



IMMIGRANT ENTREPRENEURSHIP:
AN AMERICAN SUCCESS STORY

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STANFORD GRADUATE
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The Statue of Liberty is shown in a low-angle shot, appearing to rise from the bottom left corner of the page. The statue is green and holds a tablet in its left hand and a torch in its right. The background is a clear, light blue sky.

EXECUTIVE SUMMARY

A growing body of rigorous academic literature empirically demonstrates that high-skilled immigrants provide a range of long-lasting and material benefits to the U.S. economy through entrepreneurship and innovation. Recent research has quantified the impact of foreign-born founders on key economic indicators such as firm creation, job creation and overall business innovation. Likewise, a growing body of literature documents how skilled immigrants have more broadly facilitated technological innovation.

Despite the empirical evidence that high-skilled immigrants contribute significant value to the U.S. economy, major hurdles exist for them to obtain visas that allow for starting new ventures.

In the current era of global talent competition, we suggest that there are specific policies that the United States can implement to lower barriers for immigrant entrepreneurs, benefit from high-skilled immigrants and foster associated entrepreneurial economic growth.

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The National Venture Capital Association (NVCA) empowers the next generation of American companies that will fuel the economy of tomorrow. As the voice of the U.S. venture capital and startup community, NVCA advocates for public policy that supports the American entrepreneurial ecosystem.

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INTRODUCTION

Anecdotal evidence suggests that immigrant entrepreneurs and the companies they found add value to the United States through job creation and corporate tax revenue. Elon Musk, Sergey Brin, Arianna Huffington, Peter Thiel, and Vinod Khosla are well-known, successful entrepreneurs who also all happen to be immigrants. But is there hard empirical evidence to back up these anecdotes?

A growing body of rigorous academic literature shows that high-skilled immigrants provide a range of long-lasting and material benefits to the U.S. economy through entrepreneurship and innovation. Over the past two decades, researchers have gained access to new datasets which allow for the detailed analysis of how immigrants influence both startup activity and innovation. For example, recent research has quantified the impact of foreign-born founders on key economic indicators such as firm creation, job creation and overall business innovation. Likewise, a growing body of literature documents how skilled immigrants have more broadly facilitated technological innovation. These findings suggest that in this new era of global talent competition, there are specific policies that the United States can implement to benefit more from high-skilled immigrants and foster the associated entrepreneurial economic growth. We also address the impacts that immigrants have on native workers, which is a key consideration in the immigration policy debate. The research is mixed in this regard, with several studies noting positive spillover effects for native workers, while others finding partial “crowding out” effects. Below, we summarize these empirical findings and discuss some policy recommendations.

WHY ENTREPRENEURSHIP MATTERS

Before unpacking the impact of immigrant entrepreneurs, it is important to first delve into the empirical evidence that entrepreneurship matters to the U.S. economy. Research shows that startups and young firms are critical to job creation in the United States. Between 1980 and 2010, the gross number of jobs created by all establishments averaged 16.3 million. About one-sixth or 2.9 million new jobs per year were traced to new firms (under

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one year old). Additionally, five years after the entry of a typical firm cohort, between 70 and 80 percent of the original employment remained, indicating long-lasting job creation from startups (Decker, Haltiwanger, Jarmin, & Miranda, 2014; Haltiwanger, Jarmin, Kulick, & Miranda, 2016). It is important to note that startups experience the “up or out” dynamic, meaning they experience high rates of failure but surviving firms grow at higher rates that help offset the contribution (Haltiwanger et al., 2016). These high-growth firms are of particular importance. High-growth firms are defined as firms that expand their employment by more than 25 percent per year. High-growth firms are disproportionately younger and make significant positive impacts on job creation (Haltiwanger et al., 2016).

