GIVE ME YOUR ENTREPRENEURS, YOUR INNOVATORS:
Estimating the Employment Impact of a Startup Visa

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EXECUTIVE SUMMARY

- One proposed version of a Startup Visa would make 75,000 visas available for current holders of H-1B and F-1 visas. To remain eligible, Startup Visa companies must employ two full-time, non-family employees after one year, and raise or invest $100,000. After three subsequent years, Startup Visa companies must employ five full-time, non-family employees. At the end of four years, Startup Visa holders may apply for permanent residence.

- A Startup Visa would release considerable pent-up entrepreneurial energy in the United States. Consider the following scenarios:
  - Using the legislative minimum requirements, and applying company and employment survival rates from Census data, we estimate that four-year-old Startup Visa companies would create nearly 500,000 new jobs after ten years.
  - Using Census data on average employment per firm, we estimate that four-year-old Startup Visa companies would create nearly 900,000 new jobs after ten years.
  - Assuming that half of the Startup Visa companies would be technology and engineering companies, we use data on immigrant-founded technology companies in the United States. We estimate that, in this scenario, Startup Visa companies would create nearly 1.6 million new jobs after ten years.

- For various reasons, we consider these three scenarios to be conservative, low-end estimates.

- None of these estimates take into account potential high-growth and scale firms or the continued growth of Startup Visa companies after they age out of the program. Nor do they account for a Startup Visa’s impact on innovation, GDP, and productivity.

- The current proposed design has two potential shortcomings. First, the 75,000 Startup Visas it would create are a fixed number, so new slots become available only as companies fail. Second, the Startup Visa may actually penalize failure, and care should be taken to build tolerance for failure into the design and execution.
INTRODUCTION

Immigration reform seems to finally be on the national agenda in Washington. Demographic, economic, and electoral realities have conspired to force the issue to the fore of the legislative agenda, and there is burgeoning hope in many quarters that 2013 is at last the year that we see comprehensive immigration reform.

Something, however, is missing—it seems highly possible that comprehensive legislation could pass without a visa for foreign-born entrepreneurs. The idea of visas for immigrant entrepreneurs has bounced around the country for many years, and even has been introduced into Congress on more than one occasion. The most recent is Startup Act 3.0, a bipartisan bill recently introduced into the U.S. Senate that, among other things, includes a Startup Visa.

In this current incarnation, the new Startup Visa would make available a fixed pot of 75,000 visas for individuals who start companies. Initial eligibility would be restricted to individuals who already are in the United States on either H-1B visas or F-1 student visas. Once the Startup Visa is issued, further requirements are imposed in the first year. During that time, the entrepreneur must register a business, employ at least two full-time, non-family employees, and invest or raise an investment of at least $100,000. If, after one year, those requirements are met, the entrepreneur gets three additional years on the visa. During that three-year period, the entrepreneur must employ at least five full-time, non-family employees. The original two employees count toward these five, which means the business essentially must hire one person per year after the first year of operation. At the end of three years, the entrepreneur may apply to have the conditional status removed.¹

Here, we attempt to estimate the impact on job creation that enactment of such a Startup Visa would have. Our calculations suggest that a Startup Visa could create anywhere from 500,000 to 1.6 million jobs over the next ten years. Because of the assumptions and methods used, we consider these very conservative, low-end estimates.

ESTIMATES

It seems likely, both empirically and anecdotally, that there is a massive entrepreneurial backlog among H-1B and F-1 visa holders. We know, in fact, there is pent-up entrepreneurial energy among H-1B holders, based on applications from startup founders and stories from entrepreneurs and venture capitalists.² H-1B visas for founders of new companies are extremely difficult, if not impossible, to obtain. Right

now, there are at least half a million H-1B visa holders in the United States and thousands more foreign-born students at American universities. In fiscal year 2008, 90 percent of H-1B visa holders were between the ages of twenty and thirty-nine. Following other work on the age of entrepreneurs, these individuals are at or approaching “peak age” for entrepreneurship.

A Startup Visa aimed at H-1B and F-1 holders would release a gush of this entrepreneurial energy.

