimate concern exists over the potential erosion of workplace benefits. But those benefits need not have been tied to employers by law in the first place, and could be provided in other ways. One example is the opportunity for benefits exchanges to arise (itself a form of entrepreneurship) that could disentangle benefits from the jobs to which they have been so tightly bound for so long (Ray, 2017). Iain Murray, in “Punching the Clock on a Smartphone App?” (2016), calls for rethinking laws that “tie social goals to the employment contract,” and proposes that “rather than creating a government-mandated portable benefits vehicle, legislators should reform laws that create penalties on associations and businesses that attempt to provide such services” and “let workers and employers decide on their own terms about salaries, benefits, hours, vacation policies.”

Progressives across the globe often condemn corporations. But, paradoxically, the progressives’ own regulatory infatuations can compel entrepreneurs to adopt the corporate structure, “reinforcing the old management–worker divide” (Murray, 2015), when it would not otherwise be necessary given technology’s potential easing of two-way contractual relationships.

The less unwise interference there is in future workplace arrangements by policymakers, the more work entrepreneurs will be able to create.

### ***Prevent looming social-engineering threats to entrepreneurship and liberty***

Automation, robotics, and worker displacement by technology are extraordinarily disconcerting for many, to say the least, and loom prominently on the horizon of the future-of-work policy concerns just covered. Labor force flexibility is the thing that matters most for healthy adaptation to automation (McCloskey, 2017). The problem for classical liberals is that even if the transition to automation is eminently achievable without societal upheaval and without central government expansion, that path may not be allowed by politicians seeking to exploit the relevant changes in technology.

Indeed, the future debate over entrepreneurship may be on a collision course with what might be justly regarded as the entitlement to end all entitlements. Tech CEOs, such as Elon Musk of Tesla, Sam Altman of Y Combinator, and Mark Zuckerberg of Facebook call for a Universal Basic Income (Gifford, 2017). Such a program, and the legitimization of it by such luminaries, is music to the ears of paternalistic progressives seeking to entrench entitlements more deeply into the global middle class. American socialist Bernie Sanders is “absolutely sympathetic” (Jauhiainen and Mäkinen, 2017), unsurprising as he also endorses single-payer health care, a wealth tax (Cramer, 2017), and anything that expands the state. The UBI’s justifications contradict each other. Some, like Musk, think the UBI necessary to placate the restless unemployed, displaced by robots and with nothing to do. Others claim to believe a UBI would free up the mind and “unlock a huge amount of entrepreneurialism,” like Slack CEO Stewart Butterfield. Similarly Mark Zuckerberg talks of experimenting with UBI to cushion risk in an unfair world (Harvard Gazette, 2017), and proclaims that “organizations think profoundly differently when they’re profitable than when they’re in debt” (Haselton, 2017). The flipside of that position is that need rather than comfort drives the hungry streak that underlies human action and entrepreneurship—such as Sergey Brin’s use of credit card debt rather than free cash in Google’s early days (Berlau, 2012). The UBI could crush

entrepreneurship, much like the pursuit of disability payments in the US (Joffe-Walt, 2013). Still, nations from Finland to Zambia (Aizenman, 2017) to the US (Browne, 2017) are experimenting with UBI, despite 20<sup>th</sup> century welfare statism's lesson that overall entitlement reform that reduces government rarely happens. Given history, eligibility and costs are sure to expand (Varadarajan, 2017).

It is reasonable to expect that voters collecting the UBI, while enjoying freedom from work, or while plugged into virtual reality goggles *Ready Player One*-style, will vote for politicians promising more such income, with predictable negative effects on entrepreneurship. Mobility of workers is a great thing, but international political pressures toward open borders while welfare statism abounds also bear upon the wisdom of guaranteed minimum income schemes and claims that they would save on traditional welfare costs.

### ***Avoid regulatory harmonization and trade barriers that burden entrepreneurship***

The tendency of regulators is to look overseas and adopt regulatory regimes such as antitrust, which seems to be one of the United States' worst "exports" (Crews, 2004). Policymakers seeking to expand entrepreneurship are instead free to liberalize downward rather than regulate upward. Herein we have called for a reframing of what counts as regulation: nations can expand economic liberty, and they can learn from and copy from one another. The key is to avoid regulatory harmonization that reduces freedom, and instead to liberalize to make things fairer and freer. We have noted programs such as one-in, one-out regulatory policies, adopted in the UK, Netherlands, and Canada, that are now part of Donald Trump's regulatory regime. Sound policy prescriptions to liberate entrepreneurship would include more such transnational efforts; the future need not be shackled to the regulatory mindset of the past.

In the report *Cutting the Gordian Knot*, making a case for UK separation from the European Union, Iain Murray and Rory Broomfield (2016) stress how healthy economic alliances trump political ones, and they highlight transnational deregulatory efforts that enriched nations that many could learn from. Examples include increased production and growth in

New Zealand after halting farming subsidies, and Iceland's healthy market-oriented management of fisheries. The authors also proposed a Royal Commission for Regulatory Reduction to examine the body of regulations and present packages of reforms before Parliament that would be considered under streamlined procedures. Similar proposals exist in the US, but they have not yet been enacted.

Critical is maintaining free trade, of course. For example, “[b]y leaving the EU, the UK would be able to reset its regulations in its own free-trade interests and open the UK to the global economy” as opposed to being hurt by Eurozone crises’ escalating regulation (Minford, 2013). This new course would include unilaterally rejecting tariffs on imports even if the EU imposed them on Britain in the wake of Brexit, which would effectively lower food prices, among others, and therefore the cost of living, for UK consumers (Hall, 2017). There are also non-tariff barriers in trade that should be addressed, such as the EU’s restrictive “sanitary and phytosanitary measures ... including the EU’s restrictions on genetically engineered crops, a ban on the use of hormones in cattle, restrictions on pathogen reduction treatments in poultry, pork and beef,” feed additives, and other barriers (United States, 2013). Other categories of regulation such as removing employment disincentives would also be important for entrepreneurship. Ongoing EU and OECD regulatory review projects can be used to escalate such transnational campaigns.

### ***Forge do-er/thinker alliances***

Every recommendation so far has involved policymakers, some aggressive, some milquetoast (but with the proviso that the latter pave the way for the former). This brief section aims at the entrepreneurs themselves. Many scholars cited in this chapter defend economic freedom, but that alone does not suffice. The entrepreneurial sector itself has a “duty” to defend free enterprise over the coercive and rent-seeking default. Important here is the work of Fred L. Smith Jr., founder of the Competitive Enterprise Institute,<sup>24</sup> on the necessary alliance between the world’s “do-ers (the en-

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24 Disclosure of interest: I’m a CEI guy.



trepreneurs) and thinkers” in advancing economic liberty, and in influencing (or for that matter, becoming) policymakers. As Smith (2012) argues, “[p]roperly mobilized, forces for economic liberty can mount a vigorous defense of capitalism and possibly even recapture some of the ground they have lost over the last century. What Schumpeter failed to consider was that some intellectuals would resist the allure of statism. Indeed, many have.”

Joseph Schumpeter (1942) wondered if capitalism could survive, and feared not; capitalism would be despised and attacked by the same intellectuals whose leisure to live as intellectuals was made possible by capitalism. Moreover, businesspersons would be reluctant to speak out in defense.

Consider how they [businessmen] behave when facing direct assault. They talk and plead—or hire people to do it for them; they snatch at every chance of compromise; they are ever ready to give in; they never put up a fight under the flag of their own ideals and interests.... [Rather than educating its] enemies, [business] allows itself . . . to be educated by them. It absorbs the slogans of current radicalism and seems quite willing to undergo a process of conversion to a creed hostile to its very existence. (Schumpeter, 1942: 161)

Examples of business self-assertiveness can sometimes be found, such as the Job Creators Network<sup>25</sup> and the global Entrepreneurs’ Organization. Granted, business combinations do sometimes operate against the public interest, becoming and seeking to become rent seekers. But many have legitimate economic liberalization at heart. And occasionally, before major economic regulatory reforms (say, transportation deregulation in the 1980s in the US, or unfunded mandates and small business regulatory reforms in the mid-1990s), there come tipping points where rents become too costly to acquire, and the burden of regulation coalesces such that general, universal regulatory liberalization becomes in the interest of all (or if not all, most; or enough). Indeed, eventually, given the interconnectedness of business (supply chains, business customer networks) the regulatory

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25 <<https://www.jobcreatorsnetwork.com/>>

bell tolls for *all* businesses; the time comes when it becomes apparent to businessmen that regulation that affects their competitors will eventually boomerang and affect them too (Smith, 2012: 2017).

The cultural environment in which business operates is left-leaning and unfavorable to capitalism. The media reports itself as left; Harvard University is avowedly leftist. The campaign contributions media and academic circles make are overwhelmingly to leftist candidates. The media and academic classes often detest business, and argue that business-funded research or proposals must be biased, while, however, government research and subsidized National Public Radio are objective. They all (and sadly many tech entrepreneurs) embrace Corporate Social Responsibility (or CSR) as a way of remedying modern capitalism's alleged faults. However, capitalism is not broken; capitalism is an institution that has spread wealth and fairness more widely than any other has. The average person is an *owner* of businesses under shareholder capitalism.

Business needs to realize it is under assault. Capitalism (and its attendant entrepreneurship) need capitalists defending it, not from a "markets aren't as bad as you think they are" posture, but proudly from a patch of moral high ground, and using the vast, culturally significant methods of communication, marketing, and persuasion that business uniquely possesses (Smith, 2012: 2016). Noting that "[s]tatists have been far more aggressive in uniting both their economic and intellectual forces," Fred Smith (2012) urges marketing economic liberty: "If we accept the criticisms of the dominant intellectual class, capitalism will fade. ... For that reason, we must create a counter-reformation of classical liberal intellectuals and business leaders, who work together to promote legitimizing narratives about capitalism and instill its virtues in the hearts and minds of our global society" (Smith, 2012). *The practice of entrepreneurship is legitimate and moral*; and entrepreneurs and large businesses alike, with their vast cumulative resources, need to direct their communiques to Joan Citizen as well as Joan Consumer.

Regulators rather than market forces have long overwhelmingly directed some of our most economically distressed industries. Capitalism stands among the greatest democratizing innovations in human history,

a way for individuals unknown to one another to work together to create unprecedented well-being. It needs to be defended as the precious institution it is. “A moral defense of capitalism needs to illustrate how capitalism not only makes people wealthier, but also advances other important values and concerns, such as fairness and justice. Failure to make that case leaves business vulnerable to attack by anti-market critics, demagogic office-seekers, and overzealous regulators (Smith, 2016). While policymakers (we hope) perform the tasks of entrepreneurial liberalization, business needs to get up from its crouching position and demand that capitalism be portrayed fairly as the moral, democratic institution that it is. As I’ve heard Fred Smith joke, “Business would win more battles if it fought any!”

## **Conclusion:**

### **Louder Applause + Less Regulation = Greater Entrepreneurship**

The book *Lessons from the Poor: Triumph of the Entrepreneurial Spirit*, edited by Alvaro Vargas Llosa (2008), demonstrates how regulations can contribute to worldwide poverty. John Chisholm, too, shows how important minimizing regulation’s deleterious effects can be, particularly in the context of entrepreneurs:

Define any metric that you wish of potential entrepreneurs that combines ratings of such qualities as skill, passion, perseverance, self-confidence, ambition, and resources. Your metric will distribute the entrepreneurs along a [bell-shaped] curve. ... No matter how you define your metric, many potential entrepreneurs, especially at the low end of your rating scale, are being blocked by regulations. The numbers blocked each decade grow as regulations grow. The very men and women in society who find it hardest to provide for themselves and their families and live in self-sufficient dignity are blocked. (Chisholm, 2015: 308)

Downturns and stagnation are often aggravated by government intervention that perpetuates non-market-clearing prices for labor, goods, and services, as W. H. Hutt describes (Crews, 2008). The proper government role usually is not to “act,” but to abstain from its own manipulation of wages and prices, which instead must adjust to market-clearing levels for recovery and entrepreneurship to resume. The wealth created by entrepreneurs forms the foundation for future entrepreneurs to establish even greater wealth and well-being. By now, scholars have adequately established that regulations negatively affect entrepreneurship, yet regulators continue to downplay deleterious impacts of their rules and often hope to improve rules’ “quality.” Clearly, a better appreciation of regulatory costs and the real-life responses of entrepreneurs to regulation, such as the inclination to start a business in the first place, or to hire part- rather than full-timers, should remain a priority. Policymakers need to become “entrepreneurial” themselves when it comes to rolling back the regulatory enterprises they oversee.

When reflecting upon entrepreneurial transformation versus subsistence, or the haves and have nots, an elephant in the room is the explosive growth of the United States in its early years. Over the past century-and-a-half, America’s GDP roughly doubled every 25 years. Then in the 1800s, isolated Japan industrialized in just a few decades. If the US, unaided, went from, to borrow the modern terms, subsistence to transformational beginning 200 years ago, others should be able to emulate that process where artificial barriers are not present but rule of law is. Equally important, developing nations that improve faster than today’s rich, but regulation-bound and stagnant economies, teach lessons and are role models, too. There are lessons for all sides today in a world infatuated with regulations. In this chapter, we have noted numerous pressures that constitute barriers to entrepreneurship (such as economic, labor, and environmental regulation; “competition policy;” frontier sector regulation; rent-seeking; and more). Halting further encroachment of global over-regulation and maximizing economic freedom around the world to unleash entrepreneurship constitutes *Liberty’s Unfinished Business*.

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## CHAPTER 9

# Immigrant Entrepreneurship: Drivers, Economic Effects, and Policy Implications

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### **Introduction**

Immigrant entrepreneurs are a considerable economic force in many countries, creating innovation, employment, and welfare. Andrew Carnegie, Sergey Brin (Google), Mike Lazardis (RIM), and John Molson (Molson Brewery) are vivid and well-known examples of this phenomenon, but the evidence goes beyond anecdotes. In many countries, immigrants are more likely to become entrepreneurs than the native population, and companies founded by immigrants in the United States, for example, generated \$52 billion in revenue and created 450,000 jobs between 1995 and 2005 (Wadhwa 2009).

The relevance of immigrant entrepreneurship<sup>1</sup> as a topic of discourse has clearly increased in recent years. The first reason is that international migration has become more frequent. In 2015, an estimated 244 million people were living outside their country of birth—more than half of them in G20 countries (OECD, 2017). Net migration added about 10 million people to the total population in G20 countries between 2010 and 2015, with an estimated 3.3 percent of the total G20 population consisting of immigrants. At the same time, public and political opinion on immigration has shifted dramatically towards a more negative assessment of immigrants and their economic and social role in society. In many countries, populist and nativist political parties such as the German AfD party, the French Front National, or the Austrian Freedom Party, and individual politicians such as Netherlands's Geert Wilders, Hungary's Victor Orban, and the President of the United States, Donald Trump have portrayed immigration as a threat and promoted highly restrictive immigration policies.

Against this background, there is a clear need for an objective and evidence-based analysis of the phenomenon of immigrant entrepreneurship, its drivers and its economic effects. This chapter is our modest attempt to provide such an overview, based on state-of-the-art research into immigrant entrepreneurship. We first discuss the major theories on immigrant entrepreneurship and their reasoning for why immigrants are more inclined to become entrepreneurs than are native-born citizens. These drivers include contextual variables as well as differences in the distribution of individual characteristics (Section 2). Subsequently, we turn our attention to moderators of these relationships, which may help explain varying rates of self-employment among immigrants in different countries (Section 3). Eventually, we discuss the economic and social effects of immigrant entre-

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1 In line with much of the literature, we understand immigrant entrepreneurship as self-employment and business foundations of individuals who have immigrated into a country. The phenomenon has also been discussed under the labels of “ethnic entrepreneurship” and “minority entrepreneurship”, highlighting that many immigrants are also from an ethnic minority (Levie, 2007; Zhou, 2004).

preneurship (Section 4) and policy implications in countries of origin and recipient countries (Section 5).

## 1. The phenomenon of immigrant entrepreneurship

While the integration of immigrants is at times perceived as a cost factor in public discourse, many researchers have made the case for mixed or predominantly positive effects of immigration on host societies and economies. They highlight the role of immigrants as net contributors to the social security system, the favorable demographic effects of immigration in aging societies, and the stimulation of economic growth and innovation (e.g., Eryadin et al., 2010; Kerr and Kerr, 2011; Ottaviano and Peri, 2006). Immigrant entrepreneurs play one particularly positive role. By pursuing careers as entrepreneurs, many immigrants can successfully create income for themselves and their families. In addition, they create novel product and service offers for consumers, and employment opportunities (see Section 4).

One of the reasons for the ongoing scholarly interest in immigrant entrepreneurship is its surprising frequency. Upon arriving in a country, immigrants face many barriers, which would suggest entrepreneurship is a rather unlikely career choice. In comparison with natives, migrants may often lack language skills, resources, and knowledge about the market in which they operate. Under *ceteris paribus* conditions, one might therefore expect that such a clear resource disadvantage against natives would lead to significantly less entrepreneurial engagement.

Evidence has suggested otherwise, however. In many countries, immigrants are as entrepreneurial as natives, or are even overrepresented among entrepreneurs. Self-employment is higher among the foreign-born in many developed economies, such as the United States, Canada, the United Kingdom, and Germany (Borjas, 1986; Clark and Drinkwater, 2000; Hohn, 2012; Fairlie et al., 2010; Levie, 2007; Metzger, 2014; Portes and Zhou, 1996; Schuetze and Antecol, 2006). In the United States, immigrants represented 24.9 percent of all new business owners between 2007

and 2011, but only 15.6 percent of the wage workforce.<sup>2</sup> In 2015, the new business formation rate per month was almost twice as high among immigrants (0.51 percent) as among the population born in the United States (0.28 percent; see Fairlie and Lofstrom, 2015). Similar observations have been made for Canada. For example, data from the 2009 Labour Force Survey indicates that 17.5 percent of immigrants aged 18 to 69 were self-employed, compared to only 14.4 percent of the Canadian-born population (Green et al., 2016).