Unfortunately, evidence from the past several decades shows entrepreneurship in the United States is in decline. According to a staff report from the Federal Reserve of New York, between 1980 and 2012 there was a dramatic decline in pace for the number of new firms. More alarming, research shows a decline in high-growth firms. Additionally, those high-growth firms in existence have experienced lower job creation (Decker, Haltiwanger, Jarmin, & Miranda, 2016).

As these studies show, entrepreneurship is critical to the American economy by spurring job growth. Therefore, given the importance of entrepreneurship, what is the role of immigrants? The literature shows their role can be quite significant.

IMMIGRANTS ARE ENTREPRENEURIAL

Immigrants are an integral part of the American entrepreneurial ecosystem. In fact, immigrants everywhere appear to be more entrepreneurial than their native-born counterparts. Analysis of immigrant occupational tendencies indicate that in many developed countries, including the United States, immigrants have higher rates of business ownership compared to native-born citizens (Borjas, 1986; Fairlie & Lofstrom, 2015; Fairlie, Zissimopoulos, & Krashinsky, 2010; Lofstrom, 2002), although the exact rate has varied depending on the scope of the study.

Recent research using data from the 2007 and 2012 Survey of Small Business Owners (SBO) found that across all industries, first-generation immigrants create about 25 percent of the new firms in the United States (Kerr & Kerr, 2018). In states with higher immigrant populations such as New York, New Jersey and California, first-generation immigrants are responsible for more than 40 percent of firm creation (Kerr & Kerr, 2018).

Based on estimates from the 2006-2010 American Community Survey (ACS), another study found that immigrants account for 18.2 percent of business owners representing all types of businesses, including incorporated, unincorporated, employer and non-employer firms (Fairlie & Lofstrom, 2015). During this same period, using the same ACS data, immigrants

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accounted for only 16.3 percent of the total U.S. work force, demonstrating higher relative business ownership rates among immigrants compared to U.S.-born workers. Similarly, research using the SBO data found that immigrant-owned firms accounted for 18 percent of all U.S. companies in 2012 (Kerr & Kerr, 2018).

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During 2007 and 2012, estimates show that immigrant-owned firms account for 13.5 percent and 14.4 percent (respectively) of all jobs in the U.S. This equates to employing about 16 million workers, with an additional four million workers employed by second-generation immigrant-owned firms (Kerr & Kerr, 2018). Furthermore, these figures do not take into consideration companies founded by immigrants where ownership may have diffused and changed.

HIGH-TECH, HIGH-GROWTH FIRMS

In recent years, a debate has centered on the economic impact of high-skilled immigrant entrepreneurs, especially in high-growth sectors, such as the tech sector. Since high-growth industries play a pivotal role in broader economic conditions through job creation and tax revenue, it is important to understand the value immigrant founders in these industries have in their sectoral and regional environments.

Research on U.S.-based, high-skilled immigrant entrepreneurs often focuses on the Silicon Valley region. Saxenian (2002) pioneered research that examines the economic contributions of skilled immigrants, especially those of Chinese and Indian origin, to the Bay Area, as well as California overall. The analysis documents how a transformation of the U.S. immigration system, via the Hart-Cellar Act of 1965 and the Immigration and Naturalization Act of 1990, coincided with the growth of emerging high-technology industries in Silicon Valley. These new immigration policies favored highly educated immigrants, including engineers and scientists. As Silicon Valley's need for a skilled workforce increased through the 1970s and 1980s, more foreign-born workers were helping to fulfill this need. By 1990, 25 percent of the total Silicon Valley workforce was foreign-born, with most of the workers concentrated in professional occupations.

Saxenian (2002) found that foreign-born skilled workers in Silicon Valley increasingly followed the career paths of their native counterparts by becoming entrepreneurs in technology industries. By 1998, nearly 24 percent of Silicon Valley technology firms had Chinese or Indian executives. These companies accounted for more than \$16.8 billion in sales and 58,282 jobs. Additionally, Saxenian (2002) found that foreign-born entrepreneurs also are more likely to tap into their global networks, exporting products across the globe. These findings were corroborated by Hart and Acs (2011), which documents how immigrant-founded firms are more likely to have a strategic partnership with a foreign firm. This "diffusion of global knowledge" is also reflected through patents developed by

immigrants. Specifically, immigrant inventors are more likely to cite foreign technologies in their patent applications compared to native inventors (Bernstein, Diamond, McQuade, & Pousada, 2018).