We can use the most recent data on employer firm creation in the United States to estimate the impact of a Startup Visa. From 2003–2010, an average of 496,000 employer firms came into existence in the United States. This reached a high of 561,923 in 2006, at the height of the last expansion, and fell to 394,632 in 2010. Data for 2011 and 2012 are not yet available. We can use the U.S. Census Business Dynamics Statistics data to calculate broad survival rates and employment creation and destruction for firms in the aggregate, and use those numbers as a baseline for estimating the job creation impact of a Startup Visa.

Average survival rates by year for each successive cohort of entering firms since 2003 are as follows:

- One year: 74 percent
- Two years: 63 percent
- Three years: 55 percent
- Four years: 49 percent
- Five years: 44 percent

So, after five years, 44 percent of a given year’s new companies are still around. These survival rates are slightly lower than average survival rates across the entire period of BDS coverage, from 1977 to 2010, and because the full impact of the Great Recession on business dynamics isn’t yet known, we will use these lower figures for our baselines.

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3 The annual H-1B cap is 65,000, with an additional 20,000 exempt from the cap for nonprofits, universities, and government research institutes. Because H-1Bs are good for up to six years, and because the quota has been oversubscribed for the past several years, the calculation is that, at minimum, there are more than 500,000 H-1B holders at present. See also Carl Lin, “Give Me Your Wired and Your Highly Skilled: Measuring the Impact of Immigration Policy on Employers and Shareholders,” Institut d’Economia de Barcelona, 2011.


5 Silicon Valley Bank, Startup Outlook 2013: The Issue of Talent, February 2013, at http://www.svb.com/startup-outlook-report/. One new company, for example, reports difficulty in hiring workers who are already here on H-1B visas because their visa status won’t allow them to join the startup: “As a startup that offers compensation consisting of a mix of salary and equity, these packages don’t meet the qualifications to support a standard U.S. H-1B visa.”

6 Census Bureau, Business Dynamics Statistics.
Employment across the new entering cohorts generally shows higher persistence than firms, as firms either survive or fail, and grow or shrink. For cohort employment, survival rates are as follows:

- One year: 89 percent
- Two years: 82 percent
- Three years: 76 percent
- Four years: 73 percent
- Five years: 69 percent

In other words, across a five-year period, of all the jobs created (and destroyed) by new and young firms, more than two-thirds of the jobs survive for five years. These are generally the most dynamic firms in the U.S. economy, so such numbers are not surprising. These broad aggregate averages abstract from all the variation that takes place in the real world of entrepreneurship. Buried within these data are firms that grow quite rapidly, adding one to two dozen jobs per year, for example. Likewise, included here are companies that come into existence with six to ten employees, but fail to make it past a third year of existence. Nevertheless, these broad numbers are sufficient for our purposes here.

The current proposal for Startup Visas establishes a four-year eligibility period, after which founders may apply for permanent residency. It is expected that some of the companies created under the new visa will fail during those four years. Because the 75,000 is a fixed number with no new visas added annually, Startup Visa slots would become available only if a company failed. So, new spots conceivably will be opened each year as companies either go under or do not meet the requirements. Consequently, we restrict our estimates to job creation that occurs at the time a Startup Visa company “ages out” of the program after four years. Estimates that count job creation by companies over their first three years of existence would necessarily inflate the job creation estimates. We opted for the more conservative approach.

We make the assumption that the 75,000 visas will be filled at all times. That is, once a company fails, a new entrepreneur will fill the available slot. We believe this is a reasonable assumption because of previous research on visa backlogs for immigrants and the propensity for immigrants to start companies. It may be the case, however, that actual administration of the visa process may not be able to rapidly fill open slots. If that occurs, our total job creation estimates would take longer to reach, but not decrease.

In 2014, if a Startup Visa were in place, 75,000 new Startup Visas would be created and filled. Census Bureau statistics indicate that, after four years, slightly less than half of

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7 We applied the above firm survival and employment survival figures to arrive at the estimates.
these companies, or 37,108 firms, still would be around. The remaining slots would have become available to new Startup Visa applicants over the previous three years, and those new Startup Visa companies show up as four-year-old companies in subsequent years. We lay out our three estimation scenarios after Table 1, which summarizes the calculations.