Insights from the Global Entrepreneurship Monitor (Xavier et al., 2013) further underscore the global scale of this phenomenon: the majority of the countries surveyed report higher entrepreneurial activity among first-generation immigrants than among natives. Self-employment data from the OECD/European Union (2015) paints a similar picture. Across OECD countries and the EU, immigrants are more likely to be self-employed. While their engagement varies strongly, immigrant self-employment reaches largely similar levels as native self-employment in 4, and higher levels in 21 out of 35 surveyed countries (table 1). In nine countries, including Canada, the United Kingdom, Hungary, and Poland, immigrants are more than 20 percent more likely to become self-employed than the native population.

The relatively strong inclination of immigrants to become entrepreneurs is not a new phenomenon. Historians have documented the economic impact of immigrant entrepreneurs in different countries and time periods. Jewish immigrants constituted a significant share of successful entrepreneurs in the United Kingdom between the 1930s and 1950s. These mostly Lithuanian and Polish immigrants have left their mark in many industries, creating household names such as Marks and Spencer or the food retail giant Tesco by introducing product and financial innovation (Godley and Casson, 2010). An analysis of entrepreneurs in New Zealand between 1840 and 1900 suggests that almost 90 percent of all businesses had been

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2 Applying a broader definition, Kerr and Kerr (2016) find that roughly 35 percent of businesses in the United States have at least one immigrant co-founder.



**Table 1: Percent of Workers in Self-Employment**

	Foreign-born	Native-born	Difference
Lithuania	6.1%	6.8%	-0.7%
Iceland	6.1%	11.2%	-5.0%
Norway	6.3%	5.2%	1.1%
Latvia	7.4%	8.3%	-0.9%
Luxembourg	8.0%	6.3%	1.7%
Estonia	8.3%	8.2%	0.2%
Switzerland	9.0%	11.7%	-2.7%
Denmark	9.1%	7.2%	1.9%
Austria	9.3%	8.6%	0.7%
Israel	9.3%	11.9%	-2.6%
Cyprus	9.4%	15.3%	-5.9%
Sweden	9.5%	8.4%	1.1%
Australia	9.6%	8.7%	0.9%
Ireland	10.3%	13.0%	-2.7%
Slovenia	10.4%	9.4%	1.0%
Germany	10.6%	9.7%	0.8%
United States	11.0%	8.7%	2.3%
France	11.0%	9.0%	2.0%
Finland	11.5%	10.3%	1.3%
OECD total (30)	12.0%	11.6%	0.4%
New Zealand	12.1%	12.8%	-0.6%
Greece	12.2%	26.8%	-14.5%
Malta	12.4%	12.5%	-0.1%
EU total (28)	12.9%	12.7%	0.2%
Croatia	13.3%	9.8%	3.5%
Portugal	13.3%	13.4%	0.0%
Hungary	13.7%	9.6%	4.2%
Belgium	14.3%	12.5%	1.8%
Turkey	14.4%	17.3%	-2.9%
Italy	14.6%	22.8%	-8.2%
Netherlands	14.8%	13.6%	1.1%
Spain	14.9%	15.9%	-1.1%
United Kingdom	16.0%	12.7%	3.4%
Canada	16.4%	12.7%	3.7%
Slovak Republic	17.1%	15.3%	1.8%
Czech Republic	26.6%	16.5%	10.1%
Poland	29.0%	12.0%	17.1%

Source: OECD/European Union, 2015; data for foreign-born and native-born self-employed workers aged between 15-64 years. Data collection: 2012-13.

founded by immigrants, while immigrants only represented 54 percent of the population of New Zealand at that time (Hunter and Wilson, 2007).

Over the last five decades, the entrepreneurial activity of immigrants has increasingly raised interest in the research community, leading to inquiries into the degree, reasons, and moderating factors of immigrants' overrepresentation among entrepreneurs, as well as its impact on society. Literature reviews of the field have identified a substantial body of research on the subject. Depending on data source and scope of analysis, estimates range from a few dozen peer-reviewed core papers (Aliaga-Isla and Rialp, 2011; Ilhan-Nas et al., 2011; Ma et al., 2013) to up to 1,700 journal articles, book chapters, and newspaper articles related to the topic (Kloosterman and Rath, 2003). Much of the work on immigrant entrepreneurship can be found in sociology and economics and a smaller share in geographical and small business outlets (Ilhan-Nas et al., 2011; Ma et al., 2013). Interestingly, the topic had been rather absent in the most influential journals in entrepreneurship and management until rather recently, when immigrant entrepreneurship began to be associated with the field of international entrepreneurship (Jones et al., 2011).<sup>3</sup>

## 2. Drivers of immigrant entrepreneurship

One of the major questions that research into immigrant entrepreneurship is trying to answer is why immigrants are more likely than the native-born population to become entrepreneurs. The reasons can be grouped into context-level drivers, i.e., reasons rooted in the characteristics of the host country, and individual-level drivers, i.e., reasons rooted in characteristics of the individual immigrant.

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3 For example, a Google Scholar search in the *Journal of Business Venturing* produces only 19 entries for “immigrant entrepreneurship” or “ethnic entrepreneurship,” of which 17 have been published in the last 10 years.

### **Context-level drivers**

Context-level approaches argue that immigrants' entrepreneurial activity is particularly fostered by discrimination in the labor market and the role of ethnic enclaves and communities.

**Blocked mobility:** In many countries, immigrants are subject to xenophobia and discrimination in the labor market (Aldrich and Waldinger, 1990; Bonacich, 1972; Jones et al., 2014; Kim et al., 1989; Light, 1972; Naudé et al., 2015). Experiments in Canada have demonstrated that applicants with Chinese, Indian, or Pakistani sounding names but otherwise similar education and work experience had to send 40 percent more applications to be invited to a job interview than job seekers with "typical" English names (Oreopoulos and Dechief, 2014). Schneider et al. (2014) identify seventeen studies reporting such forms of racial discrimination in a total of 11 European countries. Immigrants also encounter other barriers to entering the labor market, including a lack of language skills, the non-recognition of overseas credentials, and unfamiliarity with the social, economic, and legal structure of the host society (Bonacich, 1993; Kim et al., 1989).

Setting up a business can thus be a rational reaction to lower chances on the labor market and the thereby blocked upward mobility. It allows immigrants to put their skills and knowledge to adequate use, when they are not recognized or accepted by the labor market (Clark and Drinkwater, 1998; Light et al., 1994; Portes and Zhou, 1996; Sanders and Nee, 1996; Wong, 1988).

This hypothesis has also been referred to as the "middleman minority" paradigm, pointing to the historical discrimination against some minorities who would then take roles as "middlemen" between other market actors. Being excluded from the right to participate in production, land-ownership, or even the right to enter cities, minorities, such as the Jews in Europe or the Chinese in Southeast Asia, turned to self-employment in less well-regarded occupations such as trade or money-lending (Bonacich, 1973; Wong, 1988).

Findings of Constant and Zimmermann (2006) offer empirical support for the blocked mobility hypothesis. In a survey of Turkish immigrants in

Germany, they find that immigrants who felt discriminated against were 46 percent more likely to become self-employed than immigrants who did not feel discriminated against. Beaujot et al. (1994) also found support for the blocked mobility hypothesis in 1986 Canadian census data. Similarly, analyses from Sweden (Hammarstedt, 2006) and the United States (Raijman and Tienda, 2000) confirm this finding.

In sum, this suggests that labor-market discrimination is a considerable push factor into immigrant self-employment.

**Ethnic enclaves:** Another contributor to immigrant entrepreneurship is the residential concentration of co-nationals and co-ethnics in specific urban areas. Early sociological research on immigrant entrepreneurship has emphasized the role of such “enclaves” and communities in fostering entrepreneurship among immigrants (Bonacich, 1973; Light and Bonacich, 1988; Aldrich and Waldinger, 1990; Wilson and Portes, 1980). Ethnic enclaves facilitate access to various resources that can support the development of a business, including financial capital, social capital, and knowledge (Almeida et al., 2014; Portes and Zhou, 1992).

Waldinger and Aldrich (1990) further argue that enclaves create particular opportunity structures that are favorable for immigrant entrepreneurs. First, enclaves provide markets with distinct demands, e.g., for ethnic goods. Opportunities in these markets can be best recognized by individuals with insight into the specific customer needs and preferences of an ethnic or national group (Borjas and Bronars, 1989; Waldinger and Aldrich, 1990). Second, an enclave often also provides access to specialized means of production to exploit these opportunities (e.g., trained labor, raw material, complementary goods). Thus, immigrant entrepreneurs can more easily identify and exploit business opportunities in an area with inhabitants of similar ethnic origin (Waldinger and Aldrich, 1990; Wilson and Portes, 1980).

Language plays an important role in the opportunity structure of enclaves for potential entrepreneurs. The option to speak the language of the country of origin allows newly arrived immigrants to engage in entrepreneurial activity immediately, even if they lack good command of the host

country language. At the same time, the language distance between ethnic enclaves and the majority population can also serve as an entry barrier for non-ethnic businesses, which helps to protect the market from native competition (Evans, 1989; Light, 1972).

Empirical evidence on the effect of ethnic enclaves on self-employment is mixed but predominantly positive. It has been supported by a number of empirical studies in Canada (Razin and Langlois, 1996; Teixeira, 2001), the United States (Borjas, 1986; Fairlie and Woodruff, 2007; Portes and Zhou, 1999; Wilson and Portes, 1980), Australia (Evans, 1989), and Sweden (Andersson and Hammarstedt, 2015). Hum (2001), Min (1988), and Salaff et al. (2003) further support its theoretical underpinnings by showing that entrepreneurs in an ethnic enclave indeed tend to hire co-ethnics. More recently, Almeida et al. (2014) also found a positive effect of moderate community engagement of Indian immigrant inventors in the Californian semiconductor industry on their innovation output.

However, the findings of Boyd (1990), Borjas (1986), Fairchild (2009), Clark and Drinkwater (2000), and Razin and Langlois (1996) show that the effect of enclaves on immigrant entrepreneurship may differ between ethnic groups, or may in some cases not come into effect at all. Aldrich and Waldinger (1990), Yuengert (1995), and Bager and Rezaei (2001) find no effect of ethnic enclaves on entrepreneurial activity, and Clark and Drinkwater (2002) even identify a negative effect of living in ethnic enclaves in England and Wales. This suggests that, in spite of the benefits, there may also be some barriers to starting a business in ethnic enclaves.

Waldinger and Aldrich (1990) point out that opportunities in ethnic markets tend to be limited in scale and often lack long-term growth potential. In addition, the opportunity structure in enclaves forces entrepreneurs to choose from a rather restricted set of business ideas and industries, which can create “cannibalistic competition” between immigrant entrepreneurs (Light and Gold, 2000: 127). The findings of Andersson and Hammarstedt (2015) on self-employment of immigrants from the Middle East in Sweden support that notion. While finding positive effects of the presence of enclaves on the likelihood of self-employment, the authors found a negative effect of ethnic network size, suggesting that a density of

entrepreneurs from one country of origin may create too much competition for a limited opportunity space (Ram et al., 2008).

In sum, this suggests that ethnic enclaves explain some specific forms of immigrant self-employment but may not always contribute to the development of entrepreneurship with long-term growth potential.

**Ethnic social networks:** Many authors emphasize that immigrant entrepreneurs benefit from being embedded in networks of ethnicity and kinship (Greene and Butler, 1996; Sanders and Nee, 1996; Portes and Sensenbrenner, 1993). These networks provide access to valuable resources, including cheap labor from co-ethnic and family sources or funding from family members and rotating credit associations (Bird and Wennberg, 2016; Portes and Bach 1985; Portes and Sensenbrenner, 1993). In fact, as Greene and Butler (1996) have pointed out, ethnic social networks often serve as “natural business incubators” for immigrant entrepreneurs by providing training, assistance in the identification of entrepreneurial opportunities, business intelligence, and seed funding (Granovetter, 2010; Greene and Butler, 1996; Ley, 2006).

While the social networks of immigrants are often analyzed within the context of enclaves, they do not necessarily need to be co-located in one physical area. In fact, the social networks of immigrant entrepreneurs can be dispersed across a country (Hum, 2001; Waldinger, 1990). Moreover, many immigrants have access to valuable transnational networks in their country of origin, which facilitates doing business on an international scale (Rusinovic, 2008; Neville et al., 2014). In the case of the Netherlands, Rusinovic (2008) shows that a considerable number of immigrant entrepreneurs makes use of transnational networks as resources in their businesses.

The social networks of immigrants are argued to be particularly strong within minority groups and are supported by what Portes and Zhou (1992) describe as “bounded solidarity” and “enforceable trust.” As expressions of solidarity, many immigrants develop a consistent preference for goods and services associated with their country of origin, both for their intrinsic utility and as symbolic representations. Likewise, workers and investors might prefer to work among and with “their own”

(Portes and Zhou, 1992). This solidarity is intertwined with what Portes and Zhou (1992) call “enforceable trust,” describing the power structures in communities. The tight social structures of immigrant communities allow for controlling and sanctioning violators of commonly accepted norms and community interests.<sup>4</sup>

Empirical evidence for the potential benefits of social networks in entrepreneurship is abundant (e.g., Brüderl and Preisendörfer, 1998; Greve and Salaff, 2003; Ozgen and Baron, 2007). It has also been found in the context of immigrant entrepreneurs within enclaves, as well as in dispersed social networks (Ram et al., 2008) and families (Bates, 2011; Bird and Wennberg, 2016; Ley, 2006; Sanders and Nee, 1996). For example, Bird and Wennberg’s (2016) analysis of Swedish immigrant entrepreneurs showed that having family members in geographical proximity and access to the families’ financial capital increases immigrant entrepreneurs’ likelihood of remaining in entrepreneurship and exiting paid employment.

**Broader institutional conditions:** Finally, it is also worth remembering that immigrant entrepreneurship is embedded in the larger economic and political context of a country or city (Kloosterman et al., 1999; Kloosterman, 2003). Many institutions that influence the overall business climate for entrepreneurs also exert an influence on immigrants’ new businesses. A wide range of institutions has been associated with enabling entrepreneurship, including the existence of stable property rights and rule of law (Acemoglu and Johnson, 2005; Estrin et al., 2013; Levie and Autio, 2011; Sobel, 2008), economic freedom (Sobel et al., 2010), the absence of corruption, and many others (Dutta and Sobel, 2016). Sobel et al. (2010) even argue that the institutional environment (and in particular economic freedom) of the host country is a key moderator between cultural diversity and

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4 Portes and Zhou (1992: 514) quote the “smooth operation of rotating credit associations among Asian immigrant communities and the flexible transactions among Jewish diamond merchants in New York” as examples of transactions under enforceable trust. In both cases, a substantial number of transactions have taken place with hardly any written contracting within the ethnic community.

**Table 2: Context-Level Drivers of Immigrant Entrepreneurship**

**Core rationale:** Immigrants are more likely to become entrepreneurs because of barriers (e.g., discriminations) and opportunities (e.g., ethnic markets) that they find in the host country.

Name of driver	Main argument	Key articles
<b>Blocked mobility</b>	Labor markets in the host country discriminate against immigrants. This increases the attractiveness of entrepreneurship as alternative to salary work.	Bonacich, 1973; Light et al., 1972
<b>Ethnic enclaves</b>	Geographically concentrated ethnic communities provide easily accessible opportunities and means of production for immigrant entrepreneurs, but less so for natives.	Aldrich and Waldinger, 1990; Wilson and Portes, 1980
<b>Social networks</b>	Local and transnational ethnic social networks ease the access to key resources and fulfil the role of business incubators.	Greene and Butler, 1996; Sanders and Nee, 1996
<b>Institutional conditions</b>	General political and economic institutions (e.g. rule of law, economic freedom) influence the ease of starting and succeeding with a business for immigrant entrepreneurs.	Dutta and Sobel, 2016; Estrin et al., 2013; Kloosterman et al., 1999

the economic performance in a country. They suggest that while cultural diversity leads to conflict and expropriation in a bad institutional environment, it stimulates entrepreneurship in an environment marked by high levels of economic freedom.

A positive climate for foreign trade can be particularly helpful for immigrant entrepreneurs who often concentrate in industries with a high degree of foreign trade (Morgan et al., 2018; Neville et al., 2014). Another area with indirect but important effects is social security, as Olds (2016) showed in an analysis of immigrant self-employment in the United States. Comparing states that provided health insurance to immigrant children



with states that did so only after a 5-year waiting period, Olds (2016) found a significant positive effect of social security on the likelihood to engage in entrepreneurship. The availability of health insurance was associated with a 20 percent higher likelihood of self-employment and a 28 percent higher likelihood of owning an incorporated business. This suggests that access to public health benefits can encourage immigrants to take the risk of starting a business by reducing the risks of unforeseen health care costs in their family.

In summary, evidence suggests that access to co-ethnic networks and communities in the host country and internationally contributes positively to immigrants' engagement in entrepreneurship, as well as to their success in these endeavors (table 2).

### ***Individual-level drivers***

Some drivers of immigrant entrepreneurship also reside at the level of the individual. Research has pointed to variables such as human and financial capital, demographic variables, and cultural heritage.<sup>5</sup> In addition, demographic and psychological differences between immigrants and natives can also play an important role.

The mechanisms leading to such differences vary. In many cases, differences between immigrants and natives are created by systematic processes, such as selective migration policies (e.g., favoring immigrants with high levels of human capital), self-selection of immigrants (e.g., immigrants with an entrepreneurial personality) or the transformation of characteristics through the migration process itself (e.g., when relocation induces learning).

**Human capital:** Education and work experience allow people to build up a multitude of capabilities that benefit entrepreneurial action, including communication skills, analytical competencies, and more specific capa-

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5 As Kloosterman and Rath (2003) point out, the different levels of analysis also reflect disciplinary differences, with sociologists being more concerned with the influence of the context and economists putting a stronger emphasis on factors residing within the individual.

bilities, such as entrepreneurial alertness and planning. While the relationship between human capital and entrepreneurial intent is complex,<sup>6</sup> the majority of entrepreneurship research suggests an overall positive relationship between human capital and the propensity to start a successful business (Davidsson and Honig, 2003; Rauch and Frese, 2000; Unger et al., 2011). These relationships are particularly strong for task-related forms of human capital, such as knowledge of customers, suppliers, products, and services, and entrepreneurial skills (Unger et al., 2011).