Taking a wider view, later studies measure the impact of skilled immigrants on the high-tech sector throughout the United States. In particular, Hart and Acs (2011) conducted a representative study of 1,300 high-impact firms in high-technology fields. They found that 16 percent of the companies have at least one immigrant on the founding team. Although this number is lower than that documented by Saxenian (2002) for the Silicon Valley region, it represents a significant contribution of immigrant talent to American firms. Additionally, they found the immigrant founders develop a strong connection with the United States, with about 77 percent becoming U.S. citizens.

Other studies have documented even higher rates of immigrant founders in high-tech firms. Most notably, Wadhwa, Saxenian, & Siciliano (2012) measure the rate of immigrant entrepreneurs in engineering and technology firms in the Silicon Valley region as well as nationwide. The authors find that from 1995 to 2005, immigrants were on a founding team for 52.4 percent of Silicon Valley startups and 25.3 percent nationwide. However, in a more recent study, Wadhwa et al. (2012) document that immigrant entrepreneurship has declined. Between 2006 and 2012, only 24.3 of technology and engineering firms nationwide had at least one foreign-born founder, and in Silicon Valley this rate dropped to 43.9 percent (Wadhwa et al., 2012). According to the latter study, immigrant-founded engineering and technology firms employed roughly 560,000 workers and resulted in \$63 billion in sales in 2012 (Wadhwa et al., 2012).

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When looking at the founding of the United States' largest startups—widely known as “unicorns” (startups with an estimated value of \$1 billion or more)—immigrants play a starring role. According to a report from the National Foundation of American Policy, as of October 2018, 50 of the 91 unicorn startups (or 55 percent) had at least one immigrant founder. The immigrant-founded startups employ an average of more than 1,200 workers each, and have collective values of \$248 billion (Anderson, 2018b). Additionally, the study also documents that 75 of the 91 companies (or 82 percent) had at least one immigrant holding a top management position (such as CEO, CTO, or VP of Engineering) integral to the company's growth and innovation.

Previous research published by the National Venture Capital Association found that immigrants have had a growing impact on venture-backed firms that have led to IPOs. In 1980, only 7 percent of publicly traded venture-funded firms had an immigrant founder or co-founder. By January 2006, this percentage increased to 20 percent, and between 2006 and 2012, immigrants started 33 percent of venture-backed public firms. (Anderson,

2013) The combined market capitalization of immigrant-founded venture-backed companies with initial public offerings between 2006 and 2012 exceeds \$167 billion, and is responsible for more than 600,000 jobs worldwide, with the majority in the United States.

INNOVATION WITHIN IMMIGRANT-FOUNDED COMPANIES

Beyond the number of firms and jobs created by immigrant entrepreneurs, there is also evidence that immigrant-led high-tech startups are more innovative. Recent research shows that immigrant-owned firms have higher tendencies to conduct product and process innovation, as well as R&D activity, compared to their native-born counterparts (Brown, Earle, Kim, & Lee, 2018). Using the Annual Survey of Entrepreneurs data, Brown, Earle, Kim, and Lee (2018) compare immigrant-owned firms to native-owned firms across 26 different innovation measures. These measures range from innovation activities, like developing new goods and services, to R&D activities, such as developing prototypes, to owning intellectual property, including patents. They find that immigrant-owned firms have higher rates of activity in 24 of 26 of the different measures, including process and product innovation, R&D activity, and intellectual property. The only exception is in copyrights and trademarks, which falls under the intellectual property measures. These results hold across firm age (older firms compared to recent startups) and across every education level of the founder.