| Time       | Number of Age Four Firms | Jobs Created By Scenario |          |          |          |          |          |
|------------|--------------------------|--------------------------|----------|----------|----------|----------|
|            |                          | Legislative Baseline     |          |          |          |          |          |
|            |                          | Average                  | F-1      | H-1B     | Total    |          |          |
|            |                          | U.S. Firm                |          |          |          |          |          |
| 4 Years    | 37,108                   | 185,542                  | 340,650  | 92,770   | 396,499  | 489,269  |
| 5 Years    | 9,439                    | 47,195                   | 86,649   | 23,598   | 100,856  | 124,453  |
| 6 Years    | 6,620                    | 33,098                   | 60,766   | 33,095   | 141,448  | 174,543  |
| 7 Years    | 5,712                    | 28,558                   | 52,432   | 14,278   | 61,022   | 75,300   |
| 8 Years    | 5,092                    | 25,462                   | 46,748   | 12,730   | 54,408   | 67,138   |
| 9 Years    | 21,375                   | 106,877                  | 196,223  | 53,438   | 456,784  | 510,221  |
| 10 Years   | 11,522                   | 57,610                   | 105,771  | 28,805   | 123,113  | 151,918  |
| Grand Total| 96,869                   | 484,343                  | 889,239  | 258,713  | 1,334,129| 1,592,842|

Table 1. Rolling annual estimates of Startup Visa job creation under three scenarios.

At first blush, Column 1 indicates that a Startup Visa would have massive leverage in terms of the number of companies started. After ten years, nearly 100,000 companies will have reached four years and “aged out” of the visa program; this does not include all the additional companies that would be brand new or up to three years old at that point. In short, the denominator of new firms would grow by more than the available pool of visas—in sports terms, more shots on goals should conceivably produce more success.

Legislative Baseline Scenario. Here, we apply the minimum requirements established by the proposed Startup Visa described above. To remain eligible for the Startup Visa, a company must employ two full-time, non-family individuals after one year and five full-time, non-family employees after four years. Under this most conservative scenario, companies that move all the way through the Startup Visa program would create nearly 500,000 new jobs by 2024. When estimating the effect of the American Recovery and Reinvestment Act of 2009, the Council on Economic Advisors equated a 1 percent increase in GDP with 250,000 additional jobs.

9 Because a fixed number of Startup Visas would be available, the mechanics of the legislation dictate that annual cohorts in our table move in waves. Thus, it appears as if job creation from the Startup Visa actually falls off a cliff after the first cohort. This reflects the wave-like character of the cohorts moving through time, not diminishing returns from a Startup Visa.

10 Totals may not sum exactly due to rounding.

11 We do not include in our estimates any impact of acquisitions on job creation and firm formation. It seems likely, based on recent history, that a considerable number of Startup Visa firms would be acquired prior to reaching the four-year mark. We are unsure how this would affect a founder’s residency status. Because an acquisition does not add “new” jobs, we do not alter our calculations for this eventuality.
increase in Gross Domestic Product to an increase of one million jobs. Using this rule of thumb, we estimate the 500,000 jobs to be 0.5 percent of GDP, or roughly $70 billion in present terms.

**Average U.S. Company Scenario.** For each of the three scenarios, we use firm survival and employment survival rates based on the Business Dynamics Statistics. We also can use the employment and firm age information in that dataset to generate another estimate of Startup Visa job creation, one based on the real record of new and young companies creating jobs in America. On average, four-year firms from 2003 to 2010 employed 9.18 individuals, more than would be required under the Startup Visa legislation. Multiplied over thousands of companies, that seemingly small difference leads to a much larger job creation estimate: 889,000 over ten years. This would approach the equivalent of 1 percent of GDP, or roughly $140 billion.

**Technology and Engineering Scenario.** In earlier work that studies the incidence and impact of immigrant entrepreneurship in technology and engineering sectors, scholar Vivek Wadhwa and his colleagues unearthed some impressive numbers. Among technology and engineering companies founded between 2006 and 2012 in the United States, one-quarter were founded or co-founded by foreign-born individuals. This sample of immigrant-founded companies had employed an average of 21.37 people per firm.

We cannot assume that every company started through the Startup Visa program would be a technology or engineering company, but because H-1B status is one part of the eligibility for it, and because most H-1B holders are employed in science, technology, and engineering occupations, it is reasonable to think the Startup Visa program would be biased toward such entrepreneurs and firms.

