Immigration Policy Levers for US Innovation and Startups

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Abstract

Immigrants account for about a quarter of US invention and entrepreneurship despite a policy environment that is not well suited for these purposes. This chapter reviews the US immigration policy environment that governs how skilled migrants move to America for employment-based purposes. We discuss points of strain in the current system and potential policy reforms that would likely increase the rate of innovation and the number of startups due to immigrants in the country. Key areas include adjustments to the allocation of permanent residency visas, adjustments to the H-1B visa program, and the creation of an immigrant startup visa.

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1 Introduction

US policy makers are always on the hunt for levers that can boost entrepreneurship and innovation. Especially in a time of declining business dynamism (Decker et al., 2014) and an aging workforce, entrepreneurship and innovation raise economic growth, provide jobs, and rebuild government coffers. As America works to rebuild from the devastating effects of the COVID-19 pandemic, these stimulants become ever more important. This chapter reviews potential reforms to the US immigration system that could enhance the contribution of immigrants to the nation's entrepreneurship and innovation.

Policy makers are well aware of high-profile immigrant examples like Tesla and SpaceX founder Elon Musk and Microsoft CEO Satya Nadella, who grace the cover of magazines and are called to testify before Congress. They may be less aware, however, about the exceptional depth that lies below these prominent examples. Immigrants account for about a quarter of US startups and patents each year, a share that has been increasing for decades. Section 2 reviews some recent economic research about immigrant entrepreneurship and innovation and its surprisingly deep influence on the US economy.

Section 3 then discusses adjustments to US immigration policy that could boost innovation. We mostly focus on feasible reforms that would operate within the current immigration structure by adjusting the allocation of visas granted for employment-based purposes. The most prominent reform would replace the lottery used for the oversubscribed H-1B visa system with an allocation mechanism that prioritizes specified uses. We also provide a short discussion of comprehensive immigration reform, which would could fundamentally increase the relative share of immigration for employment-based purposes compared to family-reunification purposes.

Section 4 then considers policies connected to immigrant entrepreneurs. While the United States has visas that cover individuals capable of making substantial business investments, its immigration structure is less accommodating than those of other countries for the admission of business founders lacking existing financial capital (e.g., an immigrant college student on a F-1 student visa who wants to start a company after graduation). We review the approaches of several countries to startup visas, common traits of recent US legislative proposals, and estimates of the potential economic impact.

Throughout this review, we strictly follow the National Bureau of Economic Research's policy that papers not advocate a particular policy approach. Our goal is to collect and present economic research on how policy makers can influence US entrepreneurship and innovation outcomes through the immigration process. We thus skip policies that indirectly influence immigrant entrepreneurship and innovation. An example is the work of Akcigit et al. (2016) that shows top inventors are very sensitive to taxation rates when deciding where to conduct their research. Many of these policies are covered elsewhere in this volume and in Bloom et al. (2019), and these levers often operate in part by making the United States more attractive to skilled

immigrants. Similarly, we do not quantify what an overall expansion of US immigration rates would do for entrepreneurship and innovation, as most of the impact would simply come from the larger economy (Clemens, 2011).

Our focus is narrower and arguably more useful to policy makers in today's immigration discussions. In America and abroad, recent growth in populism and nationalism has pushed back at many forms of global integration, including skilled- and employment-based migration. Questions about the appropriateness of global linkages will further intensify following the COVID-19 crisis. Yet, the combination of a knowledge-intensive economy and rapidly aging populations in most advanced economies suggest that competition for the world's mobile entrepreneurs and innovators will increase in the decades ahead. Understanding what policy margins could be adjusted is an important foundation for thinking through future national strategies for immigration and the best mechanisms to implement them.

2 Immigrants as Founders and Innovators

While the literature on immigrant entrepreneurship and innovation is not very long, it is nonetheless too long to be fully reviewed here. We instead outline some key research findings that provide important background for the immigration visa discussions in the next two sections.[1]

1. **Immigrants account for about a quarter of US entrepreneurship and innovation.** A significant body of work over the last decade has quantified these contributions.[2] Measuring this is harder than it first appears, which results in a range of techniques and estimates. Nevertheless, research consistently finds immigrants account for about 25% of new firms and patents. As a corollary, the propensity of immigrants towards entrepreneurship and innovation is higher than it is for US natives.[3] Immigrants account for about 14% of the US workforce and 17-18% of US college graduates according to the 2016 American Community Survey. Looking specifically at science and engineering, immigrants account for 29% of the United States' college-educated workforce and 52% of its doctorates.

2. **Most of the heightened impact of immigrants on US entrepreneurship and innovation comes from a greater propensity of immigrants to possess the educational backgrounds for the work.** Hunt (2011, 2015) shows that immigrant propensities towards entrepreneurship and innovation can be mostly explained through their greater educational attainment and STEM field focus (Science, Technology, Engineering, and Mathematics). While immigrants are more represented at the upper tail of scientific achieve-

[1] Kerr (2019a) provides a book-length review. Summary articles include Kerr (2013), Fairlie and Lofstrom (2014), and Kerr et al. (2016, 2017).

[2] For example, Saxenian (1999, 2002), Anderson and Platzer (2006), Wadhwa et al. (2007), Kerr and Lincoln (2010), Brown et al. (2019), Kerr and Kerr (2017, 2020), Bernstein et al. (2019), and Azoulay et al. (2020).

[3] The diverse literature spans Borjas (1986), Clark and Drinkwater (2000, 2006), Lofstrom (2002), Schuetze and Antecol (2007), Fairlie et al. (2010), Hunt (2011, 2015), Fairlie (2012), and Fairlie and Lofstrom (2014).

ment[4]—accounting, for example, for a third of US-based recipients of Nobel Prizes—their most significant impact on the economy comes through the large quantity of immigrant workers trained for pursuing STEM work.

3. **Chinese and Indian immigration have been particularly strong drivers for growth in immigrant entrepreneurship and innovation.** To provide an extended time horizon, Figure 1 uses ethnic name matching algorithms of Kerr (2008) to quantify the significant growth in US patents granted to individuals of Chinese and Indian ethnicity working in America. Chinese and Indian ethnic inventors accounted for less than 3% of US patents in 1975, but more than 22% in 2018. As we discuss later, this concentration is leading to long delays in obtaining US permanent residency for immigrants from China and India due to the US allocation procedures that cap the annual number of green cards that can go to petitioners who were born in any given country.

4. **Immigrant entrepreneurship and innovation are quite clustered spatially and show no evidence of crowding out native activity in local areas.** More than half of entrepreneurs in the San Francisco Bay area are foreign-born, and many other leading technology clusters show high immigrant shares (Kerr and Kerr, 2020). Empirical studies using geographic variation almost always find positive or no impact from high-skilled immigration on native employment and output in innovative activities in the same city.[5] This clustering has substantially shifted the economic geography of innovation in America, and the lack of a crowding-out effect allows the spatial concentration of innovation to persist and grow. We note later the potential role of regional visas to counteract some of this concentration.

5. **Immigrant contributions are similarly concentrated within firms, with mixed evidence on whether native employment grows or declines.** Firms such as Microsoft and Google employ skilled immigrants to a greater degree than Procter & Gamble and Boeing. These differences can be explained in part by their physical locations and industries. Studies on whether the hiring of skilled immigrants boosts the overall employment of firms show mixed results (e.g., Kerr et al., 2015b; Doran et al., 2015; Mayda et al., 2018; Dimmock et al., 2019), an ambiguity connected to the many ways the US visa system can be used as described in the next section. There is evidence that high-skilled

[4]For example, Stephan and Levin (2001), Peri (2007), Wadhwa et al. (2007), Hart and Acs (2011), and Kerr (2019a,b).

[5]For example, Kerr and Lincoln (2010), Hunt and Gauthier-Loiselle (2010), Kerr (2010), Peri et al. (2015), Ghimire (2018), and Buchardi et al. (2019). Lewis and Peri (2015) provide a theoretical framework and review of literature on the effects of immigration on local areas. Analyses of industries or technology areas have shown more mixed outcomes (e.g., Borjas and Doran, 2012; Moser et al., 2014; Bound et al., 2017; Doran and Yoon, 2019; Moser and San, 2020). The clustering of entrepreneurs from a country in a narrow occupation is widespread and studied by Chung and Kalnins (2006), Fairlie et al. (2010), Patel and Vella (2013), and Kerr and Mandorff (2015). See also self-employment studies of Lofstrom (2002), Fairlie and Meyer (2003), and Akee et al. (2013).

immigration is a lever used by employers to keep tech workforces younger (e.g., Matloff, 2003; Kerr et al., 2015a,b).[6]

6. **Skilled immigrants receive wages at a rate comparable to similarly skilled natives.** Studies on whether immigrants receive higher or lower wages than natives yield mixed results. Legal factors, like the prevailing wage requirement for an H-1B worker, limit the extent to which pay differences could exist. Moreover, even to the degree that skilled immigrants are slightly underpaid relative to natives of similar age and background, the economics of the firm suggest a rather limited scope for this differential to influence hiring decisions. The larger wage gaps instead appear between younger skilled immigrants and older native workers, connecting to the observation above that high-skilled immigration can be a mechanism for firms to keep workforces younger.

7. **A substantial portion of skilled immigration to America begins with migration for schooling.** Immigrants who contribute to US entrepreneurship and innovation migrate at many life stages: Sergey Brin of Google migrated as a child, while Elon Musk first moved to the United States for college. The reforms below focus on entrepreneurial and employment opportunities after schooling, but Kato and Sparber (2013) demonstrate a strong link between the opportunity to remain in the United States for work and the attractiveness of US colleges to migrants. Likewise, policies that govern school-to-work transitions play an important role.

3 Visas for Innovators

The research findings in Section 2 provide a foundation for exploring how the US immigration process can be adjusted to increase levels of entrepreneurship and innovation. This section commences by discussing the role of immigrants in invention and innovation. The bulk of these contributions come through the actions of paid employees in US businesses, and thus we focus on the frameworks that connect to the quantity and composition of these workers. Section 4 considers the special case of immigrant entrepreneurs who are not well-aligned for employment-based visas.

3.1 Cliffnotes on the US Immigration System

The US immigration system is vast and exceptionally complex, and we highlight here just a few important background pieces.[7] Most of the policies below fall under the US Citizenship and Immigration Services (USCIS) within the Department of Homeland Security.

[6] The transition period for native workers who are displaced appears longer in STEM-connected work than elsewhere (Kerr and Kerr, 2013). Glennon (2019) considers how access to skilled immigrants influence the overseas operations of US firms.

[7] A primer: https://www.migrationpolicy.org/content/explainer-how-us-legal-immigration-system-works.

Other than citizenship, immigration to America culminates in obtaining permanent residency, a.k.a. the "green card." Approximately one million green cards are granted every year, with family-based immigration being the largest category. There is no annual limit on green cards to reunite immediate family members (e.g., spouses, parents, and children) of American citizens, and up to 480,000 additional visas are provided annually for extended family. Green cards granted for employment-based purposes are subject to an annual cap of 140,000 individuals, including family members accompanying the worker. Smaller numbers of visas are issued for other purposes, such as refugee/humanitarian concerns.

In parallel, temporary visas authorize individuals to visit, study, and work in the United States. These visas are termed "non-immigrant" as the individual does not have permanent rights to stay in the country. Temporary visas are often a predecessor to permanent residency, as more than 80% of employment-based green cards are issued to individuals already living and working in the United States. On the other hand, many skilled migrants work in the United States for a period of time but have no intention to stay permanently. Consequently, the levers by which policy makers might impact entrepreneurship and innovation extend beyond permanent residency admissions to cover temporary visas and, as we will return to below, how these two structures interface with each other. This section continues by describing temporary visas for employment-related purposes (vs. to study or visit).

A distinctive feature of the US temporary visa system is that is "employer driven," meaning that a company like Microsoft or General Motors selects the worker it wants to employ and applies for a visa on behalf of the worker. This individual could be living/working abroad or be a student at a US school on a non-employment visa. This employer-driven approach contrasts conceptually with a points-based system that scores and selects potential immigrants based upon their attributes (e.g., degree, age, language skills, income). Kerr (2019a) reviews the trade-offs between the two approaches and the de facto hybrid nature of many nations. The United States has some elements of a points-like structure in that priority temporary visa categories (and permanent residency admissions) exist for persons of "extraordinary ability," but the bulk of skilled immigrant workers are admitted through temporary visas that rely on employers to select migrants.

