



April 6, 2015

H-1Bs Don't Replace U.S. Workers

Employment in Top H-1B Fields Rises as H-1Bs Enter

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EXECUTIVE SUMMARY

Opponents of the H-1B high-skilled work visa argue that businesses use it primarily to replace American workers with cheaper foreign substitutes, taking jobs from native-born workers and undercutting their wages. But the data show that over the last decade, as businesses have requested more H-1Bs, they also expanded jobs for Americans.

If H-1Bs were primarily cheaper substitutes for American labor, the pace of H-1B requests—measured by the length of time before the cap on visas is reached—should rise when unemployment rises, as employers look to cut labor costs by laying off workers. But since 2003, we see the opposite: H-1B requests rise as unemployment falls. For every one percent increase in unemployment for workers with computer and tech expertise, who represent two-thirds of all H-1Bs, it takes an additional three months to reach the visa cap. In other words, companies use H-1Bs to grow, not to downsize.

Moreover, the entrance of a single foreign-born worker into the top H-1B fields—engineering and computer-related fields—is associated with an increase of nearly two new jobs overall in those industries. Despite a 50 percent rise in the number of foreign workers, wages in H-1B fields continue to rise. These workers have proven themselves crucial to America's economic growth and technological success. Rather than gutting the H-1B program, Congress should remove the arbitrary cap on visas and allow workers to legally change jobs without being deported. This is a better way to address rare cases in which H-1B workers are mistreated or paid below market wages, while increasing freedom and flexibility for both businesses and workers.

H-1BS PURPORTED DISPLACEMENT EFFECT

Opponents of immigration claim that high-skilled temporary workers using H-1B visas are causing large-scale displacement of high-skilled native workers. The Senate Immigration Subcommittee recently held a hearing on the subject at which Chairman Jeff Sessions (R-AL) claimed that H-1Bs are “absolutely replacing, causing workers to be fired from their jobs.”¹

The chairman supported the claim with a few anecdotes about companies firing some workers while also hiring H-1Bs. Although it is impossible to examine every such claim, it is important to recognize that large companies are often downsizing in some areas while growing in others.

One instance cited by Sen. Sessions was the recent layoffs by Microsoft, which announced layoffs of up to 18,000 workers. However, the senator did not consider what those jobs were or why they were being cut. The layoffs were mostly support staff, and nearly 70 percent were performing duplicate tasks of workers at the recently acquired Nokia.² Overall, Microsoft has doubled its workforce over the last decade, including adding 29,000 new employees from 2013 to 2014.³

Of course, there have been infrequent occasions when H-1Bs have been used to replace Americans. In 2015, for example, Southern California Edison (SCE) replaced some of its IT workers with H-1Bs.⁴ The company appears to have replaced experienced workers with entry-level H-1Bs who have a lower mandatory wage requirement than experienced H-1Bs.⁵ But the switch appears to have gone poorly. “Important IT projects have been delayed and complaints from Edison offices about poor tech support are rising,” the *LA Times* reported last month.⁶ After Edison was forced to delay additional layoffs, sources told the *Times* that the utility might recall laid-off workers. It is also worth considering whether a private firm could have gotten away with this public utility’s poor business decision.⁷

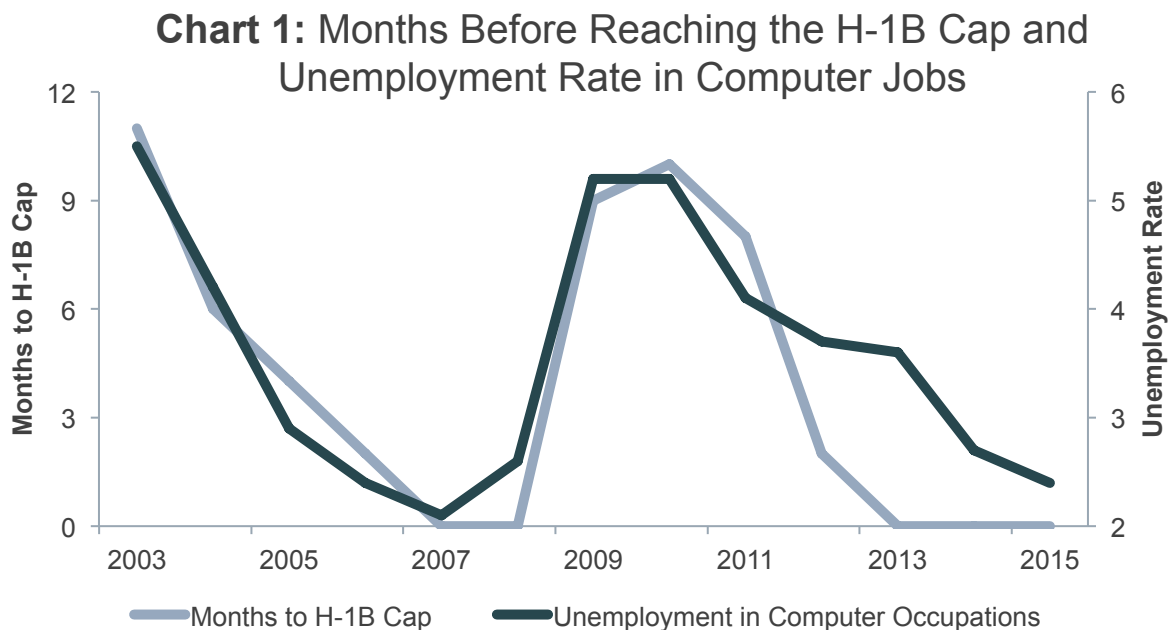
The problems that accompanied SCE’s move toward lower-wage but less experienced H-1Bs has not stopped opponents of the H-1B from claiming, as a Senate Judiciary Committee witness did this month, that “*most* of the H-1B program is now being used to import cheaper foreign guest workers, replacing American workers” (emphasis in original).⁸ But even multiple anecdotes would not support this sweeping assertion.