HIGH-SKILLED IMMIGRANTS AND THE GREATER INNOVATION ECONOMY

Beyond entrepreneurship, high-skilled immigrants contribute significantly to the overall innovation of American firms. As research shows, this contribution is both through their direct productivity, and through positive spillover effects that immigrants have over their native counterparts (Bernstein et al., 2018).

Several studies have measured the innovation impact of immigrants using patent data. According to Bernstein, Diamond, McQuade, & Pousada (2018), immigrants produce more patents, patent citations and patent-derived economic value than native citizens. Despite being 16 percent of inventors, they are responsible for 23 percent of patent production during this same time period. A similar study shows that immigrants with at least a college degree patent at double the rate of native college graduates (Hunt & Gauthier-Loiselle, 2010). Additionally, universities benefit from foreign graduate students. Chellaraj, Maskus, & Mattoo (2008) found that a 10 percent increase in the number of foreign graduate students would raise patent applications by 4.5 percent, university patent grants by 6.8 percent and non-university patent grants by 5.0 percent.

A significant indicator of skilled immigrants' value to American innovation is the economic

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value of their patenting. Bernstein et al. (2018) not only measures the volume of patenting by immigrant inventors, but also assesses the quality of those patents. They find that immigrants have generated 25 percent of the aggregated economic value created by patents produced by publicly traded firms. This is a significant contribution since it equates to a 47 percent increase relative to their share of the inventor population working for publicly traded companies.

Part of the success of inventiveness among high-skilled immigrants can be attributed to the fact that college educated immigrants disproportionately hold degrees in science and engineering fields (Hunt & Gauthier-Loiselle, 2010). This is reflected in the number of immigrants employed in U.S.-based science and engineering industries. According to the National Science Board, in 2015, “foreign-born individuals accounted for 29% and 30% of college-educated workers employed in S&E [science and engineering] occupations in the United States, which is higher than their representation in both the overall population (13%) and among all college graduates (17%).” (National Science Board, 2018).

EFFECT ON NATIVE WORKERS

One of the primary debates surrounding the policy discussion of high-skilled immigration in the United States is the effect it has on native workers, in particular whether there is a “crowding out” effect. The research is somewhat mixed on the impact skilled immigrants have on the native-born workforce. Some studies indicate that high-skilled immigrants have positive spillover effects on their native counterparts, with limited impacts on native employment, while other studies indicate that these positive effects may be trivial.

First and foremost, it is important to note that the primary focus of this paper centers around policy related to immigrant entrepreneurs, which by their very nature are forming companies that are intended to hire employees, and notably, native workers. As noted in a recent policy brief from the National Foundation for American Policy, American employment for the leading immigrant-founded companies includes Uber (9,382 employees plus 3 million active drivers), SpaceX (7,000), WeWork (6,000), Mu Sigma (3,500), Palantir Technologies (2,000) and Unity Technologies (2,000), among others (Anderson, 2018b). However, because the path to entrepreneurship varies and since there is no clear way through the American immigration system for a high-skilled immigrant to start or grow a business, we must look at the other ways in which immigrants enter the U.S. workforce and the potential impact that has on native workers.

The literature is mixed when looking at whether high-skilled immigrants create barriers for peer native workers. When evaluating H-1B admissions in the science and engineering industries, Kerr and Lincoln (2010) found limited effects for native science and engineering employment, they were able to rule out displacement effects such as impacts to

employment levels or mean wages. Their research shows small “crowding in” effects for both employment and patenting contributions of native works (Kerr, Kerr, & Lincoln, 2015). Anecdotally, Microsoft founder Bill Gates stated in congressional testimony that Microsoft hires four additional employees to support each worker hired on a visa (Kerr et al., 2015).