The largest of these temporary employment-based categories is the H-1B visa for skilled foreigners working in "specialty occupations" (i.e., those requiring theoretical and practical application of specialized knowledge like engineering or accounting). Virtually all H-1B holders have a college education or higher, and the substantial majority of visas are used for computer- and STEM-related occupations. In 2017, immigrants from India accounted for 72% of H-1B visas and immigrants from China were awarded another 13%. These shares have steadily risen and demonstrate the flexibility of the system to be used in ways that employers deem fit, with computer- and STEM-related occupations being attractive opportunities for firms.

H-1B holders are tied to their sponsoring firm, although visa portability is feasible with

approval from the government (e.g., Depew et al., 2017). Firms can petition for permanent residency on behalf of the worker. This "dual intent" feature—where one can be a temporary migrant but also applying for permanent residency—is very attractive to many immigrants. The H-1B visa is for three years and can be renewed once. If permanent residency is not obtained, the H-1B worker must leave the United States at the end of the second visa period for one year before applying again.

Firms must pay the visa holder the higher of (1) the prevailing wage in the firm for the position or (2) the prevailing wage for the occupation in the area of employment. Congress designed these restrictions to prevent H-1B employers from abusing their relationships with foreign workers and to protect the wages and employment of domestic workers. In 2016, the average salary for H-1B visa holders was $80,000, but there was a broad range, from mid-skilled employees of outsourcing firms earning $60,000 to higher-skilled workers earning greater than $150,000 (Ruiz and Krogstad, 2018; Kerr, 2019b).[8]

Figure 2 shows the annual cap on the number of new H-1B visas that can be issued to for-profit firms. The original 65,000 cap was not binding in the early 1990s, but became so by the middle of the decade. Legislation in 1998 and 2000 sharply increased the cap over the next five years to 195,000 visas. These short-term increases expired during the high-tech downturn, when visa demand fell short of the cap. The cap returned to the 65,000 level in 2004 and became binding again, despite being subsequently raised by 20,000 through an "advanced degree" exemption. The overall cap of 85,000 remains in place as of 2020.

Another widely used but lesser known employer-based visa is the L-1. Available for the temporary migration of foreign employees within a multinational firm, there were about 78,000 L-1 visas (including renewals) issued in 2017. Only employees who have been employed by the firm for at least one of the previous three years are eligible, and the visa has a maximum stay of seven years. Similar to the H-1B, the L-1 is a "dual-intent" visa, whereby it provides an opportunity to apply for a green card. Yeaple (2018) provides additional discussion of the L-1 visa.

3.2 Potential Reforms within the Existing System

Lawmakers have proposed several reforms that could boost entrepreneurship and innovation by, more or less, adjusting the existing system (i.e., not requiring the comprehensive immigration reform described at the end of this section). We discuss these reforms working backwards from the green card decision.

[8]The minimal wage effects on R&D workers from expanding skilled immigration for innovation is different from wages being bid up from R&D stimulus described by Goolsbee (1998).

3.2.1 Removing Country Caps to EB Permanent Residency

The United States grants 140,000 green cards for employment-based (EB) purposes each year, a figure that includes the focal worker and his or her accompanying family members. This is not the only pathway through which an immigrant inventor or entrepreneur can obtain permanent residency as, for example, the individual may marry an American citizen and apply for permanent residency through family-based allocations. Others enter the diversity lottery that offers 50,000 green cards randomly to applicants from countries with low rates of admission to America. Nevertheless, the EB allocation is the most central and broadly accessible channel for employment-connected immigration.

In addition to these caps on the type of green card to be awarded (which we discuss further below in the context of comprehensive immigration reform), the US system has an important country-level cap. A provision within the Immigration Act of 1990, which remained in effect as of 2020, stipulated that "the total number of immigrant visas made available to natives of any single foreign state or dependent area" not exceed 7 percent. This provision was partly designed to encourage diversity in source countries of migrants.

A consequence, however, has been the development of long waiting lists for employment-based migrants from several large nations until they can obtain a green card (e.g., Kahn and MacGarvie, 2018). EB immigrants from China and India face particularly long waiting times given the huge demand: recall that 85 percent of H-1B visas go to immigrants from these two countries, and Figure 1 showed their prominent role in US innovation growth. Wait time projections for some categories of Indian migration can stretch into the decades (priorities and wait times depend upon the skill level of the EB category). Though the H-1B temporary visa can be extended beyond the typical six years (initial plus renewal) while the immigrant is waiting for a green card, the long wait times impair worker mobility across employers and their capacity to launch new ventures.

Over the last decade, attempts have been made in both the House and Senate to amend this policy. Proposals have suggested increasing the country cap from 7 percent to 15 percent or 25 percent and avoiding any residual, unused visas. A prominent recent example is the Fairness for High-Skilled Immigrants Act of 2019, proposed in both the House and the Senate, which sought to "eliminate the per-country numerical limitation for employment-based immigrants." The proposal passed the House on a bipartisan basis and was still in committee in the Senate as of early 2020.[9]

[9] This section is sourced from these sites (accessed Dec 2019):
https://uscode.house.gov/view.xhtml?req=(title:8%20section:1152%20edition:prelim)
https://www.congress.gov/bill/115th-congress/senate-bill/1877/text#toc-H6343391472A44BF0884BAD0CFF83B119
https://www.congress.gov/bill/116th-congress/senate-bill/386/text
https://www.congress.gov/bill/116th-congress/house-bill/1044/text
https://www.congress.gov/bill/116th-congress/house-bill/1044/text
https://www.congress.gov/bill/116th-congress/senate-bill/386/text
http://clerk.house.gov/evs/2019/roll437.xml

This adjustment would likely increase the attractiveness of the United States to foreign entrepreneurs and innovators. For immigrants doing innovative work in large organizations, the prospect of long waiting times can deter migration due to the uncertainty and possibly slower wage growth while on temporary status. Hunt (2017) finds that mobility is reduced by about 20 percent when waiting for green card processing. The weakened mobility of workers may also reduce the match quality between a firm and a worker, leading to lower productivity. Prospective entrepreneurs can also be discouraged if they need the permanent residency transition to start their business, either due to legal factors (visa requirements) or to the necessary confidence that the United States will be their long-term home.

3.2.2 Increase the Number of H-1B Visas

The most frequently proposed and debated reform to temporary migration is to raise the annual cap on the H-1B program for for-profit firms. As of early 2020, the H-1B visa cap was 65,000 with an additional 20,000 visas for individuals with advanced degrees from US schools. Many proposals fall in the range of 115,000 visas to 195,000 visas. Some prominent business leaders like Eric Schmidt, Google's former CEO, go further to advocate for an unlimited number of visas.[10] Policy makers might also consider indexing future caps to economic conditions and related factors so that Congress does not need to spend multiple years debating one-off adjustments to a nominal figure.

It is likely that such a cap increase would spur US innovation to some degree. Empirical and quantitative studies of the prior cap adjustments when binding[11] suggest this conclusion, although a study of marginal visa awards in the non-cap-binding years of 2006 and 2007 does not (Doran et al., 2015).

The most frequent objection raised to a potential innovation boost is that most H-1B visa holders are not conducting innovative work (being employed in computer- and STEM-related positions more broadly). While true, it remains the case that innovation would likely grow if the overall program expanded. By analogy, an expansion of the Department of Defense's budget would likely result in more tanks, even though tanks are only a small portion of DoD's budget. What this objection surfaces, though, is that we do not know how the overall composition of the applicant pool would change under an expanded program. The composition could stay the same, deteriorate on average (e.g., if firms apply for more marginal visa uses), or increase (e.g., if the greater assurance of a visa led to higher quality immigrants and firms prioritizing more to

https://www.congress.gov/bill/116th-congress/senate-bill/386/actions

[10] Schmidt said in 2017, "The single stupidest policy in the entire American political system was the limit on H-1B." https://money.cnn.com/2017/05/04/technology/eric-schmidt-h1b-visa/. Hira (2010), by contrast, is an example of a very skeptical view on the program.

In a 2019 survey of Harvard Business School alumni (Porter et al. 2019), 70% of respondents favored an increase in the H-1B cap of 50% or more. In a parallel poll of the general public, 30% of Democrats and 20% of Republicans expressed interest in such an increase.

[11] For example, Kerr and Lincoln (2010), Peri et al. (2015), Kerr et al. (2015a,b), Bound et al. (2017), and Mayda et al. (2018).

locate in the United States).

While many advocates propose cap expansions without reference to other policies, the interaction of such an expansion with other aspects of the immigration pathway should be considered by policy makers. Most important, without potential adjustments to the 7 percent country cap described regarding how EB green cards are allocated, the backlog of temporary visa holders from China and India waiting for a green card would grow substantially if only the H-1B cap were increased.

3.2.3 Adjust the H-1B Visa Allocation Mechanism

Additional proposals consider how the United States could adjust the allocation of H-1B visas. Prior to fiscal year 2021, the visa application period opened on April 1st of each year. In most years, the government received more applications than the available cap within the first week. The policy of the government in these oversubscribed years was to keep accepting applications for a whole week and then conduct a lottery over the applications received. Should the cap not be reached in the first week, applications were processed on a first come, first served basis until the cap was reached later in the year (and on that final day, USCIS conducted a mini lottery over the applications received on the day when the cap was reached). Figure 3 shows how rapidly the cap fills up in most years. USCIS received 201,011 applications by April 5, 2019, for the 2020 fiscal year.[12] In March 2020, USCIS implemented a new two-step application process for fiscal year 2021 with a first registration from March 1st, 2020 through March 20th, 2020, followed by a lottery selection. Early data suggested the government received approximately 275,000 registrations, again well in excess of the cap. At the time of writing this chapter, it was uncertain if the USCIS would further modify this new process for future years.

The lottery has important implications. A lottery randomizes applications and thus gives equal chances to an applicant performing basic code testing for an outsourcing company as it does to an artificial intelligence researcher with a proposed salary ten-fold higher. Indeed, the lottery system likely even tilts the application pool further towards more mundane uses: it is easier for a company to submit multiple applications for a routine software developer role, knowing that the overall odds per applicant are in the range of 40%, than it is for a company to submit multiple applications for a scarce skillset like artificial intelligence research. (In a comparable way, it is likely that the lottery favors large companies submitting many H-1B applications over smaller companies who have more discrete needs.)

One recent change shifted in subtle ways the skill composition. USCIS has historically conducted the 20,000 visa lottery for candidates with masters education from US schools before the 65,000 regular lottery. As candidates with masters degrees from US schools could enter both lotteries, this lottery order meant that fewer candidates with masters educations entered the regular lottery as they had already been selected. USCIS reversed the lottery order starting

[12] https://redbus2us.com/h1b-visa-cap-reach-dates-history-graphs-uscis-data/

with the H-1B applications received in April 2020 for fiscal year 2021. By reversing the order, more of the dual lottery applicants will be chosen via the 65,000 lottery (and thus now drop out of the 20,000 exempt lottery). Estimates suggest that this change will increase by 4,000-5,000 individuals the number of H-1B awards to holders of masters degrees. There have been some legal challenges to the proposed change, and others have argued against the switch in lottery order by noting, for example, that it would de-prioritize applicants with doctorate degrees from non-US schools.[13] Pathak et al. (2020) provides an extensive analysis of this rule change and its optimality under the existing H-1B structure.

A move away from the lottery system altogether would likely increase the innovative output of the H-1B program. One mechanism frequently debated is to rank applicants by their proposed wage (which is included as part of an H-1B application). This technique would use the worker's wage as an imperfect proxy for the value of the potential immigrant to the US economy. A potential advantage of this approach is that the procedure is easy to understand and convey to the public. To the degree that wages and skills are correlated, such a prioritization would also raise the skill content of the H-1B system significantly. Sparber (2018) calculated this change would generate a $27 billion surplus over six years, with gains even higher should better talent become more incentivized to apply.