The human capital of immigrants may differ from natives due to both selection and self-selection. Many contemporary immigration policies clearly favor immigrants with high education, work experience and sought-after skills. At the same time, neoclassical human capital theory predicts that individuals with high levels of education and skill are more likely to emigrate in order to maximize potential returns on human capital (Haug, 2000; Massey, 1987).<sup>7</sup> Empirical research has repeatedly supported this notion, e.g., for the case of Germany (Brücker and Trübswetter, 2004), the United States (Basu, 1997; Hughes and McCormick, 1985), and the Netherlands (Van Dalen and Henkens, 2007). Probably the largest piece of evidence for self-selection was provided by a detailed investigation of the willingness to emigrate in 23 OECD countries by Drinkwater (2003), showing a robust positive effect of education on emigration propensity.

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6 For example, higher levels of human capital typically increase employability and revenue prospects on the labor market and thus increase the opportunity costs for entrepreneurship (Cassar, 2006; Gimeno et al., 1997).

7 Some researchers have argued for a more complex relationship between human capital and migration, most prominently George Borjas (1987). Borjas argues that individuals opt for migration when their expected return on human capital is higher abroad than in the country of origin and that the return on human capital depends largely on the distribution of income in these countries. Therefore, lower-skilled migrants would have a higher incentive to emigrate from countries with high income disparity to places with a more even income distribution and vice versa. However, empirical results on the Borjas model are mixed (Brücker and Trübswetter, 2004).

In addition to selection and self-selection, entrepreneurial skills can also increase through the migration experience itself. As Maddux and Galinsky (2009) and Fee and Gray (2014) have shown, extensive cross-cultural experience increases creative cognition by providing novel cues for creative expansion. Similarly, Vandor and Franke (2016) find that cross-cultural experience significantly increases the ability to identify profitable business opportunities. Through living abroad, individuals build a valuable stock of knowledge about products, services, and customer needs, which they can juxtapose with previous experience. Such comparisons facilitate the transfer of business ideas between countries (e.g., importing an idea from country A to country B) as well as creatively recombining ideas to create something completely new in a Schumpeterian sense.

In addition, the process of adjusting to the new environment can contribute to the development of skills related to opportunity exploitation. Upon arrival, immigrants usually face numerous non-routine challenges that render habitual ways of behaving ineffective. Coping with such challenges has been associated with increases in self-esteem, tolerance for ambiguity, and stress management (Allen, 2006; Matsumoto, 2006)—skills that are critical in the field of entrepreneurship (e.g., Ward, 2001).

Against this background, it appears plausible that immigrants in many countries possess high levels of human capital and that this contributes to their inclination to start businesses. This idea has been repeatedly echoed in the immigrant entrepreneurship literature (e.g., Portes and Sensenbrenner, 1993; Valdez, 2008) and has found some empirical backing: Differences in human capital have been successfully used to explain variance of business entry rates between different immigrants groups from different countries of origin (Fairlie and Woodruff, 2007; Lofstrom and Wang, 2009; Sanders and Nee, 1996). The evidence is less conclusive but also predominantly positive for human capital as a predictor of differences between individual immigrants and natives, with some positive and some inconclusive findings for general types of human capital (Borjas, 1990; Clark and Drinkwater, 2000; Fairlie and Meyer, 1996; Kanas et al., 2003; Li, 2000; Portes and Zhou, 1996; Shinnar and Young, 2008; Vinogradov and Kolvereid, 2007).

More human capital has also been associated with higher economic success of immigrant enterprises (Ley, 2006; Marger, 2001; Valdez, 2008). This relationship can be partially attributed to the effect of human capital on what type of entrepreneurial opportunities are exploited by immigrants. Achidi Ndofor and Priem (2011) find that immigrants with higher endowments of human capital are more likely to start businesses serving the mainstream market, rather than smaller ethnic markets, which is associated with higher venture performance.

**Demographic variables:** A number of demographic variables can exert a more indirect but nonetheless powerful effect on immigrants' inclination to start a business. Amongst others, these variables include gender and age. In many countries, men are still overrepresented among entrepreneurs (Kelley et al., 2016). While recent data from the Global Entrepreneurship Monitor suggests that the share of female business founders has strongly increased in recent years, the majority of surveyed countries still reports a gender gap in entrepreneurship (Kelley et al., 2016). The debate about the reasons behind this gap is ongoing, with explanations including differences in motivation, industry choice, access to resources, and differences in education and work experience (Davidsson, 2006; Vossenberg, 2013).

At the same time, the female-male ratio of immigrants varies between countries. While, on a global scale, women migrate about as often as men (Husa et al., 2000; Menzies et al., 2004), men tend to be overrepresented amongst immigrants in some OECD countries, such as Austria, Germany, and Australia (Brücker and Trübswetter, 2004; Drinkwater, 2003; Van Dalen and Henkens, 2007). In these countries, the overrepresentation of men among immigrants might contribute to a higher share of immigrants among entrepreneurs in general.

Similar remarks can be made for age. As Drinkwater (2003) points out, migrants in OECD countries tend to be "young and single." For example, immigrants in the European Union are on average overrepresented in the age groups of 16 to 30 years and underrepresented in all other groups. While the median age of the total population of the EU-28 was 42.6 years in 2015, the median age of immigrants to the EU-28 that year was just 27.5 years (Euro-

stat, 2017). The latter lies in the age group in which people have been found to start businesses most frequently (25 to 34 years; Kelley et al., 2016).

Thus, while age and gender are rarely explicitly discussed in research on immigrant entrepreneurship, some support can be found for the argument that the specific composition of immigrant populations in regard to gender and age may also contribute to their above average tendency to engage in entrepreneurship (e.g., Li, 2000; Hammarstedt, 2006; Raijman and Tienda, 2000).

**Personality traits:** From a psychological perspective, immigrants may be favorably self-selected for traits that are associated with an increased likelihood of becoming entrepreneurs. As Jonathan Levie (2007: 147) notes, “migrants have taken a bold decision to move a long distance, [therefore] they may be less risk-averse than their stay-at-home peers. Second, they may be more confident of their own human capital and ability to succeed in a new, uncertain environment.” Similar arguments are made by Constant et al. (2003), Davidsson (2006), and others. Indeed, one might argue that the decisions to emigrate and to start a business share similar characteristics. Both tend to involve ambiguity and risk, and they also entail the hope for a better life, i.e., higher financial returns (Vandor, 2009).

Thus, it appears plausible that individuals who perceive emigration as an attractive path and follow it through will also be more attracted by the risk-reward-profile of an entrepreneurial career. A number of personality traits can favor such a disposition, including achievement orientation (McClelland, 1985), risk propensity (Brockhaus, 1980), ambiguity tolerance (Begley and Boyd, 1987), and self-efficacy (Bandura, 1977).

While the effect of personality on entrepreneurial action has been discussed critically (e.g., Gardner, 1988), recent empirical studies and meta-studies have isolated robust positive effects of many personality traits (Brandstätter, 1997; Rauch and Frese, 2007; Zhao and Seibert, 2006; Zhao et al., 2010). For example, a meta-analysis of 116 independent samples from 104 different articles found that the likelihood of business creation and business success correlates with a number of traits, including need for achievement, generalized self-efficacy, innovativeness, stress tolerance, need for autonomy, and proactive personality (Rauch and Frese, 2007).

**Table 3: Individual-Level Drivers of Immigrant Entrepreneurship**

**Core rationale: Immigrants are (self-) selected for or develop specific characteristics that make them more entrepreneurial than natives.**

Name of driver	Main argument	Key articles
<b>Human capital</b>	Immigrants are (self-) selected for higher levels of human capital which increase their affinity towards entrepreneurial action as well as their success.  In addition, migration can be a transformative process which increases the level of entrepreneurial skills.	Haug, 2000; Massey, 1987; Sanders and Nee, 1996; Li, 2000; Vandor and Franke, 2016
<b>Demographic variables</b>	Immigrants are overrepresented in age and gender groups that have a higher affinity towards entrepreneurship.	— *
<b>Personality traits</b>	Immigrants are self-selected for entrepreneurial personality traits like risk-propensity and achievement orientation.	Boneva and Frieze, 2001; Vandor, 2009

\* No explicit key articles

Some of these personality traits have also been found to positively influence emigration intentions. Empirical studies have confirmed the existence of what Boneva and Frieze (2001) call a “migrant personality,” showing positive effects of need for achievement (Boneva et al., 1997; Chew and Zhu, 2002; Li et al., 2013), innovativeness (Chew and Zhu, 2002), risk-taking (Van Dalen and Henkens, 2007), openness (Jokela, 2009; Li et al., 2013), and self-efficacy (Van Dalen and Henkens, 2007) on the propensity for international migration.

To the best of our knowledge, there are no studies that directly measure differences in personality traits between immigrants and natives and their power to explain immigrant entrepreneurship. A few studies, however, provide hints that such a relationship exists, including Raijman and Tien-

da's (2000) analysis of the personality traits of active and latent Mexican entrepreneurs in Chicago, and Vandor's (2009) study of emigration intentions, entrepreneurship intentions, and personality traits among Austrian business students.

Summing up, there is evidence suggesting that individual-level factors explain the increased level of immigrant entrepreneurship (table 3).

### **3. Moderators of the immigration-entrepreneurship link**

Of course, the forces described in Section 2 do not make every individual immigrant an entrepreneur. The applicability and explanatory power of the individual and context variables varies. This is already visible in the different levels of entrepreneurial activity of immigrants across countries. The 2012 Global Entrepreneurship Monitor found the share of immigrants among entrepreneurs to range from 6.1 percent in Western Europe to 28.8 percent in Sub-Saharan Africa (Xavier et al., 2013). Variance is also high within OECD countries, in particular when compared to the entrepreneurship rates of the native population (see OECD/European Union statistics in Section 1, table 1). For example, in 2012 and 2013, immigrants were less than half as likely to be entrepreneurs as the native-born population in Greece, but immigrants in Poland were more than twice as often entrepreneurs as the Polish native population (OECD/European Union, 2015). This suggests that the above-mentioned patterns are moderated by characteristics of the host countries, countries of origin, type of migration, and the type of entrepreneurship in question.

#### ***Characteristics of the host countries***

Many of the context-level drivers of immigrant entrepreneurship discussed in Section 2 vary between countries.

**Level of discrimination:** Blocked mobility and labor market discrimination are often context- and time-specific. For example, the analysis of labor market discrimination in 11 countries conducted by Schneider et al. (2014)

showed that the rates of discrimination vary strongly between countries. These differences can stem from different levels of prejudice, information about the true skill levels of immigrants, and anti-discrimination policies. The predominant languages in a country and its immigrant population also influence discrimination. Immigrant groups with high levels of proficiency in the language of the host country or a similar mother tongue are naturally in a better position to engage in business than others (Becker and Blumberg, 2013; Mora and Davila, 2005).

**Geographical concentration:** The effect of ethnic enclaves also varies between countries. On one hand, their prevalence depends on different macro-level factors, such as the geographical conditions in a country, or the housing market conditions, and policy decisions. On the other hand, not all enclaves are alike. The beneficial effects of co-ethnic social networks for entrepreneurs will only occur when the share of their particular ethnic groups is large enough to enable meaningful exchanges and when there is a sufficient level of mutual trust (Evans, 1989). At the same time, large enclaves with a very high concentration of one ethnicity may also have adverse effects by creating strong competition among immigrant entrepreneurs (Andersson and Hammarstedt, 2015; Light and Gold, 2000; Ram et al., 2008).

**Immigration policy:** Furthermore, the economic capabilities of immigrants in a country are strongly influenced by immigration policy (see Section 5). Throughout history, migration has often been a “pull phenomenon” that has been created by active recruiting of governments and employers of receiving countries (Piore, 1979).<sup>8</sup> Today, many countries employ selective immigration policies, favoring characteristics that are beneficial for entrepreneurship, such as business experience and high levels of education (Mahroum, 2001; Wadhwa et al., 2007). These policies influence the

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8 E.g., the recruitment of “guest workers” (“Gastarbeiter”) from Central and Eastern Europe and Asia in the 1960s and 1970s by Austria and Germany.



selection as well as self-selection of immigrants with particular skills, goals, and resources to particular countries.

Overall, this suggests that the context-level drivers of immigrants' engagement in entrepreneurship are not similarly important in all countries and regions, but are contingent on local socio-economic parameters such as the predominant language, geographic concentration, and immigration policy.

### ***Characteristics of the countries of origin***

In addition to host-country differences, many researchers have pointed out differences in the level of entrepreneurial activity of immigrant groups depending on their country of origin. For example, Fairlie and Lofstrom (2015) find large heterogeneity in an analysis of business ownership rates in the United States. The share of business ownership among immigrants from a specific country in the overall immigrant population varies between 5.1 percent (Philippines) and 7.8 percent (Jamaica) on one end of the spectrum, and 23.1 percent (Korea) and 24.4 percent (Iran) on the other end. Similar levels of heterogeneity have been reported in the Netherlands (Sahin et al., 2007), Canada (Razin and Langlois, 1996), and other countries.

**Access to resources:** Some of the differences in entrepreneurial activity between immigrants of different countries of origin can be attributed to their unequal access to resources such as human and financial capital. For example, Fairlie and Woodruff (2007) find that education differences account for about a third of the gap in the business ownership rate between Mexicans and Americans in the United States. Access to financial capital accounts for another quarter of the variance. Similar findings have been made in a number of studies (Cobb-Clark and Hildebrand, 2004; Lofstrom and Wang, 2009; Sanders and Nee, 1996). These papers suggest that differences in resource endowment particularly enable immigrants from some specific countries to start businesses.

**Culture and tradition:** Another school of thought within immigrant entrepreneurship research emphasizes the role of culture. This perspective

argues that higher self-employment rates of immigrants and the heterogeneity of self-employment across groups with different countries of origin can be attributed to differences in traditions and values of entrepreneurship (Clark and Drinkwater, 2000; Light, 1984). According to this approach, some ethnic groups are endowed with cultural characteristics that provide advantages when engaging in entrepreneurship or emphasize the attractiveness of entrepreneurship as an appropriate career choice.

Research proposes several ways in which culture can influence entrepreneurial action. Goldscheider (1986) argues that the Jewish value of occupational independence as a mechanism of self-protection was carried over from Europe to the United States and contributed to the particular concentration of Jews in self-employment over generations (Zhou, 2004). Vinogradov and Kolvereid (2007) remark that, in many countries, it is particularly immigrants from Asian countries who engage in entrepreneurship. They attribute this to cultural attributes such as low power distance. Basu and Altinay (2002) find a strong influence of cultural attributes and family traditions on business entry motives but conclude that the role of culture and tradition differs between ethnic groups. For some groups, the continuation of a family tradition as business entrepreneurs serves as the most important motive to start a business, whereas others prioritize wealth creation as motive for building a business.

Some authors also draw a connection to religious practices. Rafiq (1992) argues that some religions present self-employment in a positive light. For example, in the Muslim and Sikh communities, entrepreneurship is looked upon favorably because of prominent entrepreneurial figures in both of these religions. Positive effects of culture and religion on entrepreneurial propensities have also been claimed for Western capitalist societies and values that emphasize risk, individualism, competitiveness, and wealth generation (Morris et al., 2002; Weber, 1904).

A related perspective on the “culture and tradition” argument has been provided by works that focus on the entrepreneurial activity in the country of origin (Akee et al., 2013; Yuengert, 1995). The central argument is that the exposure to concepts of self-employment and an increased availability of entrepreneurial role models in the country of origin can provide addi-

tional positive influences on the attractiveness of entrepreneurial career choices (Ilhan-Nas et al., 2011). Empirical support for this hypothesis is mixed. While Akee et al. (2013) and Yuengert (1995) find that immigrants from countries with high self-employment rates are more likely to become self-employed in the United States, Fairlie and Meyer (1996) find no such correlation.

In summary, existing research has provided some evidence for the influence of country-of-origin variables, such as resource composition and cultural imprinting, on the likelihood of immigrants to engage in entrepreneurship.

### ***Different types of migration***

Another noteworthy influence on immigrant entrepreneurship is the type of migration experience in question. Migration can take place within and across international borders, can take temporary and permanent forms, and can be made more or less voluntarily. These parameters influence how selective and transformative the immigration process can be and thus might impact the prevalence of the individual-level and context-level drivers discussed in Section 2.

**Internal and international migration:** While the focus of most immigrant entrepreneurship research is on international migration, it has been noted that within-country migration might also be a worthwhile field of inquiry for entrepreneurship scholars (Levie, 2007). In fact, within-country migration is a far more common phenomenon than international migration with an annual 5–20 percent of a country’s population migrating every year, depending on country, time, and definitions (Greenwood, 1989).

Conceptually, the case is somewhat ambiguous. On the one hand, one can make the argument that internal migrants, just like international migrants, are likely to have more entrepreneurial personalities than individuals who never move outside of their habitual environment. Also, internal migration might act as a self-selection mechanism for younger members of the population, who are typically more likely to start businesses. On the other hand, migration within a country is less costly than internation-

al migration in terms of financial relocation expenses and psychological strains, since the new environment is less unfamiliar. Thus, self-selection and transformation effects should be weaker than for international immigrants. Furthermore, selective immigration policies tend not to be an issue for internal migration.

While empirical evidence is rare, Levie (2007) has demonstrated for the case of the United Kingdom that internal migrants are indeed more likely to become entrepreneurs than life-long residents. This suggests that internal immigrants are also affected by some of the above-described drivers of entrepreneurial action.

**Temporary and permanent migration:** While public perception is dominated by images of permanent immigration, an increasing share of immigration in OECD countries is temporary. The most frequent purposes of temporary migration are time-restricted work assignments and education. In 2015 alone, OECD countries issued roughly 1.5 million study permits and 600,000 seasonal work permits. Furthermore, they saw 600,000 working holidaymakers and trainees, and 150,000 international within-company transfers (OECD, 2017). Compared to the 4.7 million counted as permanent immigrants in that year, this amounts to a considerable portion of migration (OECD, 2017).

Empirical studies have shown that temporary migrants are more inclined to start businesses than non-migrants. A disproportionately large number of individuals who have studied or worked abroad choose an entrepreneurial career path once they return to their country of origin (Ammassari, 2004; Black and Costaldo, 2009; Demurger and Xu, 2011; European Commission, 2014; McCormick and Wahba, 2001; Saxenian, 2005).