Other studies paint a less rosy picture. Looking at outcomes for winning and losing firms in FY 2006 and 2007 H-1B visa lotteries, Doran, Gelber, & Isen (2014) finds that there are not statistically meaningful effects on firms’ patenting. Additionally, they find that although firms with extra H-1Bs increase total firm employment by moderate amounts, visa holders do partially crowd out other workers (Doran et al., 2014).

However, several studies point to positive spillover effects for native workers. Moser, Voena, & Waldinger (2014) find that an inflow of Jewish scientists from Nazi Germany provided a boost to U.S. innovation not only through their own contributions, but also by attracting a new group of U.S. researchers to their fields. In particular, U.S. inventors who collaborated with German Jewish scientists patented at higher levels in the 1940s through the 1960s. However, it is important to note that this study did not necessarily increase the productivity of incumbent scientists.

In more recent research, Bernstein et al. (2018) find that 30.4 percent of total U.S. innovative output (i.e., patents, patent citations and economic value of patents) since 1976 can be attributed to immigrants. Of that 30.4 percent, direct innovative productivity accounts for 8.7 percent and indirect positive spillover effects of immigrants on U.S. native inventors accounts for 21.7 percent. Therefore, two thirds of immigrant contributions to American innovation are due to the way in which immigrants make natives more productive.

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BARRIERS FOR IMMIGRANT ENTREPRENEURS IN THE UNITED STATES – VISA LIMITATIONS

Despite the empirical evidence that high-skill immigrants contribute significant value to the U.S. economy, there are large hurdles for a high-skilled immigrant to obtain a visa that allows for starting a new venture.

The most prominent visa type for U.S. firms to employ foreign-born workers is the H-1B visa. “The H-1B program allows companies in the United States to temporarily employ foreign workers in occupations that require the theoretical and practical application of a body of highly specialized knowledge and a bachelor’s degree or higher in the specific specialty, or its equivalent. H-1B specialty occupations may include fields such as science, engineering and information technology.” (U.S. Citizenship and Immigration Services, 2019a).

There is a cap of 65,000 H-1B visa awarded each year, plus an additional 20,000 for those

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who have earned at least a master's degree in the United States. The visas are released on April 1 of each year. In 2019, the cap was met by April 5, four days after the visa became available (U.S. Citizenship and Immigration Services, 2019, April 11). Additionally, H-1B visas have limitations for entrepreneurs. Under the H-1B visa program, immigrant entrepreneurs must remain employed at the employer sponsoring the visa while launching their own businesses (Morath & Loten, 2014). Budding immigrant entrepreneurs must wait to earn their permanent resident card (or green card) before they can pursue their venture full time, since H-1B visas require an employer to sponsor the individual. A green card will allow an immigrant to live and work permanently in the United States. However, it can be a long and arduous process to attain one.

Additionally, new policies on immigration have impacted the approval of H-1B visas. According to a study by the National Foundation for American Policy, H-1B petition denials for foreign-born workers increased 41 percent between the 3rd and 4th quarters of FY17. Request for Evidence for H-1B petitions doubled during this same time period, increasing the expense and time it takes to acquire the visa (Anderson, 2018a).

Business leaders have publicly shared their frustration over this limited number of visas. In August 2018, 60 CEOs from major companies, including Tim Cook from Apple, Marc Benioff from Salesforce, and Indra Nooyi from PepsiCo, sent an open letter to then-Secretary of the Department of Homeland Security Kirstjen Nielsen, arguing against changes in immigration and the H-1B policy (Business Roundtable, 2018).

During the Obama administration, the International Entrepreneur Rule was created to allow more entrepreneurs to immigrate to the United States to start and run their business. To qualify, entrepreneurs were required to meet certain criteria, including ownership stake up to 10 percent and securing a certain amount of funding from either a qualified investor or government grant/award. However, the Trump administration delayed and attempted to revoke the International Entrepreneur Rule, claiming it was overly broad and lacked sufficient protections for U.S. workers and investors. NVCA filed a lawsuit against the Department of Homeland Security (DHS), asserting that revocation of IER was in violation of established administrative law.