There are some potential disadvantages that would need to be addressed. First, wage ranking would naturally favor some higher-priced cities and industries (e.g., New York City finance, San Francisco tech) over others, established companies over smaller ones, and established workers over younger ones and new college graduates. Law makers would need to consider what additional adjustments should complement and support wage ranking, such as regional and/or occupational caps, adjustments of school-to-work transitions, etc.[14] Second, the status implications to the temporary worker of subsequent cuts in salary compared to the initial offer use for wage ranking will need to be specified. Finally, wage ranking might also face legal challenges from groups that favor the current system, especially Indian outsourcing companies who argue the visas are compliant with the World Trade Organization's General Agreement on Trade in Services.[15]

[13] From an applicant's perspective, one site estimated the new lottery order would increase the likelihood of a US masters degree holder for obtaining a visa from 51% to 55%, while reducing others from 38% to 34%. https://www.am22tech.com/h1b-lottery-system-changes/

Significant recent debate has also centered on the H-4 authorization that allows dependent spouses of H-1B workers with approved green card petitions to work. As of April 2020, the USCIS was considering an end to this authorization. Some H-1B holders have expressed concern that they will not be able to afford to live in the United States without a second income. It is not clear that this rule change would impact the innovation and entrepreneurship outcomes that are the focus of this chapter.

Finally, several additional processing actions taken by the Trump administration appear to have targeted reducing the number of H-1B visas awarded to IT service providers. In March 2020, a court invalidated several of these actions, and the future legal path is uncertain (Anderson, 2020a,b).

[14] Regional or occupation caps are also mentioned as potential H-1B reforms independent of wage ranking. Such reforms, depending upon how they were implemented, could result in a lower innovation stimulus if they shifted work out of tech clusters towards other purposes and regions. Related work on clusters includes Audretsch and Feldman (1996), Zucker et al. (1998), Fallick et al. (2006), Feldman and Kogler (2010), Samila and Sorenson (2011), Carlino and Kerr (2015), Moretti (2019), and Kerr and Robert-Nicoud (2019). Ottaviano and Peri (2006), Nathan (2015), and Docquier et al. (2019) are examples of work on local diversity and innovation outcomes.

[15] There could also be management challenges inside of companies. For example, many companies have salary

Two other proposals are worth noting. One, which could complement wage ranking, is to establish a minimum salary level for an H-1B worker (e.g., $100,000), possibly with buffer mechanisms that would save unused visas and add them to subsequent years when demand spikes again. These thresholds would ensure that visas are allocated to purposes other than just cost minimization in IT roles.

Another proposal is to auction visas to companies (e.g., Peri, 2012). Auctions would likely bring many of the same skill increases and innovation gains as wage ranking. Auctions would differ in that more of the economic surplus that immigration generates would be captured by the government, which could then use the funds as it deems fit. A challenge is that auctions would likely raise the share of H-1B visas going to companies that are already large and doing well, as they have the greatest financial capacity to bid for visas.

3.2.4 Adjust School-to-Work Transitions

This chapter focuses on policy reforms and how they might impact entrepreneurship and innovation in the for-profit sector. We do not provide here an in-depth treatment of potential reforms to immigration and the education system (Bound et al., 2020), which is an important early pathway for many who later take temporary work visas or EB green cards. However, we note here several important tensions within the school-to-work transition.

US higher education is relatively unconstrained in that schools do not face caps on the number of student visas they can issue (or H-1B worker visas, as discussed later). Over the last decade, the number of foreign students in US schools has swelled to more than a million. Many of these students come to the United States with the hope of later obtaining a job in America (Kato and Sparber, 2013). Yet, the rapidly growing student population exerts pressure on the fixed supply of the H-1B visa system. As a consequence, many immigrant students take their first job via the Optional Practical Training (OPT) program, which lets graduates work with US companies to gain practical experience for jobs connected to their majors, lasting for up to one year in most fields and three years for STEM degree holders.

There are an unlimited number of OPT visa extensions, with roughly 175,000 active in 2017. The OPT program accounted for about 30% of foreign-born students entering the US labor market during the 2000s, and today more skilled immigrants start work via OPT than through H-1B visas or permanent residency admissions (Bound et al., 2015). Many immigrants then experience the stress of repeatedly trying the H-1B lottery, with the hopes of being selected before their OPT runs out. If their OPT expires first, the student would need to leave the United States, obtain a different visa (e.g., O-1 or green card), or enter a new program (e.g., a masters degree). As the number of student and exchange visitor visas issued each year has grown to be an order of magnitude larger than the H-1B visa cap (which also covers many applicants

bands for positions that might be stressed in a company willing to offer a higher salary in order to obtain a worker.

other than graduating students), the mismatch in program sizes has become acute.

An important policy question is how the United States might smooth school-to-work transitions. Many countries provide a guaranteed right to work for a period of time for students graduating their universities (e.g., 3-5 years regardless of degree); even from a narrow perspective, recent graduates and younger workers tend to be fiscal contributors by paying more in taxes than receiving in benefits. Policy makers may want to consider these adjustments on their own, but they would also become important under certain reforms contemplated above to increase the skill content of the H-1B program. For example, with wage ranking or high H-1B minimum wages, a fresh college graduate would be disadvantaged compared to an established worker. A hybrid model would provide workers a greater defined time before they need to compete for an H-1B slot.

Another common proposal is to "staple" a green card to any advanced STEM degree granted by a qualified US school to an immigrant. The staple proposal is a conceptually simple response to the challenges of school-to-work transition, and it would likely boost entrepreneurship and innovation outcomes to some degree. A challenge to the idea is the scope for unintended consequences by attaching automatic rights to degrees. For example, comparable policies in other countries have encountered "diploma mills" that offer qualifying degrees under conditions that legislators had not anticipated.[16] Even traditional US schools have already shown an increasing reliance of foreign students to help support themselves financially (e.g., Bird and Turner 2014, Bound et al. 2020).

3.3 Potential Reforms to Broader Immigration Structure

Closing this section, we note briefly the larger context of US immigration reform. The proposals described above could all likely boost the entrepreneurial and innovation output of US immigration without any change to the broad structure that favors family reunification. In 2016, approximately 12 percent of US green cards went for employment-based purposes, 68 percent for family reunification, and 20 percent for other purposes (e.g., diversity, humanitarian). This allocation is quite different from other heavy immigrant-receiving countries like Canada, where a majority of slots are for employment-based purposes.

Comprehensive immigration reform could seek to change the overall level of immigration into America (i.e., increasing or decreasing the approximately one million green cards issued each year) or the relative allocation over types of green cards. Proposals often also connect such a move to the adoption of a point-based system, including those seeking to reduce immigration (e.g., the 2017 proposed Reforming American Immigration for Strong Employment (RAISE) Act[17]) or expand it (e.g., those from the New American Economy). It is likely that an increase

[16] http://monitor.icef.com/2015/06/uk-rolls-out-new-service-to-help-fight-diploma-mills-and-degree-fraud/.

[17] https://www.migrationpolicy.org/news/raise-act-dramatic-change-family-immigration-less-so-employment-based-system

in levels or a composition shift towards employment-based migrants would boost entrepreneurial and innovation outcomes. For example, Hunt (2011) shows immigrants entering through student and work visas are more likely to conduct entrepreneurial and innovative activities than those entering via other visa types. That said, this would constitute only one element of the substantial mix of political, social, cultural, and economic factors that matter for comprehensive reform.

4 Visas for Entrepreneurs

While countries have for decades adopted policies to attract and admit highly skilled immigrants, there is a recent and increasing interest in attracting immigrant entrepreneurs. This is especially true around high-tech and high-growth startups.[18] As immigrants display higher rates of entrepreneurship in the United States and many other countries, policy makers often consider immigration as a way to increase the supply of would-be entrepreneurs. This has resulted in a flurry of new entrepreneur visas: for example, Australia created a visa for immigrants with entrepreneurial skills in 2012, the United Kingdom introduced a new entrepreneur visa in 2008, and Canada created a similar program in 2013.

This section considers the special case of a startup visa for America. We first review some of the established pathways for immigrant entrepreneurs under the US system and the challenges encountered. We then examine key dimensions of startup visas seen in other countries. This segues to a review of US legislative proposals for a startup visa act over the last decade, which have all thus far failed to make it to law, and some of the reforms that have happened.

4.1 Traits of Immigrant Founded Companies

One newly available data source to characterize the contributions of immigrant entrepreneurs is the 2014 American Survey of Entrepreneurship (ASE). The 2014 ASE asked firms about their innovation activity and research & development (R&D) efforts, in addition to standard questions regarding firm and owner characteristics. The ASE identifies the birthplace of firm owners, allowing us to identify firms as Native owners only, Immigrant owners only, or Mixed ownership. We focus our analysis on new firms founded in the past five years to align with entrepreneurship activity (vs. transfer of businesses across owners) and in which one of the current owners was an original business founder.

Table 1 presents some simple tabulations. The full and weighted sample accounts for approximately 557,000 firms, with counts rounded per Census Bureau disclosure requirements. Of these ventures, 21.3% are entirely immigrant owned and 4.5% are immigrant owned in part. Table 1 next provides for each column the share of ventures reporting the indicated activity. Firms with immigrant owners engage modestly more in R&D and innovation than firms with

[18] Anderson and Platzer (2006), Fairlie (2012, 2013), Hegde and Tumlinson (2014), Bengtsson and Hsu (2014), and Gompers et al. (2016) also consider immigrant roles among VC-backed companies and investors. Haltiwanger et al. (2013) and Glaeser et al. (2015) describe employment growth and new firm formation.

only native owners. Mixed founding teams show the greatest engagement in R&D and innovation, although this is partly because a mixed ownership team tends to be larger than a native- or immigrant-only ownership team (by definition, there must be at least two owners on a mixed team). Firms with immigrant owners are also more likely to be seeking expansion capital.

The last two rows use data on startup financing to isolate 6,700 ventures raising $250,000 or more in private venture investment or public grants. Many startup visa proposals suggest providing visas to immigrant founders who can raise this amount of startup capital from either of these external financing sources. Such ventures in total account for a little over 1.2% of new ventures in the ASE sample. Firms with exclusively immigrant owners account for 13.2% of startups hitting these thresholds and mixed teams account for another 13.8%. Ventures raising private venture investment or public grants at positive amounts less than $250,000 account for about 2% of the ASE sample and have comparable immigrant ownership.

These tabulations confirm several important features of immigrant entrepreneurship, including the overall role of immigrant founders and their stronger proclivity towards innovative activities (e.g., Kahn et al., 2017). They also provide a sense of the relative shares of existing immigrant entrepreneurship that would have qualified for visas under some proposals. Existing experiences cannot forecast latent demand for new visas that are created, but they provide a sense of what policy makers may want to target.

4.2 Pathways for Immigrant Entrepreneurs

Many countries encourage the immigration of wealthy individuals willing to invest in a business that provides employment in the host country. The United States has an EB-5 permanent residency track for those willing and able to invest $1.8 million into a US business. This minimum investment is an increase from the $1 million required before November 2019. If the investment is made into Targeted Employment Areas that are rural or struggle with high unemployment rates, the minimum requirement is $900,000 (up from $500,000). Going forward, USCIS plans to adjust the index every five years according to inflation. The business must generate at least 10 full-time positions for American workers. The program provides a maximum of 10,000 visas per year, and this allotment is mostly reached each year.[19]

Aspiring immigrant entrepreneurs without this personal wealth who are not US permanent residents have two primary options for building a startup. The first option involves engaging in preliminary business planning while enrolled under F-1 status as a student, using the OPT period to launch and build the company, and then transitioning to an employment-based visa such as the O-1 or a self-petitioned green card via the EB-1A or EB-2 National Interest Waiver (NIW) categories. The second option is to obtain an employment-based visa like an H-1B, engage in preliminary business planning (without engaging in unauthorized employment or violating the

[19] https://travel.state.gov/content/travel/en/legal/visa-law0/visa-statistics/annual-reports/report-of-the-visa-office-2018.html
https://www.uscis.gov/working-united-states/permanent-workers/about-eb-5-visa-classification

terms of one's employment agreement), and then pursuing a green card from one's employer or from one of the aforementioned self-petition options. Blume-Kohout (2016) provides a complete description of these and other rarer routes.

These types of immigrant pathways are not well designed for entrepreneurs. The legal fees, uncertainty, and high adjudication standard involved in obtaining an O-1, EB-1A, or EB-2 NIW and employers' general reluctance to sponsor green cards often deter aspiring entrepreneurs. Roach and Skrentny (2019) measure in STEM fields the particular under-representation of immigrant PhDs working in tech startups compared to both their native peers and also to the expressed initial desire of the immigrants to be in a startup. In a companion piece, Roach et al. (2018) identify the greater risk tolerance and alignment of personality traits of foreign PhD students to startup activity, but the authors also show a gap between the early intentions of these students to be entrepreneurs with their employment outcomes after graduation. Roach et al. (2018) note that the limited capabilities of the US immigration system to support immigrant entrepreneurs likely plays an important role.

