ENTREPRENEURSHIP AS EMPOWERMENT: ECONOMIC MOBILITY IN THE UNITED STATES

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ABSTRACT

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Entrepreneurship as Empowerment: Economic Mobility in the United States

(Under the direction of Dr. Larry Chavis)

Although many coin the United States as "the land of opportunity," recent research suggests the country does not provide the level of opportunity that many imagined it to have. Research related to the underlying factors behind this lack of opportunity revealed that economic mobility in the United States is impacted by residential segregation, income inequality, school quality, social capital, and family stability. To date, researchers in the United States have yet to explore the potential impact of entrepreneurship—known to be a promoter of economic growth, job creation, and wealth accumulation—on mobility despite a vast body of international literature surrounding the mobility-entrepreneurship relationship. This study finds a significant relationship between entrepreneurship and economic mobility in America by examining the relationship on a county level across the United States.

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INTRODUCTION

Although many coin the United States as "the land of opportunity," the proliferation of recent research has resulted in a realization contrary to popular belief—the United States is not the land of opportunity that so many have thought it to be. Riddled with regions that are among some of the lowest opportunity areas in the world, the United States has confounded researchers who have sought to understand and provide policy solutions to this American Dream dilemma. One potential solution that researchers have yet to examine is entrepreneurship. In this thesis, I test the validity of using entrepreneurship to influence mobility trends in America. To understand the effects of entrepreneurship on economic mobility, I analyze the relationship between entrepreneurial activity and economic mobility on a county level across the United States.

The use of entrepreneurship as a potential lever to increase economic mobility stems from the inherent positive effects entrepreneurship has on local economies. These effects range from the creation of jobs to the promotion of economic development to the accumulation of wealth. Ultimately, global economies rest on the continued development of new firms to foster competition and continued economic growth (Klapper, Laeven, & Rajan, 2006). Thus, this thesis examines whether entrepreneurship is a one-sided value-creating activity, in that it only provides benefit to the economies through increased competition, job creation, and wealth accumulation, or if it has potential two-sided effects that contribute to the positive development of both the local economies and the individuals spearheading the growth of entrepreneurial firms.

To understand how entrepreneurship will continue to influence America on a local level, it is important to understand that entrepreneurship has played a vital role in the development of the American economy and the American citizen. The remainder of this introduction sets the backdrop for my analysis of the relationship between economic mobility and entrepreneurship in the United States. I use this introduction to describe two concepts regarding the history of entrepreneurship in the United States and the reasons behind its continued success:

1. Entrepreneurship has had a formative influence on America's economic history
2. The structural makeup of the United States is conducive to entrepreneurial growth

Entrepreneurship's Formative Influence on America's History

America's history is largely dictated by the effects of entrepreneurship. From Thomas Edison's invention of the incandescent lightbulb in 1879 to Henry Ford's Model T in 1908 to the personal computer in 1971, innovative change and entrepreneurial activity have played a pivotal role in the major structural shifts in the U.S. economy.

The major changes in the U.S. economy over the past two centuries surround the structural shifts from an agrarian economy to a manufacturing-centric economy to a service-based economy. The lifecycle of economic development within economies can explain the fundamental reasoning behind these structural shifts. The commonly accepted notion is that as economies become wealthier, they experience structural changes from the industrial sector to the services sector, as evidenced by the historical shifts in the U.S. economy. To best understand these shifts, one idea must be true—individuals must be

inventive and willing to take on the risks associated with business creation to enable these changes to occur. In short, new business creation, or entrepreneurship, must exist at the individual level for economies to continually develop. Thus, to examine the history of the U.S. economy, one must analyze the history of the U.S. entrepreneur. The remainder of this section will examine entrepreneurship from America's conception to the present day.

The Entrepreneurial Spirit of America's Founders

Entrepreneurs founded the United States over 200 years ago. The decision to break away from England and start a new country brought with it intrinsically entrepreneurial ideas. These ideas involved a high level of risk in light of the largely uncertain ideal of creating a new country—a situation akin to the start of a new business. These entrepreneurial attitudes held by the founders of the United States flowed into the tangible forms of entrepreneurship that we know of today.

The State of Entrepreneurship in the United States Today

Individuals around the world view the United States as the supreme economic prowess in the world. A primary reason behind this belief is due to the fact that the ease of doing business in the United States is substantially higher than in other developed countries. The World Bank's "Doing Business 2020" report measured the ease of doing business across 190 countries and found the United States to be the country where doing business is easiest among the most developed countries ("Doing Business 2020," 2020). Moreover, the report ranked the United States at fifth in a ranking of the most developed countries by the ease of business creation ("Doing Business 2020," 2020). See Appendix

F for a breakdown of the metrics used to measure the ease of doing business on a country level.

U.S. businesses have flourished within an economy that encourages entrepreneurial growth, evidenced by the ease of doing business in America. Hundreds of thousands of individuals are applying to start businesses every month. Figure 1 provides a quarterly breakdown of the business application statistics in the United States from 2004 to 2019.

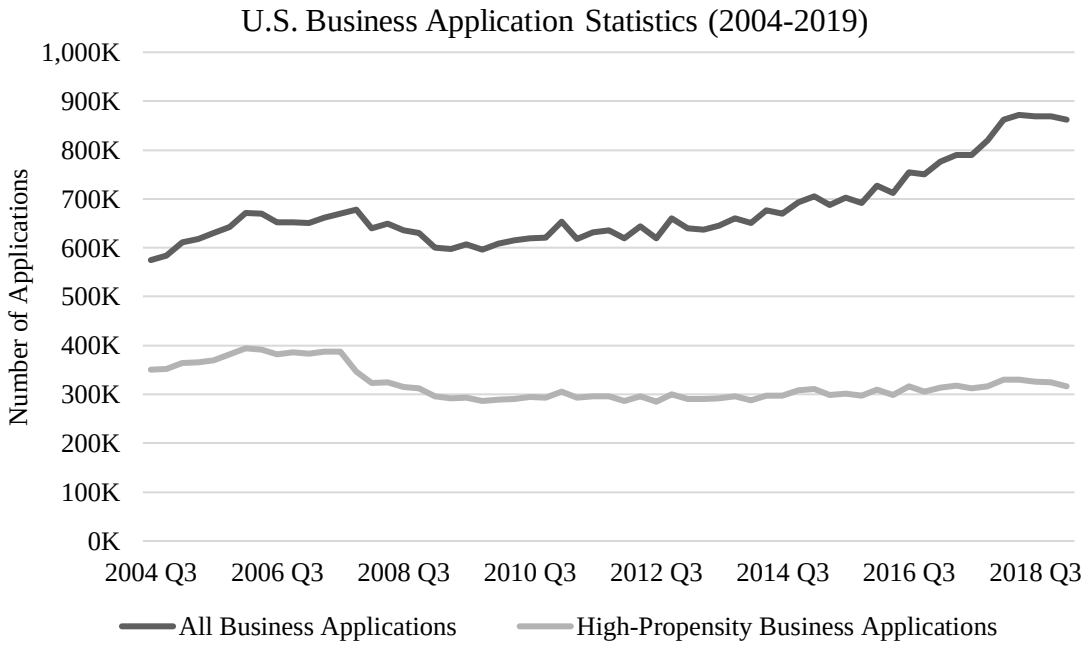

Figure 1 *U.S. Business Application Statistics from 2004-2019*

As seen in Figure 1, despite a small drop off in applications during the recession from 2007 to 2009, business applications have steadily risen over the past decade. However, high-propensity business applications have remained at a level of around three hundred thousand. High-propensity business applications refer to applications that have a higher likelihood of becoming businesses. With over 300,000 business applications per quarter

in the United States, the United States continues to churn out businesses, reinforcing its image as an entrepreneurial and economic engine.

The stable trend of business conception in the United States over the past decade coupled with the ease of business development places the country into an opportune position to support the continued success of its entrepreneurial environment. Entrepreneurship flourishes when the barriers to enter the business of doing business are kept to a minimum (Klapper, Laeven, & Rajan, 2006). The United States has managed to do exactly that—reduce the barriers to entry to encourage business creation. The following section will expand on the structural advantages the United States has purposefully implemented to encourage firm creation.

The Structural Makeup of the U.S. is Conducive to Entrepreneurial Growth

The United States is a country that naturally breeds entrepreneurs due to the high-risk tolerance of its citizens, the structure of its legal system, the size and strength of its venture capital resources, and the close relationships between academic institutions and the private sector ("The United States," 2009). For these reasons, the Global Entrepreneurship Monitor (GEM) finds the United States to be *the most* entrepreneurially active country. A description of the GEM, according to their website, is:

> The GEM is an entrepreneurship-focused organization that surveys entrepreneurs in over 100 countries around the world. The organization primarily uses academic institutions around the globe to carry out an Adult Population Survey and National Expert Survey to provide succinct analyses on the characteristics, motivations, and ambitions of individuals starting businesses and social attitudes toward entrepreneurship ("Mission," para. 2).

The GEM provides resources that enable individuals to compare entrepreneurial attitudes and behaviors across countries. Table 1 provides further detail into the entrepreneurial

indexes of the 10 most developed countries in the world. The Entrepreneurial Index is derived from an average of each country's ranking across 15 metrics tracked by the GEM in 2018 (see Appendix C.2 for a list of these 15 metrics).

Table 1 *The Entrepreneurship Index of the 10 Most Developed Countries*

Country	Entrepreneurship Index
United States	7.9
Canada	7.7
Germany	5.6
United Kingdom	5.5
Brazil	5.2
France	5.1
India	4.9
China	4.7
Italy	4.3
Japan	3.3

Note: The Entrepreneurship Index is based on a 10-point scale. See Appendix C.2 for a detailed breakdown of the components of the Entrepreneurship Index.

As shown in Table 1, the United States has the highest Entrepreneurship Index out of the 10 most developed countries. The structural makeup of the United States fosters entrepreneurship and helps to continue the tradition of a wealth of entrepreneurial activity within the country.

The High-Risk Tolerance of the United States Citizen

The average United States citizen has a high tolerance for risk, fueling the growth of entrepreneurship—a field known for high levels of risk. To analyze the risk level of individuals in the United States relative to other developed countries, I studied attitudes toward various investments to provide a risk benchmark across countries. An individual's

financial behaviors provide one of the best proxies to understand risk on a country level because one's attitude toward risk is one of the most influential factors contributing to one's financial behaviors (Hoffman, Post, & Pennings, 2015). After analyzing the ING International Survey on Savings, which asked 15,000 individuals several questions regarding their likelihood of investing in different investment products characterized by varying risk levels, Ferreira (2018) calculated an average measure of risk propensity by country. The results validated the assumption that the average United States citizen has a substantially higher tolerance for risk when compared to the citizens of other developed countries (see Appendix D for a list of countries ranked by their average propensity toward risk). A key point to note when analyzing risk tolerance between countries is that developed countries have a much lower tolerance for risk than developing countries; however, for the context of this analysis, I only considered developed countries due to their structural similarities with the United States.

Higher tolerance for risk increases the likelihood that individuals would be willing to consider the option of starting their own business. The risks associated with entrepreneurship stem from the uncertainty of wages, benefits, and future growth between early-stage ventures and established firms. Thus, a key reason behind the United States' high level of entrepreneurial activity is the risk tolerance of its citizens.

A Legal System that Supports Failure

The second structural advantage of the United States concerns the structure of the U.S. legal system. The legal system's tolerance toward bankruptcy stimulates and maintains entrepreneurial activity. In the United States, if an individual were to go bankrupt, they would still be able to start another venture and continue the process of

business creation once the bankruptcy has been discharged. Additionally, the United States has established Chapter 11 bankruptcy protection, which is a form of protection that gives individuals or businesses time to reorganize their assets and renegotiate the payment terms with creditors. Moreover, the general mantra of the United States is that failure is not an end in itself, but rather an opportunity to grow and learn in the future. As a result, many entrepreneurial individuals in the United States end up starting multiple businesses. On the contrary, the legal and social attitudes toward bankruptcy in other developed countries are not as lenient in comparison to the same attitudes in the United States. For instance, Germany has no equivalent to Chapter 11 bankruptcy protection, providing very few options for indebted individuals. If an individual were to go bankrupt in Germany, they cannot start a business for nine years. The social reaction toward bankruptcy in Germany includes attitudes of shame and treatment as social pariahs (Hoff, 2011). The lack of these social and legal attitudes in the United States induces a space for failure in the American economic system, helping fuel the entrepreneurial spirit of the U.S. citizen.