Here, we assume half of the age four firms will be from H-1B holders, which we assign 21.37 employees, and the other half from F-1 holders, which we assign the legislative minimum of five employees. As a result, potential decennial job creation is considerably larger, at 1.6 million, which translates to 1.6 percent GDP, or roughly $224 billion. It seems likely that, because so many foreign-born students in the United States also have been found to be more likely to start companies that employ more than ten people, particularly those immigrants with college degrees. Matthew Denhart, "Growth and Immigration: A Handbook of Vital Immigration and Economic Growth Statistics," George W. Bush Institute, 2012. We should point out that all of our employment calculations include the founder(s), because the founder is an employee of the company. According to one form of the Startup Visa legislation, the requisite job creation is in addition to the founder, so one could add 75,000 jobs on top of each of these scenarios for total inclusive job creation.

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are studying STEM subjects (science, technology, engineering, and mathematics), many Startup Visa companies founded by F-1 visa holders could also be technology firms. Accounting for that would further increase the job creation estimates.

The following two charts provide summaries of the three scenarios.

**Figure 1.** This chart shows the rolling job creation of Age Four Startup Visa companies under three scenarios. Authors' calculations from Startup Act legislation, Census Bureau, and Wadhwa et al.

**Figure 2.** This chart sums the figures in the previous chart to show cumulative ten-year job creation estimates under various scenarios.
We treat these as low-end, conservative estimates, even under the Technology and Engineering scenario, for reasons laid out above and below. Our conclusion is that, at minimum, a Startup Visa would lead to the creation of anywhere between 500,000 and 1.6 million new jobs over the next ten years. And, as a reminder, these estimates include only companies that reach the point of aging out of the Startup Visa program. Including in our job creation counts the younger companies that are established along the way as new visa slots open could raise all of our estimates considerably. (While we do not deal here with the $100,000 investment minimum in the Startup Act legislation—of which the wisdom can and should be debated because of the falling cost of company creation in many sectors—it likely would further bias Startup Visa companies toward technology and engineering.)

Historically, healthy annual net job creation in the United States has been roughly two million, or twenty million over ten years. Our conservative estimates indicate that, over the next ten years, Startup Visa firms that survive four years would contribute, at minimum, roughly 5 percent of that total. Looked at another way, it is conceivable that, in the absence of some form of entrepreneurship visa, decennial job creation in the United States could be 5 percent lower than it otherwise might be. Five percent may not sound like much, but keep in mind that this assumes historically normal rates of job creation over the next decade, and that our estimates are what we consider to be low-end.

These estimates, moreover, say nothing about any job creation that may occur after companies age out of the Startup Visa program, when the founders apply for permanent status. Prior work on firm dynamics and job creation indicates that many of these companies can be expected to keep growing and adding jobs for many years, though we do not know what their total job creation will be. Some of the Startup Visa companies will fail after the four-year period expires; some will be acquired by larger companies. Such events obviously will affect job creation in subsequent years, but these would be natural developments and indicate that Startup Visa companies will contribute substantially to economic dynamism.

None of these estimates, moreover, take into account these companies’ potential impact on the U.S. economy in terms of innovation and productivity, not to mention the fiscal impact through taxes and the fact that immigrant founders will be consumers as well. In terms of total economic impact, this means we are likely underestimating the effects of a Startup Visa.

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17 The mean of the three scenario estimates is about one million jobs.

FURTHER DISCUSSION:
High-Growth Companies, Other Estimates, Policy Considerations

While we estimated the impact of technology and engineering companies that employ many more people than the minimum thresholds in the proposed legislation, we have not included in any of our estimates the potential contribution of high-growth firms. These are companies that can add two dozen employees per year as they rocket upward, ending up with fifty or 100 or 200 employees after only a few years. These fast-growing firms have historically been a vital source of job creation for the American economy.19

It is nearly impossible to predict with any accuracy which companies, or how many, will achieve such rapid growth, but we can take a very crude stab. If, over any given four-year period, 1 percent of the 75,000 Startup Visa companies achieved rapid growth and added twenty employees per year, they would employ, say, eighty people after four years. For 750 firms, that amounts to 60,000 jobs over four years. This would represent a significant share of new jobs.

A National Foundation for American Policy analysis of the top fifty venture-capital-backed companies in 2011 revealed that immigrants were founders or co-founders in nearly half of them.20 Looking at the employment track record of these twenty-four firms demonstrates that they have a remarkable impact. At an average company age of 5.8 years and 153 employees, this small sample of immigrant-founded companies added twenty-seven new employees per year. We will not extrapolate this to the entire potential sample of 75,000 Startup Visa holders, but this is indicative of the potential such companies—or even a sliver of Startup Visa companies—have for extraordinary job creation in the United States.