H-1BS ASSOCIATED WITH GREATER EMPLOYMENT

If employers were turning to H-1Bs to cut labor costs, we would expect petitions to rise during times when employers are laying off experts in computer and mathematical fields, which include 60 percent of H-1Bs.⁹ This classification includes computer and information scientists, computer systems analysts, software and web developers,

computer programmers, actuaries, and other similar positions.¹⁰ It excludes positions at tech companies that do not involve mathematics or computer expertise.

Chart 1 compares the unemployment rate in these occupations to the pace of H-1B applications, as measured by the number of months before the cap on visas was reached. If the H-1B opponents' theory is correct, we would predict that the cap would be reached faster as the unemployment rate increases when companies are looking to cut back on labor costs. But the opposite is true. When companies begin to shed workers, they also decrease their requests for H-1Bs.



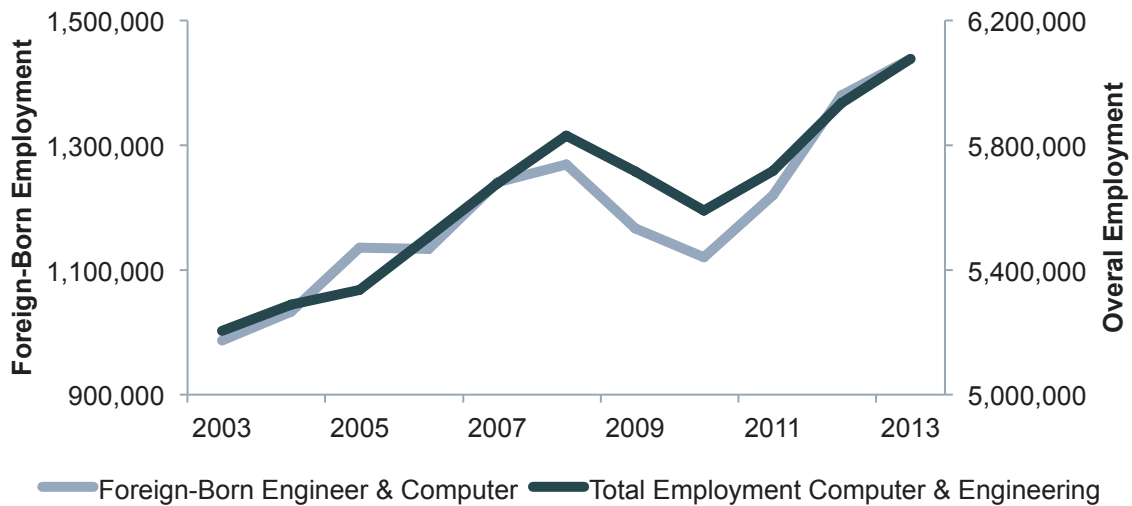
Since 2003, when the base cap on H-1B visas was cut from 195,000 to 65,000 visas,¹¹ there has been a strong correlation between a lower unemployment rate for computer and mathematical occupations and a faster pace for H-1B applications. That is, simply by knowing the unemployment rate for computer jobs, we can predict 80 percent of the variation in the rate of new H-1B visa requests. From 2003 to 2015, a one percent decrease in unemployment in those occupations is associated with a 3.3 month decrease before the H-1B cap is reached.

The same pattern appears for the second most common H-1B occupation: engineering and architectural jobs. The correlation is lower, as these jobs account for only about 10 percent of H-1B petitions compared to about 60 percent for computer jobs. But again, the data show that H-1B petitions fall when unemployment in relevant professions is rising. The unemployment rate for engineering jobs predicts 33 percent of the variation in the pace of all H-1B applications.

Opponents of the H-1B could respond that perhaps companies would have hired more American workers if they had no H-1Bs available to them. But if companies were hiring H-1Bs to save money rather than increase production, we would expect to witness, in the aggregate, more H-1B requests at exactly the time that companies are seeking to cut back on labor costs through layoffs when unemployment is rising. The fact that we see the opposite is strong evidence that companies are not basing their decision to hire H-1Bs on a desire to lower the cost of labor.