The Strength of the U.S. Venture Capital Industry

Beyond the risk tolerance and legal and social attitudes toward failure, the size and strength of the U.S. venture capital (VC) industry provides the fundamental resources entrepreneurs need to start and grow their businesses in the United States. In 2018, the amount of VC investments in the United State was 60% greater than China's level of VC investments (see Appendix E for a list of the countries with the 10 largest levels of VC investments in 2018). The developed nature of the American VC industry allows

entrepreneurs to receive the funding needed to bring their ideas to fruition—a luxury not available to citizens of other countries.

The Benefits of Established University-Firm Relations in America

The final structural advantage of the United States that leads to a high level of entrepreneurial activity is the strong relationship between academic institutions and the private sector. Companies, ranging from non-profits to public sector companies to private sector firms, across America use universities as their main source of talent to fill entry-level positions. Over 70% of companies recruit on college campuses (Laurano, 2018). A central reason behind these recruiting efforts can be attributed to the proliferation of internships in the twenty-first century. Companies are no longer just recruiting the graduating population out of universities, they are recruiting students from all age groups within the university. This mutually beneficial relationship between firms and universities has helped establish universities as the main source of talent.

The university-firm relationship has turned universities from institutions of knowledge creation into economic powerhouses. With incubators, venture capital funds, and entrepreneurship-focused programs, universities have begun to realize that the knowledge of their students and faculty is a valuable resource sought after by large VC investors. Stanford Research Park is a core example of how universities and firms have worked collaboratively to generate and monetize knowledge. Stanford developed the Research Park in 1951 and exclusively leased the land to private, cutting-edge companies for their research and development needs. The Research Park brought academics and industry individuals together. Since its conception, it has helped breed some of the world's largest companies—Google, Yahoo!, Cisco, Intuit, and more than 40,000

others—and laid the framework for the eventual development of modern-day Silicon Valley (Trikha, 2015). The Stanford Research Park is just one example of how the interconnectedness of firms and universities has contributed to the development and expansion of the entrepreneurial ecosystem of the United States.

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The United States entrepreneurial ecosystem is evident from a historical perspective due to various structural advantages that have placed the country in an optimal position to produce high levels of entrepreneurial activity. Despite the wealth of entrepreneurial activity in the United States, researchers have yet to fully examine the potential effects of entrepreneurship on mobility. The economic mobility-focused literature has primarily focused on the reasons behind the widespread variation in economic mobility across the United States. Amid the vast body of literature surrounding the potential causes of this variation in economic mobility, the economic mobility literature lacks clarity regarding how the growing entrepreneurial environment of the United States affects mobility. This thesis brings together ideas from the mobility and entrepreneurship literature to better understand the potential link between entrepreneurship and economic mobility in America.

The current research that studies the relationship between entrepreneurship and economic mobility has been centralized in the developing nations of South America. Researchers have yet to study the relationship in the United States, where entrepreneurship takes on a different form. My research fills this gap in the literature by

analyzing the relationship between entrepreneurship and economic mobility in the United States. I pair the South American approaches with new county-level data on economic mobility in the United States.

My research assesses the validity of using entrepreneurship as an effective tool to increase economic mobility in low-mobility areas across the United States. The goal of the research is to influence the policy agenda to evaluate the inclusion of funding toward sustainable methods of increasing entrepreneurship as a mechanism to encourage local and national-level mobility growth.

I am hopeful that this introduction provides the foundation for the rest of my analysis. The remainder of this paper will:

- examine the current state of the body of economic mobility and entrepreneurship literature in the United States and South America,
- detail the processes used to collect and analyze economic mobility and entrepreneurial data in the United States,
- present and discuss the results of my analysis, and
- summarize the research and provide avenues for future research.

LITERATURE REVIEW

This literature review will assess the bodies of literature surrounding economic mobility, entrepreneurship, and the relationship between the two. The following sections will explain (1) the mobility-entrepreneurship relationship, (2) the findings regarding the relationship in South America, (3) the methods to increase entrepreneurial activity, (4) the changing views on economic mobility in America, and (5) a conclusion to cite the gaps in the literature that this research will expand on.

Situation Overview

The lack of research regarding the economic mobility-entrepreneurship relationship in the United States led me to analyze a growing body of literature from several studies performed in South America. The South American literature provides the basis from which my research expounds upon in the United States; however, the specifics of the findings are not perfectly transferrable across continental borders due to the inherent differences in economic structure and rates of entrepreneurship between South American countries and the United States. Table 2 elaborates on the specifics of the entrepreneurial nature of the South American countries and the United States by comparing the country's Global Entrepreneurship Indexes.

> The Global Entrepreneurship Index "collects data on the entrepreneurial attitudes, abilities, and aspirations of the local population and then weights these against the prevailing social and economic infrastructure. This includes aspects such as broadband connectivity and the transport links to external markets" ("Global Entrepreneurship Index," para. 4).

Table 2 *Global Entrepreneurship Index by Country*

Country	Global Entrepreneurship Index
United States	83.6
Colombia	38.2
Uruguay	35
Mexico	26.4
Ecuador	20.5
Bolivia	20.4

As shown in Table 2, the differences in entrepreneurial structure between the South American countries studied in the literature (Bolivia, Colombia, Ecuador, Mexico, Uruguay) and the United States are rather drastic. My research attempts to understand if a mobility-entrepreneurship relationship exists in the highly entrepreneurial United States—a country with an entrepreneurial makeup that is very different from the entrepreneurial structure of countries in South America. Moreover, while the South American literature studied individual entrepreneurs, my research provides a higher-level overview of the mobility-entrepreneurship relationship by studying entrepreneurship and economic mobility at the county level.

The developing nature of the South American countries is a confounding variable to note when comparing the South American countries with the United States. Due to the developing status of these countries, the literature agreed on the need to distinguish "necessity" from "opportunity" entrepreneurs (e.g., Ardagna & Lusardi, 2008; Bukstein & Gandelman, 2014; Castellani & Lora, 2014; Mwasalwiba, 2010). Researchers distinguished between these two definitions of entrepreneurship to filter out individuals engaged in purely subsistence-focused work—a practice that is not as prominent in the

United States—from individuals pursuing businesses in places where market opportunity exists. However, distinguishing between subsistence-focused individuals and true entrepreneurs will carry less weight in the United States where a much smaller portion of people experience a subsistence standard of living. In the next section, I examine the key findings regarding the mobility-entrepreneurship relationship in South America.

The Mobility-Entrepreneurship Relationship in South America

The consensus across the South American literature surrounding the mobility-entrepreneurship relationship is that entrepreneurship leads to greater upward economic mobility. Hernani-Limarino, Eid, & Villarroel (2011) first studied the mobility-entrepreneurship relationship in Bolivia and found that entrepreneurs are more likely to experience upward economic mobility. The researchers determined the relationship only existed when defining entrepreneurs as those individuals who employed more than one person (Hernani-Limarino et al., 2011). When analyzing all self-employed individuals, the data produced opposing results—entrepreneurship did not contribute to an increase in mobility (Hernani-Limarino et al., 2011).

Researchers examining the mobility-entrepreneurship in Uruguay reached the same conclusion as found in Bolivia—entrepreneurs, defined as individuals running companies with more than one employee, experienced greater upward economic mobility than self-employed individuals (Bukstein and Gandelman, 2014). As evidenced by the Bolivian study, researchers found it important in South America to distinguish entrepreneurs from self-employed individuals to ensure that self-employed workers living a subsistence lifestyle were not deemed as entrepreneurs in their analysis.

In Colombia and Uruguay, entrepreneurs both experience upward economic mobility and transfer mobility to their children (Castellani & Lora, 2014). Entrepreneurs in Colombia experience greater levels of upward mobility than non-entrepreneurs. Castellani and Lora (2014) assessed economic mobility by comparing the number of years of education received by the children and their respective parents. In Uruguay, the authors focused on the economic mobility of the entrepreneur's children. They found that the children of entrepreneurs experience greater upward mobility than the children of non-entrepreneurs (Castellani & Lora, 2014). This study paralleled the work of Bukstein and Gandelman (2014) during the same year which found that entrepreneurs both experience upward mobility and transfer mobility to the next generation through their children. The transference of economic mobility from one generation to the next through entrepreneurship creates a strong case to support policy initiatives to fund entrepreneurial activities due to the sustainable impact of entrepreneurship.

Mexico, although riddled with inequality, provides additional evidence to support entrepreneurship as a mechanism for upward economic mobility (Vélez-Grajales & Vélez-Grajajes, 2014). Research in Mexico found that entrepreneurs have a higher level of mobility than non-entrepreneurs—a consistent theme across the mobility literature in South America (e.g., Vélez-Grajales & Vélez-Grajajes, 2014; Bukstein & Gandelman, 2014; Castellani & Lora, 2014; Gandelman & Robano, 2014; Hernani-Limarino et al., 2011). Mexico is a unique country to study due to the persistence of high levels of inequality. The persistence of inequality would presuppose a lack of economic mobility; however, while Mexico has high levels of inequality, entrepreneurship remains an effective method to increase mobility.

Methods to Increase Entrepreneurship

The South American literature that supports the use of entrepreneurship as a vehicle for upward economic mobility naturally points to the methods used to increase the level of entrepreneurship within a country. The five methods in the literature that are effective means of increasing the level of entrepreneurship within a country are (1) establishing role models, (2) strengthening social capital, (3) lowering the cost of business, (4) building entrepreneurial education, and (5) defining the steps to exit a business (e.g., Ardagna & Lusardi, 2008; Castellani & Lora, 2014; Kantis, Federico, & Tratenberg, 2013; Ordeñana & Arteaga, 2013; Rauch & Hulsink, 2015; Vélez-Grajales & Vélez-Grajajes, 2014).

A primary way individuals develop into entrepreneurs is by watching and learning from others who model entrepreneurship around them. Some of the key role models of entrepreneurs are their parents (Castellani & Lora, 2013). Researchers found in Mexico that an individual's decision to become an entrepreneur is largely dependent on the father's occupation, more so than the individual's level of wealth or education (Vélez-Grajales & Vélez-Grajajes, 2014). Furthermore, Ardagna and Lusardi (2008) revealed that knowing *any* entrepreneur substantially increases the chance that an individual becomes an entrepreneur. Role models play a significant role in expanding the level of entrepreneurial activity within a region. Thus, to influence the level of entrepreneurship within a region, communities can focus on increasing spaces that are dedicated to entrepreneurial collaboration and mentorship. The development of shared spaces (such as co-working spaces and incubators) that foster collaboration is a tangible method to develop communication and networking opportunities between entrepreneurs.

Beyond the effects that parents and other role models play in modeling entrepreneurship, networks and institutions play a vital role in establishing and maintaining an entrepreneurial environment (e.g., Kantis et al., 2013; Ordeñana & Arteaga, 2013). These networks and institutions are pivotal to sustaining a high level of entrepreneurship within a country because they assist entrepreneurs in overcoming the initial obstacles associated with starting a business (Ordeñana & Arteaga, 2013). While the main source that entrepreneurs tend to rely on to overcome challenges is themselves, commercial networks (suppliers, customers, and other entrepreneurs), universities, and other institutions are valuable in supporting entrepreneurs during the early stages of their business (Ordeñana & Arteaga, 2013).

Increasing the amount of time and cost associated with incorporating new businesses substantially weakens the ease of new business creation ("Doing Business 2020", 2020). To increase the level of entrepreneurship, policies that favor new firm creation should reduce the number of steps and capital required to establish and maintain a business ("Doing Business 2020", 2020). These steps include reports, paperwork, and taxes that businesses must complete at the inception of the business and on an annual basis thereafter.

Beyond creating and maintaining businesses, the ease of firm destruction is equally important to incentivize entrepreneurship. If individuals are aware of the steps they can take to exit a business, they will be more likely to enter the business in the first place ("Doing Business 2020", 2020).

While many individuals have the know-how behind the development of an idea, they do not have the knowledge required to manage the operations of a business.

Researchers have shown that education is an effective method to increase the level of entrepreneurship in a region (Rauch & Hulsink, 2015). Postsecondary entrepreneurial education encourages entrepreneurship within individuals that have ideas but lack the fundamental business knowledge to grow their ideas (Castellani & Lora, 2014). Individuals that participate in entrepreneurship education tend to have higher entrepreneurial intentions to start a new business at the end of their educational program (Rauch & Hulsink, 2015). The focus of this education should address the proper management of finances, human resources, and technology (Castellani & Lora, 2014).

Capital requirements to start a new business seem to provide a barrier to establishing a culture of entrepreneurship. However, the results from the literature are mixed regarding whether capital requirements are indeed a hindrance to the start of new businesses. Many researchers argue that increasing small businesses' access to credit helps to cultivate a region's entrepreneurial environment by alleviating the barriers to entry into entrepreneurship (Gentry & Hubbard, 2004; Castellani & Lora, 2014). While other researchers found no relationship between household wealth and the propensity to start a business; they concluded that the traditional views on capital requirements to start a business do not hold up in the data (Hurst & Lusardi, 2004).