Returning migrant entrepreneurs can benefit from having lived abroad in various ways. Extended stays in other countries allow them to build stocks of financial capital in the form of accumulated savings (Black and Costaldo, 2009; Demurger and Xu, 2011). It further facilitates building up human capital in form of education and work-experience (Wahba and Zenou, 2009), as well as knowledge about new products, services, and customer needs which can be applied to identify novel entrepreneurial op-

portunities (Vandor and Franke, 2016), as well as creating transnational networks that facilitate international trade (Neville et al., 2014). Thus, we can expect that it is particularly the individual-level effects that contribute to the positive effect on entrepreneurial activities upon return. At the same time, context-level effects such as discrimination and language barriers are less likely to play a role in the decision of returning immigrants to start a business.

**Voluntary and forced migration:** Finally, the effects of migration on entrepreneurial intent and skill are also influenced by whether the decision to migrate is made voluntarily. In situations of forced migration (e.g., because of natural disaster or war), self-selection (e.g., due to an entrepreneurial personality or in order to seek higher returns on human capital) is less likely to play a role in shaping the emigration decision than when migration is a freely made lifestyle choice. Likewise, policies tend to be less selective in cases of forced migration than for voluntary migration. This suggests that involuntary immigrants may not have some of the selection advantages discussed above, i.e. a more entrepreneurial personality or higher levels of resources.

Overall, we conclude that the international nature and permanence of migration, as well as the degrees of freedom in the migration decision, exert an influence on how selective and transformative the migration process will be. International, permanent, and voluntary migration are probably more affected by selection and self-selection than internal, temporary and forced migration. At the same time, context-level factors likely play a more important role for international and permanent migration than for internal and temporary migrants.

### ***Different types of entrepreneurship***

Of course, not all types of entrepreneurship are alike. Arguably, there is a difference between self-employed entrepreneurs who earn just enough to sustain their living (necessity-motivated entrepreneurs), and innovative growth-oriented company builders (opportunity-motivated entrepreneurs). Much of the literature has focused on the first type and found

evidence that immigrants are overrepresented among self-sustaining entrepreneurs who start a business because of the lack of a viable alternative. More recently, research from the United States and Canada has suggested, however, that immigrants are sometimes also more likely to become innovative and growth-oriented founders than the native population (Chaganti et al., 2008; Green et al., 2016; Saxenian, 2002; see Section 4). For example, a large-scale longitudinal analysis of entrepreneurs in 11 states in the United States found that immigrants were not only overrepresented among entrepreneurs in general but also among entrepreneurs that had received venture capital funding: immigrants constituted 27 percent of VC-backed entrepreneurs, while representing only 19 percent of the workforce (Kerr and Kerr, 2016).

The distinction between necessity-oriented and opportunity-driven entrepreneurship is important. Depending on the type of entrepreneurial activity, the importance of individual-level and context-level drivers of immigrant entrepreneurship can vary. Blocked mobility and ethnic enclaves tend to be associated with necessity-motivated entrepreneurship. Ethnic enclaves provide particularly high benefits for immigrants who are excluded from the labor market due to discrimination and a lack of language skills. For them, ethnic communities can provide protected markets in which their stock of knowledge and experience can be utilized through self-employment. At the same time, ethnic markets offer limited potential for growth due to their relatively small size and purchasing power (Anderson and Hammarstedt, 2015; Waldinger and Aldrich, 1990). Furthermore, as Sequeira and Rasheed (2006) argue, strong networks within the enclave can lead immigrant entrepreneurs to focus only on ethnic resources and opportunities. The interaction with the ethnic community and other immigrant entrepreneurs can create isomorphic pressure to “simply replicate and reproduce old forms [...] rather than break new ground in products, process, or administrative form” (Aldrich and Waldinger 1990: 112).

In contrast, immigrants with lower involvement in ethnic enclaves are more likely to pursue mainstream market strategies that are associated with higher venture performance and opportunity entrepreneurship (Achidi Ndofor and Priem, 2011). At the same time, higher levels of human

**Table 4: Moderators of the Immigration-Entrepreneurship Link**

<b>Name of moderator</b>	<b>Main argument</b>	<b>Key articles</b>
<b>Host country differences</b>	Host countries have different levels of labor market discrimination, prevalence and density of enclaves and immigrant networks.  Furthermore, immigration policies moderate selection and self-selection effects.	Mahroum, 2001; Kloosterman and Rath, 2001
<b>Country-of-origin effects</b>	Immigrant groups differ in their propensity for entrepreneurial actions due to cultural, economic and political characteristics of their country of origin.	Basu and Altinay, 2002; Borjas, 1987; Fairlie and Lofstrom, 2015
<b>Type of migration</b>	Selection, self-selection and transformation effects vary depending on the type of migration (international vs. within-country, temporary vs. permanent, voluntary vs. forced).	— *
<b>Type of entrepreneurship</b>	Blocked mobility and ethnic enclave arguments are associated with necessity entrepreneurship, while high levels of human capital and an entrepreneurial personality are more common drivers of opportunity entrepreneurship.	— *

\* No explicit key articles

capital and entrepreneurial personality have been associated with more profitable and innovative types of immigrant entrepreneurship (Kerr and Kerr, 2011; Ley, 2006; Marger, 2001; Valdez, 2008; Zhao et al., 2010).

In sum, this suggests that some of the context-level drivers, such as blocked mobility and ethnic enclaves, are more likely to be drivers of necessity entrepreneurship. Individual-level drivers, such as human capital and personalities, appear to be more relevant stimulants of opportunity-driven entrepreneurship (table 4).

## 4. The consequences of immigrant entrepreneurship

Much of the research in the field is concerned with the economic and social consequences of immigrant entrepreneurship for founders and their host societies. While the debate is controversial (Zhou, 2004), immigrant entrepreneurship is in general associated with many positive economic and social contributions.

### *Economic integration of immigrants*

Self-employment may benefit immigrants by creating income and facilitating economic integration for them and their families.

**Employment and income:** First and foremost, self-employment is chosen by many founders in order to avoid unemployment, create income, and increase social participation (Zhou, 2004). Empirical findings show that entrepreneurship is an effective means of achieving these goals. Historical analysis suggests that low rates of Chinese and Japanese unemployment during the Great Depression of the 1930s were due to the ethnic community's efforts in helping co-ethnic workers become self-employed (Light, 1972). The studies of Miami's Cuban enclave and New York's Chinatown offered consistent evidence to support this argument (Portes, 1987; Zhou, 1992). In many cases, self-employment also enables entrepreneur immigrants to achieve higher incomes than immigrants in the labor market (Constant, 1998; Constant and Schultz-Nielsen, 2004; Fairlie and Meyer, 1996; Portes and Zhou, 1996; Lofstrom, 1999) and similar or only somewhat lower earning levels than native-born citizens (Fairlie and Lofstrom, 2015; Lofstrom, 2015).

**Economic integration:** As Fairlie and Lofstrom (2015) point out, the earnings of self-employed immigrants also tend to increase over time and approach the level of the native population. As Lofstrom (1999; 2002) finds in 1980 and 1990 United States Census data, self-employed immigrants reach earnings parity with observationally similar entrepreneurs born in the United States after about 25 years in the country. In the case of Canada,



Antecol and Schuetze (2006), Li (2000), and Green et al. (2016) confirm this finding on a number of dimensions: the likelihood of founding a business, its revenues, and associated jobs all increase with time spent in the country. Some studies find evidence of even higher income among immigrant entrepreneurs than among natives: For the case of Canada, Hiebert (2003) reports that self-employed immigrants had higher average incomes than the native-born self-employed in 1995 and also exceeded the average income of the overall immigrant population.

Eryadin et al. (2010) also note that immigrant entrepreneurs tend to operate increasingly like native entrepreneurs after some time. In an analysis of Turkish entrepreneurs in the Belgian city of Antwerp, they find that many founders start their businesses in ethnic neighborhoods, but later move to other locations where they perceive market opportunities in serving the general population. Analyses of second-generation immigrant entrepreneurs in Amsterdam show a similar pattern (Baycan-Levent et al., 2009). Second-generation entrepreneurs are more likely to build human capital and to choose more heterogeneous, non-traditional, and promising industries than first-generation immigrants (Baycan-Levent, 2009; Beckers and Blumfeld, 2011). Also, they pursue less “ethnic” opportunities and focus more on industries with higher density of opportunities in general, e.g., in technology (Baycan-Levent et al., 2009).

**Intergenerational benefits:** As Sanders and Nee (1996) and Zhou (2004) argue, the economic benefits of business ownership enable families to invest in their children’s futures. Having the financial resources to pay for higher education promotes the acquisition of valuable human capital by the second generation. In addition, income can be used to finance “rounding out” experiences like private tutoring, travel, and music lessons, enabling young people to interact in a variety of social settings. As a result, there is an intergenerational benefit to self-employment beyond that revealed by analyses of current income (Sanders and Nee, 1996).

Overall, this implies that entrepreneurship is an effective means for the economic and social integration of immigrants, in some cases even more effective than employment on the labor market.

### ***Economic effects for the overall society***

In addition to the economic and social benefits that immigrants themselves receive, migrant enterprises bring benefits to the wider society.

**Job and wealth creation:** In many countries, immigrant entrepreneurs play a considerable role in the domestic economy. As stated in the introduction, immigrants in the United States are estimated to have created 450,000 jobs and US\$52 billion in revenues between 1995 and 2005 (Wadhwa, 2009).

Empirical analyses suggest that immigrant-founded firms do not need to shy away from comparison with native-founded firms. In the United States, immigrant-founded businesses appear to be about as likely to create jobs as businesses founded by entrepreneurs born in country. They also provide roughly similar average salaries (\$31,740 in immigrant-founded enterprises, \$35,880 in businesses founded by natives; Fairlie and Lofstrom, 2015; Fairlie, 2013). Some studies have found immigrants to be even overrepresented among growth-oriented businesses in the United States (Chaganti et al., 2008), Germany (Metzger, 2014), and in the average of the 69 countries surveyed in the Global Entrepreneurship Monitor (Xavier et al., 2013). However, other research has found contradicting or inconclusive evidence, showing that immigrant-founded businesses create significantly fewer jobs than businesses founded by natives (Fairlie, 2013; Kerr and Kerr, 2016).

Interestingly, Kerr and Kerr (2016) find evidence for higher volatility of performance outcomes of immigrant entrepreneurs in the United States. They are more likely to fail than native-born entrepreneurs, but those who succeed create higher employment growth than natives. The authors argue that sorting immigrant entrepreneurs into geographic locations and industries with higher associated risks and returns might explain these patterns. It appears that the immigrant-founded ventures under study were more prone to exploit risky business opportunities than the native entrepreneurs. Neville et al. (2014) provide a complementary perspective: in an analysis of Canadian survey and taxation data, they find that immigrant-owned companies have higher revenues and profits than natives, but only when operating in export-driven industries. In industries that concentrate

on the Canadian market, their business performance is worse. Morgan et al. (2018) confirm this notion and add the finding that the revenue gains realized through immigrants' high export orientation are diminished by a tendency to engage in excessively risky and thus less profitable business opportunities.

Either way, these findings suggest that immigrant businesses do not only contribute through creating employment for themselves and others, but also as buyers, suppliers, employers, and taxpayers.

**Innovation:** Recent work has highlighted the contribution of immigrants in the fields of innovation and high technology entrepreneurship (Wadhwa et al., 2007; Hart and Ács, 2011; Kerr and Kerr, 2016). In the 2000 United States census, immigrants represented 24 percent and 47 percent of the science and engineering workforce with bachelor and doctorate degrees, respectively. This contribution was significantly higher than the 12 percent share of immigrants in the working population (Kerr and Kerr, 2011).

Against this background, it is no surprise that immigrants are also over-represented as founders in a number of industries that are typically associated with innovation, such as biotechnology (Monti et al., 2007; Saxenian, 2002) and VC-backed firms (Kerr and Kerr, 2016). Wadhwa et al. (2007) find that a quarter of engineering and technology companies in the United States were started by immigrants, with this number reaching 40 percent and more in specific dense areas, such as the California Bay Area. At the same time, immigrants were also found to be more likely to engage in other innovation-related activities, such as conducting Nobel-prize-winning research (Peri, 2007) and applying for patents in the United States (Hunt and Gauthier-Loiselle, 2010; Kerr and Lincoln, 2010).

**Vitalizing streets and neighborhoods:** High cultural diversity is often considered as beneficial for the development of cities and has been associated with an increase of consumption choices (Quigley, 1998) and attraction of creative talent (Florida, 2002). On a smaller scale, migrant entrepreneurs can also help to develop streets and neighborhoods. As owners of local businesses, they have a stake in the prosperity, accessibility, and

safety of the street or neighborhood (Kloosterman and Rath, 2003). As Kloosterman and van der Leun (1999) argue, immigrant entrepreneurs can thus serve as transforming agents in ethnic communities and improve the neighborhood.

**Role models:** Immigrant entrepreneurs also serve as entrepreneurial role models to other immigrants (Kloosterman and der Leun, 1999; Zhou, 2004). The availability of such role models is important to inspire self-confidence and entrepreneurial action by displaying the feasibility and benefits of immigrant entrepreneurship. As Shinnar and Young (2008) argue, role models can be particularly important within families and act as a pull-factor for immigrants. At the same time, immigrant role models can also break stereotypes amongst natives in the entrepreneurship ecosystem who might discriminate against immigrant founders. As Saxenian (2002) notes in her investigation of immigrant entrepreneurs in the California Bay Area, the lack of role models was perceived as contributing to a “glass ceiling” that prevented Indian and Chinese professionals from entering higher-level positions.

**Remittances:** Another noteworthy economic effect of immigrant entrepreneurship is created through remittances of entrepreneurs to their country of origin. Many immigrant entrepreneurs support their family and kin in the countries of origin through remittances, which are used for consumption, investment, and, in some cases, even as venture capital for entrepreneurs in the countries of origin (Martinez et al., 2015). Overall, remittances have been estimated to reach around US\$429 billion annually, which is about four times the volume of foreign aid (World Bank, 2016). These money flows are associated with positive effects for the country of origin in terms of its economic development, poverty and the accessibility of financial infrastructure (De Haas, 2005; Martinez et al., 2015). Some authors have argued for remittances being a better and more market-driven form of foreign aid which is less susceptible to corruption and inefficiency, whereas others have pointed out that remittances can cause harm by creat-

**Table 5: Economic Effects of Immigrant Entrepreneurship**

Name of effect	Main argument	Key articles
<b>Economic integration of immigrants</b>	Immigrant entrepreneurship allows entry to paid employment, higher income and intergenerational upwards mobility.	Fairlie and Lofstrom, 2015; Portes and Zhou, 1996
<b>Positive spillover effects</b>	Immigrant entrepreneurs benefit the public by creating jobs, wealth, welfare and innovation.  They also act as entrepreneurial role models and can benefit urban development.	Hunt and Gauthier-Loiselle, 2010; Kerr and Kerr, 2011; 2016; Kloosterman and van der Leun, 1999; Saxenian, 2002
<b>Remittances</b>	Money transfers into countries of origin enable consumption and investments and contribute to the development of the country. At the same time, they lower consumption and investment in the host country.	Baas and Melzer, 2012; de Haas, 2005; Martinez et al., 2015
<b>Crowding out of native business</b>	Immigrant entrepreneurs can create additional competition and thereby crowd out native businesses.	Fairlie and Meyer, 1997; 2003; Nathan, 2014

ing dependence and incentivizing the permanent emigration of talent (see DeHaas (2005) for a thorough discussion).

For the host country, remittances constitute negative economic consequences as they reduce domestic consumption and savings. Baas and Melzer (2012) however argue that remittances also influence the real exchange rate and can contribute to the depreciation of the currency of the sending country, thereby promoting export.

**Crowding out:** Another potentially negative effect for the host country is that immigrant businesses can increase competition and thereby crowd

out extant native businesses (Fairlie and Lofstrom, 2015). Unfortunately, empirical research into these issues is intricate, rare, and rather inconclusive.<sup>9</sup> In the United States, Fairlie and Meyer (2003) indeed find some evidence for crowding out of native businesses by immigrant businesses. At the same time, they also infer that average earnings of native businesses increase through the entrepreneurial activity of immigrants. This might be interpreted as crowding out, but it could also be a sign of upward mobility among natives (Fairlie and Lofstrom, 2015). A comparable analysis of effects of immigration on native black and female self-employment found no signs of crowding-out effects (Fairlie and Meyer, 1997). Conceptually, Nathan (2014) argues that increased competition from immigrant entrepreneurs could provide incentives for innovation among native entrepreneurs rather than produce crowding-out effects. Furthermore, to the extent that (skilled) migrants identify new opportunities, the net effect of their ventures on firm entries can be expected to be positive (Nathan, 2014).

In summary, prior research suggests that immigrant entrepreneurship produces beneficial effects for the immigrants themselves as well as for the general public; the latter by providing employment, welfare, and innovation, as well as positive role models to other immigrants. However, there are also negative effects (table 5).

## **5. Policy implications**

In light of its many positive economic effects, immigrant entrepreneurship is a natural target for policymaking. Policies on immigrant entrepreneurship typically aim to increase the share of entrepreneurs amongst extant immigrants (and thereby counteract high rates of immigrant unemployment) or to increase the chances of survival and success of their businesses. In addition, policy makers often aim to attract new immigrant entrepreneurs.

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9 See e.g., Kerr (2013) on crowding-out and crowding-in effects for high-skilled labor.

Therefore, most policies focus on the promotion of entrepreneurial intent and capacity among immigrants or the attraction of entrepreneurial talent amongst potential immigrants and return migrants.

### ***Entrepreneurship policy***

**Training and resources:** The provision of training is a very common policy intervention for promoting immigrant entrepreneurship. As Van Niekerk et al. (2008) found in an analysis of 146 European policy interventions promoting immigrant entrepreneurship, 83 percent contained measures designed to inform, consult, or train entrepreneurs. The training curricula often put an emphasis on encouraging entrepreneurs to cater to mainstream rather than to ethnic markets, e.g., by changing location, business sector, and marketing strategy or by building collaborations with other businesses. Some training interventions also make an effort to activate transnational social networks that offer access to personnel, strategic information, or supplies of inexpensive or ethnically unique goods (Rath and Swagerman, 2016).