The idea that foreign-born H-1Bs are used as cheaper substitutes for American workers is further undercut by the fact that the employment of high-skilled foreign-born workers follows the overall employment trend in those fields. From 2003 to 2013, foreign-born workers in the top H-1B fields—engineering, architectural, computer, and mathematical occupations—had a strong positive correlation to the overall employment in those fields.

Chart 2: Foreign-Born and Overall Employment in Top H-1B Occupations



As before, companies are not turning to foreign workers when they are laying off Americans and cutting labor costs. By knowing the number of foreign workers employed in the top H-1B fields, we can predict 90 percent of the variation in the overall employment in those fields. The entrance of a single foreign-born worker into the top H-1B fields is associated with an increase of nearly two new jobs overall.

Sen. Sessions has also claimed an association between lower wages and the availability of H-1B visas. In his “Handbook on Immigration for a New Republican Majority,” he wrote of an H-1B increase that its “primary effect would be to deny millions of Americans a shot at a good-paying middle class job.”¹² He cites a claim that “expanded visas for IT personnel during the 1990s has kept average wages flat over the past 16 years.” But there is no evidence that foreign-born high-skilled workers are harming wages for American workers.

Chart 3: Foreign-Born & Total Employment in Top H-1B Fields (2003-13)

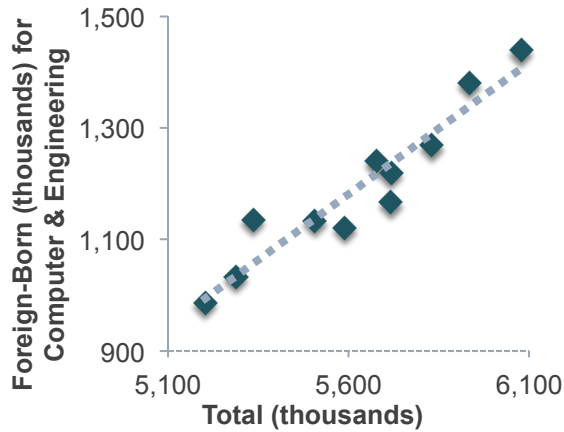
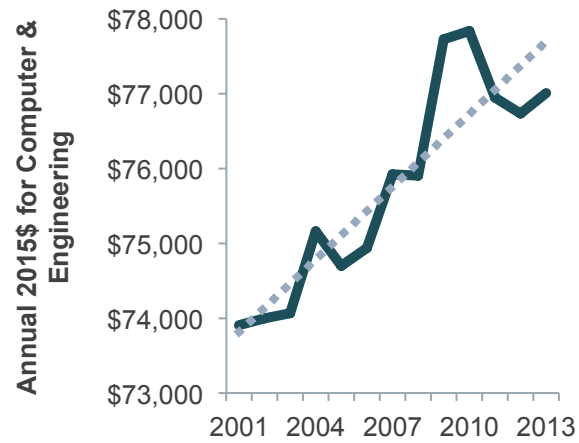


Chart 4: Median Wages for Top H-1B Jobs (2001-2013)



Despite tens of thousands of new H-1Bs entering engineering, architectural, computer, and mathematical fields each year, real median hourly wages for these top H-1B fields have increased by almost 5 percent from 2003 to 2013.¹³ Wages for all other occupations declined by almost 2 percent over that time, meaning that wages for the top H-1B occupations grew nearly 7 percent more than wages for all other occupations.¹⁴

Chart 5: Real Hourly Wages for Top H-1B Fields & All Fields (2003-2013)

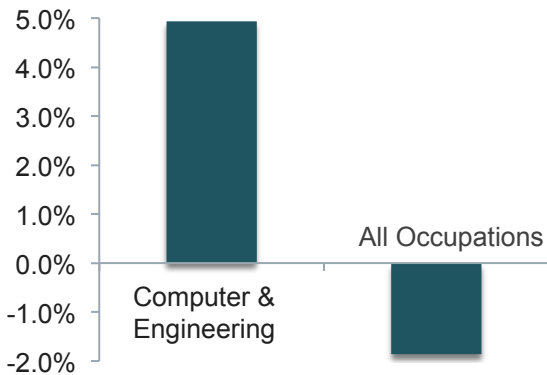
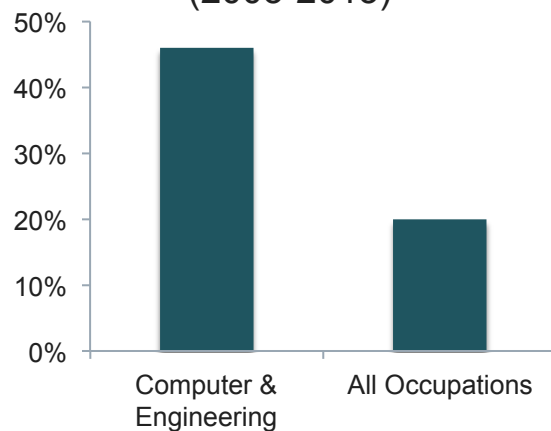


Chart 6: Increase in Foreign-Born Employment (2003-2013)



Despite a 50 percent increase in the number of foreign-born workers in the top H-1B occupations from 2003 to 2013, their wages continued to rise.¹⁵ The rest of the economy saw less growth in the number of foreign-born workers, but wages dropped. While by themselves these facts do not prove that H-1Bs or foreign workers are responsible for rising wages in top H-1B fields, it does invalidate the claim that H-1Bs

cause wages to decline. Just as importantly, it demonstrates a key point for proponents of the H-1B: the value of workers in these fields is rising.