The literature reached five major conclusions regarding the methods to increase entrepreneurship within a region:

1. Increase entrepreneurial education
2. Limit the time and cost associated with starting and maintaining businesses

3. Develop shared spaces to establish collaboration, communication, and mentorship within the entrepreneurial community
4. Establish networks and institutions to support entrepreneurs in the early stages of their businesses
5. Clearly delineate the steps required to exit a business

Economic Mobility in America

In the United States, economic mobility research dates back to the early 1990s when Solon (1992) wrote his seminal article that argued the United States was dramatically less mobile than the world thought—challenging the idea of the American Dream. While previous studies existed, none had cited a lack of economic mobility in America. Recent studies have surfaced that built upon the seminal work completed in the 1990s and provided further substantiation to the lack of economic mobility in the United States. A repeated new claim in the literature brings light to a new phenomenon that researchers had not analyzed up to this point—the level of economic mobility in the United States differs from region to region (Chetty, Hendren, Kline, & Saez, 2014). The remainder of this section will discuss (a) the trends in the United States' economic mobility, (b) the discrepancies in economic mobility across the United States, and (c) the key contributing factors to upward economic mobility in America.

Trends in Economic Mobility in the United States

The rising level of income inequality in the U.S. over the past century (see Appendix G) has led many to presuppose that a decrease in economic mobility is the primary driving factor. Early research in the field by Becker and Tomes (1986) found

high levels of economic mobility during the twentieth century. However, Becker and Tomes (1986) used single-year earnings as their primary methodology, which was later determined to not capture the whole story.

The 1990s brought with it new time-series methods of analyzing the economic mobility of children by comparing the income levels of children with the income of their parents (Solon, 1992). This method, commonly calculated through the intergenerational correlation or the intergenerational elasticity of income, contrasted with the previously used single-year earnings method by providing a more accurate portrait of economic mobility in America through the use of longitudinal datasets that followed individuals and their parents over 20- to 30-year time spans. Solon (1992) became one of the pioneers to use this time-series method to study economic mobility in America. Using the Panel Study of Income Dynamics (PSID), Solon (1992) found evidence that challenged the popular belief that America was the land of opportunity—revealing dramatically less economic mobility in America than previously thought.

Using this newly popularized method, other researchers sought to determine the economic mobility of specific populations within America. The first of such populations analyzed were immigrants (Borjas, 1993). Borjas (1993) demonstrated that an immigrant's source-country labor market economic mobility affects that of his or her children. For instance, an Asian immigrant carries a different level of economic mobility than a European immigrant due to the differences in mobility levels between the original Asian and European countries.

Since the turn of the century, researchers have failed to reach a consensus regarding whether economic mobility has increased, decreased, or remained the same in

America. During the early years of the century, researchers concluded that economic mobility has been increasing in America (Aaronson and Mazumder, 2005). However, later research that analyzed birth cohorts between 1952 and 1975 in the PSID concluded that the level of economic mobility in America has remained stagnant (Lee & Solon, 2009). In recent years, researchers have sought out more robust measurements of economic mobility by analyzing differences between quantiles of the income distribution and mobility differences over time (Palomino, Marrerro, and Rodríguez, 2018). Using the PSID, the researchers revealed a U-shaped relationship where mobility is highest at the 70th percentile of the income distribution and lowest at the tails of the distribution (Palomino, Marrerro, and Rodríguez, 2018). Moreover, for the lower quantiles, researchers found that economic mobility increased over the last two decades of the twentieth century before decreasing in the 2000s (Palomino, Marrerro, and Rodríguez, 2018). The upper quantiles experienced little to no change in their economic mobility levels (Palomino, Marrerro, and Rodríguez, 2018). Despite these differing viewpoints regarding the changing level of economic mobility in the United States, recent research has come to a consensus that economic mobility differs from region to region in America.

Discrepancies in Economic Mobility Across America

Although the direction of economic mobility on a macro level has been ambiguous over the past decades, relatively recent research has found that the variation in economic mobility between geographic regions within America is apparent (Chetty et al., 2014). Children throughout the country are born into different levels of economic mobility based on their birthplace (Chetty et al., 2014). For instance, economic mobility is lowest in several Midwestern and Southeastern U.S. regions and highest in various

Western cities (Chetty et al., 2014). The researchers found that San Jose, California, and Salt Lake City, Utah, are two of the highest mobility areas, while Cincinnati, Ohio, and Milwaukee, Wisconsin, are two of the lowest mobility areas in the United States (Chetty et al., 2014). Following this finding regarding the variation in economic mobility across the United States, the authors sought to determine the primary drivers of the variation.

The main drivers of the variation of economic mobility within the United States are segregation, income inequality, education quality, and family structure (Andrews & Leigh, 2009; Chetty et al., 2014). First, areas with higher levels of segregation have lower levels of economic mobility (Chetty et al., 2014). Second, regions that have greater inequality are less mobile than regions with lower levels of inequality (Andrews & Leigh, 2009; Chetty et al., 2014). Third, the quality of education systems is positively correlated with economic mobility (Chetty et al., 2014). Lastly, weaker family structures, measured by the fraction of single-parent households in a region, are negatively correlated with economic mobility (Chetty et al., 2014).

These measures to describe the variation in mobility across America can also be used to generate a proxy for the quality of neighborhoods within the United States, another strong predictor of economic mobility. The consensus across the literature is that children who have prolonged exposure to better neighborhoods experience greater levels of economic mobility (Chetty & Hendren, 2018). This exposure is linearly related to the number of years that a child lives within the neighborhood (Chetty & Hendren, 2018).

Social networks, a concept closely related to the quality of neighborhoods, have been found to be a great predictor of several qualities connected to economic mobility (Chetty et al., 2014). Chetty et al. (2014) concluded that social capital, as measured by

the strength of social networks and community involvement, is positively correlated with economic mobility. Commonly cited examples of strong social networks are religious organizations. Areas in the United States with large densities of religious organizations and individuals participating in civic organizations have high degrees of upward economic mobility (Chetty et al., 2014). Salt Lake City, Utah, is a prime example of a city with a large number of religious individuals (due to the presence of The Church of Jesus Christ of Latter-day Saints) and a high degree of upward economic mobility.

Stronger social networks also influence health, crime rates, tolerance, inequality, and child welfare (Putnam, 1995). Putnam (1995) presented evidence that pointed toward increased health outcomes, lower crime rates, lower inequality levels, and greater child welfare for those individuals with high social levels of social capital. These qualities are strongly correlated with an individual's level of economic mobility (Chetty et al., 2014).

Colleges across the United States generate substantial differences in economic mobility for their respective students, largely due to differences in access to higher education across income quantiles (Chetty, Friedman, Saez, Turner, & Yagan, 2017). The highest rates of economic mobility are found at the elite colleges, namely the Ivy League universities, and at several mid-tier public institutions (Chetty et al., 2017). However, the lower-income students, where economic mobility can have the largest positive effect, have seen stagnated attendance at the elite colleges and decreased attendance at the mid-tier universities with the highest levels of mobility (Chetty et al., 2017).

Conclusion

The body of literature across South America validates entrepreneurship as a vehicle for upward economic mobility. From Bolivia to Uruguay to Mexico to Colombia,

the evidence supports entrepreneurship as an effective mechanism to increase economic mobility not only in one generation but in the next as well. The multigenerational impact of entrepreneurship poses an interesting phenomenon to examine from a policy lens—funding resources that focus on increasing entrepreneurship could leave a sustainable impact for several generations.

The United States' economic mobility-focused literature came alongside the South American entrepreneurship research and found the U.S. to be riddled with discrepancies in economic mobility across its different regions. The differences between regions are evident in the literature; however, the research did not reach a consensus regarding whether economic mobility has increased or decreased since the turn of the century in America. Despite this ambiguity, one idea is certain—economic mobility varies across America. The research has addressed this variation in economic mobility and revealed the fundamental drivers of mobility to be residential segregation, income inequality, school quality, social capital, family stability (Chetty et al., 2014).

The academic literature in the United States has yet to investigate the potential impact of entrepreneurship on economic mobility. The purpose of my research is to (1) substantiate the validity behind using entrepreneurship as a policy lever to increase economic mobility and (2) to supplement the current knowledge on economic mobility and the mobility-entrepreneurship relationship in America. I am hopeful that the results of my research will further the discussion around how policy, business, and academia can collaborate to level the mobility playing field in the United States.

METHODOLOGY

The purpose of this section is to describe the approach I employ to analyze the relationship between entrepreneurship and economic mobility in the United States. To best analyze this relationship, I use a quantitative analysis to analyze the mobility-entrepreneurship relationship across all regions of the United States.

My methodology references specify terminology that may be unfamiliar but are important to understanding many of my ideas. I have defined a few terms below:

- *The Chetty Approach:* Many aspects of my methodology mirrors the approach taken by Chetty, Hendren, Kline, and Saez (2014), one of the most recognized and cited papers in the mobility literature. When referencing the methodology used by Chetty et al. (2014), I will refer to it as the Chetty Approach.
- *Opportunity:* I use economic mobility and opportunity interchangeably throughout this section because economic mobility is often used as a proxy for opportunity in the literature (Athreya and Romero, 2015; Chetty et al., 2014).
- *Statistical Significance:* A finding which implies that the coefficient of the given variable is unlikely to be zero with 90%, 95%, or 99% confidence.

The remainder of this section will highlight (1) the data used in my analysis, (2) the specifics of my quantitative approach, and (3) the limitations to my study.

Data Selection

The data needed for my study surrounds individual- and region-specific data regarding levels of entrepreneurship and economic mobility over time. The entrepreneurship-centric data requires an individual's occupation status and geographic location over a period of time. The economic mobility data is generated on a county level across the United States by tracking the incomes of parents and children over 30 years. Beyond the baseline entrepreneurship and economic mobility data, I collect other relevant county-level covariates to use as controlling factors in my analysis of the relationship between entrepreneurship and economic mobility in America. The remainder of this section will examine the (a) economic mobility data, (b) entrepreneurship data, and (c) choice of counties used in my analysis.

Economic Mobility Data

I use several datasets from The Opportunity Atlas' public database, the data source generated by Chetty et al. (2014), to retrieve economic mobility-related data on a county level.

> The Opportunity Atlas is a publicly available database based out of Harvard University that provides datasets surrounding various life outcomes of American citizens ranging from economic mobility to life expectancy to patent rates by neighborhood, college, parental income level, and racial background ("Data Library," para. 1).

In this study, I use the Atlas database to gather time-period specific economic mobility data across all regions of the United States. Using the Chetty Approach, I calculate economic mobility through the use of the intergenerational elasticity of income (IGE) coefficient. IGE is a common method to measure economic mobility in the literature (Chetty et al. 2014; Solon, 1992). The method compares a child's earnings to his or her

parents' earnings to calculate a number between zero and one. A number closer to zero implies a higher level of economic mobility and a number closer to one implies little to no economic mobility. The Chetty Approach pairs parental income data from 1980 with the child's income data from 2012 to determine the levels of mobility for children born between 1980 and 1982.

My study determines the IGE through the use of the economic mobility index. I derive the economic mobility index from the rank-rank slope data in the Opportunity Atlas. The rank-rank slope data is derived from the slope of the ordinary least squares regression of the child's income rank on the parent's income rank. To determine the economic mobility index, I multiply the rank-rank slope by -1 and add 1. The index is on a scale from 0 to 1, where 1 represents the highest degree of economic mobility.

After collecting the economic mobility data, I gather relevant region characteristics to limit confounding factors and increase the validity of my regression. These region characteristics include the variables that Chetty et al. (2014) found to be statistically significant in their relationship with economic mobility as well as various other county covariates selected from the Atlas database (see Appendix H for a list of all initial county covariates selected). Table 3 provides the five categories of variables that Chetty et al. (2014) determined to have the largest effect on economic mobility.

Table 3 *The Variables Chetty et al. (2014) Found to Influence Economic Mobility*

Category	Variables	
Segregation	Racial Segregation	Income Segregation
Income Inequality	Gini Coefficient	
Education Quality	School Expenditure per Student	Student-Teacher Ratio
Institutions of Social Capital	Social Capital Index	Fraction Religious
Family Structure	Fraction of Children with Single Mothers	

Note: See Appendix I for descriptions on how these variables are calculated.

The eight variables shown in Table 3 provide the baseline for my analysis of the significance of the relationship between entrepreneurship and economic mobility.

Entrepreneurship Data

Although entrepreneurship is a commonly used word today, finding metrics to accurately track it on a county level can be difficult. For this research, I mirror the Kauffman Foundation's approach to measuring entrepreneurship.