Consequently, a number of local attempts have sprung up to help immigrant entrepreneurs obtain the necessary employment authorization without waiting for permanent residency. Under the American Competitiveness in the Twenty-first Century Act of 2000, Congress made institutions of higher education and nonprofit organizations exempt from the H-1B numerical cap. In 2014, the Massachusetts State Legislature created an Entrepreneur in Residence (EiR) program whereby immigrant entrepreneurs with advanced STEM degrees could be sponsored on cap-exempt H-1B visas via working part-time at the University of Massachusetts Boston and part-time on their Massachusetts-headquartered startups. According to Global EiR Coalition, 13 such programs now exist at institutions such as the University of Colorado, Boulder and the University of Missouri, St. Louis.[20] Some venture capital firms have also devised packages that combine employment-connected visa sponsorship (the entrepreneur works as an employee of the VC firm) with monetary investment.[21,22]

4.3 International Examples

While every country promotes the unique nature of their startup visas, they tend to share many common features.[23] In particular, startup visas tend to impose minimum requirements around one or more of these criteria: (1) the degree of establishment of the company, (2) the extent

[20] https://innovation.masstech.org/projects-and-initiatives/global-entrepreneur-residence-pilot-program
https://www.globaleir.org/global-eir-locations/

[21] https://techcrunch.com/2014/11/13/unshackled-is-a-new-3-5m-early-stage-fund-that-looks-a-lot-like-an-accelerator/

[22] Several local policy initiatives have also sought to attract and welcome immigrant entrepreneurs more broadly (e.g., the Thrive competition in New York City, the Office of New Americans in Chicago). Some initiatives focus on specific issues that have been found to inhibit immigrant entrepreneurs from starting or growing their businesses (e.g., language barriers, difficulty navigating the legal steps to start a company, or lack of capital to pilot projects), while others are generally focused on attracting more new businesses.

[23] Sources for this section are given at the end of this report. An online appendix for this paper describes country-level visa programs in greater detail.

of ownership of the founding team, (3) the qualifications of the entrepreneur, (4) the economic impact of the venture, and (5) the financial self-sufficiency of the entrepreneur.

- **Degree of establishment of the company:** Countries typically require that ventures be less than a certain number of years old, with Singapore setting the bar at 6 months vs. Ireland at 6 years. Countries also require that entrepreneurs invest a minimum amount of money in their startups (at least €75,000 in the case of Ireland). On a qualitative level, countries often require that entrepreneurs submit a business plan for evaluation, as in the case of Denmark and Spain. Some countries may even require that companies be endorsed by an official body (e.g., The UK's Home Office) or that founders show evidence of professional or commercial ties within the country (e.g., Sweden).

- **Extent of ownership of the founding team**: Countries typically require that petitioners own a minimum share of their company, with Sweden and Canada both requiring that founders own a controlling stake, but with Canada permitting a founding team of up to five.

- **Qualifications of the entrepreneur:** Countries often impose requirements around language proficiency, minimum levels of related experience, and/or minimum levels of educational attainment. For example, France seeks at least a Master's degree or five years of professional work experience. Australia requires petitioners be under the age of 55.

- **Economic impact of the venture:** In addition to requiring the startup be located in their country, countries also often screen ventures on their economic impact. Sweden, for example, requires that startups produce and/or sell their services or goods within Sweden. Ireland requires evidence that a given startup plan be "capable of creating 10 jobs in Ireland and realizing €1 million in sales within three to four years of starting up." Some countries also offer preferential treatment to entrepreneurs who intend to build businesses within certain high-value sectors. New Zealand, for example, waives its minimum NZ$100,000 (~$65,000 USD) investment requirement for companies related to science, information and communications technology, or "other high value export-oriented sector." Thailand's startup visa is specifically tailored to entrepreneurs operating within 13 priority industries such as Next-Generation Automotive, Smart Electronics, Agriculture and Biotechnology, and Food for the Future.

- **Financial self-sufficiency of the entrepreneur:** Countries typically require that entrepreneurs show minimum personal assets. For example, Sweden requires SEK 200,000 (~$21,000 USD) available for two years.

Countries differ on the terms and pathways to permanent residency and citizenship they offer to foreign entrepreneurs. Thailand's visa is renewable every two years, though it offers no obvious

path to permanent residence. Similarly, Ireland issues entrepreneur visas with an initial validity period of two years, after which the visa may be extended for three years, then by five years. However, the Irish government expressly states that it "does not provide for preferential access to citizenship for successful applicants" of its startup visa program. By contrast, Australia offers a path to permanent residence for entrepreneurs who demonstrate "2 key success factors, or 1 key success factor and 3 supporting success factors." Examples of key success factors are employing two or more Australians; generating an annual turnover of at least AUD300,000 (~$200,000 USD); and filing a provisional patent. Supporting success factors are more qualitative, such as "adapting [one's] entrepreneurial activities into other business areas" and "receiving formal awards or recognition."

Most host countries would like to attract successful entrepreneurs, yet half of startups fail within the first five years. As it is hard to predict which businesses will succeed, countries often admit immigrant entrepreneurs who look promising and then observe their success over the duration of their stay. These conditional visas can be renewed (or converted to a permanent residence permit) if the business remains successful within a few years. Australia, New Zealand, Ireland, Singapore, and the United Kingdom have established versions of this approach. It is important to recognize, however, a tension in making startup visas conditional on success. Policy makers often dream of attracting startups with exceptional potential for employment growth and economic impact, but these exceptional outcomes involve lots of experimentation over ideas (Kerr et al., 2014). Making visas conditional on success may push immigrant founders towards less risky ventures until their permanent residency is established.

A related point of tension is regional distribution. Some countries like Canada provide visa set-asides or other incentives for entrepreneurs to locate outside of the most prominent technological or economic clusters. (These policies mirror the reduced investment requirements for a US EB-5 visa if the investment is made into Targeted Employment Areas. Regional policies are also frequent in employment visas.) These regional policies can serve to spread out the distribution of locations impacted by immigrant entrepreneurs, and they may be an important aspect of gaining political buy-in. It is possible, however, that constraining the spatial choices of entrepreneurs may lead to fewer startups pursuing high-scale growth outcomes that are often more easily pursued in prominent clusters.

4.4 US Startup Visa Proposals

Over the last decade, both Democrats and Republicans have introduced and supported approximately two dozen bills in both the House and Senate during every session of Congress in support of a startup visa. Though the vast majority of bills have received bipartisan support, none have emerged successfully from committee, been approved by both chambers, and been enacted into law.

The spirit of most proposed bills is similar: to charge the Secretary of Homeland Security

with authorizing a certain number of startup visas—often 75,000—to entrepreneurs who satisfy minimum requirements. Requirements typically include minimum ownership (either "significant ownership" or a controlling interest), minimum funding from qualifying investors or venture capitalists, and/or the ability to generate revenue and create full-time jobs within the United States. Some bills have also stipulated that entrepreneurs possess a minimum amount in assets or have an annual income exceeding a certain threshold above the federal poverty level. Some bills have also required that entrepreneurs either possess an unexpired H-1B visa or a Master's degree in STEM or other relevant academic discipline from a US school.[24]

Shortly after the "Startup Act 3.0" act was introduced in the House and Senate in 2013, the Ewing Marion Kauffman Foundation published a study by Stangler and Knoczal (2013) that estimated the job creation impact of a startup visa. When using the legislative minimum requirements and typical venture survival rates, the authors derived their lower bound that four-year-old startups would create nearly 500,000 new jobs after ten years. If further assuming that half of the startup visa companies would be technology and engineering companies and their employment levels would grow beyond the minimum thresholds to reflect typical industry averages, the authors derived a larger estimate of 1.6 million new jobs. Given that their methodology did not model the potential of startup visa companies to become high-growth, high-scale, and positively impact innovation, GDP, and productivity, the Kauffman Foundation deemed its range "conservative" and "low-end."

In 2019, the "Startup Act" was introduced on a bipartisan basis within the Senate and then referred to committee. The bill sought to authorize the Secretary of Homeland Security to issue up to 75,000 "conditional immigrant" visas to entrepreneurs who register a new business, employ at least two full-time employees, and invest or raise at least $100,000 in the business within the first year. For the following three years, entrepreneurs would be required to employ an average of at least five full-time employees in order to remove the conditional basis of their visa.[25]

4.5 US Modifications Related to Startup Founders

While Congressional proposals have failed to pass both the House and Senate, two recent reforms at the Federal level influenced the potential vitality of US immigrant entrepreneurship: the Matter of Dhanasar and the International Entrepreneur Rule.

On December of 2016, the USCIS' Administrative Appeals Office (AAO) published a decision titled "Matter of Dhanasar." The decision updated the USCIS' analytical framework for assessing eligibility for "National Interest Waivers" (NIWs), which permit immigrants to self petition for a green card without an employer sponsor or related labor certification. Under a 1998 precedent, petitioners for a NIW under the EB-2 category had to demonstrate that (1) the petitioner's area

[24] https://www.congress.gov/bill/114th-congress/senate-bill/3510/text
https://www.congress.gov/bill/112th-congress/senate-bill/565/text
https://www.congress.gov/bill/112th-congress/senate-bill/565/text
[25] https://www.congress.gov/bill/116th-congress/senate-bill/328/text

of employment is of "substantial intrinsic merit," (2) any proposed benefit from the individual's endeavors will be "national in scope," and (3) the national interest would be adversely affected if a labor certification were required.[26] The 2016 revision was due in part due to the belief that the "third prong was especially problematic for certain petitioners, such as entrepreneurs and self-employed individuals."

The updated criteria now requires "(1) that the foreign national's proposed endeavor has both substantial merit and national importance; (2) that the foreign national is well positioned to advance the proposed endeavor; and (3) that, on balance, it would be beneficial to the United States to waive the requirements of a job offer and thus of a labor certification." In its decision, the AAO specifically noted that the first prong "may be demonstrated in a range of areas such as business, entrepreneurialism," among others. The decision also noted that the USCIS recognized "that forecasting feasibility or future success may present challenges to petitioners and USCIS officers, and that many innovations and entrepreneurial endeavors may ultimately fail, in whole or in part, despite an intelligent plan and competent execution" and that it did not "require petitioners to demonstrate that their endeavors are more likely than not to ultimately succeed."[27] Though not decided with the expressed intent of spurring US immigrant entrepreneurship, the ruling effectively reformulated the EB-2 NIW category into one that is now more favorable to aspiring immigrant entrepreneurs.

In January of 2017, the Department of Homeland Security (DHS) under the Obama Administration published the International Entrepreneur Rule, a rule permitting the DHS to extend a discretionary grant of parole lasting up to 30 months (2.5 years) to entrepreneurs. Entrepreneurs must (1) possess at least 10 percent ownership interest in startup created within the last five years, (2) have an active and central role in the operations and future growth of the entity, (3) have secured a minimum of $100,000 from government grants or at least $250,000 from a qualified US investor for the business, and (4) demonstrate evidence of substantial potential for rapid business growth or job creation. On July of 2017, the DHS published a delay rule and, in May 2018, proposed to eliminate the Rule "because the department believes that it represents an overly broad interpretation of parole authority, lacks sufficient protections for US workers and investors, and is not the appropriate vehicle for attracting and retaining international entrepreneurs."[28]

[26] A Labor Certification is required to "certify to the USCIS that there are not sufficient U.S. workers able, willing, qualified and available to accept the job opportunity in the area of intended employment and that employment of the foreign worker will not adversely affect the wages and working conditions of similarly employed U.S. workers." https://www.foreignlaborcert.doleta.gov/perm.cfm

[27] https://www.justice.gov/eoir/page/file/920996/download

https://www.uscis.gov/working-united-states/permanent-workers/employment-based-immigration-second-preference-eb-2

[28] https://www.federalregister.gov/documents/2017/01/17/2017-00481/international-entrepreneur-rule

https://www.federalregister.gov/documents/2017/07/11/2017-14619/international-entrepreneur-rule-delay-of-effective-date

https://www.uscis.gov/humanitarian/humanitarian-parole/international-entrepreneur-parole

5 Conclusions

Immigrants have played a substantial role in US invention and entrepreneurship over the last several decades (Kerr 2019a). Further growth in these forms of immigrant contributions will be challenging under the current US immigration structure due to numerical caps at key transition points, especially the H-1B program size and the country caps on the rate at which employment-based green cards are awarded. The United States also lacks a startup visa comparable to those developed over the last decade by many peer countries. This chapter has reviewed several policy reforms that would likely alleviate these constraints and foster greater US invention and entrepreneurship going forward. Like all policy choices regarding immigration, these economic considerations are one input into larger political dynamics.