Furthermore, foreign workers with a bachelor's degree or higher actually had 4 percent higher median earnings in 2013 than native-born workers, which discredits the idea that foreign workers are "undermining" the wages of Americans.¹⁶ Looking specifically at science, technology, engineering, and mathematics (STEM) fields, economists Gordon Hanson of UC San Diego and Matthew Slaughter of Dartmouth compared wages of native and foreign workers across a three-year sample from 2009-2011. The economists found that foreign STEM workers in their prime generally earned slightly more than native-born, but that overall, there was no statistically significant difference between the groups.¹⁷ It is difficult to claim that these workers are undermining wages of native-born workers when they are paid more.

Chart 7: Bachelor's Degree or Higher Earnings (2013)

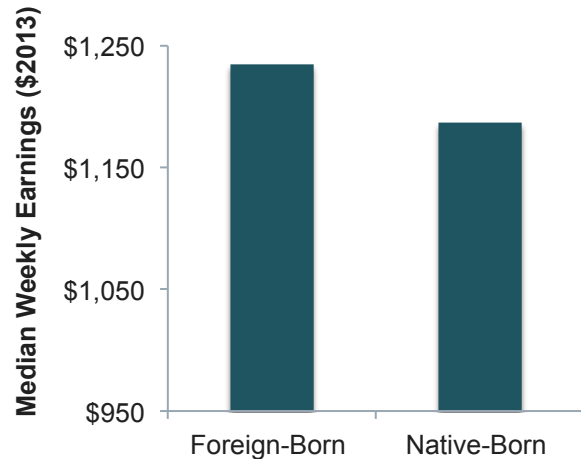
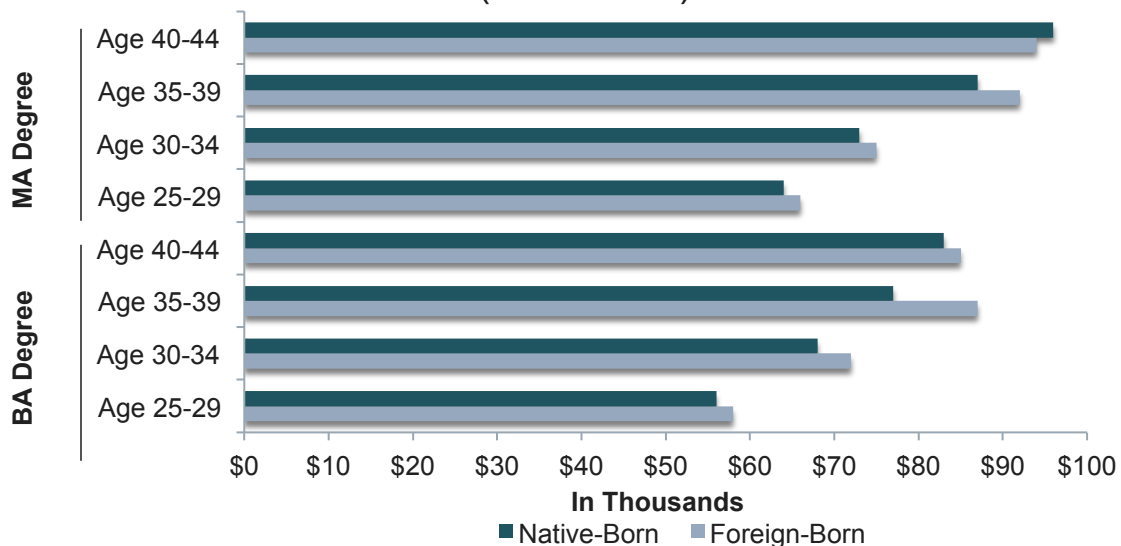


Chart 8: Median Earnings in STEM Fields (2009-2011)

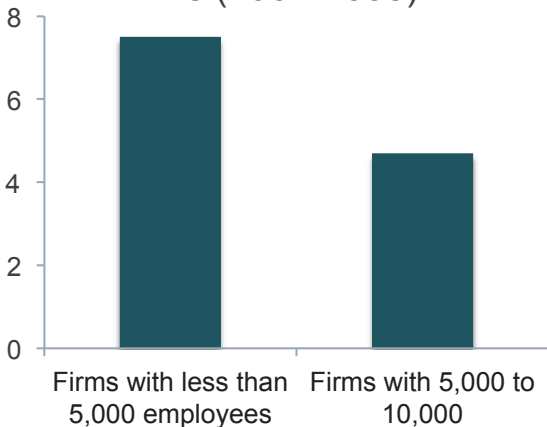


H-1BS CREATE JOBS FOR AMERICANS

What is true for the general economy is true for specific H-1B employers. They hire H-1Bs primarily when they are expanding. In 2006, the National Foundation for American