> The Kauffman Foundation is one of the premier sources for entrepreneurship-related research, data, and strategies. The foundation exists to, "work with entrepreneurs, empower them with tools and resources, and work to break down barriers that stand in the way of starting and growing their businesses" ("Entrepreneurship," para. 2).

The data-related aspects of entrepreneurship within the Kauffman Foundation are most relevant to my research. To produce metrics related to entrepreneurial activity, the Kauffman Foundation examines respondents polled multiple times by the Current Population Survey (CPS) and labels individuals who enter into self-employment as entrepreneurs. Thus, the Kauffman Foundation concludes that entry into self-employment is a sufficient measure for analyzing entrepreneurial activity. I follow the Kauffman

Foundation's method and use entry into self-employment as one of several proxies for entrepreneurship.

The measurement of individual entry into self-employment requires data on individuals and their work status over a period of time. I use the Integrated Public Use Microdata Series (IPUMS), a subset of the monthly CPS, to retrieve and analyze data on individual people. To effectively measure entrepreneurship, I use the Annual Social and Economic Supplement (ASEC) of the IPUMS-CPS data to extract microdata on an individual's work status at the time of the survey and one year prior. Because the economic mobility data is from 2012, I pull IPUMS-CPS data from 2010 to 2014 to calculate an average level of entrepreneurship over these five years. I average entrepreneurial activity over several years rather than a single year to mitigate the effects of any large one-year changes in entrepreneurship.

While entry into self-employment is one of the key drivers of entrepreneurial activity, I track four other variables to gain a broader grasp on entrepreneurship and its relationship with self-employment. Table 4 provides explanations for all five self-employment variables used in my analysis.

Table 4 *The Self-Employment Variables Used to Measure Entrepreneurship*

Variable	Description
Becomes Self-Employed*	Individuals who were not self-employed in the prior year and have moved into self-employment in the current year **the Kauffman Foundation's proxy for entrepreneurship*
Stays Self-Employed	Individuals who are self-employed in the current and prior year
Leaves Self-Employment	Individuals who were self-employed in the prior year and have moved to a different occupation in the current year
Self-Employed Either Year	Individuals who are self-employed in the current or prior year
Change in Self-Employment Between 2010-2014	The average change in self-employment between 2010 and 2014 on a county level

The inclusion of the change in self-employment between 2010 and 2014 (CSE) variable in Table 4 is meant to control for potential economic factors that may encourage individuals to become self-employed. Individuals who turn to self-employment during economic downturns are known as necessity entrepreneurs. My analysis is focused on opportunity entrepreneurs—those who start businesses when they see a market opportunity—versus necessity entrepreneurs. By including the CSE variable, I filter out the effects of necessity entrepreneurs on entrepreneurial activity within a county.

County Selection

I narrow the scope of my analysis to certain counties that have a sufficient number of respondents and available economic mobility and entrepreneurship data. First, I remove any counties with less than 100 respondents polled in the IPUMS-CPS data. I remove these counties because the rates of entrepreneurship would be heavily influenced by the inclusion of one additional self-employed individual. Second, while the Atlas database provides a significant amount of economic mobility data for most counties

within the United States, the ASEC supplement of the IPUMS-CPS data does not list county codes for every individual surveyed in order to retain anonymity within the dataset. Thus, I limit the scope of my research to the counties where individuals have available geographic identifiers. Table 5 provides a breakdown of the number of counties with available economic mobility and entrepreneurship data.

Table 5 *Counties with Available Economic Mobility and Entrepreneurship Data*

Type of Data	**Number of Counties with Available Data**	**Population of Available Counties as a Percentage of the Total U.S. Population in 2012**
Economic Mobility	2,768	88.5%
Entrepreneurship	280	40.4%
Economic Mobility + Entrepreneurship	280	40.4%

As seen in Table 5, my analysis uses the 280 counties with available economic mobility and entrepreneurship data. Although the 280 counties comprise less than 10% of the 3,031 counties in the United States in 2012, they represent over 40% of the total U.S. population in 2012.

The 280 counties used in my analysis are primarily located in larger metropolitan regions. Table 6 provides additional detail regarding the metropolitan versus nonmetropolitan composition of county types in my sample dataset.

Table 6 *The Metropolitan vs. Nonmetropolitan County Divide in the Dataset*

County Type	Population Description	Percent of Counties in Dataset
Metropolitan	Counties in metro areas of 1 million population or more	48.2%
	Counties in metro areas of 250,000 to 1 million population	28.6%
	Counties in metro areas of fewer than 250,000 population	20.4%
Nonmetropolitan	Urban population of 20,000 or more, adjacent to a metro area	2.5%
	Urban population of 20,000 or more, not adjacent to a metro area	0.4%

As seen in Table 6, the prevalence of these larger metropolitan regions in my dataset limits the scope of my analysis to more developed and urbanized regions where entrepreneurship tends to be more prevalent.

Due to the inherent differences in economic mobility between regions, the sample of counties used in the analysis should be proportionally representative to the distribution of the population across all United States counties (Chetty et al., 2014). Table 7 provides further insight into the regional breakdown of counties in the dataset compared to the regional distribution of all U.S. counties.

Table 7 *Population Distribution by Region*

Region	Proportion of Population in Sample Dataset	Proportion of Population in the United States
Midwest	15.5%	24.0%
Northeast	22.6%	15.0%
South	27.2%	36.2%
West	34.7%	34.8%

Table 7 illustrates that the counties used in the sample are relatively proportionally representative of the U.S. population distribution across all counties. Although the small differences between the dataset and the actual data may pose as a limitation to my study, I do not foresee significant changes in the results because the counties in the dataset are relatively aligned with the actual population distribution.

Quantitative Analysis

In my quantitative analysis, I link the economic mobility and entrepreneurship data to analyze the mobility-entrepreneurship relationship. I combine the two disparate datasets through the use of state and county FIPS codes—unique numeric codes needed to identify counties in the United States. I employ several correlations and multivariate regressions to provide an overview of the relationship between economic mobility and entrepreneurship in the United States. The multivariate regression regresses entrepreneurship and several other county covariates against economic mobility. My goal in regressing entrepreneurship on economic mobility is to determine if a statistically

significant relationship exists and provide evidence toward a potential relationship between economic mobility and entrepreneurship in the United States.

I begin by performing a series of regressions to determine the strength and significance of the mobility-entrepreneurship relationship. First, I regress several key variables that Chetty et al. (2014) found to significantly influence economic mobility. These variables fall into the categories described in Table 3: segregation, income inequality, education quality, institutions of social capital, and family structure. I perform this regression to determine the strength and explanatory power of these variables. Subsequently, I add in the entry into self-employment variable to the previous regression to identify the effects of entrepreneurship on economic mobility. By including these variables, I can understand if entrepreneurship is significantly related to entrepreneurship and discern whether the addition of these entrepreneurial variables increases the explanatory power of the regression.

Limitations

I foresee several limitations to my methodology that may impact the measurement of entrepreneurship and economic mobility in the United States. The following section discusses (a) the lack of available entrepreneurship data, (b) the potential for reverse causality, (c) the entrepreneur gap, and (d) the sampling method used to obtain the data.

The Availability of County-Level Entrepreneurship Data

The most significant limitation to my study surrounds the availability of the raw county-level entrepreneurship data. Because individual occupation status data is not available in all counties across the United States, the results of my analysis are biased

toward regions with developed entrepreneurial environments. This bias may leave out the effects of entrepreneurship on smaller towns in America. However, the counties included in the analysis still represent over 40% of the United States' population and are regionally distributed in a manner that is similar to the distribution of the U.S. population. Moreover, the focus of my research is on opportunity entrepreneurs, which tend to be located in larger towns. Necessity entrepreneurship tends to take precedent in smaller towns due to the lack of formal employment. Consequently, the lack of individual occupation data in smaller counties should not affect the intended results of the study.

The Potential for Reverse Causality

The second limitation of my research comes from the fact that reverse causation may exist in the relationship between entrepreneurship and mobility. While my study seeks to understand if higher levels of entrepreneurial activity lead to more economically mobile communities, the reverse effect may be occurring: entrepreneurs may be drawn to live in communities with higher degrees of mobility. The direction of the relationship may be unclear regarding whether entrepreneurs affect communities or communities affect entrepreneurs.

The Entrepreneur Gap for Women and Racial Minorities

A third limitation within my entrepreneurial-related data surrounds the concept known as the "entrepreneur gap." The entrepreneur gap refers to the gap in funding for certain groups due to demographic differences. The most drastic gaps occur for female and racial minorities.

The gender gap in entrepreneurship funding negatively affects women's ability to start businesses. Despite owning 40% of all businesses, women received just 2.2% of all venture capital funds in 2018 ("The 2018 State", 2018; Hinchliffe, 2019). This stark disparity likely stems from a gender bias within venture capital partners—a group that is 92% male—who approach and question male- and female-owned businesses differently during the capital raising process (Teare & Desmond, 2017; Kanze, Huang, Conley, & Higgins, 2018). My methodology does not account for this gender discrepancy within United States' entrepreneurs because (1) the gender funding gap may have unforeseen implications on women who choose not to become entrepreneurs due to the funding gap, and (2) if less women-owned businesses are funded, the number of women entrepreneurs may appear lower than the number of women entrepreneurs in a non-gender biased funding environment. In turn, the gender gap in entrepreneurial funding weakens the associated levels of entrepreneurial activity throughout the United States, creating a confounding variable that has unforeseen implications on the relationship between economic mobility and entrepreneurial activity in America.

The racial funding gap that exists between white and racial minority entrepreneurs skews entrepreneurial activity toward majority-white regions. The racial funding gap establishes barriers to capital for racial minorities. Take black entrepreneurs as an example. Although black entrepreneurs are twice as likely to start a business than white entrepreneurs, black entrepreneurs are significantly underrepresented within the entrepreneurial landscape (Köllinger & Minniti, 2001). Moreover, black individuals who start businesses must overcome the significant funding gap. The average black entrepreneur starts a business with $35,000 in capital, while white entrepreneurs start

businesses with $106,000 in capital (Fairlie, Robb, & Robinson, 2016). As a result of this smaller initial capital foundation, black entrepreneurs end up seeking businesses with lower projected revenues compared to the ventures sought out by white entrepreneurs (Singh, Knox, and Crump, 2008). Similar to the effect of the gender gap on entrepreneurial activity in the United States, the racial funding gap presents a limitation to my research by inhibiting the number of racial minorities that can start businesses. Venture capitalists disproportionately support white entrepreneurs, skewing the level of entrepreneurial activity across the United States away from regions with racial minorities and toward regions with high concentrations of white individuals.

The Sampling Method Used to Obtain Entrepreneurship Data

Compounded with the fact that racial minorities receive less funding to start businesses, the IPUMS-CPS data uses a non-random sampling method to oversample these same racial minority groups. The CPS uses this non-random sampling method to derive statistical insights from these groups. However, by using this method, the data used in my analysis is not a true representation of entrepreneurial activity in the United States. Additional information on entrepreneurial attitudes and motives would be needed to adequately assess entrepreneurship; however, because of the lack of available data, the results of my study should be taken in light of this fact.

RESEARCH FINDINGS

The following section highlights the findings of the research I performed to understand the relationship between entrepreneurship and economic mobility in the United States at the county level. Through an analysis that included several regressions on 280 U.S. counties between 2010 to 2014, I determined that entrepreneurship is significantly related to economic mobility. The remainder of this section will (1) introduce the factors that have the strongest influence on economic mobility, (2) discuss the structure of counties depending on the level of economic mobility, and (3) provide a high-level overview of the results of the quantitative analysis performed to understand the mobility-entrepreneurship relationship.

Section 1: The Factors with the Strongest Influence on Economic Mobility

I begin by describing the factors that have the strongest influence on economic mobility. The correlation matrix in Table 8 highlights the relationship between economic mobility, various entrepreneurship proxies, and the factors that Chetty et al. (2014) found to have the greatest effect on mobility.

Table 8 *Correlates of Economic Mobility*

	Economic Mobility	Becomes Self-Employed	Self-Employed Both Years	Racial Segregation	Income Segregation	Gini Coefficient	Student-Teacher Ratio	Social Capital Index	Percent Religious	Fraction of Children with a Single Mother
Economic Mobility	1.00	0.25***	0.25***	-0.41***	-0.15**	-0.02	0.22***	-0.22***	-0.12*	-0.36***
Becomes Self-Employed		1.00	0.95***	0.18***	0.31***	0.29***	0.20***	-0.14**	0.04	0.08
Self-Employed Both Years			1.00	0.18***	0.31***	0.27***	0.18***	-0.11*	0.06	0.05
Racial Segregation				1.00	0.46***	0.53***	-0.04	-0.01	0.30***	0.60***
Income Segregation					1.00	0.46***	-0.09	0.10*	0.18***	0.29***
Gini Coefficient						1.00	0.04	-0.24***	0.22***	0.58***
Student-Teacher Ratio							1.00	-0.05	-0.10*	-0.03
Social Capital Index								1.00	0.15**	-0.15**
Percent Religious									1.00	0.02
Fraction of Children with a Single Mother										1.00

Note: *, **, and *** denote statistical significance at the 90%, 95%, and 99% levels, respectively. See Appendix I for detailed descriptions of these variables.