Many policies also facilitate networking as well as the provision of financial resources. In the analysis of Van Niekerk et al. (2008), 54 percent of policies also involved direct funding or providing access to funding instruments. Such instruments often include micro-credits, bank guarantees and subsidies, and bridging allowances or individual-level stipends (Kontos, 2003; Rath and Swagerman, 2016). While public authorities provide many such measures, in particular at local and city levels, there are also numerous private (often non-profit) institutions that engage in training and funding, such as immigrant associations, business associations, and support agencies (Rath and Swagerman, 2016).

Evidence on the effectiveness of training and resource provision is scarce and mixed. In a review of support instruments in five cities in the United Kingdom, Deakins et al. (2003) find that support services offered to immigrants were only accessed by 7 percent of the target group. While the overall influence of services was deemed positive, the authors identified a number of challenges in the support ecosystem. In addition to its fragmentation and complexity, Deakins et al., (2003) criticized the mis-

alignment of incentives between different support agencies, as well as a lack of robust intelligence on the support needs of their constituents. Rath and Swagerman (2016) also raise the question whether distinct support instruments are needed for immigrant entrepreneurs or whether there are circumstances in which immigrants should access mainstream business support instead. Based on their analysis of European policies, they find that distinct support programs are effective for the “most difficult to reach groups and vulnerable groups” (Rath and Swagerman, 2016: 157) as they can focus on particular needs and overcome language barriers. For others, Rath and Swagerman conclude that participation in mainstream programs might be more effective because it allows participants to build a larger and more diverse set of business contacts.

**Spatial policy:** Kloosterman and van der Leun (1999) argue that immigrant entrepreneurs can also be supported via instruments of urban and regional development. These can include providing cheap and accessible commercial spaces in neighborhoods with many immigrants, applying flexible rental policies, and providing attractive opportunities for ownership. Such policies reduce the costs of starting a business and facilitate entrepreneurship for immigrants with limited access to financial capital. As Kloosterman and van der Leun note, the intended side effect of such interventions is that successful immigrant entrepreneurs are incentivized to stay in their neighborhoods and help transform them through commercial gentrification, rather than moving to socio-economically more attractive parts of town (Kloosterman and van der Leun, 1999).

In practice, the use of space policy as means of immigrant entrepreneurship policy is still rare. Rath and Swagerman (2016) did not find evidence for specific attention to immigrant entrepreneurship in any zoning plan of European cities. A few cities, however, provide targeted information on business locations to migrants, including Vienna, Stuttgart, and Zagreb. A number of cities also provide business space to immigrant entrepreneurs through business incubators (Rath and Swagerman, 2016).



**Communications:** Collins (2003) argues that public authorities need to improve their communication with immigrant communities. This concerns business support interventions, but, more importantly, the many administrative interactions between businesses and public authorities, from registering a business to filing tax reports. Effective communication strategies can include providing translated versions of documents, hiring multilingual administrative staff, and actively marketing public services through communication channels of ethnic communities (Collins, 2003).

Unfortunately, as Rath and Swagerman (2016) find in an analysis of policies in 28 European cities, such measures are rarely implemented. Many bureaucratic rules and regulations—which often are already difficult to grasp and need “translation” into non-technical language for native entrepreneurs—are thus even more difficult to understand for immigrant entrepreneurs and require an additional level of translation. In this context, it is unsurprising that a Viennese study, for example, showed that 46 percent of migrant entrepreneurs were not aware of any public support service or financial benefits for entrepreneurs (Enzenhofer et al., 2007).

**Indirect policy interventions:** In addition to dedicated immigrant entrepreneurship policies, the creation of immigrant businesses can also be stimulated by indirect measures that are part of broader policy frameworks. As discussed in Section 2, a range of institutions can influence the likelihood and success of immigrant entrepreneurship and can thus be a subject of policy. These areas can include the promotion of export and trade as well as economic freedom, for example through a reduction of regulations, stable property rights, or reduced corruption (Collins, 2003; Dutta and Sobel, 2016; Estrin et al., 2013; Kloosterman, 2003). Similarly, a fast integration of immigrants into the social security system of the host country has been associated with higher levels of entrepreneurship (Olds, 2016). Public agencies can also integrate immigrant policy directives into their public purchasing practices, for example by making it mandatory to make some public purchases from immigrant entrepreneurs (Kloosterman, 2003).

In summary, we can see that there are many different policy instruments that can be used to specifically support immigrant entrepreneurship. Policies that create training, funding, space, or additional demand for immigrant businesses can help overcome particular challenges, for example due to language, access to resources, or lack of information, as well as help leverage their strengths. Furthermore, a number of policies that are not explicitly targeted at immigrants can also impact on their entrepreneurial engagement, including trade policy, public procurement, and social security.

### ***Immigration policy***

The above-discussed policy interventions pursue the goal of facilitating entrepreneurship among immigrants who are already in the country. In contrast, a number of countries also employ policies that aim to select for entrepreneurs already in the immigration process.

**Start-up immigration programs:** In an attempt to attract immigrant entrepreneurs, many developed countries have created special visa categories and entry options for potential business founders and owners (Mahroum, 2001). Ley (2003) estimates that at least 30 countries run some type of business immigration program. Their main purpose is to “entice entrepreneurs with a proven track record and substantial economic capital to relocate from their countries of origin, with citizenship being the prize for moving their families and commercial activities to new lands” (Ley, 2003: 426–27).

One of the largest and most active programs of this type is the Canadian Business Immigration Program, which has attracted over 300,000 immigrants between 1983 and 2001 (Wong, 2003).<sup>10</sup> During this period, its main focus has been geared towards entrepreneurs and required applicants making a capital investment in a business, being active in its ownership, and creating at least one job for a non-family member. Applicants also had to demonstrate business experience, financial assets, and a busi-

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10 In comparison, Wong (2003) finds that similar instruments in the United States and Australia have benefited 91,000 and 6,000 individuals over that time period.

ness plan that was evaluated by Canadian immigration officers. The development of the business was later closely monitored by government agencies (Ley, 2006).

While the program has been generally perceived as an effective policy which attracted a large number of entrepreneurs (Ley, 2006; Lofstrom, 2014; Wong, 2003), it has also been criticized for the comparatively low economic performance of participating entrepreneurs (Ley, 2003, 2006). Against this background, the entrepreneurial stream of the program has been adapted many times over the years and, most recently, started to put a stronger emphasis on risk and risk sharing with the private sector. Instead of individual entrepreneurs, the focus lies now on start-ups. Rather than being expected to hire one Canadian citizen within two years, applicants for a start-up visa are required to have secured support and an investment from a Canadian business angel (\$75,000) or venture capital fund (\$200,000), and to be part of an incubation or acceleration program. The program also offers additional streams for self-employed immigrants and investors (Government of Canada, 2017). Comparable policies have been implemented in other places as well, including the United Kingdom, Australia, and several European countries. In the United States, for example, immigrants who invest \$1 million in businesses and create or preserve at least 10 full-time jobs for domestic workers are given special preference (Fairlie and Lofstrom, 2015).

The jury is still out on whether these new types of start-up focused visa-programs are more effective than their predecessors (Lofstrom, 2014). Entrepreneurship visa programs run the risk of being overly selective by focusing on individuals with high wealth and already existing enterprises, while missing out on talented entrepreneurs in earlier development stages and from countries with more difficult access to risk capital. Studies in the United States suggest that many of today's immigrant entrepreneurs initially entered the country with a work or study visa and only decided to start up a business later (Kerr, 2013; Wadhwa, 2007). In fact, Wadhwa et al. (2007) found in a study of immigrant start-up founders that over 52 percent had immigrated with the motive of pursuing higher education, while only 1.6 percent had already come with the initial motive of starting a busi-

ness. Unfortunately, most immigration policies are not very open to such changes of heart. As Naudé et al. (2015) note, migrants entering on a work visa in many cases may not be allowed to start a business while on this specific visa. Overall, this suggests that a large part of the entrepreneurial potential of immigrants may not be currently realized.

**Return migration policy instruments:** Immigration is not a one-way road. As highlighted before, a disproportionately large number of individuals who have studied or worked abroad choose an entrepreneurial career path once they return to their country of origin (Ammassari, 2004; Black and Costaldo, 2009; Demurger and Xu, 2011; McCormick and Wahba, 2001; Saxenian, 2002, 2005; Wahba and Zenou, 2009). Return or repatriation is thus often associated with higher levels of entrepreneurship and positive economic and social effects such as revitalizing rural economies and poverty alleviation (Demurger and Xu, 2011).

The economic and political climate of a country plays a significant role in the attraction of highly skilled migrants, as has been witnessed with the Brexit vote and the election of president Trump in 2016. Even before any concrete policy measures had been implemented, the public perception of these events had already triggered a measurable decrease in graduate student applications for universities in the United Kingdom and the United States (Farrugia and Andrejko, 2017). At the same time, universities in countries associated with more open policies, such as Canada and Australia, saw a significant increase in applications in the aftermath of these events, suggesting a redirection of mobile international talent in their direction (Gewin, 2017).

An increasing number of countries also employs policies to promote return migrant entrepreneurship, including India, Taiwan, Romania, and the Philippines (Grosu, 2015). China, one of the most cited examples of a country with ambitious return entrepreneurship policies, is “aggressively courting” return entrepreneurs (Saxenian, 2002: 184). Chinese policies encourage return entrepreneurship through an array of incentives, including tax reductions, subsidized housing and rents, support for spouses, and other benefits for returnees that start a business. Furthermore, returnee

**Table 6: Policy Instruments for Promoting Immigrant Entrepreneurship**

<b>Name of policy</b>	<b>Description of policy</b>	<b>Key articles</b>	<b>Examples</b>
<b>Training and resources</b>	Providing training, access to networks and funding.	Deakins et al., 2003; Rath and Swagerman, 2016; Van Niekerk et al., 2008	Nuoret Yrittajat Projekti (Young Entrepreneurs Project in Helsinki)*
<b>Spatial policy</b>	Assisting immigrant entrepreneurs to gain access to (subsidized) business locations.  Including areas for immigrant entrepreneurship in urban zoning plans.	Kloosterman and Van der Leun, 1999	Stuttgart's Economic Development Department*
<b>Communications</b>	Providing information related to founding a business and support instruments in different languages and communication channels.	Collins, 2003	Vienna Business Agency*
<b>Indirect policy interventions</b>	Fostering immigrant entrepreneurship through promoting economic freedom, export and trade, reliable social security, and a business friendly environment.	Kloosterman, 2003; Olds, 2016	Dutch "Entrepreneurial Society" program*
<b>Start-up immigration programs</b>	Granting visa to entrepreneurs and start-ups with backing from entrepreneurship ecosystem.	Ley, 2006; Wong, 2003	Canadian Business Immigration Program*
<b>Return migration policy instruments</b>	Offering financial incentives and support for immigrants who return into their country of origin and start a business.	Saxenian, 2002, 2005; Zweig and Wang, 2013	Chinese "1,000 talents program"*

\*Examples from Kloosterman (2003), Ley (2006), Saxenian (2002), Rath and Swagerman (2016), and Zweig and Wang (2013)

entrepreneurs are offered places in dedicated “return student venture parks” (Zweig et al., 2006; Saxenian, 2002).

The “1,000 talents” program, which has been implemented since 2008, has been deemed particularly successful (Zweig and Wang, 2013). Like previous programs, it granted far-reaching privileges and rights to returning technology entrepreneurs and additionally promoted a very active recruitment process of potential returnees by public officials on city and province level. Chinese universities were also involved and financially incentivized to take part in recruitment. Between 2011 and 2013, the overall program (which also caters to non-entrepreneurs, such as scientists and engineers) has generated over 6,000 applications and 1,500 selected grantees, of which 16 percent are estimated to be entrepreneurs (Zweig and Wang, 2013).

In sum, there is a number of policy measures that allow a country to promote and increase the positive effects of immigrant entrepreneurship (table 6).

## **6. Conclusion**

Immigration has become a topic of heated political and public debate. Even in traditionally migration-friendly countries, such as the United States and Australia, the positive economic and social impact of immigration has been questioned. The findings of our literature review suggest that, at least in the area of immigrant entrepreneurship, positive assessments of migration are still warranted. In spite of significant barriers to starting a business (language difficulties, discrimination, and lack of resources, amongst others) many immigrants decide to become entrepreneurs. In the majority of countries, they even do so more often than the native population. Their businesses contribute to the creation of jobs for both immigrants and natives alike, promote innovation, and improve economic welfare. While evidence for the crowding out of native-run businesses is limited and the effect of remittances on host countries is mixed, a number of studies suggest that immigrant entrepreneurs create positive spillover effects for the

broadier society through additional tax revenues, employment opportunities, and innovation.

Of course, the inconvenient question remains whether such gains for host countries come at the expense of countries of origin. In fact, it has been argued that immigrant entrepreneurs are part of a brain drain, producing a loss of some of the most talented and productive individuals for the societies they chose to leave (Saxenian, 2002). Real entrepreneurial talent is often scarce, and so its permanent departure is likely to have a retarding effect on the development of the country of origin (Solimano, 2008). Such arguments certainly seem justified, and they are supported by some empirical evidence (Beine et al., 2008; Saxenian, 2002). Nevertheless, there are a few alternative perspectives that challenge the interpretation of high-skilled migration as a zero-sum game.

First, many emigrants remain connected to their countries of origin and contribute to their development through remittances and international trade (De Haas, 2005; Martinez et al., 2015). They are therefore an important source of income and contributor to development, savings, and private investment. At the same time, the tendency of immigrant entrepreneurs to engage in trade relationships with their country of origin also contributes to its economic development (Fairlie and Lofstrom, 2015). Second, some authors have argued that the “brain drain” of highly skilled talent has become a “brain circulation”, at least for some countries (De Haas, 2005; Saxenian, 2002; 2005; Solimano, 2008; Wadhwa, 2009; Zweig and Wang, 2013). As Wadhwa (2009) and Zweig and Wang (2013) note, around the time of the 2008 financial crisis, many immigrant entrepreneurs in the United States returned to their countries of origin, e.g., China and India. Upon return, migrants often contribute to the economic development of the country of origin through entrepreneurship and investment (Saxenian, 2005; Wadhwa, 2009; Demurger and Xu, 2011). Third, migration should not be understood solely as a vehicle for transporting entrepreneurial talent between countries. Instead, migration itself can also help nurture entrepreneurial abilities by building cognitive skills and more diverse international social networks, and by introducing immigrants to

new business ideas and market needs (Leung and Maddux, 2008; Vandor and Franke, 2016).

Thus, there is reason to believe that increased international migration may not only lead to a geographical redistribution of entrepreneurs, but also result in an overall gain in entrepreneurial activity. This suggests that public money may be better spent on building business incubators for immigrant entrepreneurs than on building border walls.



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## CHAPTER 10

# The Bourgeois Deal: Leave Me Alone, and I'll Make You Rich

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### How the world gets rich

People got rich and will get richer because we changed the way we think, write, and speak about entrepreneurs and entrepreneurship. A Great Revaluation of entrepreneurial undertakings and innovation, tested by market exchange, led to a Great Enrichment. Its roots were in Holland, the first large bourgeois society in Europe, but it really got started among the

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<sup>1</sup> This essay is drawn from an ongoing collaborative project between Art Carden and Deirdre McCloskey based on McCloskey's three volumes *The Bourgeois Virtues* (2006), *Bourgeois Dignity* (2010), and *Bourgeois Equality* (2016). In particular, the essay is drawn specifically from Carden's remarks to students and faculty members at various colleges and universities, and conferences and seminars sponsored by the Independent Institute, the Foundation for Economic Education, Istituto Ordem Livre, and the Institute for Humane Studies. Some parts of the essay are adapted directly from McCloskey (2006, 2010, 2016).

Dutch-imitating English and moved across Europe and then its overseas extensions before spreading around the world. People changed how they thought and how they talked about economic life, and hence income per person increased from about \$3 per day in inflation-adjusted US dollars to more than \$30 a day, worldwide, and over \$100 a day in very rich countries like the United States and Norway.

Changes in the words we use in English, Dutch, and other languages reflect changes in how we think about bourgeois life. The ideas of liberty, equality, and dignity for everyone, but especially for the previously-despised bourgeoisie, made entrepreneurial *dissent with modification* glorious—or at least acceptable and tolerated, enough that they were able to enrich the world.

Previously, the way to win fame and fortune and honor was through feats of faith or arms. Through the sixteenth and seventeenth centuries, a series of changes in European ideology originating in revolts, revolution, reformation, and reading created a fifth R, a *revaluation* of the bourgeoisie that set off frenetic innovation and productivity growth leading to higher standards of living. Revaluation happened in that people discovered that what they thought was worth little was actually worth much. In the sixteenth and seventeenth centuries, people reassessed and revalued the mundane activities of the shopkeepers, merchants, and innovators so that what was formerly disreputable became reputable.

The sheer magnitude of the change is startling. Historically, per capita income was about \$3 per day, roughly measured in early twenty-first century US dollars. It has increased globally by a factor of 10—not 10 percent, but 900 percent—and by a factor of 20 or 30 or 40 in the richest countries in the world today. Life expectancy at birth has risen by a factor of about three, life expectancy from the teenage years (after one has overcome most of the mortality threats that come before old age) has about doubled. Someone aged 16 could, in centuries past, expect to live to be 40 or 50 or 55. Today she can expect to live into her 60s—and into her 80s or 90s if she is in a wealthy country. She can expect about twice as much “adulthood,” which means it makes a lot more sense to invest in literacy and numeracy that will serve one for almost twice as long.



Twice as much adult life, supplied by 10 or 30 or 100 times as many goods and services, is quite a change. Material explanations have been found wanting. From the left, we have heard that the prosperity of the West relies on colonialism, slavery, imperialism, and all sorts of other exploitations. In this we bring good tidings of great joy: prosperity *wasn't* brought about by slavery, empire, or colonialism. It came from a change in ideas, and specifically ideas about innovation and the bourgeois life.

We also bring good tidings about our bourgeois lives. The innovative bourgeois world we inhabit requires lives of virtue; it also reinforces lives of virtue by providing us with greater scope for family and friends, art, and literature. The Great Enrichment has made us better, not just richer.