References

[1] Akcigit, U., Baslandze, S. and Stantcheva, S. (2016). "Taxation and the International Mobility of Inventors." *American Economic Review,* 106:10, 2930-2981.

[2] Akee, R.K.Q., Jaeger, D.A. and Tatsiramos, K. (2013). "The Persistence of Self-Employment Across Borders: New Evidence on Legal Immigrants to the United States." *Economics Bulletin*, 33:1, 126-137.

[3] Anderson, S. (2020a). "H-1B Denials Remain High, Especially For IT Services Companies." *Forbes*. February 26, 2020. https://www.forbes.com/sites/stuartanderson/2020/02/26/h-1b-denials-remain-high-especially-for-it-services-companies/.

[4] Anderson, S. (2020b). "Court Invalidates Key Trump Administration H-1B Visa Policies." *Forbes*. March 11, 2020. https://www.forbes.com/sites/stuartanderson/2020/03/11/court-invalidates-key-trump-administration-h-1b-visa-policies/.

[5] Anderson, S. and Platzer, M. (2006). "American Made: The Impact of Immigrant Entrepreneurs and Professionals on U.S. Competitiveness." National Venture Capital Association Report.

[6] Audretsch, D. and Feldman, M. (1996). "R&D Spillovers and the Geography of Innovation and Production." *American Economic Review*, 86, 630-640.

[7] Azoulay, P., Jones, B.F., Kim, J.D., and Miranda, J. (2020). "Immigration and Entrepreneurship in the United States." Working Paper.

[8] Bengtsson, O. and Hsu, D. (2014). "Ethnic Matching in the U.S. Venture Capital Market." *Journal of Business Venturing*, 30:2, 338-354.

[9] Bernstein, S., Diamond, R., McQuade, T. and Pousada, B. (2019). "The Contribution of High-Skilled Immigrants to Innovation in the United States." Working Paper.

[10] Bird, K. and Turner, S. (2014). "College in the States: Foreign Student Demand and Higher Education Supply in the U.S." EdPolicyWorks Working Paper Series No. 23.

[11] Bloom, N., Van Reenen, J. and Williams, H. (2019). "A Toolkit of Policies to Promote Innovation." *Journal of Economic Perspectives*, 33:3, 163-184.

[12] Blume-Kohout, M. (2016). "Imported Entrepreneurs: Foreign-Born Scientists and Engineers in U.S. STEM Fields Entrepreneurship." U.S. Small Business Administration Report.

[13] Borjas, G. (1986). "The Self-Employment Experience of Immigrants." *Journal of Human Resources*, 21, 487-506.

[14] Borjas, G. and Doran, K. (2012) "The Collapse of the Soviet Union and the Productivity of American Mathematicians." *Quarterly Journal of Economics*, 127:3, 1143-1203.

[15] Bound, J., Braga, B., Khanna, G. and Turner, S. (2020). "A Passage to America: University Funding and International Students." *American Economic Journal: Economic Policy*, 12:1, 97-126.

[16] Bound, J., Demiric, M., Khanna, G. and Turner, S. (2015). "Finishing Degrees and Finding Jobs: U.S. Higher Education and the Flow of Foreign IT Workers." *Innovation Policy and the Economy*, 15:1, 27-72.

[17] Bound, J., Khanna, G., and Morales, N. (2017). "Understanding the Economic Impact of the H-1B Program on the U.S." NBER Working Paper No. 23153.

[18] Brown, J.D., Earle, J.S., Kim, M.J. and Lee, K.-M. (2019). "Immigrant Entrepreneurs and Innovation in the US High Tech Sector." Census Bureau Working Paper.

[19] Buchardi, K., Chaney, T., Hassan, T., Tarquinio, L. and Terry, S. (2019). "Immigration, Innovation, and Growth." Working Paper.

[20] Carlino, G. and Kerr, W.R. (2015). "Agglomeration and Innovation." In Duranton, G., Henderson, V. and Strange, W. (eds.) *Handbook of Urban and Regional Economics, Vol. 5*, 349-404.

[21] Chung, W. and Kalnins, A. (2006). "Social Capital, Geography, and the Survival: Gujarati Immigrant Entrepreneurs in the U.S. Lodging Industry." *Management Science*, 52:2, 233-247.

[22] Clark, K. and Drinkwater, S. (2000). "Pushed Out or Pulled In? Self-Employment Among Ethnic Minorities in England and Wales." *Labour Economics*, 7:5, 603-628.

[23] Clark, K. and Drinkwater, S. (2006). "Changing Patterns of Ethnic Minority Self-Employment in Britain: Evidence from Census Microdata." IZA Discussion Papers 2495, Institute for the Study of Labor (IZA).

[24] Clemens, M.A. (2011). "Economics and Emigration: Trillion-Dollar Bills on the Sidewalk?" *Journal of Economic Perspectives*, 25:3, 83-106.

[25] Decker, R., Haltiwanger, J., Jarmin, R. and Miranda, J. (2014). "The Role of Entrepreneurship in US Job Creation and Economic Dynamism." *Journal of Economic Perspectives*, 28:3, 3-24.

[26] Depew, B., Norlander, P. and Sorensen, T. (2017). "Inter-Firm Mobility and Return Migration Patterns of Skilled Guest Workers." *Journal of Population Economics*, 30:2, 681-721.

[27] Dimmock, S.G., Huang, J. and Weisbenner, S. (2019). "Give Me Your Tired, Your Poor, Your High-Skilled Labor: H-1B Lottery Outcomes and Entrepreneurial Success." National Bureau of Economic Research Working Paper No. 26392.

[28] Doran, K., Gelber, A. and Isen, A. (2015). "The Effects of High-Skill Immigration on Firms: Evidence from H-1B Visa Lotteries." NBER Working Paper 20668.

[29] Doran, K. and Yoon, C. (2019). "Immigration and Invention: Evidence from the Quota Acts." Working Paper.

[30] Docquier, F., Turati, R., Valette, J. and Vasilakis, C. (2019). "Birthplace Diversity and Economic Growth: Evidence from the US States in the Post-World War II Period." *Journal of Economic Geography*, forthcoming.

[31] Fairlie R.W. (2012). "Immigrant Entrepreneurs and Small Business Owners, and their Access to Financial Capital." U.S. Small Business Administration Report.

[32] Fairlie, R.W. (2013). "Minority and Immigrant Entrepreneurs: Access to Financial Capital." In Constant, A.F. and Zimmermann, K.F. (eds.) *International Handbook on the Economics of Migration*, Edward Elgar, Cheltenham UK.

[33] Fairlie, R.W. and Lofstrom, M. (2014). "Immigration and Entrepreneurship." In Chiswick, B.R. and Miller, P.W. (eds.) *Handbook on the Economics of International Migration,* Elsevier.

[34] Fairlie, R.W. and Meyer, B.D. (2003). "The Effect of Immigration on Native Self-Employment." *Journal of Labor Economics*, 21:3, 619-650.

[35] Fairlie, R.W., Zissimopoulos, J. and Krashinsky H.A. (2010). "The International Asian Business Success Story: A Comparison of Chinese, Indian, and Other Asian Businesses in the United States, Canada, and United Kingdom." In Lerner, J. and Schoar, A. (eds.) *International Differences in Entrepreneurship*, University of Chicago Press and National Bureau of Economic Research, 179-208.

[36] Fallick, B., Fleischman, C. and Rebitzer, J. (2006). "Job-Hopping in Silicon Valley: Some Evidence Concerning the Microfoundations of a High-Technology Cluster." *Review of Economics and Statistics*, 88:3, 472-481.

[37] Feldman, M. and Kogler, D. (2010). "Stylized Facts in the Geography of Innovation." In Hall, B. and Rosenberg, N. (eds.) *Handbook of the Economics of Innovation, Vol.1*, Elsevier, Oxford, 381-410.

[38] Ghimire, K. (2018). "Supply of Immigrant Entrepreneurs and Native Entrepreneurship." Working Paper.

[39] Glaeser, E., Kerr, S.P. and Kerr, W.R. (2015). "Entrepreneurship and Urban Growth: An Empirical Assessment with Historical Mines." *Review of Economics and Statistics*, 97:2, 498-520.

[40] Glennon, B. (2019). "How Do Restrictions on High-Skilled Immigration Affect Offshoring? Evidence from the H-1B Program." Working Paper.

[41] Goolsbee, A. (1998). "Does Government R&D Policy Mainly Benefit Scientists and Engineers?" *American Economic Review*, 88:2, 298-302.

[42] Gompers, P.A., Mukharlyamov, V., and Xuan, Y. (2016). "The Cost of Friendship." *Journal of Financial Economics*, 119:3, 626-644.

[43] Haltiwanger, J., Jarmin, R. and Miranda, J. (2013). "Who Creates Jobs? Small vs. Large vs. Young." *Review of Economics and Statistics*, 95:2, 347-361.

[44] Hart, D.M. and Acs, Z.J. (2011). "High-Tech Immigrant Entrepreneurship in the United States." *Economic Development Quarterly*, 25:2, 116-129.

[45] Hegde, D. and Tumlinson, J. (2014). "Does Social Proximity Enhance Business Relationships? Theory and Evidence from Ethnicity's Role in US Venture Capital." *Management Science*, 60:9, 2355-2380.

[46] Hira, R. (2010). "The H-1B and L-1 Visa Programs: Out of Control." EPI Briefing Paper, Washington, D.C.: Economic Policy Institute.

[47] Hunt, J. (2011). "Which Immigrants are Most Innovative and Entrepreneurial? Distinctions by Entry Visa." *Journal of Labor Economics*, 29:3, 417-457.

[48] Hunt, J. (2015). "Are Immigrants the Most Skilled US Computer and Engineering Workers?" *Journal of Labor Economics*, 33:S1, S39-S77.

[49] Hunt, J. (2017). "How Restricted is the Job Mobility of Skilled Temporary Work Visa Holders?" NBER Working Paper 23529.

[50] Hunt, J. and Gauthier-Loiselle, M. (2010). "How Much Does Immigration Boost Innovation?" *American Economic Journal: Macroeconomics*, 2:2, 31-56.

[51] Kahn, S., Mattina, G. and MacGarvie, M. (2017). "Misfits, Stars, and Immigrant Entrepreneurship." *Small Business Economics*, 49:3, 533-557.

[52] Kahn, S. and MacGarvie, M. (2018). "The Impact of Permanent Residency Delays for STEM PhDs: Who leaves and Why." NBER Working Paper 25175.

[53] Kato, T. and Sparber, C. (2013). "Quotas and Quality: The Effect of H-1B Visa Restrictions on the Pool of Prospective Undergraduate Students from Abroad." *Review of Economics and Statistics*, 95:1, 109-26.

[54] Kerr, S.P. and Kerr, W.R. (2013). "Immigration and Employer Transitions for STEM Workers." *American Economic Review Papers and Proceedings*, 103:3, 193-197.

[55] Kerr, S.P. and Kerr, W.R. (2017). "Immigrant Entrepreneurship." In Haltiwanger, J., Hurst, E., Miranda, J. and Schoar, A. (eds.), *Measuring Entrepreneurial Businesses: Current Knowledge and Challenges*, NBER Book Series Studies in Income and Wealth, Cambridge MA, 187-249.

[56] Kerr, S.P. and Kerr, W.R. (2020). "Immigrant Entrepreneurship in America: Evidence from the Survey of Business Owners 2007 & 2012." *Research Policy*, 49:3, 103918.

[57] Kerr, S.P., Kerr, W.R. and Lincoln, W.F. (2015a). "Firms and the Economics of Skilled Immigration." In Kerr, W.R., Lerner, J. and Stern, S. (eds.) *Innovation Policy and the Economy Vol. 15*, University of Chicago Press, 115-152.

[58] Kerr, S.P., Kerr, W.R. and Lincoln, W.F. (2015b). "Skilled Immigration and the Employment Structures of U.S. Firms." *Journal of Labor Economics*, 33:S1, S109-S145.

[59] Kerr, S.P., Kerr, W.R., Özden, Ç. and Parsons, C. (2016). "Global Talent Flows." *Journal of Economic Perspectives*, 30:4, 83-106.