Table 8 reveals the strongest relationships exist between economic mobility and self-employment, racial segregation, and the fraction of children with a single mother. Segregation and family structure are negatively correlated with economic mobility while self-employment is positively correlated. The negative correlation between segregation, family structure, and economic mobility implies that more economically mobile counties have a lower number of children with single mothers and are less racially segregated. The fact that both family structure and segregation play an important role in dictating a county's economic mobility aligns with the results of the literature that found the two categories to significantly impact mobility in the United States (Chetty et al., 2014). This relationship suggests that in order to increase economic mobility, policymakers should work to decrease racial segregation and encourage family stability in their communities.

The positive relationship between self-employment and economic mobility implies that counties with more individuals who are self-employed—the key proxy for entrepreneurship—tend to experience greater levels of upward economic mobility. This finding aligns with the results of the South American literature that found a significant relationship between entrepreneurship and upward economic mobility (Vélez-Grajales & Vélez-Grajajes, 2014; Bukstein & Gandelman, 2014; Castellani & Lora, 2014; Gandelman & Robano, 2014; Hernani-Limarino et al., 2011). While the correlation matrix provides the direction of the relationship between entrepreneurship and economic mobility, the regression output in Section 3 will illustrate the strength of the relationship between mobility and entrepreneurship in comparison to the relationship between economic mobility, segregation, and family structure.

Section 2: Understanding the Structure of Counties at Different Mobility Levels

As Section 1 confirmed that various factors are related to the level of economic mobility of counties across the United States, this section will demonstrate the inherent structural differences between U.S. counties. These differences evolve from the region's entrepreneurial activity, racial makeup, education quality, and family structure. Due to the entrepreneurial-focus of this research, I begin by outlining the different self-employment measures across the 280 counties in the dataset. Table 9 provides the average self-employment measures across four economic mobility tiers.

Table 9 *Self-Employment Measures Across Four Economic Mobility Tiers*

			(Fraction of Individuals)			
Mobility Tier (n = 70 each)	**Economic Mobility Index**	**Average Unemployment Rate 2010-2014**	**Became Self-Employed**	**Self-Employment Both Years**	**Self-Employed in Either Year**	**Left Self-Employment**
1	0.76	0.089	0.0162	0.114	0.142	0.0114
2	0.70	0.077	0.0134	0.081	0.104	0.0093
3	0.66	0.075	0.0092	0.057	0.074	0.0073
4	0.61	0.082	0.0090	0.063	0.079	0.0072

Note: Tier 1 = 75th - 100th Percentile; Tier 2 = 50th - 75th Percentile; Tier 3 = 25th - 50th Percentile; Tier 4 = 0 - 25th Percentile. For all variables above except for Left Self-Employment, the Tier 1 value is statistically different than the Tier 4 value at an 85% confidence level.

Table 9 demonstrates that counties with higher levels of economic mobility tend to have more self-employed individuals, regardless of the measure of self-employment used. Counties with more individuals that became self-employed, the traditional proxy for entrepreneurship as defined by the Kauffman Foundation, is greatest at the first tier of economic mobility. The remaining self-employment variables follow a similar positive relationship as they increase when economic mobility increases. The lack of a clear relationship between the average unemployment rate and economic mobility reveals that

individuals may not be entering into self-employment for potential economic reasons; moreover, if individuals are entering into self-employment for economic reasons, the rate at which they are entering is similar across all mobility tiers, weakening the counterargument that links self-employment with economic hardship. In conclusion, this preliminary analysis between counties with varying levels of economic mobility and several self-employment measures reveals that higher rates of self-employment are correlated with higher rates of economic mobility.

Beyond the entrepreneurial differences between counties with different economic mobility levels, counties exhibit several other structural differences ranging from disparities in county size, home value, obesity rates, and education quality. Table 10 provides averages across several categories to provide further insight into the structural differences between counties across the four mobility tiers.

Table 10 *Structural Differences Between Counties*

Mobility Tier (n = 692 each)	**County Population Size**	**Median House Value**	**Percent of Children with a Single Mother**	**Percent Foreign Born**	**Percent Obese**	**Student-Teacher Ratio**
1	115,357	$141,580	16.6	5.29	27.7	16.99
2	104,556	$120,907	18.2	3.68	30.8	16.81
3	93,420	$109,834	20.3	2.95	31.2	16.83
4	88,055	$97,416	25.2	2.26	34.6	16.66

Note: Tier 1 = 75th - 100th Percentile; Tier 2 = 50th - 75th Percentile; Tier 3 = 25th - 50th Percentile; Tier 4 = 0 - 25th Percentile. For all variables above except for County Population Size, the Tier 1 value is statistically different than the Tier 4 value at a 99% confidence level.

All of the categories in Table 10 indicate clear relationships between the level of economic mobility within the county and the respective category description. First, the

level of economic mobility and median home value is positively related to the size of the county. More mobile counties tend to be larger and have homes of greater value. Second, as Table 8 revealed, more economically mobile counties have a greater number of two-parent households. Third, a greater population of foreigners tend to live in counties with higher mobility levels. One potential explanation for this observation is that the level of risk foreigners take when leaving their home country may induce the need to succeed within their children, increasing economic mobility for their families. A second explanation may be related to the fact that foreigners choose to immigrate to larger, more economically mobile American cities. Fourth, more mobile counties tend to be healthier. A potential explanation for this observation is that active and healthy individuals tend to be located in larger cities where fitness and body-image plays a larger role. Lastly, the student-teacher ratio is highest in the most economically mobile counties. This finding is counterintuitive at first glance; however, one potential rationale for the higher student-teacher ratio is county size. The first mobility tier is comprised of counties with larger populations than the other three mobility tiers, which would naturally push the student-teacher ratio up. On the other hand, the differences in the student-teacher ratio between mobility tiers are so minor that they may solely be a product of chance.

The impact of racial disparities and segregation on a county's economic mobility level is prevalent across the literature. These racial differences stem from a history of racism in America where different groups of people are treated differently when it comes to buying homes, accessing schools, and several other common actions. Table 11 compares counties at different mobility tiers based on racial differences and segregation levels.

Table 11 *County-Level Racial and Segregation Differences*

Mobility Tier (n = 692 each)	**Percent Black**	**Percent Hispanic**	**Racial Segregation**	**Income Segregation**	**Gini Coefficient**
1	1.97	9.36	0.0571	0.0244	0.356
2	4.21	6.40	0.0733	0.0288	0.364
3	9.42	4.51	0.0883	0.0314	0.386
4	21.80	3.52	0.1094	0.0299	0.425

Note: Tier 1 = 75th - 100th Percentile; Tier 2 = 50th - 75th Percentile; Tier 3 = 25th - 50th Percentile; Tier 4 = 0 - 25th Percentile. For all variables above, the Tier 1 value is statistically different than the Tier 4 value at a 99% confidence level. See Appendix I for explanations on how Racial Segregation and Income Segregation were calculated.

Table 11 demonstrates that counties with higher levels of economic mobility have smaller black populations. One potential explanation behind this observation could be attributed to the systemic racism that disavows black individuals from living and growing up in more economically mobile communities. Moreover, this finding may also be related to the fact that the Southern region of the United States is home to a majority of America's black population and is one of the least mobile regions of the country (Chetty et al., 2014). Second, counties with more economic mobility have a higher Hispanic population. This finding likely results from the fact that the majority of the Hispanic population in the United States is located in the West and the rural Midwest, two of the highest mobility regions in America. Third, less racial and income segregation exists in towns with more economic mobility. The reason behind this observation may be linked with the explanation of why black communities exhibit less mobility—higher levels of segregation exist in communities with larger black populations, which tend to be located in counties with less economic mobility. Lastly, the Gini coefficient is substantially lower in communities with greater levels of mobility. The Gini coefficient is a measure of

inequality. Hence, communities that exhibit less inequality tend to be more economically mobile.

The final analysis in Section 2 surrounds the differences in economic mobility between regions within the United States. The differences stem from a wide variety of reasons but are evident throughout Table 12, which reveals the differences across all 2,768 U.S. counties in 2012 with available mobility data.

Table 12 *Economic Mobility Comparison by U.S. Region*

Mobility Tier (n = 692 each)	**Percent in Midwest**	**Percent in Northeast**	**Percent in South**	**Percent in West**
1	23.09	16.98	7.65	52.28
2	25.19	37.27	17.81	19.73
3	28.81	29.45	34.92	6.82
4	23.53	14.35	57.24	4.88

Note: Tier 1 = 75th - 100th Percentile; Tier 2 = 50th - 75th Percentile; Tier 3 = 25th - 50th Percentile; Tier 4 = 0 - 25th Percentile. Regions were normalized to 1000 counties per region to control for differences in region size.

The most economically mobile counties are centralized in the West, Midwest, and Northeast regions of the United States, while the lowest mobility counties are mainly in the South. A deeper look into the economic mobility data reveals that 8 out of the 10 most mobile counties with populations larger than 50,000 are located in the West, and five of the top 10 are located in California. The West and the South are the two regions where economic mobility tends to be fixed within certain levels of mobility. While the Midwest and Northeast exhibit a fairly uniform distribution across all levels of mobility.

To conclude, Section 2 illustrated the inherent differences that counties across America exhibit dependent on their respective level of economic mobility. Counties with greater levels of economic mobility tend to be located in larger counties in the Western United States with higher levels of self-employment, less segregation, more foreign individuals, larger home values, and healthier populations.

Section 3: Understanding the Mobility-Entrepreneurship Relationship

I conclude with a deeper look into the strength of the mobility-entrepreneurship relationship to better understand how the level of entrepreneurial activity within a region affects the level of mobility. To begin, I regress the variables that Chetty et al. (2014) determined to have significant influences on economic mobility (see Table 3 for a list of these variables). The first column of Table 13 illustrates the regression output between these variables and economic mobility.

Table 13 *Economic Mobility Regressed Against Key Variables*

Dependent variable:	**Economic Mobility Index**			
	(1)	(2)	(3)	(4)
Racial Segregation	–0.219 (0.000)	–0.185 (0.000)	–0.201 (0.000)	–0.209 (0.000)
Income Segregation	0.010 (0.936)	–0.136 (0.236)	–0.119 (0.264)	–0.179 (0.096)
Gini Coefficient	0.199 (0.041)	0.109 (0.008)	0.007 (0.856)	0.003 (0.934)
School Expenditure per Student	0.002 (0.359)	0.000 (0.953)	–0.001 (0.653)	–0.001 (0.682)
Student-Teacher Ratio	0.001 (0.010)	0.002 (0.000)	0.002 (0.000)	0.001 (0.001)
Social Capital Index	–0.010 (0.003)	–0.014 (0.000)	–0.016 (0.000)	–0.015 (0.000)
Percent Religious	–0.0001 (0.502)	0.000 (0.773)	0.000 (0.239)	0.000 (0.257)
Percent of Children with Single Mothers	–0.317 (0.000)	–0.210 (0.000)	–0.087 (0.127)	–0.081 (0.151)
Level of Obesity		–0.450 (0.000)	–0.281 (0.000)	–0.237 (0.001)
Median House Value			0.000 (0.000)	0.000 (0.000)
Become Self-Employed (i.e. Entrepreneur)				0.0004 (0.006)
***R*-squared**	0.356	0.443	0.523	0.536
Observations	280	280	280	280

Note: The top number in each cell represents the coefficient of the variable in the regression output. The number in parentheses represents the p-value of that coefficient.

As evidenced by the first regression in Table 13, racial segregation, Gini coefficient, student-teacher ratio, social capital index, and percent of children with single mothers are significant at a 95% confidence level. However, the explanatory power of the regression is rather weak due to the r-squared value of 0.36. This r-squared value implies that the variables in this regression explain 36% of the variation in economic mobility across the United States. The variables with the largest impact on the regression's output are racial segregation, Gini coefficient, and the fraction of children with single mothers. The strength of the racial segregation variable and the Gini coefficient is consistent with the output of Table 11, which showed a distinct relationship between the level of racial segregation, the Gini coefficient, and the level of economic mobility. Lastly, the positive relationship between the percent of children with single mothers and economic mobility aligns with the results of Table 10.