Policy analyzed the H-1B filings for technology companies in the S&P 500 and their employment figures for 2002 to 2005. Its report found “a positive and statistically

Chart 9: Jobs Created Per H-1B at U.S. Technology Firms (2002-2005)



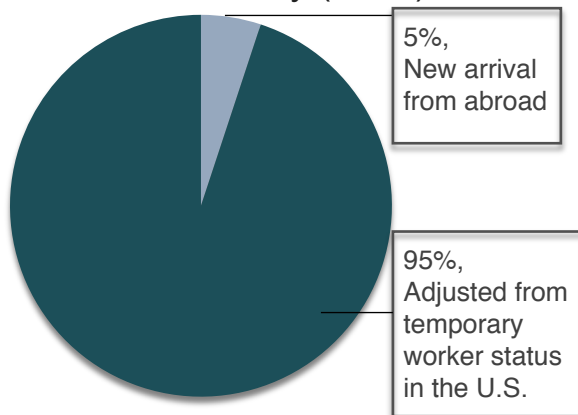
significant association between the number of positions requested in H-1B labor condition applications and the percentage change in total employment.”¹⁸

In other words, the general trend holds true at the firm level as well. Specifically the report found that each H-1B request by large tech companies is associated with an increase of 67 employees overall. The authors used a model that controlled for general market conditions to see if firms that hired H-1Bs were able to hire more non-H-1Bs than their competitors. They found that H-1B hiring firms with 5,000 or more employees increased employment by 5 new

hires for each H-1B request more than what the general market conditions would predict. Firms with 5,000 or fewer employees added 7 additional hires. Firms that employ H-1Bs are actually hiring more non-H-1Bs than firms that don't.

Sen. Sessions denies that H-1Bs can create jobs for Americans, drawing a sharp line between “immigrants” and H-1B “temporary workers.” “This H-1B program is a jobs program—it’s a temporary job process in which a corporation says that they can’t fill a job and they need a temporary worker,” he stated at the recent hearing. “It’s not an immigration program. They’re not intended to come here and start a business that’s going to hire lots of people.”

Chart 10: Skilled Immigrants' Way of Receiving Permanent Residency (2013)



This analysis is wrong in two ways. First, Sen. Sessions is wrong to draw a sharp distinction between H-1Bs and foreign-born permanent residents. In 2013, like prior years, 95 percent of all high-skilled immigrants—employment-based immigrant workers with at least a bachelor’s degree—adjusted their status from “temporary” to “permanent” in the United States.¹⁹ The H-1B visa has long been a gateway into the United States for immigrant entrepreneurs who create businesses that employ Americans.

Second, the analysis makes a faulty

distinction between an entrepreneur who “creates jobs” and a worker who merely “takes jobs.” The reality is that a high-skilled worker can act as an entrepreneur within the company. By raising production and productivity in the firm, the skills of an H-1B allow the firm to expand and hire more workers to handle new tasks related to the increased productivity. A new invention, product, or process creates jobs whether the inventor is an H-1B temporary worker or an immigrant entrepreneur.

Recent research by economists confirms that high-skilled immigrants are having a positive impact on the wages and employment of Americans. Economist Charles Jones of Stanford University found that scientists and engineers explain 50 percent of all total factor productivity growth from 1990 to 2002. In 2014, economists Giovanni Peri, Kevin Shih, and Chad Sparber used this number to conclude that because foreign-born workers accounted for 80 percent of the growth in employment in STEM fields from 1990 to 2010, they may also have accounted for as much as 40 percent of all productivity growth in the United States.²⁰

In 2014, the economists compared this rough estimate to the effects of foreign workers on U.S. cities. Using cross-city panel regressions, they found that a one percent increase in foreign STEM workers as a share of total employment raises the wages of college-educated natives by 7 to 8 percent in a given city.²¹

These results built on prior research that found that H-1Bs significantly increase the number of patent filings by U.S. firms with no reduction in the number of patents filed by native-born inventors.²² Other economists have concluded that foreign workers increase the productivity of American workers, finding that a one percent increase in foreign-born college graduates resulted in a 15 percent increase in patents per capita from 1950 to 2000.²³

In other words, the H-1Bs are increasing innovation without replacing jobs and innovation from Americans. The economic research finding positive effects for H-1Bs is overwhelming, and there has yet to be *any* academic research that finds that

HIGH-SKILLED IMMIGRANT FACTS

- Account for 40% of all workers with advanced STEM degrees
- Inventor or co-inventor of:
 - o 24.2% of international patents from the United States
 - o 76% of all patents at the top 10 patent universities
 - o 87% of semiconductor device patents
 - o 84% of IT patents
 - o 79% of drug patents
- Twice as likely to start a new business as a native-born citizen
- Founded:
 - o 25% of all tech & engineering startups from 2005-2010
 - o 44% of all tech & Silicon Valley engineering startups from 2005 to 2012
 - o 40% of Fortune 500 firms
- 27% of U.S.-resident Nobel Prize winners in chemistry, medicine, and physics (sources: endnote 22)

high-skilled immigrants decrease patenting, production, productivity, or innovation.²⁴ The United States has much to gain and nothing to lose by increasing high-skilled migration.