Scientifically, the Enrichment needs to be explained. Ethically, the Enrichment needs to be protected. The last, best hope for a globally prosperous future is the washed-up, used-up set of classical liberal economic and political institutions normally called *free markets* or *laissez-faire*. Free market institutions alone are not enough: we need free markets lit on fire by liberty, dignity, and equality, and maintained by a balanced approach to the virtues of faith, hope, love, courage, justice, temperance, and prudence.

There were economic “efflorescences,” to use the term of the historical economist and sociologist Jack Goldstone (2002), which were tiny flare-ups of bourgeois and bourgeois-respecting societies that were ultimately crushed politically or badly hamstrung by politics and social change and then dissipated by population growth. Sustained growth like we have enjoyed since 1750, give or take a few decades, has been the exception rather than the rule.

The chronology of the Great Enrichment is roughly as follows. Things really got going after 1500, and then especially after 1700, and then *really* especially after 1800. A combination of reading material pouring out of irregularly, unevenly, and incompletely censored presses across Europe gave rise to a Protestant Reformation and attendant changes in church governance. The Eighty Years War in which the Dutch won their independence from Spain wiped out the Dutch aristocracy, which was never replenished and which left the northern Low Countries to be governed not by the hereditary aristocracy—they were dead—but by the burghers and businesspeople of Amsterdam and Rotterdam and Gouda. Envious Eng-

land imitated the Dutch, where the Revaluation started receding—recall “efflorescences”—and became the seat of the Industrial Revolution.

Entrepreneurs and innovators, who were once despised, disdained, and distrusted, became if not heroes, then at least members of decent society in good standing. There was a rhetorical revaluation as evidenced by the British stage and the British novel, transforming from an intellectual and rhetorical environment that praised and treasured hierarchy to one that treasured liberty, dignity, and equality. A flood of innovation thus burst forth out of England, in spite of its imperial adventures and nearly endless wars. Within the span of two centuries, England executed a king, reoriented its literature and its social conversation, and became the workshop of the world. The British did this in spite of (and not because of) imperial adventures in Africa, the Americas, and Asia.

After 1848, however, the clerisy—Samuel Taylor Coleridge’s word for the members of the class of writers, speakers, artists, and thought leaders—turned against the bourgeoisie and embraced the bohemian, the pastoral, and the traditional, insisting against evidence that modern capitalism has come at a terrible ethical cost and warped our souls even as it has delivered the goods. In the twentieth century, experiments with nationalism and socialism and national socialism almost drowned civilization in the blood of the innocent.

Contrary again to despair from left and right, the prosperity we enjoy today has not made us worse, nor does it rely on a sociopathic preoccupation with prudence only. The good bourgeois has to exercise the other virtues of faith, hope, love, courage, justice, and temperance, and the Great Enrichment created more opportunities to exercise these virtues. The world is better because of the Great Enrichment, and the Great Enrichment happened because we changed how we think, read, write, and speak about entrepreneurs and innovators. Societies accumulated copious institutional and cultural kindling that made modern, rapid growth possible. The Great Revaluation of entrepreneurs and innovators was the spark that made modern, rapid growth happen.

## Good riddance to the good old days

We're motivated by the same questions as Adam Smith was: what is the *nature* and what are the *causes* of the wealth of nations? To put it another way, why are some societies very rich while other societies are very poor? People have argued that it is because of resources, or because of the rule of law, or because of the move to free trade. These are all very good things, and all else equal the members of a great society are better off if they have them, but they are not by themselves (or even in combination) sufficient to explain how we went from a world in which life was solitary, poor, nasty, brutish, and short for almost everyone to a world in which Carden's older son, who is hardly descended from gods and kings, can think he is "poor" even though he has more material provision and more opportunities than almost anyone who has ever come before him.

People also live lives that are longer and healthier than ever before, as well. A few thousand years ago, life expectancy at birth was in the mid-20s, driven largely by high infant and child mortality but still influenced by the fact that children who lived to see ages 1, and later 5, could at age 15 still only expect another 40 years or so of adult life, and over that period they could expect to bury some children along the way. According to the 2011 Social Security Administration's life tables, a 15-year-old in 2011 could expect to live another 62 years if male or 66.5 years if female *without* having to bury children along the way (Social Security Administration, 2014).

But are our longer lives meaningless? No. We have myriad opportunities to waste our lives, but we also have access to humanity's greatest artistic achievements at the touch of a button. It's true that popular culture produces a lot that is base and mediocre, and the right-wing critics of modernity are right when they urge us to cling to standards set over the centuries. Someone who thinks the differences between Beethoven's *Ninth Symphony* and whatever you hear on the Top 40 radio stations are merely a matter of opinion is simply not paying attention. That said, however, popular culture has always produced baseness and mediocrity, and it is unfair to compare the very best that civilizations have produced with what is still being produced and evaluated. Even if we believe that the twentieth cen-

tury has produced literally no music worth listening to, someone with a streaming service can get effectively unlimited recordings of Beethoven, Mozart, Haydn, and all the other giants of classical music. Subscribers to Hulu, Netflix, and Amazon Prime can sip from television's bottomless chum-bucket to their hearts' content, but they can also watch thought-provoking documentaries and series like BBC's *Earth* or *Life*, *Cosmos* (the Carl Sagan and Neil Tyson versions), or Ken Burns' *The Civil War*. Shakespeare's classics are easy to get online.

Or perhaps you don't want to prepare your own meals, or you think your time is too valuable to do so. Any number of restaurants in almost any town are eager to serve you, as their proprietors have learned they can get what they want more easily by trading their talents in the kitchen for money. Even at low-end buffet restaurants, the quality and selection of what is available to *hoi polloi* rivals what was set on the tables of kings a few centuries ago (Nye, 2002a; 2002b).

## **Innovation has no limits**

Economic freedom is receding in the United States, but it is growing globally. Sound economic institutions turn population growth from a curse to a blessing. In their 2012 book *Abundance*, Peter Diamandis and Steven Kotler talk about the number of people around the world who are rapidly getting connected to the global communications grid. This will create a world in which we have more people making discoveries about the world we inhabit and, in the financial sector, coming up with new and better ways to measure and price risk, measure costs and benefits, or do actuarial science. The economist Randall Holcombe (2007) distinguishes economic progress (more and better stuff) from economic growth (simply more stuff). When economists say "growth," what they usually really mean is "progress. There is no reason why progress has to mean more stuff. If you're reading this on an Internet-enabled computer, for example, you have access to online broadcasts from around the world. Your higher standard of living might not just be more and bigger cars, but the ability to enjoy the artistic voices of artists from around the world.

Market tests are the experiments of a commercial society. The trial-and-error process helps us see what works and what doesn't. Fusion cuisine, Korean tacos, and sushi burritos? Winners. Fried everything at the Minnesota State Fair? Check. It's a process of dabbling. Let's mix this stuff with that stuff and see how it tastes. Or maybe Homer Simpson accidentally pours kids' cough syrup into a mixed drink that later becomes the Flaming Moe after his bartender friend steals his idea—and a drink that becomes ubiquitous (to the benefit of the consumer and detriment of Moe the monopolist) after Homer reveals the secret.

People worry about overpopulation, whether globally or domestically. These fears are misplaced, though, because there are practically unlimited ways to create new knowledge. One of the benefits of a larger, more prosperous society, and one of the ways in which prosperity will feed itself, will be the waves of financial innovations that emerge from a larger, better-connected, more prosperous population.

In his 1999 Presidential Address to the American Economic Association, the economic historian and Nobel laureate Robert Fogel discussed what he called “technophysio evolution” (essentially the fact that we are in control of our own species' evolution in ways that were previously unimaginable) and the rising importance of *volwork* and “spiritual goods.” He contrasts *volwork* with *earnwork*: the former is our discretionary work, and the latter is the work we do in order to obtain sufficient food, clothing, and shelter to be viable. As a percentage of our total experience the amount of *earnwork* we do is vanishingly small: at the \$3 per day standard of our ancestors, a minimum wage worker in the United States earns a week's worth of sustenance in about three hours—and that's not accounting for Social Security taxes and other “employer” contributions to the worker's well-being. A minimum wage worker responsible for a family of five can do it in two workdays. Someone earning average American wages of about \$26.74 hour earns his ancestor's weekly bread (and clothing, and shelter) in less than an hour. If he has a family of four and shows up at the office at 8:00 AM, he has earned his family's weekly bread (and clothing, and shelter) before it's time for lunch (Bureau of Labor Statistics, 2018).

This isn't to say that \$3 per day is advisable. It would be a wretched existence compared to what we're used to, and those who have had the opportunity to move from \$3 per day to \$5 per day, or \$100 per day, have done so, in droves. The point is that trade-tested betterment has made us so productive that almost everything we do is, in a strict sense, discretionary.

Fogel made the important point that for the most part, the problems we face are distinctly not material. There is a lesson here about sustainable growth. The value of natural resources is small as a percentage of the value of a good: the metals and plastics and whatnot formed from the dust of the Earth are a small part of the price of an iPhone. The labor component is fairly small part of the price, too. The iPhone's value is almost entirely in the ideas that comprise it.

### **The “killer apps” aren't sufficient, though some are necessary**

The Harvard historian Niall Ferguson (2011) argues that there are “killer apps” for prosperity that are very much like software: they can be copied and “downloaded” by societies wishing to adopt them. We are sympathetic to the “apps” analogy as societies' ideas and rhetoric can change very rapidly, but the real “killer apps” are liberty, dignity, and equality for entrepreneurs, for venturers, for those who want to “have a go,” in the British phrase.

The “killer apps,” according to Ferguson, are competition, science, property rights, modern medicine, consumerism, and a strong work ethic. There is a lot of overlap between these and the apps of liberty, dignity, and equality, but they differ in important respects. The usual explanations aren't sufficient to explain how mind-blowingly rich we are. This is true about benign explanations like more saving, technology, science, the protestant work ethic, schooling, the move to free trade, and even secure private property rights. Neither are we rich because of malign explanations like exploitation in the form of slavery, empire, and colonies. The first list comprises a set of things that were very nice to have and which certainly mattered. Secure property rights are necessary for economic growth, but that societies have had secure property rights (in England since Magna

Carta, and even in Genghis Khan's empire) and yet did not begin growing explosively until the middle of the eighteenth century remains to be explained. Let's consider each in turn.

*Competition* clearly matters, but it has to be competition in a couple of qualified senses. Political competition in politically-fragmented Europe mattered a lot because it checked the ability of princes and tyrants to exploit their people as ruthlessly as they would have liked. More importantly, perhaps, political competition created a game of whack-a-mole with heretics and people with politically inconvenient ideas. Presses and ideas could be moved across borders.

But Europe has been politically fragmented since Rome fell, and attempts at European unification from Charlemagne through Napoleon and later Hitler have failed. Political competition matters, and it helps explain why we got the Great Revaluation, but it doesn't explain the timing. Why, if political competition is a "killer app," did it not spark an Industrial Revolution with the breakup of the Roman Empire? Political competition might be necessary, but it is not sufficient.

Commercial competition is also important. One of the lessons of a good introductory economics class is that a *competitive* commercial space leads to apparent miracles of coordination and cost reduction. There is pressure in competitive markets for people to seek and exploit gains from trade. Buyers search for the best deal. Firms work to produce at the lowest cost. The result, as the economist and economic journalist Tim Harford (2005) puts it, is a "world of truth" in which societies produce the right things, the right way, and in the right proportions for the right people. Resources flow to their highest-valued uses. Carden gets coffee produced by the lowest cost producer. His wife gets tea produced by the lowest cost producer. All that is commercial is right with the world.

And yet people have been trading in more or less competitive markets since the caves. Archaeologists have uncovered trade routes over which goods traveled fantastic distances millennia ago. As much as we extoll market competition (rightly), governments have been interfering in markets since the caves, as well, and they didn't suddenly stop at the dawn of the Great Enrichment. The British government protected brewers from competition

from cheap French wine. Occupational licensing in the United States has exploded in the last several decades (Carpenter et al., 2012). At the height of their power, labor unions used the state to stifle competition. Adam Smith was right: there is a great deal of ruin in a nation, but as long as things are competitive *enough* we can be reasonably sure that the enrichment will proceed.

Science is great, we should have more of it, and basic science these days does lay at the foundation of many economic and technological innovations. Historically, however, basic science has lagged technology. We have found something that works and then later figured out exactly how and why. The application of science and the scientific method to technology, which Douglass C. North called “the second economic revolution” in his 1981 book *Structure and Change in Economic History*, was indeed significant, but basic science alone explains only a small fraction of the Great Enrichment. The economist and Nobel laureate Edmund Phelps (2013) offers this helpful analogy. Many new technologies advanced basic science in the same way a bartender advances basic chemistry by trying new cocktails. They don’t, and he doesn’t.

The third of Ferguson’s killer apps warms our hearts: property rights. According to North again, property rights define who owns *what* and under which circumstances. “The essence of property rights is the right to exclude,” writes North, and one who owns an object as property has the right to use it, to alienate it, and to earn income from it. Property rights are important because they provide incentives to steward resources wisely. One of the most basic lessons informing environmental economics is that in the absence of secure private property rights people will tend to over-exploit resources. *Commons* are over-grazed. Fisheries collapse. Reefs are destroyed. Air and water are polluted. Even in more mundane settings living rooms and refrigerators remain untidy and unkempt. Secure property rights give people incentives to steward resources wisely, and empirical research motivated by the work of the development economist Hernando de Soto shows how property titling in relatively poor countries can provide people with greater access to the capital they need to start businesses, build new homes, and so on.



The rule of law is closely related in its importance to secure property rights. And yet we have had both since time immemorial. Babylon under the Code of Hammurabi had the rule of law. Empires like the Roman and the Mongolian enforced property rights and a rule of law across wide swathes of the globe. The Mosaic law as laid down in the Torah specifies very clear rules with detailed prescriptions for how they are to be enforced, and among Jesus's criticisms of the religious leaders of the day was his concern that they were preoccupied with the law rather than the lawgiver. Biblical jubilee, the expiration of long-term leases and the reversion of lands back to their ancestral owners, could not have happened without well-understood property rights. English property rights and rule of law were codified in Magna Carta, and in the Declaration of Independence Thomas Jefferson referred to the commonly known and commonly understood rights they expected as Englishmen.

Modern medicine is a marvel of the modern world. We certainly wouldn't want to back-track on it given what medical innovation has meant for our ability to ease people's suffering with pain medications, artificial hips and limbs, antidepressants, and other therapies. We don't think modern medicine is a "killer app," though, in the same way that liberty and dignity for the innovators is a killer app. Indeed, a lot of the innovation that constitutes the Great Enrichment has happened in health care. We think that modern medicine is on net more of an effect than it is a cause—though, understand, it is something to be celebrated and praised and not something to be dismissed. Economies were growing, and rapidly, before modern medicine. It contributed, certainly, but it wasn't sufficient for the Great Enrichment.

Ferguson calls the development of a *consumer* society another killer app. Again, he is on to something very important but something that is incomplete. We don't think it is the development of "consumerism" in the sense that we came to honor and love consumption per se—think of fat Henry VIII who couldn't move without assistance, and his fat courtiers consuming, consuming, consuming—but that we came to value *trade tests* as the decisive standards by which innovations were to be judged as improvements. The social ideology, or rhetoric, shifted in favor of the con-

sumers rather than producers and dispensed with the idea that the producer necessarily knows best what *should* be done. Vestiges of producerist ideology remain in heavily subsidized fields like the arts, science, and the academy—who are you, oh plebeian, to tell we scholars that our work isn’t as valuable as daytime talk shows?—but for the most part the notion that trade tests rule has taken hold and governed production.

Ferguson’s final killer app is the work ethic, and Max Weber’s idea of a “Protestant work ethic” leading to a “spirit of capitalism” is immensely popular among many explanations for modern prosperity. As Protestants ourselves, the authors would love for this explanation to be complete. It isn’t, however: Protestantism led to changes in church governance and a rethinking of the relationship between God and Man, but an embrace of Calvinism and, therefore, an embrace of good, hard work in order to show that one is among the elect did not explain the Great Enrichment. Once the bourgeoisie was revalued, societies both Protestant and Catholic—and with the spread of the Bourgeois Deal societies Buddhist and Hindu and Muslim and Shinto and all other faiths—grew at blockbuster speed. By all means, work harder. Or at least work smarter. Hard work was a necessity for our ancestors scratching the fields who for generations saw no meaningful changes in their standards of living. It is a mistake to think hard work *per se* will lead to a Great Enrichment.

### **The Great Enrichment didn’t come about from material causes, like capital accumulation or natural resources**

There are a lot of things and conditions that are nice to have, and that societies have had, and that societies have developed, but that nonetheless do not entirely explain the Great Enrichment. They may be necessary, but they are not sufficient. The usual material causes don’t make sense theoretically, empirically, or chronologically. Some don’t make sense theoretically in that they aren’t likely to be necessary “prerequisites” for growth. Some don’t make sense empirically in that the magnitudes of the effects are far too small to explain the Great Enrichment of 1500%, or 2900%, or 9900%.

Still others probably *are* necessary prerequisites but were well in place long before the Great Enrichment—which makes us ask, “why didn’t they cause Great Enrichments centuries if not millennia before?” To these we turn.

The Great Enrichment didn’t come from capital accumulation driven by higher saving. You probably should save more, and indeed most people should probably save more. Saving more, however, didn’t cause the Great Enrichment. Most importantly, peasants in medieval Britain saved about a quarter of the grain crop, and they did so despite their hungry bellies yearning to eat *now*. Without that high saving, starvation would have ensued. And during the greatest wave of the Enrichment, leading Britain lagged behind other European countries in gross capital formation as a percentage of national income. Britain got rich, but not because it suddenly started saving more.

The Great Enrichment didn’t come from a move to free trade, either. Again, every economist (just about) is a dyed-in-the-wool free trader and enthusiast for the law of comparative advantage, but once again, the magnitude of free trade’s contribution to the Enrichment is too small to account for all of its effects. International trade was a small fraction of Britain’s income, and the small productivity increase in that small fraction does not explain the multiplication of incomes that accompanied the Enrichment. Furthermore, the British weren’t “free traders” during the period in which they were *supposed* to be. They had higher average tariffs than the French (but they were not bound by internal tariffs like the French). The magnitude and timing suggest that while trade liberalization was a good thing, it does not explain the Great Enrichment.