The subsequent two regressions in columns two and three reveal the strength of the relationship between economic mobility and the community's health and home values. The explanatory power of the regression, as measured by the r-squared value, increases by almost 20 percentage points with the addition of these two variables. The negative relationship between the level of obesity and the economic mobility index indicates that healthier communities tend to be more economically mobile. Moreover, albeit small, the positive relationship between mobility and the county's median home value suggests that counties with larger home values tend to be more mobile. These two findings are aligned with the results of Table 10, which revealed these same relationships.

The last regression in Table 13 represents the regression output between economic mobility, entrepreneurship, and all of the variables included in the first three

regressions. The fourth regression finds the entry into self-employment variable, which the Kauffman uses to define entrepreneurship, significant at a 99% confidence level. The coefficient on the entry into self-employment variable is 0.0004. This coefficient value means that for every additional person that entered into self-employment within a county, the county's economic mobility index increases by 0.0004 points. A more realistic reading of this coefficient would be for every 100 people that enter into self-employment, the county's economic mobility index increases by 0.04 points. Thus, increased levels of entrepreneurship are significantly related to increased levels of economic mobility. The findings of this regression validate the hypothesis for this study that increases in entrepreneurial activity are significantly correlated to increases in economic mobility on a county level across the United States.

CONCLUSION

In the introduction of this thesis, I discussed how the history of entrepreneurship in the United States has benefited from specific structural advantages that encouraged entrepreneurial growth in America. In the literature review, I explored the different sects of the literature that study entrepreneurship and economic mobility both domestically and internationally to identify and draw parallels between other countries and the United States. The main conclusion from the literature regarding the mobility-entrepreneurship relationship was that individuals who engaged in entrepreneurship tended to experience greater upward economic mobility. The literature does not reach a consensus regarding whether mobility has increased or decreased since the turn of the century; however, researchers agree that the level of mobility differs from region to region within the United States. In the methodology, I walked through how I derived and analyzed entrepreneurial activity and economic mobility on a county level across the United States. And in the research findings section, I revealed a positive correlation between rates of entrepreneurship, measured through various measures of self-employment, and economic mobility at the county level. To conclude, I explain the potential future policy repercussions of my research, comment on the need for sustainable entrepreneurship, and close with a series of opportunities for future research.

The resultant policy implications of this study regard the continued need to encourage entrepreneurship due to the strong relationship between rates of entrepreneurship and levels of economic mobility across the United States. If policymakers at the local level can implement measures that focus on increasing

entrepreneurial activity, they will be able to use the positive effects of entrepreneurship as a mechanism to increase the economic mobility of their regions.

When encouraging entrepreneurship on a local or national level, policymakers need to encourage the growth of sustainable enterprises. Entrepreneurship is most effective when individuals are willing to take the risk to start a new business but aren't taking that risk haphazardly. Temporary upticks in the number of firms created will only increase short-term growth. However, to best encourage long-term, sustainable growth within economies, policymakers need to focus on developing and fostering the growth of sustainable entrepreneurs. To understand the sustainable level of entrepreneurship within their economy, policymakers can refer to the GEM's approach to analyzing the level of entrepreneurial activity. The GEM controls for short-term business creation measures when measuring the entrepreneurial activity of countries by comparing the total entrepreneurial activity (TEA) of a country with the established business (EB) activity. While the TEA tracks individuals with businesses under 42 months old, EB owners run businesses that are older than 42 months. By focusing the data and analysis on the success of the EB activity metric, policymakers can better cater to the needs of their local economies.

Entrepreneurship is fundamental to the history of America's economic development. Moving forward, entrepreneurship can and should be used to empower those individuals with ideas that could change the course of modern technology, healthcare, entertainment, and so many other fields. However, it is first imperative to overcome the current barriers to entrepreneurship. The largest of such being the entrepreneur gap, which impedes women and racial minorities from receiving adequate

funding to become entrepreneurs. Encouraging entrepreneurship in America means breaking down the entrepreneur gap, building entrepreneurial outlets (such as incubators and coworking spaces), and funding all Americans who bring disruptive ideas to the table regardless of gender or race.

FUTURE RESEARCH OPPORTUNITIES

The research I performed to analyze the relationship between entrepreneurship and economic mobility in the United States appears to be the first of its kind. However, I foresee the need for future research to dive deeper into the specifics of this research area to address some of the limitations that I posed. In this section, I propose several ideas for future research including (1) a controlled study of individual entrepreneurs, (2) the effect of the small business funding gap on entrepreneurial activity and economic mobility, and (3) the trickle-down effects of business creation within communities.

Analyzing the Economic Mobility of Individual Entrepreneurs

An individualized study on the effects of entrepreneurship on economic mobility is the natural next step in my research as it provides an opportunity to study individual entrepreneurs over time. My research studied the relationship between self-employment and economic mobility on a macro-level across the United States. This future research opportunity would track individuals and their entrepreneurial attitudes over time. By creating a controlled study that analyzed individual entrepreneurs, the research would generate a greater understanding of the factors that most strongly influence entrepreneurship. First, such a study would gather additional insight into whether communities encourage the formation of entrepreneurs or entrepreneurs increase the economic mobility of their communities. Second, the study would be able to understand the mobility of both failed and successful entrepreneurs as well as necessity and opportunity entrepreneurs. And third, the research would be able to understand the effects

of various parental factors on entrepreneurship, including the role model effect and the effect of parental income level on entrepreneurship development. The results of this research could add significant value to the research I performed in this study.

The Effects of the Small Business Funding Gap

Another potential avenue for future research that would build on my research is a study that identified the effects of the small business funding gap on entrepreneurial activity and economic mobility in America. Such a study would dive deeper into the entrepreneur gap and focus on the reasons small businesses receive less funding. The results of such a study could encourage the funding of small businesses on a local level, further increasing entrepreneurial activity and economic mobility in America. Additionally, this research would be able to understand how the economic mobility of entrepreneurs changes depending on the success, or lack thereof, of their business over time.

A Case Study on the Local Effects of Entrepreneurship

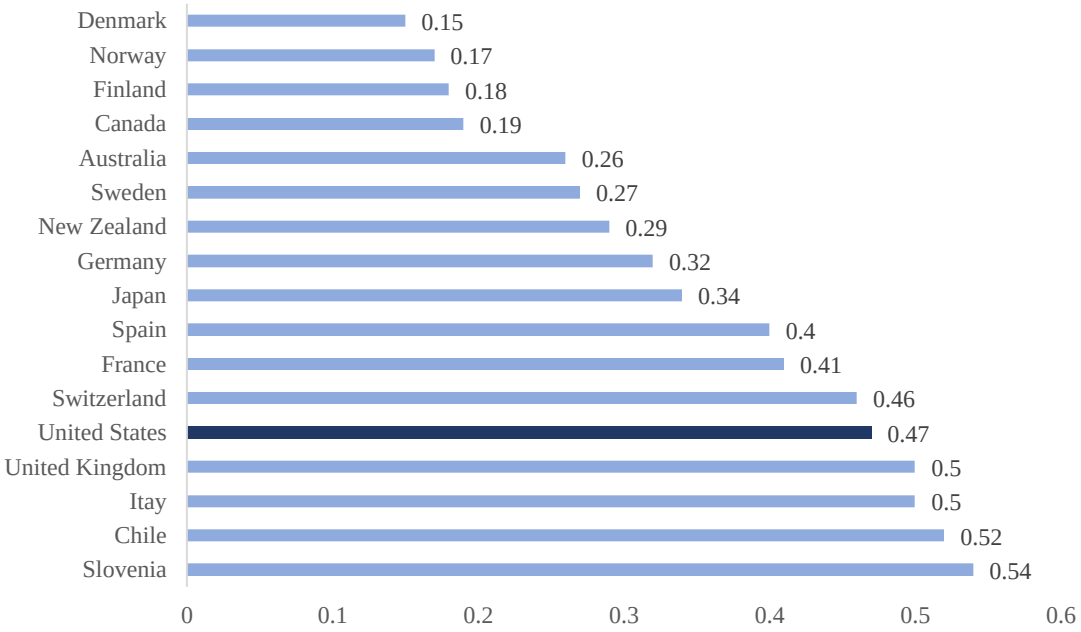
The last area for additional research surrounds a case study on individual communities to better understand how new business creation affects the community's economic mobility. While my research provided a high-level relationship between entrepreneurship and economic mobility, this study would examine the effects of individual business creation on the mobility of the community. For instance, if one, or many, new business forms, how does this business formation affect the economic mobility of the community members? Thus, should entrepreneurship be encouraged at the local level to not only increase the economic mobility of the entrepreneur but also

increase the mobility of the community? This study would provide valuable insight to policymakers as they generate new means to increase entrepreneurial activity within their local communities.

APPENDIX

Appendix A

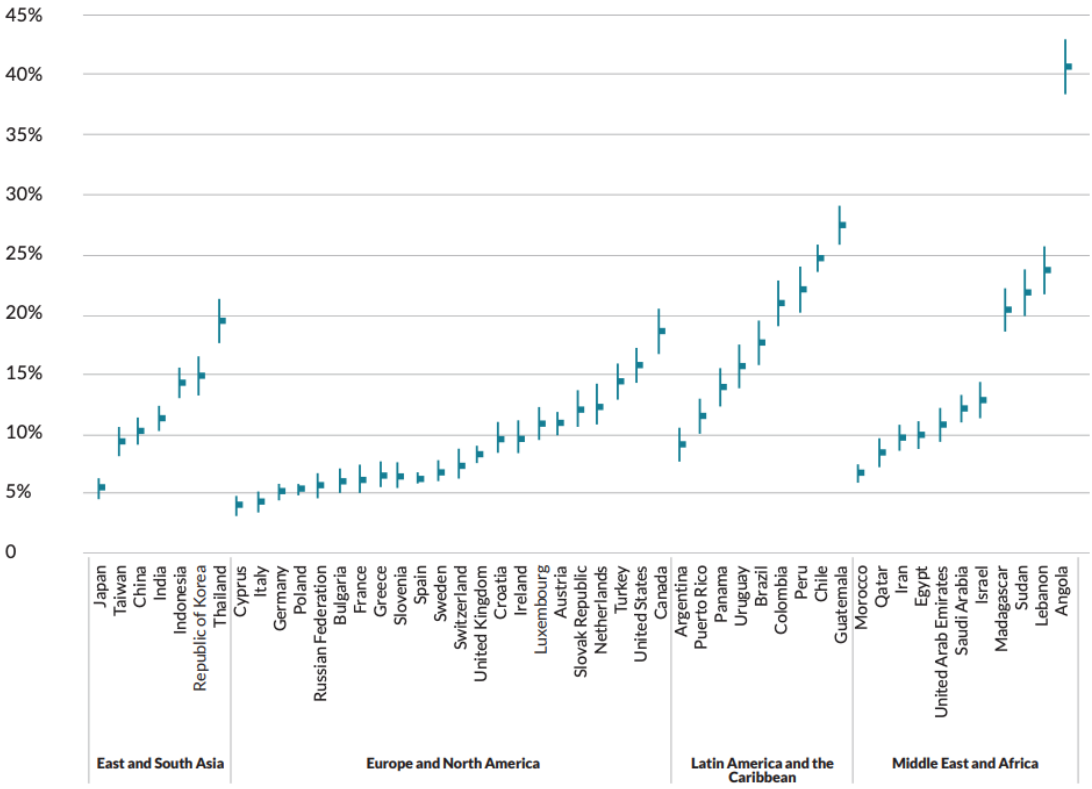
Intergenerational Correlations of Various OECD Countries



Source: Adapted from Corak (2011, Figure 1)

Appendix B

Entrepreneurial Activity Rates Between 48 Economies



Source: *Mission*. (n.d.). Global Entrepreneurship Monitor. Retrieved from https://www.gemconsortium.org/about/gem/5

Appendix C.1

The Most Developed Countries in 2018

Country	2018 GDP (millions USD)
United States	$20,544,343
China	$13,608,152
Japan	$4,971,323
Germany	$3,947,620
United Kingdom	$2,855,297
France	$2,777,535
India	$2,718,732
Italy	$2,083,864
Brazil	$1,868,626
Canada	$1,713,342

Source: *GDP of All Countries and Economies*. (n.d.). Retrieved from https://data.worldbank.org/indicator/NY.GDP.MKTP.CD?most_recent_value_desc=true