Our estimates here, which we consider to be conservative, compare well with other work done on the employment impact of H-1B visas in general. An analysis published by the American Enterprise Institute and Partnership for a New American Economy found that, from 2001 to 2010, every 100 H-1B holders created an additional 183 jobs for native-born Americans.21 If we translate this into 75,000 entrepreneurs, the equivalent employment impact over ten years would be 137,250—considerably less than our estimates above.22 In other words, if H-1B holders had, over the past ten years, been able to start companies rather than stay at their current jobs, they would have created at least three times more jobs than they did in H-1B employment.

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22 The calculation runs as follows: 100 H-1B holders times 750, to get 75,000 Startup Visa holders. So multiply 183 jobs by 750, to get 137,250.
We must keep in mind, too, that a Startup Visa would carry administrative costs. We are not in a position to estimate such costs, but it seems reasonable to suppose that the implementation and enforcement of it would be no more expensive than other visas, and likely would be much cheaper. If so, the potential payoff from a Startup Visa looks even better. In any case, if the idea is to help startups and entrepreneurs in the United States, such a visa needs to be tailored to their reality and not needlessly cumbersome in terms of paperwork, time, and fees.

This raises two potential shortcomings with the proposed design of the Startup Visa. First, the number of visas is fixed at 75,000. For testing out the idea of a visa for foreign-born entrepreneurs, a limited amount is probably a good idea. Over time, however, if the idea proves successful, that pool of available visas should be allowed to expand. Doing so would conceivably increase the number of jobs created.

Second, the legislative requirements make no room for failure and in fact penalize it. In the world of entrepreneurs and startups—particularly in high-technology fields—failure is a fact of life and necessary step in the entrepreneurial learning and discovery process. By tying purported success to short-term job creation and immediately withdrawing a visa from someone whose company fails, a Startup Visa could set up perverse incentives and fail to promote the very thing it aims to achieve. Perhaps founders whose companies fail within the four-year period should be allowed to reapply within a six-month period with no repercussions.

Actually, indexing failure to an expanding pool of new visas might address both of these shortcomings. Giving “failed” founders preference for, say, an incremental 10 percent of new visas created each year would remove the legislative stigma from failure without crowding out new applicants.

Finally, we must dwell briefly on one of the reasons the United States needs foreign-born entrepreneurs so much. Overall, business creation in this country has trended steadily downward for many years. In terms of high-tech sectors, native-born Americans do not study science and engineering at the same rate they did many decades ago. Instead, highly talented American citizens tend to go into finance, law, consulting, and management.23 That’s not necessarily a bad thing, and the market obviously sends signals in the form of high wages, but policymakers need to find a way to address the underlying causes behind the need for foreign-born entrepreneurs. There is no guarantee that this entrepreneurial pipeline from abroad will remain stocked.

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CONCLUSION

Our conservative estimates indicate that a Startup Visa could generate anywhere from 500,000 to 1.6 million jobs, at minimum, over the next ten years.

Even though the United States has an unmatched track record when it comes to the contributions of immigrant entrepreneurs, it is well known that current immigration policy is not particularly amenable to foreign-born entrepreneurs. Existing visas that might allow entrepreneurs in (such as the EB-5) have multiple problems associated with them, and it obviously is difficult to estimate the number of entrepreneurs who otherwise have been turned away and companies that have not been created. Stuart Anderson observes:

U.S. immigration policy does not look kindly on foreign nationals who seek to create businesses in America. In fact, in a practical sense, it may be easier to stay in the United States illegally and start a business than to start a business and gain legal temporary status and permanent residence (green card) as the owner of that business. … For years it has been difficult for someone to receive approval for H-1B status as the founder/CEO of a startup company. A 2010 policy memorandum released by U.S. Citizenship and Immigration Services made it more difficult.24

Meanwhile, other countries around the world are making aggressive bids for foreign-born entrepreneurs. At least seven other countries have dedicated visas or programs for foreign founders, many of them established within the past few years.25 So, while it is true that the United States has a stellar history of immigrant entrepreneurship, and the foreign-born account for an increasing share of business owners in the country, it could easily fall behind as a destination for high-skilled, high-impact entrepreneurs without some form of a Startup Visa.