The effect of natural resources is important to mention, as it shines light on the silliness of Western oil geopolitics in addition to helping us see what *didn’t* cause the Great Enrichment. Natural resources can be moved if they are more highly valued elsewhere, and furthermore the timing is off if we want to build a specifically “resource based” theory of economic growth. Britain was endowed with a lot of easy-to-access coal, it is true, but that coal had been there for millennia and had in fact been used to heat the baths at Bath in Roman times. Furthermore, coal could be transported (as it was) up and down rivers and across seas.

The “coal theory” makes a certain superficial sense when we want to explain innovation. A place with a lot of coal and relatively little labor will have very high wages, and this will induce producers to look for ways to economize on labor. Hence, the explosion of innovation is rooted in efforts to economize on scarce labor (Allen, 2009). The problem, though, is that a dollar in cost saving is a dollar in cost saving regardless of where it comes from. Had labor been relatively abundant and coal been relatively scarce, we would today be talking about how the Great Enrichment happened because producers were looking for ways to economize on coal—and indeed, patterns of innovation at the time suggest that this is actually what they were doing. Resources, therefore, are nice to have. They are not, however, what caused the Great Enrichment.

### **Adam Smith recognized that the economy is a conversation**

To Adam Smith, an economy is a *conversation*, culturally embedded and forever marinating in perpetually changing rhetoric and ideology. Smith made two important points that we will emphasize here. First, he noted that everyone is “in some measure a merchant,” in that he is trying to “sell” something, and everyone is in a sense “constantly practicing oratory” on one another as we attempt in almost all things to *persuade*.

Persuading is what entrepreneurs do. Consider the word *innovation*, which formerly meant “heresy,” as in one introducing “innovations” into interpretations of holy scripture that departed into heresy. Fundamentally, the entrepreneur is offering customers a proposition: give me what I want, and you shall have this that you want—that’s a phrase that seems very familiar; we can’t quite put our fingers on who said it first—and whether the innovation adds to society’s wealth or subtracts from it is decided, ultimately, by market exchange.

Smith was instrumental in formulating the Bourgeois Deal by discussing exactly what the “obvious and simple system of natural liberty” meant. An entrepreneur in such a system introduces innovations and thanks no man or woman for the right to do so. This is possible first in a context

in which the formal institutions—the rules and laws—allow it, or at least don't prohibit it too much—and in which the informal institutions, the norms, don't impose what the economist Donald J. Boudreaux (2014) has called a “dishonor tax” on the entrepreneur/innovator.

The Scottish Enlightenment saw the government emerge not simply as a plaything for the elite, but as a possible project for improvement through protection, public works, and justice (Berry, 2013:108). Smith and the economists who followed him explained how cooperation and competition that result in *making* money actually led to prosperity. Smith was not appalled by the fact that people were able to get rich in Scotland, Holland, and England. A quarter century before Napoleon's sneer about a “nation of shopkeepers,” Smith wrote that “England, though in the present times it breeds men of great professional abilities in all different ways, great lawyers, great watch makers and clockmakers, etc., etc., seems to breed neither statesmen nor generals” (Mossner and Ross, 1987:160). This didn't bother him.

The desire for “mutual sympathy of sentiments” is at the heart of Smith's intellectual system. Smith notes, correctly, that people wish to be praised and they wish to be praise-worthy. In their regular affairs they seek to do what is honorable. What society finds “honorable” directs people's affairs considerably, as Smith noted. As the economic and social conversation proceeded, changing notions of what is honorable in turn changed what people did. Smith provided, in *The Theory of Moral Sentiments* and especially in *The Wealth of Nations*, an ethical rhetoric for a commercial age.

Smith argued, again correctly, that it is not from the benevolence of the butcher, the brewer, and the baker that we get our dinner but from their pursuit of their own self-interest. It is far better, Smith argued, to appeal not to “their humanity,” or to our own needs and wants, but to their advantage. In this, societies are led by an invisible hand to outcomes which are no part of any individual's intention but which nonetheless result in general prosperity.

Contrary to the beliefs of many observers and commentators, Smith's insight about self-interest is not counsel or apology for piggish self-absorption or, as some of the classical liberal thinkers of the late nineteenth

century would be accused, social Darwinism. It is rather a recognition of limitation. Economists go to great pains to stress that in assuming “self-interest” and “rational choice” they are not arguing for a narrow emphasis on, or obsession with, material consumption, nor are they offering a theory of cognition. Rather, they are explaining how people pursue their own interests *however they choose to define them*, and these interests can be purely material, but don’t have to be. Economics *per se* in its neoclassical manifestations makes no claims about what people’s interests should be. Instead, they proceed from the assumption of self-interest (and, therefore, response to incentives) in conducting their analysis.

Economists also assume that people choose “rationally,” which is to say by comparing costs and benefits. They need not possess correct mental models of the world, and they may get many things badly wrong. We get a lot of explanatory and predictive mileage out of the assumptions of rational choice and the pursuit of self-interest.

Smith’s insight about appealing to the self-interest of the butcher, the baker, and the brewer recognizes important cognitive and moral limitations that Hayek would later emphasize. Our ability to know and understand “the particular circumstances of time and place” is extremely limited and ephemeral. We are not at all well-positioned to understand what is “best” in another’s local situation. The butcher, the brewer, and the baker require that we appeal to their own interests not necessarily because they are self-absorbed but because they have their own suites of goals and responsibilities. We appeal to their self-interest and not to our needs or wants because they have their own problems to solve and a practically infinite number of people seeking meat, bread, and beer. They need some way to choose how to allocate their time, talent, and treasure, and they can’t know everything.

The *masterless* man unbound by obligation to nobility was the Scottish Enlightenment’s ethical innovation. Smith’s ideas gradually made popular an ideology of the Bourgeois Deal. He was properly suspicious of the bourgeoisie’s fondness for protectionism, but he was nonetheless the chief apologist for the world fashioned by commerce:

Every man, as long as he does not violate the laws of justice, is left perfectly free to pursue his own interest his own way, and to bring both his industry and capital into competition with those of any other man, or order of men. The sovereign is completely discharged from a duty... of superintending the industry of private people, and of directing it towards the employments most suitable to the interest of the society. (Smith, 1776: 687)

It is implicit in an assumption about exchange: either party can *refuse*. Smith's "invisible hand" metaphor and discussion of how one appeals to the self-love of the butcher, baker, and brewer is not an apology for greed without limit. It's a statement of respect for individual dignity and ethical agency. "Do you know who I am?!" is not a valid claim on the butcher's time and attention. "I'll pay you \$1.99 per pound of ground chuck" *might* be, if the butcher can't readily identify someone offering \$2.09 per pound. The market pushes people to be interested in others. The butcher who wants bread and beer must provide for the baker and brewer. Smith asks the reader to step into the position of the butcher, the baker, or the brewer. Hence Smith's *other* invisible hand—the social hand. It is through the ways people interact and converse and conduct commerce that people are fitted together and become social.

The butcher has a family to feed, charities to support, and things he wants to do. They all require resources. Many people, such as the baker and the brewer, want his meat-cutting services. Why should the butcher work long hours cutting meat? The answer is that the baker and brewer are *competing* with one another for the privilege of cooperating with the butcher. Whoever offers him the best deal—whoever is in the best position to expand the butcher's options—will be best-positioned to get the butcher's business. What if the butcher doesn't drink beer? In a monetary economy, this problem of coincidence of wants is solved by the fact that the brewer can sell beer—or any widely-exchangeable good—for money, which he can then exchange with the butcher for meat. The institutions of exchange solve a problem, and they do it without treading on anyone's rights and without people having to know a lot about one another's goals,

preferences, or morals. All that information is bound up in the price, and it is all made useful through an exchange.

A staunch anti-mercantilist who was also staunchly pro-commerce, Smith rejected the idea that governments should protect businesses from competition. His ethics emphasize *accountability* (accounting metaphors had long been part of bourgeois education). Humans are accountable to one another: a version of the Golden Rule (“what is hateful to yourself, do not do to your fellow man”) is the impartial spectator’s standard. Smith argues why “the author of nature has made man the immediate judge of mankind:”

If those infinite rewards and punishments... were perceived as distinctly as we foresee the frivolous and temporary retaliations which we may expect from one another, the weakness of human nature, astonished at the immensity of objects too little fitted to its comprehension, could no longer attend to the little affairs of this world; and it is absolutely impossible that the business of society could have been carried on. (Smith, 1759: 52-53)

These are ideas derived from natural theology and bourgeois life. Let people go about their business, lest we starve in prayer. In his wisdom, Smith repeatedly said that Providence arranged moral sentiments to ease the little affairs of the world.

For the first time, people saw commerce as an amiable, *doux*, or sweet occupation (Hirschman, 1977).<sup>2</sup> The Scots were characterized by “the deliberate intent to ‘improve’” (Berry, 2013: 1). Culture diffused through the pulpits as the Scottish universities were training ministers (Berry, 2013: 11). At the same time, expanding fields like chemistry, botany, and medicine reveal their emphasis on practical learning (Berry, 2013: 12). The new perception of commercial life served as an ethical and ideological cover for the bourgeois who wanted to open new trade in pepper or devise a new water wheel but who might have otherwise been attacked by government

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2 This paragraph and what follows is largely from McCloskey, 2016: 208ff.



officials beholden to other bourgeois intent on pleasant monopoly or aristocrats intent on pleasant stasis.

Smith liked business, not businessmen. As he wrote, the “clamor and sophistry of the merchants and manufacturers easily persuaded [the rest of society] that the private interest of a part, and a subordinate part of the society, is the greatest interest of the whole” (Smith, 1776: 144). He warned, for example, that the interests of merchants and manufacturers are “always in some respects different from, and even opposite to, that of the public” (Smith, 1776: 10). Merchants prefer lower output and higher prices; the public prefers higher output and lower prices. Competition pushes merchants to satisfy the public unless the merchants can convince governments to give them special and output-restricting privileges. How much cheaper, we wonder, would prescription drugs be if they could be purchased over the counter? His contemporaries read *The Wealth of Nations* as an attack more on bourgeois monopoly than on intrusive government. Hugh Blair wrote to him on April 3, 1776: “You have done great service to the world by overturning all the interested sophistry of merchants, with which they have confounded the whole subject of commerce” (Mossner and Ross, 1987: 160). Could the state fix it? No: as Smith emphasized, states created monopolies in the first place.

Across Scotland, there developed some learned and learning societies aimed at the general improvement of urban life. Scots founded the Glasgow Literary Society in 1752, Select Society in 1754, and the Edinburgh Society for the Encouraging of Arts, Sciences, Manufactures, and Agriculture in 1755. And so on: these societies built social capital and helped encourage conversation among people with different kinds of expertise (Berry, 2013: 15–17). In 1776, the impetus toward improvement manifested itself in Lord Kames’ *The Gentleman Farmer, Being an Attempt to Improve Agriculture, by Subjecting it to the Test of Rational Principles*. In 1766, he had written *Progress of Flax-Husbandry in Scotland* (Berry, 2013: 8). The Scots’ interest in science was extremely practical: they “were centrally concerned to apply ‘science’ in order to make land increase its yield or chemistry improve linen” (Berry, 2013: 21).

The leaders of the Scottish Enlightenment were interested in improvement across many sectors. They looked at a starving world, envisioned a world that wasn't, and asked: "why not?" Smith, throughout his body of work, emphasized the ways in which "human institutions" stood in the way of the "natural progress of opulence." For Smith, the problem was that institutions limited the extent of the market, which in turn limited the division of labor.

The Scots' social theory was their unique contribution. Their social theory held that social cohesion could be kept without force and without relying on everyone being nice. People could, in their ethical and cognitive limitations, still get along and cooperate to mutual advantage *because* their gifts of language and their propensity to truck, barter, and exchange gave them incentives to work together. They began from an uncontroversial observation that people tend to be motivated by "self-love" and limited in their capacity to feel benevolence toward others. These aren't ethical defects, necessarily: they observed that for whatever reason, people tended to put their interests ahead of others' *and* tended to feel greater benevolence toward those closer to them than those farther away. This has been misinterpreted as an apology for extreme selfishness, and the worst pigishness human nature can muster. As Hayek and many others have noted, this is most emphatically *not* what Hume, Smith, and their contemporaries believed. They pointed out that knowledge and benevolence are both *local*. One is intimately acquainted with the specifics of his position in the world, and he feels greater benevolence toward his friends, children, and neighbors than he feels for others. He will seek to accomplish *his* vision of what a better world looks like before someone else's. A short way to say it is that people feed, clothe, and shelter their children before they feed, clothe, and shelter others'.

As Smith pointed out, it is not from the benevolence of the butcher, the baker, and the brewer that we expect dinner, but from their regard to their interests, to their self-love. This needn't be an ugly condemnation of human nature. It is, in fact, an inescapable consequence of scarcity and recognition that the butcher, the baker, and the brewer have *rights* that we cannot violate (cf. Otteson, 2002).

Smith's emphasis, then, was on the importance of the process and the dignity of all participants—potential and actual—not the dignity of those who could make the most noise politically. Political interference with the market process is ancient, not modern, and it is in Smith's time that the broader social rhetoric began to change. The idea of a *nation* as a project properly aimed at something like improvement was one of the more interesting and perhaps unusual innovations of Smith's time. This improvement, he argued, happened because of liberty and dignity for all and not special privileges for the shopkeepers of whom much of British society was comprised. Nor, for that matter, did improvement happen because of grand gestures by aristocrats.

Allowing people to venture forth and to reap the rewards of doing so is important, not just because it brings us ever-wider varieties of goods and services at ever-lower costs. It does a few other things as well. First, it recognizes our ability and our right to self-author however we choose, without having to ask permission from elites. Second, it extends an implicit and society-wide acknowledgement of liberty and dignity for everyone irrespective of bloodline or skin color. The last vestiges of racial hierarchy hang on, and stubbornly. The solution, we think, is not a larger and more active state, but greater freedom for entrepreneurs.

## **We changed our ideas and how we talk**

For as long as there have been people there have been innovators, and for as long as there have been innovators there have been those who have sought to stop them. Until recently, the forces of resistance have won. Beginning largely in the eighteenth century, however, there was a large-scale shift in how we write, think, and speak about commerce. Societies in Western Europe—Britain, most notably—embraced an ethic of innovation, the Bourgeois Deal: “leave me alone, and I’ll make you rich.”

Here's the Deal, thinking about society in three acts: “In Act I, allow me, an innovator and member of the bourgeoisie, to *act* on the hunch that I can do this a little or a lot better than it has been done before. In fact, al-

low me to *act* on the hunch that I can come up with a completely different and better way of living. Do not interfere with me, and do not interfere with those who wish to stake their hard-earned and hard-saved money on my idea. Do not interfere with those who vote with their money for my idea. Allow me, in other words, to creatively destroy. I accept, reluctantly, that my successes such as they are will attract competition from imitators and other innovators in the second act, and this competition will erode my profits. By the third act, however, we will *all* have been made better off by my venture.”

There are, of course, all sorts of problems with this—perhaps the most obvious is that it is hard to ensure credibility, as the creative destroyer has, in Act II, an incentive to work with the government to create barriers to entry with the effect being that in Act III we might be better off, but not as much better off as we could be. In broad strokes, though, embracing innovation—even “embracing” it as nervous teenagers do at a Junior High School dance where they sway back and forth at arm’s length from one another—has unleashed the creative forces of the human mind in ways that have enriched... everyone, not just the barons and baronesses and kings and queens and clerics.

Contrast this to the Aristocratic Deal, which basically says, “honor me, an aristocrat and *your better* by the accident of birth; do as I say; pay your taxes under threat of prison or death or worse. Think not that you have the right to seek ‘protection’ from another sovereign. Go forth, do battle, and shed others’ blood and your own in my name and for my glory, and by the third act, I at least will not have slaughtered you.”

Our ancestors and the kings and queens and generals who ruled them were broadly and often deeply suspicious of innovation. Indeed, the word itself originally meant something bad, as *innovation* in interpreting scripture meant the introduction of unorthodox or even heretical elements. There were markets, yes, but entry was largely controlled by guilds and other interests that were able to earn above-normal profits for themselves by restricting entry. Such sophistry led Adam Smith to write *An Inquiry into the Nature and Causes of the Wealth of Nations*.

There are five textbook institutional prerequisites for a flourishing economy: secure property rights, open and competitive markets, political stability, honest government, and a dependable legal system.<sup>3</sup> We don't yet know the "right" mixes of the institutional causes of wealth and poverty, but insecure property rights and restricted access to markets can very clearly lead to stagnation rather than growth. These are the tinder, so to speak. The rhetorical change—where we began to esteem innovators and the bourgeoisie—was the spark that lit the fire.

The British became, over this time, "a polite and commercial people." Buying low and selling high went from being something morally suspect and undignified to something worthwhile. We see this in the United States today when we consider who we want our children to emulate. We heaped and heap great laurels on people like Henry Ford, Sam Walton, Bill Gates, Steve Jobs, and Warren Buffett. We live in a country where anyone can grow up to become president, but much more importantly, we live in a world where anyone with an idea and enough spare time to tinker in the garage can, as Jobs and Gates ultimately did, change how people live, work, play, and encounter information.

The Bourgeois Deal is radically egalitarian. Market exchange embeds a deep and important assumption: that one party to a trade is within his or her rights to *refuse*, or to hold out for something better. It's a right denied to soldiers and slaves, or peasants who have no option but to trade their labor for "protection" by a sovereign who would kill them should they seek a better deal elsewhere.

Modern economic growth happened and continues to happen in spite of an unending stream of pessimistic predictions—that we are destined for subsistence, that the final crisis of capitalism is upon us, that *this time is really different* and we can expect to see all the jobs go away because of technological change, that we are gaining the world and losing our souls because we are so blinkered and blinded by consumer goods, and that we are destroying the planet in our pursuit of more, more, *more*.

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3 Literally: these are from chapter 7 of the third edition of Tyler Cowen and Alex Tabarrok's 2014 book *Modern Principles: Macroeconomics*.

Ebenezer Scrooge was wrong: there is no such thing as a “surplus population” when we allow markets to work. The economist Julian Simon (1996) referred to the mind as the “ultimate resource,” for from it springs everything else in the world that we call a “resource.” Something isn’t a resource until we can think of a way to make it satisfy human wants. Until then, it’s just a collection of atoms and molecules and *stuff*.<sup>4</sup> Embracing innovation set us free from a Malthusian/Hobbesian existence in which life was solitary, poor, nasty, brutish, and short. It will continue to overcome resource barriers that confront us, just as it has historically.