Appendix C.2

Tracking Entrepreneurship Between Countries in 2018

Country	Perceived Opportunities	Perceived Capabilities	Fear Of Failure Rate	Entrepreneurial Intentions	Total Early-Stage Entrepreneurial Activity (TEA)	Established Business Ownership	Entrepreneurial Employee Activity	Motivational Index	Female/Male TEA	Female/Male Opportunity-Driven TEA	High Job Creation Expectation	Innovation	Business Services Sector	High Status To Successful Entrepreneurs	Entrepreneurship as a Good Career Choice
Brazil	31.43	54.27	32.61	26.05	17.88	20.25	0.66	1.34	0.93	0.82	6.08	3.71	11.03	--	--
Canada	62.98	55.86	42.32	14.45	18.71	7.5	8.59	3.26	0.83	1.1	20.68	41.3	14.74	74.09	64.13
China	35.07	24.15	41.7	15.28	10.39	3.16	1	0.92	0.82	1.05	20.38	33.06	13.05	68.72	60.82
France	34.95	37.46	37.08	18.6	6.13	2.52	4.33	2.85	0.75	0.86	29.08	28.07	22.63	71.52	58.21
Germany	42.11	38.31	35.06	5.85	4.97	7.54	5.21	3.17	0.5	1	28.94	30.53	21.64	74.79	49.6
India	49.83	52.22	50.06	20.64	11.42	6.96	0.81	0.55	0.62	0.89	8.39	46.88	1.94	65.03	63.72
Italy	34.57	29.77	51.67	8.96	4.18	6.37	3.16	2.73	0.51	0.96	13.35	24.27	26.56	74.63	63.93
Japan	8.09	10.05	46.41	4.98	5.34	6.2	2.17	1.94	0.6	0.86	21.61	27.74	29.7	51.46	22.81
United Kingdom	44.02	46.63	37.66	7.18	8.24	6.38	7.25	3.74	0.49	0.94	20.54	21.63	29.18	76.42	56.09
United States	69.83	55.62	35.21	12.15	15.59	7.87	7.96	6.94	0.77	0.92	31.78	33.99	22.54	78.69	62.66

Perceived Opportunities	Percentage of 18-64 population who see good opportunities to start a firm in the area where they live
Perceived Capabilities	Percentage of 18-64 population who believe they have the required skills and knowledge to start a business
Fear of Failure Rate	Percentage of 18-64 population perceiving good opportunities to start a business who indicate that fear of failure would prevent them from setting up a business
Entrepreneurial Intentions	Percentage of 18-64 population (individuals involved in any stage of entrepreneurial activity excluded) who are latent entrepreneurs and who intend to start a business within three years
Total Early-Stage Entrepreneurial Activity (TEA)	Percentage of 18-64 population who are either a nascent entrepreneur or owner-manager of a new business
Established Business Ownership	Percentage of 18-64 population who are currently an owner-manager of an established business, i.e., owning and managing a running business that has paid salaries, wages, or any other payments to the owners for more than 42 months
Entrepreneurial Employee Activity	Rate of involvement of employees in entrepreneurial activities, such as developing or launching new goods or services, or setting up a new business unit, a new establishment or subsidiary
Motivational Index	Percentage of those involved in TEA that are improvement-driven opportunity motivated, divided by the percentage of TEA that is necessity-motivated

Female/Male TEA	Percentage of female 18-64 population who are either a nascent entrepreneur or owner-manager of a new business, divided by the equivalent percentage for their male counterparts
Female/Male Opportunity-Driven TEA	Percentage of those females involved in TEA who (i) claim to be driven by opportunity as opposed to finding no other option for work; and (ii) who indicate the main driver for being involved in this opportunity is being independent or increasing their income, rather than just maintaining their income, divided by the equivalent percentage for their male counterparts
High Job Creation Expectation	Percentage of those involved in TEA who expect to create 6 or more jobs in 5 years
Innovation	Percentage of those involved in TEA who indicate that their product or service is new to at least some customers AND that few/no businesses offer the same product
Business Services Sector	Percentage of those involved in TEA in the Business Services sector Information and Communication, Financial Intermediation and Real Estate, Professional Services or Administrative Services, as defined by the ISIC 4.0 Business Type Codebook
High Status to Successful Entrepreneurs	Percentage of 18-64 population who agree with the statement that in their country, successful entrepreneurs receive high status
Entrepreneurship as a Good Career Choice	Percentage of 18-64 population who agree with the statement that in their country, most people consider starting a business as a desirable career choice

Source: Global Entrepreneurship Monitor. (2019). *Entrepreneurial Behavior and Attitudes Between Economies*. https://www.gemconsortium.org/data

Appendix D

Average Risk Propensity by Country

Country	Risk Propensity
United States	0.95
Turkey	-0.17
United Kingdom	-0.45
Australia	-0.55
Poland	-0.61
Spain	-0.62
Italy	-0.63
Czech Republic	-0.75
Belgium	-0.76
Germany	-0.77
Luxembourg	-0.78
Austria	-0.81
France	-0.82
Romania	-0.97
Netherlands	-0.98

Note: Risk propensity is based on a scale from -1 to 1. -1 represents the most risk adverse country while 1 represents the most risk seeking country.

Source: Recreated from Figure 6 in "Cross-Country Differences in Risk Attitudes Towards Financial Investment," by Maria Ferreira, 2018, *VoxEU.org.* https://voxeu.org/article/cross-country-differences-risk-attitudes-towards-financial-investment

Appendix E

Venture Capital Investments by Country in 2018

Country	2018 Venture Capital Investments ($USD millions)
United States	$113,142.9
China	$70,500.0
Canada	$2,923.6
United Kingdom	$2,185.1
Korea	$1,975.8
France	$1,766.9
Germany	$1,731.1
Japan	$1,678.8
Israel	$1,165.0
South Africa	$695.1

Source: Organization for Economic Cooperation and Development. (2019). *Venture Capital Investments.* https://stats.oecd.org/Index.aspx?DataSetCode=VC_INVEST

Appendix F

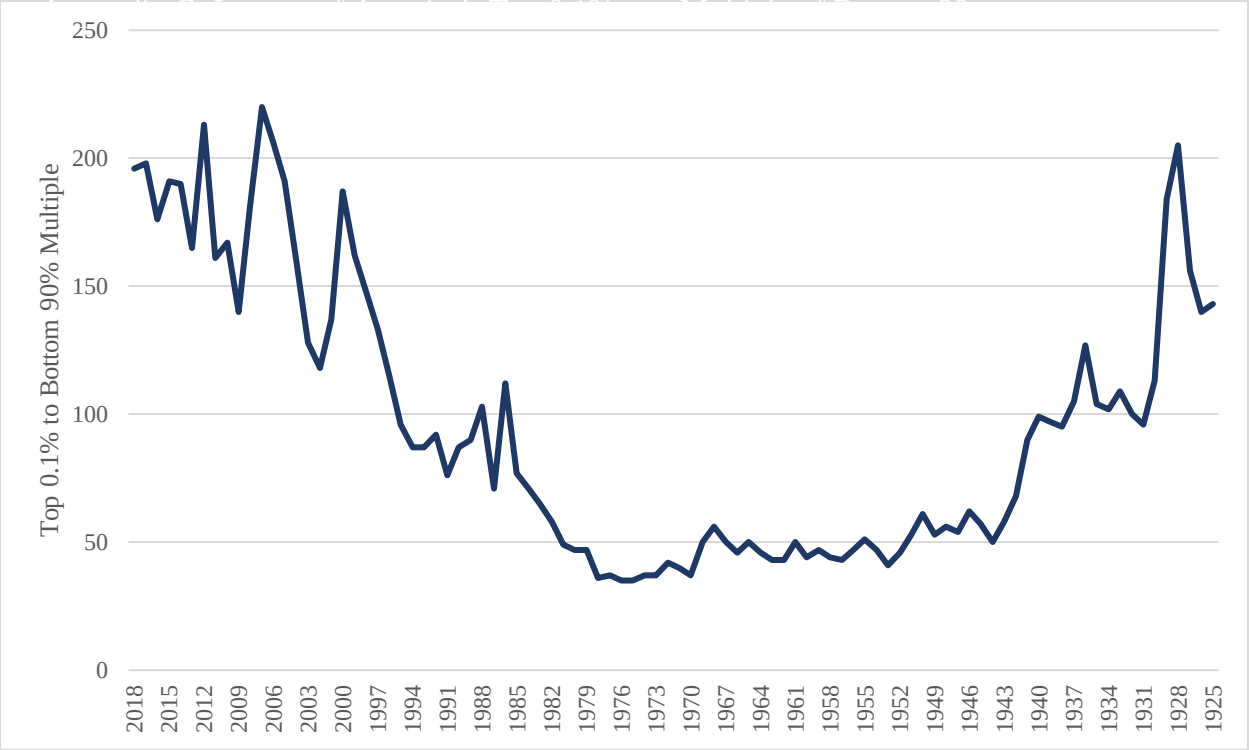
Ease of Doing Business Metrics in Developed Countries

Country	Starting Business Score	Ease of Dealing With Construction Permits Score	Ease of Getting Electricity Score	Ease of Registering Property Score	Ease of Getting Credit Score	Ease of Paying Taxes Score	Ease of Trading Across Borders Score	Ease of Enforcing Contracts Score	Ease of Resolving Insolvency Score	Overall Ease of Doing Business Score
United States	91.6	80.0	82.2	76.9	95.0	86.8	92.0	73.4	90.5	84.0
United Kingdom	94.6	80.3	96.9	75.7	75.0	86.2	93.8	68.7	80.3	83.5
Germany	83.7	78.2	98.8	66.6	70.0	82.2	91.8	74.1	89.8	79.7
Canada	98.2	73.0	63.8	77.8	85.0	88.1	88.4	57.1	81.0	79.6
Japan	86.1	83.1	93.2	75.6	55.0	81.6	85.9	65.3	90.2	78.0
China	94.1	77.3	95.4	81.0	60.0	70.1	86.5	80.9	62.1	77.9
France	93.1	74.3	92.0	63.3	50.0	79.2	100.0	73.5	74.6	76.8
Italy	86.8	68.3	86.1	81.7	45.0	64.0	100.0	53.1	77.5	72.9
India	81.6	78.7	89.4	47.6	80.0	67.6	82.5	41.2	62.0	71.0
Brazil	81.3	51.9	72.8	54.1	50.0	34.4	69.9	64.1	50.4	59.1

Source: *Doing Business 2020* (Washington, DC: World Bank; pp. 1–149). (2020). World Bank Group. 10.1596/978-1-4648-1440-2

Appendix G

Income of America's Top 0.1% as a Multiple of Bottom 90%



Source: Saez, E. (n.d.). Income Inequality. Inequality.Org. https://inequality.org/facts/income-inequality/

Appendix H

County-Level Covariates

1. School Expenditure per Student
2. Student-Teacher Ratio
3. Test Score Percentile (Income Adjusted)
4. High School Dropout Rate (Income Adjusted)
5. Percent College Grads tuition College Tuition
6. College Tuition
7. Percent College Grads
8. Absolute Mobility (Expected Rank at p25)
9. Fraction of Children with Single Mother
10. Total Crime Rate
11. Local Government Expenditures
12. Local Tax Rate
13. Tax Progressivity
14. Rank-Rank Slope
15. Absolute Upward Mobility
16. Top 1% Income Share
17. Interquartile Income Range
18. Gini Coefficient
19. Teenage Birth Rate
20. County Population in 2000
21. Commuting Zone Population in 2000
22. Urban Area
23. BRFSS: Fraction Current Smokers in Q1
24. BRFSS: Fraction Current Smokers in Q2
25. BRFSS: Fraction Current Smokers in Q3
26. BRFSS: Fraction Current Smokers in Q4
27. BRFSS: Fraction Obese in Q1
28. BRFSS: Fraction Obese in Q2
29. BRFSS: Fraction Obese in Q3
30. BRFSS: Fraction Obese in Q4
31. BRFSS: Fraction Exercised in Past 30 Days in Q1
32. BRFSS: Fraction Exercised in Past 30 Days in Q2
33. BRFSS: Fraction Exercised in Past 30 Days in Q3
34. BRFSS: Fraction Exercised in Past 30 Days in Q4
35. Percent Uninsured
36. Medicare $ Per Enrollee
37. 30-day Hospital Mortality Rate Index
38. 30-day Mortality for Heart Attacks
39. 30-day Mortality for Heart Failure
40. 30-day Mortality for Pneumonia
41. Mean of Z-Scores for Dartmouth Atlas Ambulatory Care Measures
42. Percent of Medicare Enrollees with at Least One Primary Care Visit
43. Percent Diabetic with Annual Hemoglobin Test
44. Percent Diabetic with Annual Eye Test
45. Percent Diabetic with Annual Lipids Test
46. Percent Female Aged 67-69 with Mammogram
47. Discharges for Ambulatory Care Sensitive Conditions Among Medicare Enrollees\
48. Income Segregation
49. Segregation of Poverty (< p25)
50. Segregation of Affluence (>p75)
51. Racial Segregation
52. Gini Index Within Bottom 99%
53. Poverty Rate
54. Top 1% Income Share
55. Fraction Middle Class (p25-p75)
56. Social Capital Index
57. Percent Religious
58. Percent Black
59. Percent Hispanic
60. Unemployment Rate in 2000
61. Percent Change in Population 1980-2000
62. Percent Change in Labor Force 1980-2000
63. Labor Force Participation
64. Share Working in Manufacturing
65. Percent Foreign Born
66. Migration Inflow Rate
67. Migration Outflow Rate
68. Population Density
69. Fraction with Commute < 15 Min
70. Mean Household Income
71. Median House Value