[60] Kerr, S.P., Kerr, W.R., Özden, Ç. and Parsons, C. (2017). "High-Skilled Migration and Agglomeration." *Annual Review of Economics*, 9, 201-234.

[61] Kerr, W.R. (2008). "Ethnic Scientific Communities and International Technology Diffusion." *Review of Economics and Statistics*, 90:3, 518-37.

[62] Kerr, W.R. (2010). "Breakthrough Inventions and Migrating Clusters of Innovation." *Journal of Urban Economics*, 67:1, 46-60.

[63] Kerr, W.R. (2017). "U.S. High-Skilled Immigration, Innovation, and Entrepreneurship: Empirical Approaches and Evidence." In Fink, C. and Miguelez, E. (eds.) *The International Mobility of Talent and Innovation: New Evidence and Policy Implications*, Cambridge University Press, 193-221.

[64] Kerr, W.R. (2019a). *The Gift of Global Talent: How Migration Shapes Business, Economy & Society.* Stanford University Press, Palo Alto, CA.

[65] Kerr, W.R. (2019b). "The Gift of Global Talent: Innovation Policy and the Economy." In Lerner, J. and Stern, S. (eds.) *Innovation Policy and the Economy, Volume 20*, University of Chicago Press, forthcoming.

[66] Kerr, W.R. and Lincoln, W.F. (2010). "The Supply Side of Innovation: H-1B Visa Reforms and U.S. Ethnic Invention." *Journal of Labor Economics*, 28:3, 473-508.

[67] Kerr, W.R. and Mandorff, M. (2015). "Social Networks, Ethnicity, and Entrepreneurship." NBER Working Paper 21597.

[68] Kerr, W.R., Nanda, R. and Rhodes-Kropf, M. (2014). "Entrepreneurship as Experimentation." *Journal of Economic Perspectives*, 28:3, 25-48.

[69] Kerr, W.R., and Robert-Nicoud, F. (2019). "Tech Clusters." *Journal of Economic Perspectives*, in-progress.

[70] Lewis, E. and Peri, G. (2015). "Immigration and the Economy of Cities and Regions." In Duranton, G., Henderson, V. and Strange, W. (eds.) *Handbook of Urban and Regional Economics, Vol. 5.*

[71] Lofstrom, M. (2002). "Labor Market Assimilation and the Self-Employment Decision of Immigrant Entrepreneurs." *Journal of Population Economics*, 15:1, 83-114.

[72] Mayda, A.M., Ortega, F., Peri, G., Shih, K. and Sparber, C. (2018). "The Effect of the H-1B Quota on the Employment and Selection of Foreign-Born Labor." *European Economic Review*, 108, 105-128.

[73] Matloff, N. (2003). "On the Need for Reform of the H-1B Non-Immigrant Work Visa in Computer-Related Occupations". *University of Michigan Journal of Law Reform*, 36:4, 815-914.

[74] Moretti, E. (2019). "The Effect of High-Tech Clusters on the Productivity of Top Inventors." Center for Economic Policy Research Working Paper 13992.

[75] Moser, P. and San, S. (2020). "Immigration, Science, and Invention. Evidence from the Quota Acts." Working Paper.

[76] Moser, P., Voena, A., and Waldinger, F. (2014) "German Jewish Emigres and U.S. Invention." *American Economic Review*, 104:10, 3222-3255.

[77] Nathan, M. (2015). "Same Difference? Minority Ethnic Inventors, Diversity and Innovation in the UK." *Journal of Economic Geography*, 15:1, 129-168.

[78] Ottaviano, G. and Peri, G. (2006). "The Economic Value of Cultural Diversity: Evidence from US Cities." *Journal of Economic Geography*, 6:1, 9-44.

[79] Patel, K. and Vella, F. (2013). "Immigrant Networks and their Implications for Occupational Choice and Wages." *Review of Economics and Statistics*, 95:4, 1249-1277.

[80] Pathak, P.A., Rees-Jones, A. and Sönmez, T. (2020). "Immigration Lottery Design: Engineered and Coincidental Consequences of H-1B Reforms." NBER Working Paper No. 26767.

[81] Peri, G. (2007). "Higher Education, Innovation and Growth." In Brunello, G., Garibaldi, P. and Wasmer, E. (eds.) *Education and Training in Europe*, Oxford University Press, 56-70.

[82] Peri, G. (2012). *Rationalizing U.S. Immigration Policy: Reforms for Simplicity, Fairness, and Economic Growth.* Brookings Report.

[83] Peri, G., Shih, K. and Sparber, C. (2015). "STEM Workers, H-1B Visas and Productivity in US Cities." *Journal of Labor Economics*, 33:S1, S225-S255.

[84] Porter, M.E., Rivkin, J.W., Desai, M.A., Gehl, K.M., Kerr, W.R. and Raman, M. (2019). "A Recovery Squandered: The State of U.S. Competitiveness 2019." Harvard Business School. https://www.hbs.edu/competitiveness/Documents/a-recovery-squandered.pdf.

[85] Samila, S. and Sorenson, O. (2011). "Venture Capital, Entrepreneurship and Economic Growth." *Review of Economics and Statistics*, 93, 338-349.

[86] Roach, M., Sauermann, H. and Skrentny, J. (2018). "Are Foreign PhDs more Entrepreneurial? Entrepreneurial Characteristics, Preferences and Outcomes of Native and Foreign Science & Engineering PhD Students." In Ganguli, I., Kahn, S. and MacGarvie, M. (eds.) *The Roles of Immigrants and Foreign Students in U.S. Science, Innovation, and Entrepreneurship*, University of Chicago Press, forthcoming.

[87] Roach, M. and Skrentny, J. (2019). "Why Foreign STEM PhDs are Unlikely to Work for U.S. Technology Startups." *Proceedings of the National Academy of Sciences*, 116:34, 16805-16810.

[88] Ruiz, N. and Krogstad, J.M. (2018). "East Coast and Texas Metros Had the Most H-1B Visas for Skilled Workers from 2010 to 2016." https://www.pewresearch.org/fact-tank/2018/03/29/h-1b-visa-approvals-by-us-metro-area/

[89] Saxenian, A. (1999). "Silicon Valley's New Immigrant Entrepreneurs." San Francisco: Public Policy Institute of California.

[90] Saxenian, A. (2002). "Silicon Valley's New Immigrant High-Growth Entrepreneurs." *Economic Development Quarterly*, 16, 20-31.

[91] Schuetze, H.J. and Antecol, H. (2007). "Immigration, Entrepreneurship and the Venture Start-Up Process. The Life Cycle of Entrepreneurial Ventures." In Parker, S. (ed.) *International Handbook Series on Entrepreneurship, Vol. 3*, Springer, New York.

[92] Sparber, C. (2018). "Choosing Skilled Foreign-Born Workers: Evaluating Alternative Methods for Allocating H-1B Work Permits." *Industrial Relations*, 57:1, 3-34.

[93] Stangler, D. and Konczal, J. (2013). "Give Me Your Entrepreneurs, Your Innovators: Estimating Employment Impact of a Startup Visa." Ewing Marion Kauffman Foundation.

[94] Stephan, P. and Levin, S. (2001). "Exceptional Contributions to US Science by the Foreign-Born and Foreign-Educated." *Population Research and Policy Review*, 20:1, 59-79.

[95] Wadhwa, V., Saxenian, A., Rissing, B. and Gereffi, G. (2007). "America's New Immigrant Entrepreneurs." Durham, NC: Duke University.

[96] Yeaple, S. (2018). "The Innovation Activities of Multinational Enterprises and the Demand for Skilled Worker, Non-Immigrant Visas." In Hanson, G., Kerr, W. and Turner, S. (eds.) *High-Skilled Migration to the United States and its Economic Consequences*, University of Chicago Press.

[97] Zucker, L., Darby, M., and Brewer, M. (1998). "Intellectual Human Capital and the Birth of U.S. Biotechnology Enterprises." *American Economic Review*, 88:1, 290-306.

Startup Visa Information:

- Australia:https://immi.homeaffairs.gov.au/visas/getting-a-visa/visa-listing/business-innovation-and-investment-888/entrepreneur-stream#Eligibility
- Canada:https://www.canada.ca/en/immigration-refugees-citizenship/services/immigrate-canada/start-visa/eligibility.html
- Denmark:https://www.nyidanmark.dk/en-GB/Applying/Work/Start-up%20Denmark
- France:https://france-visas.gouv.fr/en_US/web/france-visas/international-talents-and-economic-attractiveness
- Ireland:http://www.inis.gov.ie/en/INIS/Guidelines%20for%20Start-up%20Entrepreneur%20Programme.pdf/Files/Guidelines%20for%20Start-up%20Entrepreneur%20Programme.pdf
- NewZealand:https://www.immigration.govt.nz/documents/forms-and-guides/inz1221.pdf
- Singapore:https://www.mom.gov.sg/passes-and-permits/entrepass/eligibility
- Spain:http://www.exteriores.gob.es/Consulados/CIUDADDELCABO/en/InformacionParaExtranjeros/Pages/Law-on-Visas-for-Entrepreneurs.aspx;
- Sweden:https://www.migrationsverket.se/English/Private-individuals/Working-in-Sweden/Self-employment.html
- Thailand:https://www.boi.go.th/index.php?page=detail_smart_visa
- UK:https://www.gov.uk/guidance/immigration-rules/immigration-rules-appendix-w-immigration-rules-for-workers#part-w5-specific-requirements–start-up.

Figure 1: Ethnic Share of Patents Filed by Inventors Living in United States. Series uses ethnic naming conventions applied to inventors based in the United States. Source: Data from U.S. Patent and Trademark Office.

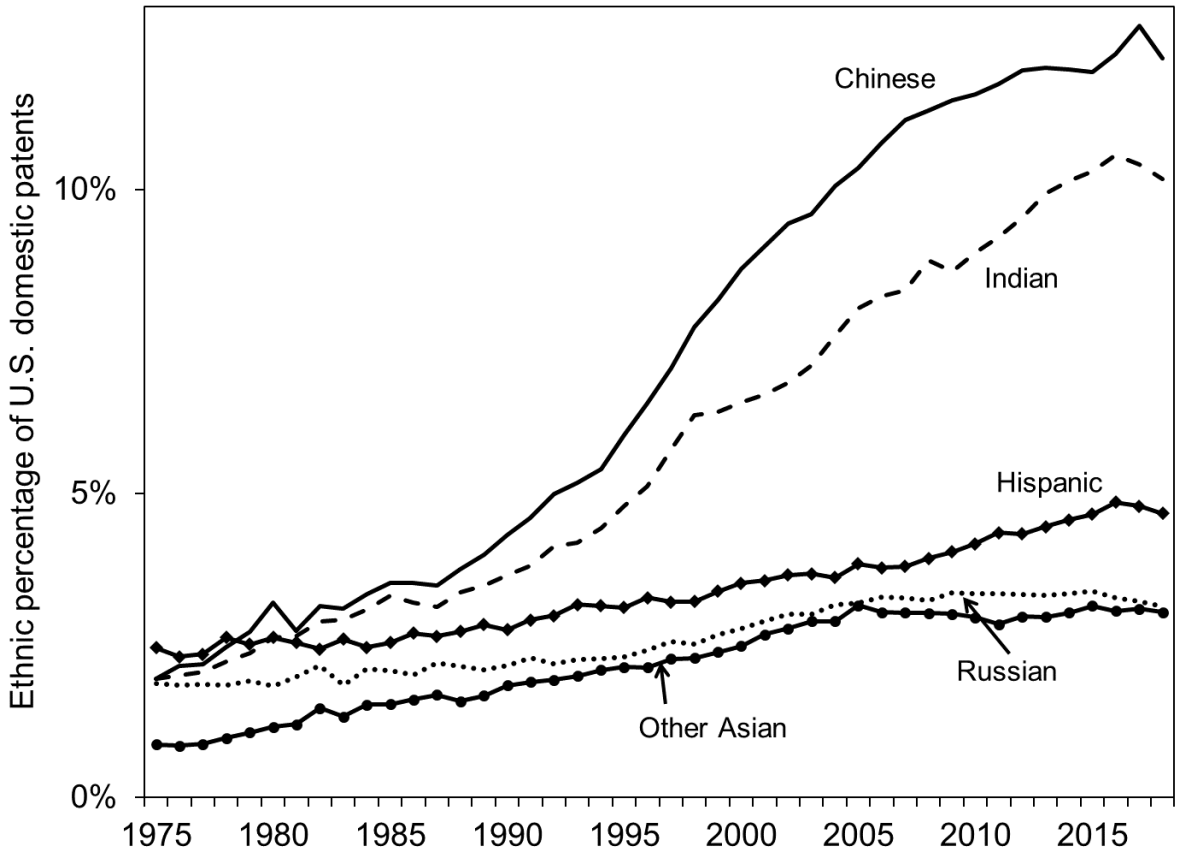

Figure 2: Evolution of H-1B Cap by Fiscal Year. Source: Data from USCIS.