RESPONDING TO OCCASSIONAL H-1B ABUSE

Despite the evidence that H-1Bs are primarily requested to expand production at American companies, not to displace American workers, some rare cases have occurred where H-1Bs have been mistreated or paid below market wages relative to American workers. Congress can take actions to stop such abuses without eliminating the program or making it unusable with burdensome government regulations.

1. **Let H-1Bs leave bad employers.** An unscrupulous employer can only get away with paying an H-1B less than an American for the same work because the American can walk away from the negotiation, but H-1Bs cannot without losing their legal status. If the H-1B is without a sponsoring employer for even a single day, they are out of status. H-1Bs should be given a grace period of up to 60 days to find a new sponsoring employer. This would empower them to protect themselves while also making them less attractive to an employer who would seek to use the H-1B to undercut the wages of an American worker.
2. **Let H-1Bs stay in the green card line if they change employers.** If an employer applies for a green card for the worker, an H-1B cannot leave the employer without giving up their spot in the green card line. This provides a huge incentive for them to keep a lousy job even if a different employer would pay them more or treat them better. H-1Bs should be able to keep their place in the green card line even if they change jobs.
3. **End the low H-1B cap.** A counterintuitive way to combat H-1B abuses is to make more visas available. Due to the low cap, a lottery is used to decide which companies can hire H-1Bs. Like a raffle, the winners are the employers who submit the most applications, not necessarily the employers who have the greatest need (as measured in pay). For example, even though Microsoft pays its H-1B employees 46 percent higher than the median salary for employers in the same city and industry, a third of its H-1B requests could not be filled in 2014.²⁵ The H-1B lottery funnels workers toward a random assortment of employers, not the ones that they would naturally choose in a free market. Without the cap, workers would not have to choose between a visa and a good employer.
4. **Raise the green card limits.** Green cards allow successful H-1Bs to transition away from temporary status to permanent residency. Legal permanent residents can walk away from a negotiation, join a union, and work for any employer they want, which means that businesses have no reason to prefer them to American

workers. Just as important, green card holders can create their own businesses that can employ even more Americans.

More government regulation is not the answer to protect H-1Bs and Americans from abusive practices. The federal government already regulates the wages and working conditions of H-1B employers, and its Fraud Detection and National Security Directorate annually conducts more than 15,000 random onsite inspections of employers without notice.²⁶ Government inspectors will never be as effective of a tool at protecting workers as empowering the workers to protect themselves.

Just as importantly, government regulation intended to protect American workers could actually have the opposite effect. Consider a regulation under which companies are required to recruit American workers for 60 days prior to hiring an H-1B. This requirement would effectively make it impossible for H-1Bs to find new jobs within a 60-day or 90-day grace period after leaving their initial job. Without the ability to find a new job, H-1B hiring firms could get away with paying H-1Bs below market wages, perversely making H-1Bs more attractive to some employers than Americans. In other words, the regulatory approach directly undermines the free market approach.

CONCLUSION

The benefits of H-1B workers are indisputable. H-1Bs are associated with greater economic growth, innovation, employment, and wages for Americans. The preponderance of evidence clearly indicates that H-1Bs do not harm Americans: H-1Bs create new and better opportunities for them.

Congress has the tools to address the rare cases of H-1B abuse without gutting the program. It should seek to empower H-1Bs to protect themselves from abuse, while also making more H-1Bs available. High-skilled workers have contributed greatly to America's competitiveness in the past and, barring unnecessary government restriction, will continue to do so into its future.

Appendix: Tables

TABLE 1: UNEMPLOYMENT RATE IN TOP H-1B OCCUPATIONS AND MONTHS PRIOR TO H-1B CAP BEING REACHED

	2003	2004	2005	2006	2007	2008	2009
Computer and Mathematics Unemployment Rate²⁷	5.5	4.2	2.9	2.4	2.1	2.6	5.2
Engineering and Architecture Unemployment Rate²⁸	4.4	2.8	2.1	1.7	2.1	2.6	6.9
Months Prior to H-1B Cap Being Reached²⁹	11	6	4	2	0	0	9
	2010	2011	2012	2013	2014	2015	
Unemployment in Computer and Mathematical Occupations	5.2	4.1	3.7	3.6	2.7	2.4	
Unemployment in Engineering and Architectural Occupations	6.2	5.1	4.2	3.5	3.1	4.9	
Months Prior to H-1B Cap Being Reached	10	8	2	0	0	0	

TABLE 2: REAL ANNUAL WAGES (2015\$) IN ENGINEERING, ARCHITECTURAL, COMPUTER, AND MATHEMATICAL OCCUPATIONS³⁰

2001	2002	2003	2004	2005	2006	2007
\$73,906	\$73,998	\$74,069	\$75,161	\$74,700	\$74,934	\$75,925
2008	2009	2010	2011	2012	2013	
\$75,900	\$77,724	\$77,838	\$76,944	\$76,736	\$77,008	