We are optimistic for a few reasons. First, with Peter Diamandis and Steven Kotler, we are extremely optimistic about the future that lies ahead of us because within the next few years, billions of people will be connecting to the global Great Conversation that is already happening on the internet. Somewhere in Haiti, or Rwanda, or rural India, or even American Appalachia, a child has been born in the last few days who will have a far greater impact on the lives of everyone in the world simply because she will be born into a society that has embraced liberty and innovation to a degree greater than those who have come before. We hope for further progress so that those who are today left behind are tomorrow offered a seat at the table.

Our prosperous modern world aided and abetted by our ability to communicate instantly with almost anyone almost anywhere provides us with an unlimited array of new ways to self-author. The big winners, we think, from the twenty-first century version of the Bourgeois Deal are those whose tastes and preferences lie outside the mainstream. There have developed on Reddit and YouTube and elsewhere a whole array of online communities devoted to even the most esoteric of topics. If you can think of it, there’s likely a Reddit forum, or Facebook page, or YouTube channel devoted to it. And if there isn’t, creating one is easy. Technology and commerce have limited us from the soft tyranny of geography and birth and enabled us to connect with people the world over who share our preferences. This might not be too big a deal for someone with close-to-the-

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4 On this, see Carden (2017a, 2017b).

mainstream preferences, but for an 18- or 19-year-old male “Brony” who likes *My Little Pony: Friendship is Magic*, the value might come in knowing you’re not alone.

In spite of the possibility that global warming could be very, very bad, we are, with the science writer Matt Ridley, *Rational Optimist(s)*. We have overcome and will continue to overcome environmental challenges as long as we keep our ethical wits about us. Anti-capitalism has been cloaked in the rhetoric of environmental defense when, it can be argued and even shown, that better protection of private property rights and a stronger rule of law are necessary if we are to defend the environment. Furthermore, the Bourgeois Deal encourages the kind of innovation that can make us less reliant on fossil fuels and mere material. If resources become a constraint and as people get richer, they will substitute *better for more*, and continued innovation in areas like cloud storage (e.g. Dropbox and Evernote), on-line document signing (e.g. DocuSign), ebooks, and online textbooks will mean lower demand for paper, chemical-intensive paper processing, and the fuel burned to move books around. Electronics come with their own sets of environmental problems, of course, but with secure property rights and competitive markets people will develop ways to recycle electronics components efficiently and effectively.

Economic change comes from a mix of material and rhetorical and ideological factors. So what was it that enabled us to become rich? We got rich because of a combination of reading, revolt, reformation, and revolution, with these four Rs coming together to create a fifth R, *revaluation* of the bourgeoisie and of bourgeois life. Respect others’ liberty to *create*, even if such creation has a destructive element to it, and in the long run we will all be richer. Moreover, don’t impose too heavy a social tax on the bourgeois values of buying low and selling high (prudence, in other words), and we will see more people direct their time and energy toward making the world a better place for all of us. From the eighteenth century onward, the West was brined in the rhetoric of prudence, of *oikonomia*, of its close cousin *phronesis*, or practical wisdom.

It wasn’t always so. Ancient societies did not trust the bourgeoisie, or bourgeois life. Neither did Shakespeare or others of his day. To *work* in the

world of Plato or Aristotle was low, meager, undignified, *lacking in honor*. Contrast this with the rhetorical honor heaped upon hard work today in the maxim, “an honest day’s work for an honest day’s pay.” “Honest” in this sense means virtuous in that one adheres to the truth, but it can also be used in its older sense of “being worthy of honor, dignity, or respect.”

There was a shift in the eighteenth century in the way we have come to read, write, and speak about commerce, about *betterments* tested by trade in the crucible of the market. We see in the development of what we read and wrote that “Free innovation led by the bourgeoisie became at long last respectable in people’s words” (McCloskey, 2010: 386). The innovators became gentlemen (and women), or people of esteem. This was fueled, as Joel Mokyr shows, by a pan-European republic of letters, intellectually integrated but politically fragmented (and therefore competitive), that developed the view that progress is *possible* and progress is *desirable*, even for those whom Aristotle might call fit only to be ruled. In short, we came to praise (or at least tolerate) dissent with modification, such that figures like Steve Jobs and Bill Gates and Warren Buffett and others are, in spite of failings and limitations (which, in Jobs’ case, included pathological inattention to family responsibilities for some time), admired for their innovation. Buffett’s modesty and prudence—as one of the richest men in the world, he still lives in the modest Omaha home he bought in the 1950s—are sources of esteem where ostentation and pomp and circumstance would have in many other contexts been the calling card of the elite.

The world is complicated by the fact that these are not wholesale changes. The villains in books and movies are far too often the heads of large corporations bent on poisoning the children for fun and profit. But that said, even the rhetoric of business and of prudence has changed. The most influential book after the Bible has been, for many people, *Atlas Shrugged*. TV shows allowing the viewer to gawk at the excesses of “extreme couponing” nonetheless celebrate the couponers’ thrift and hold it up, perhaps, as something to be emulated, or at least admired.

Think about how some of our words have changed. “Honest” means “truth-telling,” not “a person of inborn status.” *Honest* Iago is an irony; so, too, is Brutus the “honorable” man. Consider how we use words like “sir”



and “madam” and “gentleman.” The aristocratic meaning of “gentleman” was evident in *Gone with the Wind*, during a tense confrontation between Rhett Butler and a group of gentlemen spoiling for a fight with the Yankees because “gentlemen always fight better than rabble.” Courage untempered by prudence created the bloodiest conflict in American history.

## **Dissent with modification became glorious in retail<sup>5</sup>**

Good things like science and technology and the move to free trade only explain part of the Great Enrichment. We got rich because we left innovators and entrepreneurs alone and let them make us rich. Here’s an example from the retail sector. After World War II, regulations made it so that stores could only offer discount prices if they were structured as membership clubs. Eugene Ferkauf of E.J. Korvette’s in New York found a way to get around regulations that disallowed discounting. They were able to do so by offering \$0 “memberships” to everyone who came into the store.

Ferkauf inspired an alert lawyer in San Diego named Sol Price. Price was working through a network of real estate transactions and had seen a store called Fedco in Los Angeles that sold at discount prices to federal employees. Noticing that a lot of people were making the round-trip drive from San Diego to Los Angeles to shop at the store, he asked Fedco if they would be interested in opening a San Diego location. They said no, but Price thought the idea would work and had a piece of real estate where he could put a new store. He started FedMart, and by practicing “intelligent loss of sales”—keeping relatively few SKUs and forsaking sales that could be earned with greater variety in order to maintain high productivity and low costs per dollar of sales—he changed the retailing industry. He would go on to found Price Club, the first real “warehouse club” store, which (in a twist of fate) would be purchased by Costco—the same Costco that started after Price Club told Jeffrey Brotman “no” when he asked to franchise Price

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5 Portions of this section are drawn from Carden and Courtemanche (2018). See also Price (2012).

Club stores in Seattle. In the process, Price inspired a Ben Franklin franchisee named Sam Walton. Walton adopted many of the same things that made Price successful and managed to change the retail world. Walton had run afoul of the management of Butler Brothers, the parent company of Ben Franklin stores, by looking for ways to get around his purchasing contracts so that he could find better deals by going straight to the manufacturer.

Notice what happened. In all these cases, Ferkauf, Price, Brotman, and Walton were initially told “no” or otherwise thwarted in their efforts to make good on new ideas. Ferkauf was told “no” by the government (as were other discounters), but he found a way around the rules. Price did the same end-run and also found new ways to go about his business as he refused to carry goods made by companies that enforced “fair trade” practices. Price also decided to run with his idea after he was rebuffed by those with whom he wanted to work, as did Brotman later on when he was rebuffed by Price’s company. Walton found himself in a similar situation as he kept butting heads with the management of Butler Brothers.

They all saw *different* and *better* ways to do things—at least, they saw what *they* thought were *different* and *better* ways to do things, and in these cases they were right. They had two crucial elements working for them. First, when they were refused partnerships, they had the liberty to raise funds and strike out on their own. Second, Price started FedMart, Brotman started Costco, and Walton started Walmart on the conviction that they had noticed what some economists call a misalignment in the structure of production: they noticed (successfully) that they were surrounded by capital goods and labor that could be profitably redeployed doing something else. It was a “something else” that wasn’t especially different from what people were already doing, but it was a “something else” that was more consistent with consumers’ underlying preferences as well as the underlying patterns of resources and technological possibilities. They thrived because they were right.

This doesn’t always work the way people want it to. Consider New Coke and Crystal Pepsi, both akin to Nineveh and Tyre as conspicuous failures. Both Coke and Pepsi were punished by the market because they were wast-

ing resources producing products that people in the market fundamentally did not want. Think about all sorts of other foods and beverages you no longer eat or drink because they're no longer made. The people who made these mistakes took their lumps in the marketplace after giving it their best shot and in that way are a bit like Thomas Edison in that they have given us several instrumentally valuable failures: they've shown us a few things that don't work.<sup>6</sup>

### **Transportation is a cautionary tale**

We don't yet know just how much we can choke the golden goose before it dies. It has shown itself surprisingly resilient even in the face of organized opposition. Consider the battle in many cities over ride-sharing services like Uber and Lyft. While taxi interests and others have fought tooth and nail to keep these services out, they have still succeeded in operating, even in many places where opposition has been stiff.

This wasn't the case for jitney services, which were the Uber of the early twenty-first century.<sup>7</sup> Jitney drivers would pick up a passenger, post that they were headed to wherever that passenger was going, and then pick up people along the way who needed a ride. It wasn't app-dispatched, but it was an effective (and for some, profitable) way to get around town. It was roundly opposed, however, by the streetcar companies that didn't like sharing the road with the jitneys—and there was at least some substance to their complaints as jitneys did business under the radar and supposedly didn't pay taxes the way the streetcar companies did. This might be an argument for better tax infrastructure, however—not an argument for prohibiting the jitneys from doing business. Their expansion was also opposed

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6 cf. Carden (2009) for a discussion of entrepreneurial losses and their information-generating properties.

7 See Eckert and Hilton (1972) for the discussion of jitney services from which this section is drawn.

by merchants who had a stake in the existing pattern of residence and retail and who therefore stood to lose if jitney services threatened those patterns.

Things could be far better, but of course they could also be far worse. The economists Douglass C. North, John Wallis, and Barry Weingast in their 2009 book *Violence and Social Orders* emphasize the importance of what they call an “open access” order. There is a lot of gray space between a pure open access and pure limited access order, but the virtues of open access are illustrated by our experience with ride-sharing. Transportation regulations are clear examples of barriers to entry into the economic order, and this became especially clear during the ride-sharing debate as many argued that since municipal codes did not recognize and regulate transportation network companies (TNCs) there was no way for these firms to do business under the law. It was a formidable block for those who wished to drive for Uber and Lyft, but relatively open access to the political order meant that there were opportunities for people to profit politically by changing policy. Uber officials and lawyers were able to seek audience with the policymakers responsible for deciding whether Uber would be allowed to operate or not, and they were able to marshal public opinion to their aid as well. The right of essentially anyone to voice an opinion in public spaces, online, at different city meetings, and so on, illustrates the importance of political liberty—open access to the political order, even if one is unable to vote or hold office—for efficiency-increasing institutional change.

## **Bourgeois life requires and reinforces virtue**

Contrary to what “everybody” knows, we have gained the world and found our souls in the bourgeois era. Bourgeois projects are daily opportunities to express the three Christian virtues of faith, hope, and love, and the four Pagan virtues of prudence, justice, temperance, and courage. The virtues are also reinforced by the mundane daily affairs of the bourgeois. Here’s how. Faith, hope, and love are the godward-reaching, transcendence-touching virtues. The greatest of these is love, and in English we use one word to mean four different things. C.S. Lewis in his book *The Four Loves* explains

four different ways people love (Lewis, 1971). There is affection for things and the non-human, *phileo* or brotherly love between close friends, *eros* or erotic love between lovers, and *agape*, the stuff of God, the love which reaches toward the transcendent and which seeks something greater than itself as its ethical object.

The reach toward and communion with the transcendent need not be a reach toward or communion with the religious. Think about the movie you *love* or food you *love* or the band you *love* or the local sports team you *love*. These you might love with affection only—we doubt that you have many opportunities for brotherly love or erotic love with bands and footballers, but your esteem for them is in many ways an esteem for the transcendent. You wear your favorite team's colors because they are part of you in some sense. You buy the band's tee-shirt at the concert—where you sing along with every song, word-for-word, which you have known by heart for decades—because you are part of something larger than yourself. You get into long, drawn-out discussions in internet forums about whether the popular heavy metal band AC/DC really died with lead singer Bon Scott in 1980 or whether it has been as good or even better with Brian Johnson as its front man, not just because you like the music, but because you *love* the band and its fans. You have been outraged by Ewoks and Jar-Jar Binks and Princess Leia's use of the force because you *love Star Wars*. Or at least you love your idea of what *Star Wars* should have been after *The Empire Strikes Back*.

You get the point. Our bourgeois lives feature lots of opportunities to love. Maybe we love dumb things—and many of us do. But our lives are soaked in opportunities to reach toward and grasp the transcendent. The theologian James K.A. Smith (2016) points out that all actions are parts of some kind of liturgy. The liturgies available to us in the Bourgeois Era are far more diverse than those available to our ancestors.

Faith and hope are closely related to love in that they touch the transcendent. *Faith* is backward-looking and *hope* is forward-looking, but both are rooted in identity. Hope is a brand of spiritual courage that causes us to get out of bed and go to work when we don't want to and to keep cheering even when there's a *very* slim chance, if any, that the team will pull

it off in the end. Sometimes that hope is rewarded and the team makes a last-second shot. *Faith* is the virtue grounded in identity and solidarity with those who came before us. It is a backward-looking communion with transcendent communities to which we belong. It is the virtue that causes us to remain honest even when we could get away with a lie. It is the “I’m like that” which steadies us when we waver. Just as with love, our bourgeois lives are filled with opportunities to exercise *faith* and *hope*—*faith* for the discouraged manager digging deep to find out who he is when things aren’t going so well, and *hope* for the entrepreneur who ventures out to try something new.

Bourgeois life provides us with lots of opportunities to exercise the pagan virtues of courage, justice, temperance, and prudence, as well, and these are where the exercise of the virtues is probably most obvious. Prudence, the habit of choosing wisely, of exercising practical wisdom, is the hallmark bourgeois virtue. It’s the virtue of buying low and selling high. It’s the virtue that causes you to ask whether you *really* need to buy another pair of shoes when you already have so many given that the money could be used elsewhere. It’s the virtue that causes you to sell your car when you live in downtown Chicago and it’s clear that you’re probably better served just taking taxis and Uber and Lyft everywhere. It is the virtue that knows when to stop instead of continuing to press forward with work, work, *work* that, thanks to the law of diminishing marginal returns, isn’t adding as much as you might think. A business-loving civilization is one soaked with applied prudence.

Prudence is closely related to temperance, one of the essential components of what Adam Smith called *self-command*, which is the most important of his virtues. It is the virtue that causes you to go to bed when it’s time to do so instead of staying up and watching one more episode of *Stranger Things*. It’s the virtue that causes you to say “no, thank you” when the bartender asks if you want to have another. A successful bourgeois society praises temperance and admires this virtue of self-command. Virtually every choice is an opportunity to exercise the virtue of temperance, and this is perhaps doubly true in an extremely wealthy society. Indeed, much of the new behavioral economics is an argument that people have *too many*

opportunities to exercise temperance, which is another way of saying we are overwhelmed by choice.

Courage and justice are important parts of bourgeois civilization. Entrepreneurship is a risky business that requires the courage to make the right choice—even if it's the difficult choice—when the chips are down. Justice, the giving of dues, is something else for which we have ample opportunities in a wealthy bourgeois society. And indeed, people have tended to exercise much more courageous, much more just lives in the wealthy civilized world than at other times in history.

### **Conclusion: If we keep our ethical wits about us, we can see over into a Great Enrichment<sup>8</sup>**

The West did not grow rich because of capital accumulation, natural resources, or even free trade (though these all helped and are not to be scoffed at). Most of the “background conditions” for wealth accumulation, like property rights, had been there for a long time and in many places, and the purported material causes were not large enough to explain the 1500 percent to 9900 percent increase in standards of living we are trying to explain. The West did not grow rich because it took from the Rest: empires and colonies and human rights atrocities made some people wealthy but in fact hurt the average person who was taxed to pay for these ventures.

Rather, the West grew rich because a confluence of historical accidents created a competitive, pan-European republic of letters and rhetoric in which ideas could foment and ferment and be distributed widely via difficult-to-censor presses and in which people of ideas could flee from one tyrant and take refuge with another. This ultimately gave rise to a business-loving, or at least business-respecting, or at least business-*tolerating* civilization—tolerating enough of those who want to give it a shot in the market or who think they can come up with a way to do it—whatever *it* is—better.

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8 This is taken from the title of Carden and McCloskey (2016).

The idea of a business-respecting *commercial* society was the innovation and contribution of Adam Smith and the other lions of the Scottish Enlightenment. Simple respect for the liberty and dignity of the butcher, the brewer, and the baker who could *refuse* any offer provided the right incentives for innovation, and the new toleration for the bourgeoisie removed the massive burden of social stigma that had previously plagued the calculative and commercial arts. The result of the Great Revaluation of the bourgeoisie in early modern Europe was a Great Enrichment that began first in northwest Europe and then spread across Europe generally and into Europe's overseas extensions and that, finally, is enriching the world as countries like India and China adopt elements of the Bourgeois Deal of "leave me alone and I'll make you rich."

The Enrichment increased our scope, considerably. It relies on virtue, and it also reinforces and rewards and provides many opportunities for the exercise of virtue. We are rich because we are free, and in spite of an intellectual turn against the bourgeoisie from 1848 forward we have kept the twin lights of human liberty and human dignity burning brightly enough to enlighten and enrich all those who would look upon them. Progress, unfortunately, is not automatic, but so long as we keep our ethical wits about us and embrace buying low, selling high, and innovation, there is no limit to what people can achieve.



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