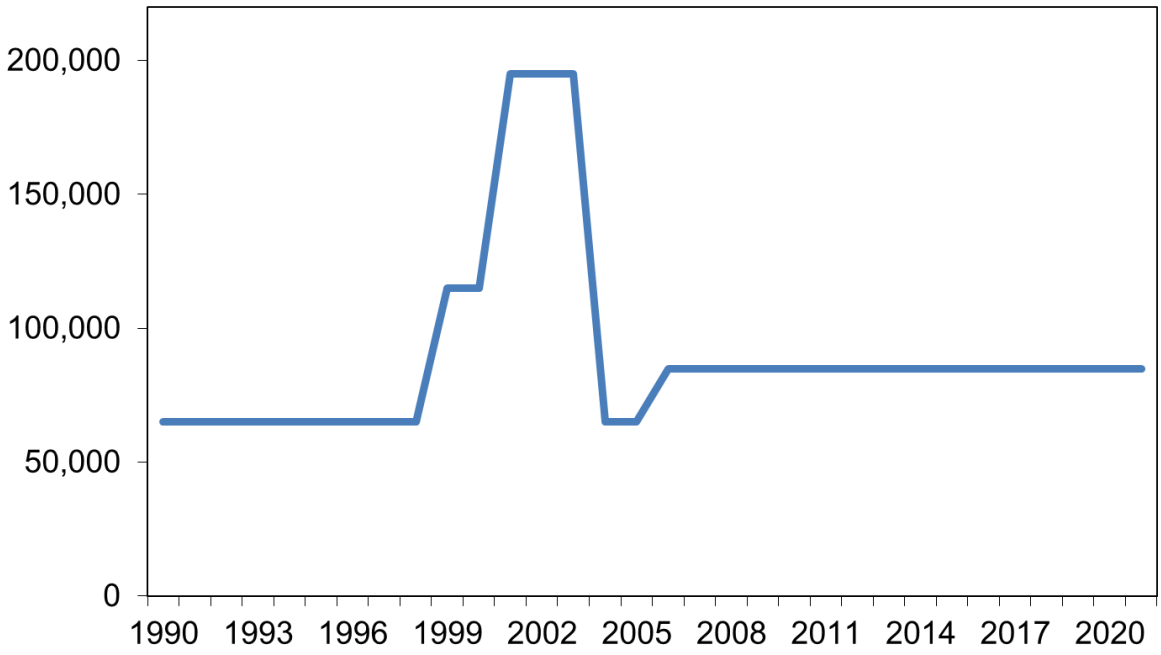

Figure 3: Months until H-1B Cap is Reached from Filing Start Date by Fiscal Year. Source: Data from USCIS.

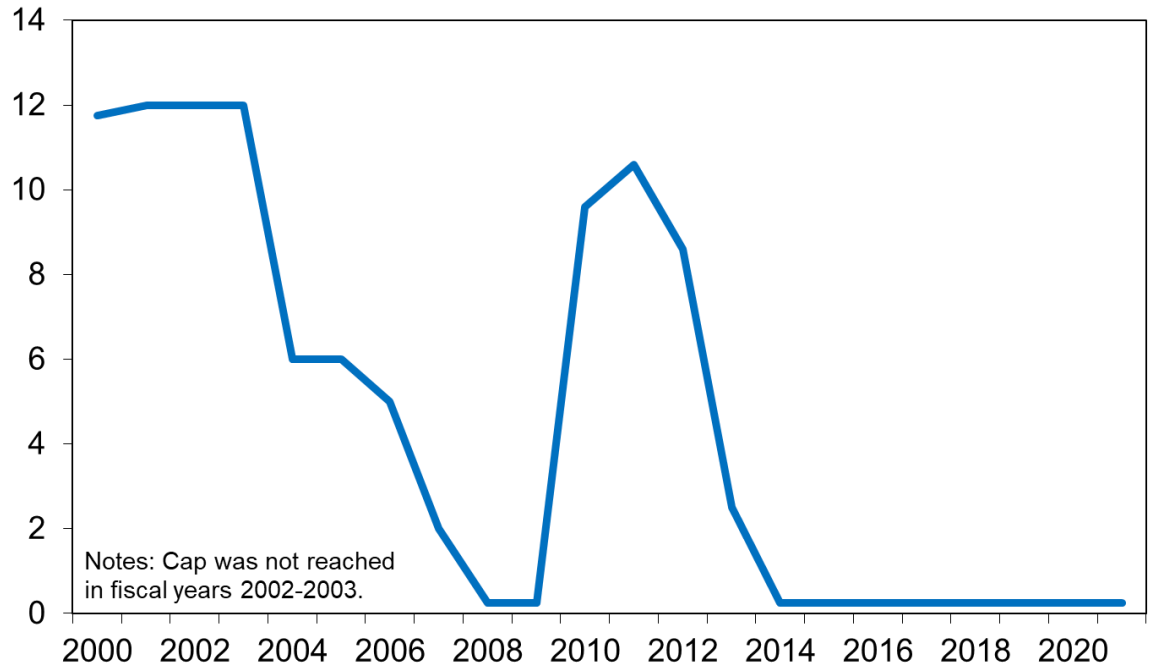

Table 1: Immigrant entrepreneurship in 2014 Annual Survey of Entrepreneurs

	All firms	Native only owners	Immigrant only owners	Mixed immigrant and native owners
	(1)	(2)	(3)	(4)
Ownership composition of ventures in ASE (N = 557,000)		74.2%	21.3%	4.5%
Share with granted and/or pending patents	1.5%	1.3%	1.3%	5.1%
Share reporting positive R&D expenditures	5.5%	5.1%	5.9%	10.3%
Share reporting owner(s) engaged in R&D	4.5%	4.4%	4.8%	3.7%
Share reporting workers engaged in R&D	2.4%	2.3%	2.6%	4.1%
Share seeking expansion financing	27.4%	26.7%	28.4%	33.0%
Share seeking expansion financing from venture capital firms	1.5%	1.2%	1.6%	5.1%
Ownership composition of ventures in ASE raising startup venture and grant investment equal to or greater than $250,000 (N = 6,700)	100.0%	73.0%	13.2%	13.8%
Mean investment levels among these ventures	$1,057,000	$1,020,000	$1,265,000	$1,050,000

Notes: Sample includes firms founded in 2009-2014 where at least one of the current owners was a firm founder. Sample excludes firms where start-up funding source was unknown or not reported or owner immigrant status was unknown or not reported. Venture counts are weighted and rounded per Census Bureau disclosure requirements. Reported percentages are calculated from rounded counts.

Immigration Policy Levers for US Innovation and Startups
DIGITAL APPENDIX

Note: This online appendix was compiled using official government and accelerator program websites accessed during January, 2020. Details represent verbiage sourced from official websites listed in public collections.[1] This appendix does not represent a complete directory of all channels for immigration by entrepreneurs into the countries shown nor a complete listing of all countries with immigration schemes for entrepreneurs.

AUSTRALIA[2]

- ***Benefits:***
  - Ability to carry out entrepreneurial activity in Australia
  - Ability to stay in Australia for 4 years and 3 months
  - Ability to bring eligible members of entrepreneur's family to Australia
  - Ability to apply for a permanent Business Innovation and Investment (Permanent) visa (subclass 888) Entrepreneur stream if certain requirements are met
- ***Requirements:***
  - Receive an invitation to apply
  - Be nominated
  - Be under 55
  - Have a complying entrepreneur activity
  - Receive funding from an approved entity
  - Have competent English
  - Meet Australia's health requirement
  - Meet Australia's character requirement
  - Sign the Australian values statement
  - Not have had a visa cancelled or a previous application refused

CANADA[3]

- ***Benefits:***
  - Permanent residence
- ***Requirements:***
  - Have a qualifying business
  - Obtain a letter of support from a designated organization
  - Meet the language requirements
  - Bring enough money to settle

CHILE[4]

- ***Benefits:***
  - A one-year working visa, free coworking space, equity-free funding, and access to Startup Chile resources
- ***Requirements:***
  - Be a founder of a company with a functional product and early validation (for Seed Acceleration program), or
  - Be a female founder of an early stage startup (for The S Factory program), or
  - Be a founder of a project with an economic, social and environmental impact (for Huella Acceleration program)

[1] https://uglobally.com/startup-visa-worldwide/; https://www.g20yea.com/index.php/reports/visadir; https://en.wikipedia.org/wiki/Startup_Visa
[2] https://immi.homeaffairs.gov.au/visas/getting-a-visa/visa-listing/business-innovation-and-investment-188/entrepreneur-stream#Eligibility
[3] https://www.canada.ca/en/immigration-refugees-citizenship/services/immigrate-canada/start-visa/eligibility.html
[4] https://www.startupchile.org/programs/

CYPRUS[5]

- ***Benefits:***
  - Right to economic activity and residence in the Republic for one year, and with the possibility of renewal for at least another year
  - Right to self-employment or right to paid employment in entrepreneur's registered company within the Republic
  - Prospective residence in the Republic without any maximum time restrictions, if the enterprise succeeds
  - Enjoyment of family reunification, if the enterprise succeeds
  - Prospective recruitment of a specific number of personnel from non-EU countries without prior approval of the Department of Labor, in case of success of the enterprise. The success or failure of the enterprise will be assessed at the end of the second year
- ***Requirements:***
  - Be the sole founder of the business and own the majority of the enterprise's shares
  - Have access to €50,000, which may include venture capital funding, crowdfunding, or other sources
  - Hold an undergraduate degree or an equivalent professional qualification
  - Have very good knowledge of the Greek and/or English language

DENMARK[6]

- ***Benefits:***
  - Danish residence permit for a period of up to two years with the possibility of extension for three years at a time
- ***Requirements:***
  - Have a business plan that is approved by the Startup Denmark expert panel
  - Play an active part in running the business
  - Provide documentation of sufficient funds to cover one's first year in Denmark

ESTONIA[7]

- ***Benefits:***
  - Temporary residence permit for up to five years, renewable with option to apply for permanent residency
- ***Requirements:***
  - Possess a company conducting business activity in Estonia with a minimum investment of €65,000 (in the case of a self-employed person, €16,000 euros)
  - Have startup evaluated by the expert committee

FINLAND[8]

- ***Benefits:***
  - Two year permit, renewable
- ***Requirements:***
  - Have a startup team of no less than 2 founders with versatile expertise
  - Have an innovative business plan
  - Show commitment to the business idea and eventually building the company
  - Show significant holding in the company (has no less than 60% of the company)

[5] http://www.reform.gov.cy/en/growth-reform/entrepreneurship-and-investments/startup-visa
[6] https://startupdenmark.info/how-apply
[7] https://www2.politsei.ee/en/organisatsioon/organization/
[8] https://www.businessfinland.fi/en/do-business-with-finland/startup-in-finland/startup-permit/

- Have access to sufficient resources and funding for the company's early stages

FRANCE[9]

- ***Benefits:***
  - Residence permit with maximum validity of four years, renewable
- ***Requirements:***
  - Prove possession of a real and serious business creation project in France
  - Invest at least €30,000 in the project
  - Hold a degree at least equivalent to a master's degree or be able to prove at least five years of professional experience at a comparable level

GERMANY[10]

- ***Benefits:***
  - Temporary right of residence for a maximum of three years, renewable with option to apply for permanent residency
- ***Requirements:***
  - Demonstrate that there exists an economic interest or regional need in the business (idea)
  - Demonstrate that the activity is expected to benefit the Berlin economy
  - Demonstrate that implementation is financially secured by equity capital or credit
  - Submit a business plan containing capital requirements, liquidity, and a profit/loss
  - Submit a certificate of health insurance cover
  - Submit a curriculum vitae of the entrepreneur

IRELAND[11]