TABLE 3: REAL HOURLY WAGES (2015\$) IN ENGINEERING, ARCHITECTURAL, COMPUTER, MATHEMATICAL, AND ALL OCCUPATIONS³¹

	2003	2013	Growth
All Occupations	\$17.19	\$16.87	-1.9%
Engineer & Computer	\$35.52	\$37.27	4.9%

TABLE 4: FOREIGN-BORN INCREASE IN EMPLOYMENT IN ENGINEERING, ARCHITECTURAL, COMPUTER, MATHEMATICAL, AND ALL OCCUPATIONS³²

	2003	2013	Growth
Foreign-Born Computer & Engineering	986,550	1,438,504	45.8%
Total Computer & Engineering	5,203,660	6,077,020	16.8%
Foreign-Born Share of Computer & Engineering	19.0%	23.7%	24.9%
Foreign-Born All Occupations	21,117	25,026	18.5%
Foreign-Born Share of All Occupations	14.4%	16.1%	12.0%

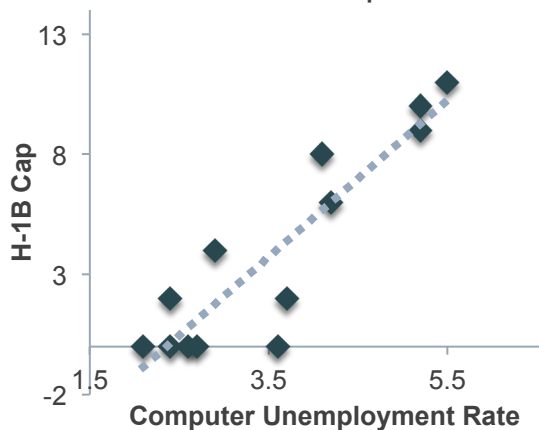
REGRESSION RESULTS

Regression 1: Unemployment Rate in Computer and Mathematical Occupations and Months Before Reaching the H-1B Cap (2003-2015)

Dependent variable: Months to Reach H-1B Cap

- R: 0.90
- R Square: 0.82
- Adjusted R Square: 0.80
- F: 49.47
- Coefficient (Computer): 3.26
- P-Level: 0.0233822362821363
- H₀ (2%) rejected? Yes
- H₀ (5%) rejected? Yes

Unemployment in Computer Jobs & Months to H-1B Cap

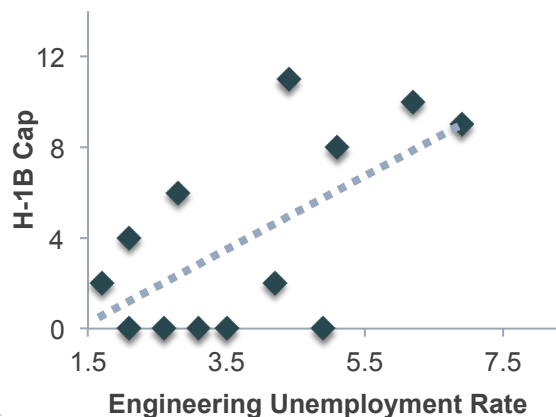


Regression 2: Unemployment Rate in Engineering and Architectural Occupations and Months Before Reaching the H-1B Cap (2003-2015)

Dependent variable: Months to Reach H-1B Cap

- R: 0.62
- R Square: 0.39
- Adjusted R Square: 0.33
- F: 6.92
- Coefficient (Engineering): 1.62
- P-Level: 0.0233822362821363
- H₀ (2%) rejected? No
- H₀ (5%) rejected? Yes

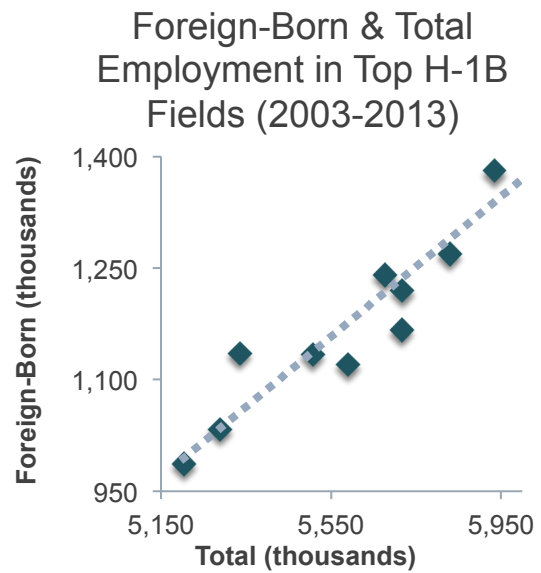
Unemployment in Engineering Jobs & Months to H-1B Cap



Regression 3: Foreign-Born and Total Employment in Engineering, Architectural, Computer, and Mathematical Occupations (2003-2013)