Appendix I

Descriptions of Variables with the Largest Influence on Mobility

Category	Variable	Description
Segregation	Racial Segregation	Multi-group Theil Index calculated at the census-tract level over four groups: White alone, Black alone, Hispanic, and Other ("Theil Index," 2016). 0 represents no racial segregation and higher numbers represent a higher level of segregation.
	Income Segregation	Rank-Order index estimated at the census-tract level using equation (13) in Reardon (2011); the δ vector is given in Appendix A4 of Reardon's paper. $H(p_k)$ is computed for each of the income brackets given in the 2000 census.
Income Inequality	Gini Coefficient	The Gini coefficient is a statistical measurement of inequality that is calculated by analyzing the wealth distribution of a certain region.
Education Quality	School Expenditure per Student	Average expenditures per student in public schools
	Student Teacher Ratio	Average student-teacher ratio in public schools
Institutions of Social Capital	Social Capital Index	Institutions of social capital will be calculated through the use of the social capital index, developed by Rupasingha and Goetz (2008), which analyzes voter turnout rates, the fraction of people who return their census forms, and various other measures of community participation (Chetty et al., 2014).
	Fraction Religious	Share of religious adherents
Family Structure	Fraction of Children with Single Mothers	Number of single female households with children divided by total number of households with children

Source: Opportunity Insights. (n.d.) *Geography of Mobility: County Intergenerational Mobility Statistics and Selected Covariates*. https://opportunityinsights.org/data/

REFERENCES

Aaronson, D., & Mazumder, B. (2005). Intergenerational economic mobility in the U.S., 1940 to 2000. *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.869435

Andrews, D., & Leigh, A. (2009). More inequality, less social mobility. *Applied Economics Letters*, *16*(15), 1489–1492. https://doi.org/10.1080/13504850701720197

Ardagna, S., & Lusardi, A. (2008). *Explaining international differences in entrepreneurship: The role of individual characteristics and regulatory constraints* (Working Paper No. 14012). National Bureau of Economic Research. https://doi.org/10.3386/w14012

Athreya, K., & Romero, J. (2015). Land of opportunity: Economic mobility in the United States. *Economic Quarterly (10697225)*, *101*(2), 169–191. http://dx.doi.org/10.21144/eq1010205

Becker, G. S., & Tomes, N. (1986). Human capital and the rise and fall of families. *Journal of Labor Economics*, *4*(3, Part 2), S1–S39. https://doi.org/10.1086/298118

Borjas, G. J. (1993). The intergenerational mobility of immigrants. *Journal of Labor Economics*, *11*(1), 113. https://doi.org/10.1086/298319

Bukstein, D., & Gandelman, N. (2014). Intra-generational social mobility and entrepreneurship in Uruguay. *Latin American Journal of Economics; Santiago*, *51*(2), 227–245. http://dx.doi.org/10.7764/LAJE.51.2.227

Castellani, F., & Lora, E. (2013). Entrepreneurship in Latin America: A step up the social ladder? The World Bank. https://doi.org/10.1596/978-1-4648-0008-5

Castellani, F., & Lora, E. (2014). Is entrepreneurship a channel of social mobility in Latin America? *Latin American Journal of Economics*, *51*(2), 179–194. https://doi.org/10.7764/LAJE.51.2.179

Chetty, R., Friedman, J. N., Saez, E., Turner, N., & Yagan, D. (2017). *Mobility report cards: The role of colleges in intergenerational mobility* (Working Paper No. 23618). National Bureau of Economic Research. https://doi.org/10.3386/w23618

Chetty, R., & Hendren, N. (2018). The impacts of neighborhoods on intergenerational mobility I: Childhood exposure effects. *The Quarterly Journal of Economics*, *133*(3), 1107–1162. https://doi.org/10.1093/qje/qjy007

Chetty, R., Hendren, N., Kline, P., & Saez, E. (2014). Where is the land of opportunity? The geography of intergenerational mobility in the United States. *The Quarterly Journal of Economics*, *129*(4), 1553–1623. https://doi.org/10.1093/qje/qju022

Corak, M., & Piraino, P. (2011). The intergenerational transmission of employers. *Journal of Labor Economics*, *29*(1), 37–68. https://doi.org/10.1086/656371

Data Library. (n.d.). [Opportunity Insights]. Retrieved from https://opportunityinsights.org/data/

Doing Business 2020 (Washington, DC: World Bank; pp. 1–149). (2020). World Bank Group. 10.1596/978-1-4648-1440-2

Entrepreneurship. (n.d.). Ewing Marion Kauffman Foundation. Retrieved from https://www.kauffman.org/entrepreneurship/

Fairlie, R., Robb, A., & Robinson, D. T. (2016). Black and white: Access to capital among minority-owned startups. *Stanford Institute for Economic Policy Research*. https://siepr.stanford.edu/sites/default/files/publications/17-003.pdf

Ferreira, M. (2018, September 21). Cross-country differences in risk attitudes towards financial investment. *VoxEU.Org*. https://voxeu.org/article/cross-country-differences-risk-attitudes-towards-financial-investment

Gandelman, N., & Robano, V. (2014). Intergenerational mobility and entrepreneurship in Uruguay. *Latin American Journal of Economics; Santiago*, *51*(2), 195–226. http://dx.doi.org/10.7764/LAJE.51.2.195

GDP of All Countries and Economies. (n.d.). Retrieved from https://data.worldbank.org/indicator/NY.GDP.MKTP.CD?most_recent_value_desc=true

Gentry, W. M., & Hubbard, R. G. (2004). Entrepreneurship and household saving. *Advances in Economic Analysis & Policy*, *4*(1). https://doi.org/10.2202/1538-0637.1053

Global Entrepreneurship Index. (2018). Global Entrepreneurship Development Institute. https://thegedi.org/global-entrepreneurship-and-development-index/

Hernani-Limarino, W. L., Eid, A., & Villarroel, P. (2011). Entrepreneurship and economic mobility: A case study of Bolivia. *Fundacion ARU*, 62. http://www.aru.org.bo/REPEC/pdf/Entrepreneurship_and_Economic_Mobility.pdf

Hinchliffe, E. (2019, January 28). *In 2018, all female founders put together got $10 billion less than Juul*. Fortune. https://fortune.com/2019/01/28/funding-female-founders-2018/

Hoff, J. (2011, November 28). *Bankruptcy support group in Germany helps down-and-outs*. DW.COM. https://www.dw.com/en/bankruptcy-support-group-in-germany-helps-down-and-outs/a-15491202

Hoffmann, A. O. I., Post, T., & Pennings, J. M. E. (2015). How investor perceptions drive actual trading and risk-taking behavior. *Journal of Behavioral Finance*, *16*(1), 94–103. https://doi.org/10.1080/15427560.2015.1000332

Hurst, E., & Lusardi, A. (2004). Liquidity constraints, household wealth, and entrepreneurship. *Journal of Political Economy*, *112*(2), 319–347. https://doi.org/10.1086/381478

Kantis, H., Federico, J., & Trajtenberg, L. (2013). Entrepreneurship in Latin America: A step up the social ladder? (E. Lora & F. Castellani, Eds.). The World Bank. https://doi.org/10.1596/978-1-4648-0008-5

Kanze, D., Huang, L., Conley, M. A., & Higgins, E. T. (2018). We ask men to win and women not to lose: Closing the gender gap in startup funding. *Academy of Management Journal*, *61*(2), 586–614. https://doi.org/10.5465/amj.2016.1215

Klapper, L., Laeven, L., & Rajan, R. (2006). Entry regulation as a barrier to entrepreneurship. *Journal of Financial Economics*, *82*(3), 591–629. https://doi.org/10.1016/j.jfineco.2005.09.006

Köllinger, P., & Minniti, M. (2006). Not for lack of trying: American entrepreneurship in black and white. *Small Business Economics*, *27*(1), 59–79. https://doi.org/10.1007/s11187-006-0019-6

Laurano, M. (2018). *A New Era of Campus Recruiting*. Aptitude Research Partners. https://yello.co/resource/white-paper/new-era-for-campus-recruiting/

Lee, C.-I., & Solon, G. (2009). Trends in intergenerational income mobility. *Review of Economics & Statistics*, *91*(4), 766–772. https://doi.org/10.1162/rest.91.4.766

Mission. (n.d.). Global Entrepreneurship Monitor. Retrieved from https://www.gemconsortium.org/about/gem/5

Mwasalwiba, E. S. (2010). Entrepreneurship education: A review of its objectives, teaching methods, and impact indicators. *Education + Training*, *52*(1), 20–47. https://doi.org/10.1108/00400911011017663

Ordeñana, X., & Arteaga, E. (2013). The effect of social capital on middle-class entrepreneurship in Ecuador (E. Lora & F. Castellani, Eds.). The World Bank. https://doi.org/10.1596/978-1-4648-0008-5

Palomino, J. C., Marrero, G. A., & Rodríguez, J. G. (2018). One size doesn't fit all: A quantile analysis of intergenerational income mobility in the U.S. (1980–2010). *Journal of Economic Inequality*, *16*(3), 347–367. https://doi.org/10.1007/s10888-017-9372-8

Putnam, R. (1995). Social capital: Measurement and consequences. In J. F. Helliwell (Ed.), *The Contribution of Human and Social Capital to Sustained Economic Growth and Well-Being* (pp. 117–135). http://www.sietmanagement.fr/wp-content/uploads/2016/04/Putnam_SocialCapital.pdf

Rauch, A., & Hulsink, W. (2015). Putting entrepreneurship education where the intention to act lies: An investigation into the impact of entrepreneurship education on entrepreneurial behavior. *Academy of Management Learning & Education*, *14*(2), 187–204. https://doi.org/10.5465/amle.2012.0293

Reardon, S. F. (2011). Measures of income segregation. *Stanford Center on Poverty and Inequality* (CEPA Working Papers). https://inequality.stanford.edu/sites/default/files/reardon_measures-income-seg.pdf

Rupasingha, A., & Goetz, S. J. (2008). US County-Level Social Capital Data, 1990–2005. *Northeast Regional Center for Rural Development, Penn State University*. https://aese.psu.edu/nercrd/community/social-capital-resources

Saez, E. (n.d.). *Income Inequality*. Inequality.Org. Retrieved from https://inequality.org/facts/income-inequality/

Singh, R. P., Knox, E. L., & Crump, M. E. S. (2008). Opportunity recognition differences between black and white nascent entrepreneurs: A test of bhave's model. *Journal of Developmental Entrepreneurship*, *13*(01), 59–75. https://doi.org/10.1142/S1084946708000855

Solon, G. (1992). Intergenerational income mobility in the United States. *The American Economic Review*, *82*(3), 393–408. https://www.jstor.org/stable/2117312

Teare, G., & Desmond, N. (2017, October 4). *Announcing the 2017 update to the Crunchbase Women in Venture report | TechCrunch*. https://techcrunch.com/2017/10/04/announcing-the-2017-update-to-the-crunchbase-women-in-venture-report/

The 2018 State of Women-Owned Businesses Report (p. 15). (2018). American Express. https://ventureneer.com/wp-content/uploads/2017/11/2018-state-of-women-owned-businesses-report_FINAL.pdf

The United States of Entrepreneurs. (2009, May 14). *The Economist*. https://www.economist.com/special-report/2009/03/14/the-united-states-of-entrepreneurs

Theil Index. (2016, May 24). United States Census Bureau. https://www.census.gov/topics/income-poverty/income-inequality/about/metrics/theil-index.html

Trikha, R. (2015, September 4). *The interdependency of Stanford and Silicon Valley* [TechCrunch]. http://social.techcrunch.com/2015/09/04/what-will-stanford-be-without-silicon-valley/

Vélez-Grajales, V., & Vélez-Grajales, R. (2014). Is Entrepreneurship inherited? A study of intergenerational social mobility in Mexico. *Latin American Journal of Economics*, *51*(2), 247–278. https://doi.org/10.7764/LAJE.51.2.247