Ultimately, a federal court put IER back in place. DHS subsequently attempted to eliminate IER through different administrative means and was met with considerable opposition from NVCA and startups during its comment period. IER remains on the books, but the administration's actions and the fact that not a single individual has been approved for IER status has led to significant uncertainty.

RECOMMENDATIONS

The preponderance of evidence collected in academic studies indicates large positive economic gains from immigrant entrepreneurs. The presence of substantial constraints in the U.S. system on immigrant entrepreneurs suggests a deadweight economic loss associated with current policies. We suggest three policies that will generate additional economic growth by facilitating more high-growth business activity and innovative startups founded by immigrant entrepreneurs.

1. Startup Visas – Research clearly shows that immigrant entrepreneurs create jobs. Consequently, visa policy should make the U.S. the most attractive location for global entrepreneurs to found their ventures. However, the U.S. currently finds itself in an uncompetitive position, given that several other countries already provide startup visas (including Canada, Germany, Singapore and the U.K., to name a few). A simple and powerful program would be to provide a visa for immigrant entrepreneurs with a sufficient level of external and carefully documented funding for their ventures. An example of such a visa is what is created in the Startup Act, bipartisan legislation from Senators Moran (R-Kan.), Warner (D-Va.), Blunt (R-Mo.), and Klobuchar (D-Minn.). In today's highly competitive and global marketplace for new ventures, it is only a question of where a good idea will get funded and not if it will get funded. Given the growing prevalence of these programs in other countries, combined with considerable pools of capital around the globe, the U.S. has a variety of successful models to choose from. In addition, the administration should put the International Entrepreneur Rule on firm footing so that immigrant entrepreneurs can utilize it and launch high-growth companies in the U.S.

2. Reform the H-1B program. Because the evidence suggests that lack of access to domestic workers with specific skills is an impediment to business growth, the U.S. should reform the H-1B visa program. Labor market conditions in high-growth industries change through time, with both cyclical and secular trends. Consequently, the optimal program for utilizing skilled immigrant workers should be flexible across both industries and time. An optimal program would allow for an expanded number of visas as labor conditions tighten and then taper visa availability as slack develops. In theory, data from employment surveys (e.g., the monthly household and establishment surveys) can be utilized to identify sectors with needs on an ongoing basis, but this may be difficult in practice with emerging and rapidly evolving industries. A better method is to set an appropriate annual fee for employers to obtain H-1B visas (e.g., \$5,000-10,000) and then let employers determine the needed quantity. An appropriate cost would lower the chances that foreign workers would undercut wages of domestic workers, while guaranteeing a supply of skilled workers for growing businesses. A rolling program (versus an

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annual allocation) also allows companies to respond more quickly to fluctuations in demand. Fee revenues from the program could provide tuition support for U.S. students, and workers to study fields with high visa demand, so that the labor market equilibrates over the intermediate term.

The U.S. needs to respond to programs in other countries that provide easy paths to visas and ultimately citizenship for high-value workers with training in STEM fields.

3. STEM Visas – Increasingly, commercial technology development is happening outside the U.S. (especially in Asia). The globalization of technology R&D naturally leads to the globalization of the labor market for high-skill STEM graduates. The U.S. needs to respond to programs in other countries that provide easy paths to visas, and ultimately citizenship, for high-value workers with training in STEM fields. While programs in other countries work in a variety of ways, the U.S. could simply allow STEM graduates from accredited U.S. universities to stay in the U.S. as long as they were employed in a STEM-related job. Workers could become eligible for a green card once a certain level of cumulative W-2 income was amassed (e.g., \$250,000). This type of program, coupled with a modest program fee for employers (e.g., \$2,000 per year), would assist in retaining top global talent in the U.S., while also lowering the odds of these workers undercutting wages of similarly qualified domestic STEM graduates.

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