Dependent variable: Total employment

- R: 0.95
- R Square: 0.90
- Adjusted R Square: 0.89
- F: 82.73
- Coefficient (Foreign-Born): 1.91
- P-Level: 7.82882859473588E-06
- H₀ (2%) rejected? Yes
- H₀ (5%) rejected? Yes



Citations

¹ 36:00: Senate Judiciary Committee Hearing, "Immigration Reforms Needed to Protect Skilled American Workers." March 17, 2015. <http://www.judiciary.senate.gov/meetings/immigration-reforms-needed-to-protect-skilled-american-workers>.
² Arce, Nicole. "2,100 Microsoft Employees Become Jobless: Layoff Runs Deep and Painful." *Tech Times*, September 20, 2014. Accessed March 25, 2015. <http://www.techtimes.com/articles/15959/20140920/2100-microsoft-employees-become-jobless-layoff-runs-deep-and-is-painful.htm>.

³ Microsoft also pays its H-1B employees about 46% higher than the median salary for employers in the same city and industry: "H-1B Visa LCAs and Green Card LCs for Microsoft Corporation." Find the Data. Accessed March 25, 2015. <http://foreign-employment.findthedata.com//2a3348/Microsoft-Corporation>.
"Number of employees at Microsoft Corporation from 2005 to 2014 (in 1,000s)." Statista. Accessed March 25, 2015. <http://www.statista.com/statistics/273475/number-of-employees-at-the-microsoft-corporation-since-2005/>

⁴ They filed for 16 H-1Bs in 2015, but reports are that they used contractors from other companies: "2015 H1B Visa Reports: Electric Power Generation, Transmission and Distribution." My Visa Jobs. Accessed March 25, 2015. <http://www.myvisajobs.com/Electric-Power-Generation,-Transmission-and-Distribution-2211-2015IN.htm>

⁵ Appears based on the wages paid to the H-1Bs relative to the U.S. workers at SCE.

⁶ Hiltzik, Michael. "A Loophole in Immigration Law Is Costing Thousands of American jobs." *The Los Angeles Times*, February 20, 2015. <http://www.latimes.com/business/hiltzik/la-fi-hiltzik-20150222-column.html#page=1>

⁷ Interestingly, the anti-immigration group Center for Immigration Studies agrees, writing that Southern California Edison is "not going to save a dime hiring incompetent Indian offshoring firms." Their argument is that H-1Bs are just across the board incompetent. This is nonsense, but it appears that SCE likely ran into problems because they hired *entry-level* H-1Bs to fill jobs that required more experience, presumably to lower the required prevailing wage for those workers. Miano, John. "H-1B Incompetence." Center for Immigration Studies. March 24, 2015. <http://www.cis.org/miano/h-1b-incompetence>

⁸ Hira, Ronil. "Senate Judiciary Committee Testimony on Immigration Reforms Needed to Protect Skilled American Workers." March 17, 2015. <http://www.judiciary.senate.gov/imo/media/doc/Hira%20Testimony.pdf>

⁹ In 2012. Department of Homeland Security. "Characteristics of H1B Specialty Occupation Workers." 2013. Accessed March 28, 2015. P. 13. <http://www.uscis.gov/sites/default/files/USCIS/Resources/Reports%20and%20Studies/H-1B/h1b-fy-12-characteristics.pdf>

¹⁰ "This major group comprises the following occupations: Computer and Information Research Scientists ; Computer Systems Analysts ; Information Security Analysts ; Computer Programmers ; Software Developers, Applications ; Software Developers, Systems Software ; Web Developers ; Database Administrators ; Network and Computer Systems Administrators ; Computer Network Architects ; Computer User Support Specialists ; Computer Network Support Specialists ; Computer Occupations, All Other ; Actuaries ; Mathematicians ; Operations Research Analysts ; Statisticians ; Mathematical Technicians ; Mathematical Science Occupations, All Other." Bureau of Labor Statistics. "Occupational Employment and Wages, May 2014, 15-0000 Computer and Mathematical Occupations (Major Group)." March 25, 2015. Accessed March 28, 2015.

¹¹ The cap was lowered in 2003 for fiscal year 2004. All cap years reflect the fiscal year in which the application process opened rather than the fiscal year in which the visas were issued. The cap reach date reflects the date the cap was met for the "base cap" for H-1Bs without a master's degree.

¹² Jeff Sessions. "Immigration Handbook for the New Republican Majority." January 2015. http://www.sessions.senate.gov/public/_cache/files/67ae7163-6616-4023-a5c4-534c53e6fc26/immigration-primer-for-the-114th-congress.pdf

¹³ Weighted average of the median wage for the two occupational categories adjusted for inflation (CPI). Bureau of Labor Statistics. "Occupational Employment Statistics." Accessed March 28, 2015. <http://www.bls.gov/oes/tables.htm>

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- ¹⁴ Nowrasteh, Alex. "Is There a STEM Worker "Shortage"?" Cato Institute. May 21, 2014. <http://www.cato.org/blog/there-stem-worker-shortage>
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