- ***Benefits:***
  - Residence for two years, renewable for a further three years. After 5 years residence, participants will be eligible for long term residence
- ***Requirements:***
  - Have a proposal for a startup in the innovation economy (introduces a new or innovative product or service to international markets, is capable of creating 10 jobs in Ireland and realising €1 million in sales within three to four years, is led by an experienced management team, is headquartered and controlled in Ireland, is less than six years old)
  - Have funding of €75,000

ISRAEL[12]

- ***Benefits:***
  - Permission to stay in Israel for up to 24 months. Should the project subsequently mature into a company, the foreign entrepreneur will be able to receive an 'expert visa' and file a request for support from the Israel Innovation Authority's different programs. Such further support may allow entrepreneurs to stay in Israel and work on the project as an employee for a period of up to 5 additional years
- ***Requirements:***
  - Possess a technological idea that entrepreneur wishes to develop into a product

[9] https://france-visas.gouv.fr/en_US/web/france-visas/international-talents-and-economic-attractiveness
[10] https://www.ihk-berlin.de/blueprint/servlet/resource/blob/2265310/4a811090332b9d9797188153ebfa34e7/residence-and-employment-of-foreign-nationals-and-companies-in--data.pdf
[11] http://www.inis.gov.ie/en/INIS/Guidelines%20for%20Start-up%20Entrepreneur%20Programme.pdf/Files/Guidelines%20for%20Start-up%20Entrepreneur%20Programme.pdf
[12] https://innovationisrael.org.il/en/program/innovation-visas-program-foreign-entrepreneurs-pilot

- Submit a statement regarding funding sources covering the entire period of entrepreneur's planned stay in Israel
- Be accepted into a "Landing Pad" program

ITALY[13]

- ***Benefits:***
  - A startup self-employment visa, with a duration of one year which is subject to the annual migration quotas. Visa is renewable for a maximum of two years. It is then renewable at expiration and can be extended for a further two years. After five years, the non-EU citizen can apply for a residence permit for long-term residents, which has no expiry date
- ***Requirements:***
  - Have an innovative startup that has been operational for three years at least
  - Assume the role of Chairman, CEO, member of the Board of Directors, or auditor
  - Prove possession of at least €100,000
  - Have academic and professional curriculum that is relevant to the core business of the innovative startup

JAPAN[14]

- ***Benefits:***
  - Status of residence of "Designated Activities" of up to one year (needs to be renewed after six months) in Fukuoka City
- ***Requirements:***
  - Submission of a new business implementation plan to Fukuoka City in the following fields: Knowledge creation industries (e.g., semiconductor related, software development, content production, robot related), Health, medical and welfare related industries (e.g., drug development ventures, medical technology development, regenerative medicine, welfare equipment development), Environmental and energy related industries (e.g., clean energy development, next-generation storage technologies, global information systems), Logistics related industries (e.g., global SCM services, 3PL services, international home delivery, drone logistics development), or Trade related industries (e.g., businesses that contribute to the development of overseas sales routes for goods produced in Fukuoka, businesses that utilize the functions of Hakata Port and Fukuoka Airport)
  - Submit a resume
  - Demonstrate an ability to cover one's expenses for staying in Japan for one year
  - Willingness to open an office
  - Hire at least two full-time staffs, or
  - Have capital or a total amount of investments of at least 5 million yen

LITHUANIA[15]

- ***Benefits:***
  - Permission to live in the country for one year, with the possibility to extend for an additional year, after which entrepreneur must meet general immigration requirements
- ***Requirements:***
  - Propose a startup that operates in one of the following fields: Biotechnologies, Nanotechnologies, Information Technologies, Mechatronics, Electronics, Laser Technologies

[13] http://italiastartupvisa.mise.gov.it/media/documents/Guidelines%20ISV%20ENG%2020_03_2018%20def.pdf
[14] https://www.city.fukuoka.lg.jp/keizai/r-support/business/startupviza_2_2.html
[15] https://startupvisalithuania.com/faq

- Be legally at least a part owner of the newly founded firm
- Have enough financial resources to achieve your set business goals for 1 year

MALAYSIA[16]

- ***Benefits:***
  - A Professional Visit Pass valid for 1 year (for new entrepreneurs)
  - A Residence Pass valid up to 5 years (for established entrepreneurs) with permission to bring immediate family members such as a husband / wife, child, adopted child or stepchild under the age of 18, and/or a disabled child (no age limit) verified by experts
- ***Requirements:***
  - Present a pitch deck presenting the idea, market opportunity, and plans to secure funding
  - Possess a minimum amount of RM50,000
  - Demonstrate no criminal record in country of origin

NETHERLANDS[17]

- ***Benefits:***
  - Permission to stay and work as an entrepreneur for a maximum of one year. At the end of Year 1, entrepreneur can apply for a permit to work on a self-employed basis
- ***Requirements:***
  - Work together with a reliable expert facilitator
  - Present a product or service that is innovative
  - Show a plan to advance the idea to a business
  - Be entered in the Commercial Register of the Chamber of Commerce
  - Possess sufficient money (resources) to reside and live in the Netherlands

NEW ZEALAND[18]

- ***Benefits:***
  - *Start-up stage*: If the application is approved, entrepreneur will initially be given a 12-month work visa, offering permission to buy or establish one's business
  - *Balance stage*: Once entrepreneur has proven that they have taken steps to establish their business, they are granted the remaining 24 months of their visa
  - After either six months or two years, entrepreneur can then apply for residence under the Entrepreneur Residence Category
- ***Requirements:***
  - Invest a minimum of NZ$100,000 (excluding working capital)
  - Achieve 120 points or more, with points awarded for factors about the likely success of the business and its value to New Zealand
  - Offer a business plan
  - Possess a clean recent history of bankruptcy, business failure and fraud
  - Meet health, character and English language requirements

NORWAY[19]

- ***Benefits:***
  - A permit for one year at a time
  - After three years, entrepreneur can apply for a permanent residence permit
  - Entrepreneur's family members can apply for family immigration

[16] https://www.mtep.my/
[17] https://business.gov.nl/coming-to-the-netherlands/permits-and-visa/startup-visa/
[18] https://www.newzealandnow.govt.nz/investing-in-nz/visas/entrepreneur-visa
[19] https://www.udi.no/en/want-to-apply/work-immigration/skilled-workers/#link-831

- ***Requirements:***
  - Completion of a vocational training programme of at least three years at upper secondary school level, for example as a carpenter or health worker; there must be a corresponding vocational training programme in Norway, or
  - Completion of education or degree from a university/university college, for example a bachelor's degree as an engineer or nurse, or
  - Special qualifications that entrepreneur has obtained through long work experience, if relevant in combination with courses etc. (under exceptional circumstances)
  - Possess plans to engage in long-term business activities in Norway as a sole proprietorship
  - Plans to engage in business that requires the entrepreneurs' qualifications as a skilled worker
  - Likelihood that the business will generate a profit of at least NOK 246 246 per year pre-tax per an assessment conducted by the county authority
  - Possession of a permit from public authorities, if applicable

PORTUGAL[20]

- ***Benefits:***
  - A residence visas valid for 4 (four) months that can be extended, within national territory for a period of 90 (ninety) days and grants the right to apply for a residence permit
- ***Requirements:***
  - Intention to develop a technology startup in Portugal or to expand a startup to Portugal
  - Startup shows potential to the creation of jobs beyond the founding team
  - Startup shows potential to generate a turnover of 325,000€/ year and/or assets value over 325,000€/ year, within 5 years after the start of the contract with a chosen incubator
  - Have the capacity to establish a company, when applicable, during the undergoing of the program
  - Do not have regular residence in the Schengen area in a recent past
  - Do not have a criminal record
  - Are not under 18 years old
  - Have enough funds in one's bank account in a total amount of 5146.08€ for 12 months (per person)

SINGAPORE[21]

- ***Benefits:***
  - An "EntrePass" valid for 1 year with subsequent renewals lasting 2 years
  - Renewal to be determined based on proof of business at least 30% shareholding of the company, as well as minimum business spending and employment of full-time employees based on number of years elapsed
- ***Requirements:***
  - Have a company that is less than 6 months old
  - Have raised at least $100,000 from a government investment vehicle, venture capitalist or business angel that is recognised by a Singapore Government agency
  - Be an incubatee at an incubator in Singapore that is recognised by the Government
  - Possess significant business experience or network and promising entrepreneurial track record of starting highly-scalable businesses and want to establish, develop and manage a new or existing business in Singapore

[20] https://startupportugal.com/startup-visa
[21] https://www.mom.gov.sg/passes-and-permits/entrepass/eligibility

SPAIN[22]

- ***Benefits:***
  - A residence visa valid for 1 year
- ***Requirements:***
  - Be older than 18 years
  - Possess no criminal record in Spain or countries lived in during the last 5 years for offenses stipulated under Spanish Law
  - Have a public insurance or private health insurance with a Health Insurance Institution authorised to operate in Spain
  - Have sufficient financial resources for oneself and for the members of one's family during the period of residency in Spain (2.130€ monthly for oneself and 532€ for every family member that is in one's care)

SWEDEN[23]

- ***Benefits:***
  - A residence permit for two years with ability to obtain a permanent residence permit if entrepreneur can earn a living from their company, comply with good accounting practice, and have the necessary permits for the business. Entrepreneur must also have stayed in Sweden for more than six months each year
- ***Requirements:***
  - Show considerable experience in the industry and previous experience of running of one's own business
  - Show relevant knowledge in Swedish and/or English
  - Have executive responsibility and own at least 50% of the company
  - Have the company's services or goods be produced and/or sold in Sweden
  - Possess enough money of one's own to provide for oneself and any family members for the first two years (the equivalent of SEK 200,000 for oneself, SEK 100,000 for one's accompanying wife/husband and SEK 50,000 for each accompanying child)
  - Present plausible supporting documentation for one's budget
  - Show that one has created customer contacts and/or a network in Sweden
  - Show that after the trial period of two years, one's company's finances are in balance and that one can support oneself and any family members

TAIWAN[24]

- ***Benefits:***
  - 1 year renewable residence with unlimited entry
- ***Requirements:***
  - Receive venture capital or international fundraising of more than NT$2 million, or
  - Receive approval to reside at a recognized innovation park or incubator in Taiwan, or
  - Obtain patent rights or professional skills certificate, or
  - Be awarded in a leading startup or design competition, or has been involved in a foreigner entrepreneurship project in Taiwan, or
  - Be located in a startup accelerator recognized by the Taiwan government, or
  - Be nominated or awarded in a film festival, or
  - Receive innovation subsidy of at least NT$3 million from the central government or at least NT$1 million from the local government, or

[22] http://www.exteriores.gob.es/Consulados/CIUDADDELCABO/en/InformacionParaExtranjeros/Pages/Law-on-Visas-for-Entrepreneurs.aspx
[23] https://www.migrationsverket.se/English/Private-individuals/Working-in-Sweden/Self-employment.html
[24] https://www.roc-taiwan.org/in_en/post/3065.html

- Possess innovation capability specified or recommended by the Taiwan government, or
- Has an established enterprise with innovation capability in Taiwan and acts as its legal representative, manager or director with an investment of at least NT$1 million

THAILAND[25]

- ***Benefits:***
  - 2-year renewable visa with permission for spouse and children to stay (and for spouse to work)
- ***Requirements:***
  - Establish a startup company in Thailand, certified as being the ones in the targeted industries by relevant government agencies such as the National Innovation Agency (Public Organization) and Digital Economy Promotion Agency
  - Hold no less than 25% of the company's registered capital or a position of a director
  - Have a deposit of at least 600,000 Baht or equivalent in a bank account in Thailand or in the country of one's nationality or residence, which has been held for at least 3 months
  - Have a minimum deposit of 180,000 Baht per person in an account at least 3 months old
  - Have health insurance covering the entire period of stay in Thailand for the applicant as well as spouse and children

UNITED KINGDOM[26]

- ***Benefits:***
  - Ability to remain in the UK for 3 years with ability to extend for another 3 years with no limits on the number of times visa may be extend
  - Ability to apply for settlement (known as 'indefinite leave to remain') once entrepreneur has been in the UK for 3 years
- ***Requirements:***
  - Desire to set up or run a business in the UK
  - Reside outside the European Economic Area (EEA) and Switzerland
  - Able to show that one's business idea is a new idea that is viable, with growth potential
  - Have at least £50,000 in investment funds
  - Have company be endorsed by an approved body

[25] https://smart-visa.boi.go.th/smart/pages/smart_s.html
[26] https://www.gov.uk/innovator-visa