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H-1B VISAS BY THE NUMBERS: 2017-18

EXECUTIVE SUMMARY

More H-1B visas are going to U.S. technology companies, reflecting the strong demand for high-skilled talent in the U.S. economy, and fewer visas are being used by Indian-based companies, which continues a recent trend, according to an analysis of government data obtained by the National Foundation for American Policy (NFAP). The new U.S. Citizenship and Immigration Services (USCIS) data would appear to undermine the argument that the federal government should impose new restrictions on H-1B visas and keep the visas at a low annual limit of 85,000 for companies, which equals only 0.05% of the U.S. labor force of 160 million. H-1B temporary visas are important as they are typically the only practical way a high-skilled foreign national working abroad or an international student educated in the United States can work long-term in America.

The annual limit on H-1B visas has been reached for the past 16 fiscal years due to its low level relative to the size of the U.S. labor force and because it was set in 1990, along with the employment-based green card limit, before the World Wide Web, smartphones and other innovations dramatically increased the demand for high-skilled technical labor. The vast majority of the graduate students at U.S. universities in key tech fields are international students and it is understandable that America's most innovative companies would recruit both talented foreign nationals and U.S. students to serve customers and compete in the global economy.

Four of 6 high-profile U.S. tech companies – Amazon (2,515), Microsoft (1,479), Intel (1,230), and Google (1,213) – were among the top 10 employers for approved H-1B petitions for initial employment in FY 2017. Facebook, with 720 new H-1B initial petitions approved in FY 2017, an increase of 248, or 53%, and Apple, with 673, a 7% increase, were 14th and 15th on the list. Amazon had the second most number of H-1B petitions approved for initial employment in FY 2017, with an increase from 1,416 in FY 2016 to 2,515 in FY 2017. Amazon's use of H-1Bs reflects its increased growth in the U.S., particularly in research and development.

The top H-1B employers among high-profile tech companies match up with the U.S. companies that spend the most on research and development (R&D). In 2017, Amazon spent almost $23 billion on R&D, followed by Alphabet (Google) with $16.6 billion, Intel with $13.1 billion, Microsoft with $12.3 billion, Apple with $11.6 billion and Facebook with $7.8 billion. Research and development is important to a country's economic growth. It is possible some of the larger tech companies had more success gaining approvals with fewer overall applications submitted for the FY 2018 H-1B cap (and subsequent random selection once USCIS received more applications than the annual limit).

In April 2018, U.S. Citizenship and Immigration Services announced it had received 190,000 H-1B applications, or 105,000 more applications than the 85,000-annual limit would permit. The top 7 Indian-based companies received only 8,468 approved H-1B petitions for initial employment in FY 2017, a decline of 43% for these companies since FY 2015. Given that 199,000 applications were filed in FY 2017 for the FY 2018 cap, the data show even if none of these companies received new H-1B visas the annual limit still would have been reached on the first day of the

April filing period. The data indicate the problem is not which companies are receiving H-1B visas but that the 85,000-annual limit is too low for an economy the size of the United States.

Table 1
Number of H-1B Applications Submitted in Recent Fiscal Years

Fiscal Year (Cap Year)	Applications Received	Number of Applications in Excess of 85,000
2015	172,000	*87,000*
2016	233,000	*148,000*
2017	236,000	*151,000*
2018	199,000	*114,000*
2019	190,000	*105,000*

Source: USCIS, National Foundation for American Policy. Numbers rounded off. Fiscal year for applications received refers to the year an individual would begin working.

The H-1B cases approved for initial employment in FY 2017 come from the FY 2018 H-1B "lottery" held in April 2017, which means these numbers reflect individuals who started working on a new H-1B petition in FY 2018 (which started October 1, 2017). (Some cases may be filed in one year and approved in a different fiscal year, according to USCIS.)

Among the key findings in the report:

- The demand for H-1B visas reflects, in part, the composition of students in key tech fields in the United States. At U.S. universities, 81% of the full-time graduate students in electrical engineering and 79% in computer science are international students.

- Emerging technologies, such as driverless vehicles, may also be increasing the demand for people with high levels of technical skill, including foreign-born researchers. Tesla (207 approved new H-1B petitions in FY 2017), Uber (158) and General Motors (179) all employ individuals in H-1B status.

- The decline in H-1B visas for Indian-based companies is due to industry trends toward digital services such as cloud computing and artificial intelligence, which require fewer workers, and a choice by companies to rely less on visas and to build up their domestic workforces in America. Companies today require fewer people per project. While Cognizant, a U.S. information technology services company headquartered in Teaneck, NJ, had the most H-1B petitions approved for new employment in FY 2017, with 3,194, that represented a decline of 25% from FY 2016. Restrictions on visas may result in more work being performed

outside the United States. All companies must compete for the same relatively limited pool of tech talent in the U.S.

- The number of new H-1B petitions for Tata Consultancy Services (TCS) declined by over 50% from FY 2015 to FY 2017 (from 4,674 to 2,312). The same is true for Infosys (a 57% decline from FY 2015 to FY 2017) and Wipro (a 61% decline from FY 2015 to 2017). Five of the 7 top Indian-based companies saw declines in FY 2017 from FY 2016 – Infosys, Wipro, HCL America, Larsen & Toubro and Mindtree. Only TCS, with an increase of 13%, and Tech Mahindra, which increased by 42%, had more H-1B petitions for initial employment approved in FY 2017 than in FY 2016.

- Reducing the H-1B annual limit in 2004 after the temporary increases of FY 1999 to FY 2003 did not increase the hiring of U.S.-born professionals and limited hiring of the most highly skilled foreign nationals. According to economists Anna Maria Mayda, Francesc Ortega, Giovanni Peri, Kevin Shih and Chad Sparber, "We . . . find that the reduced pool of H-1B workers available to for-profit firms did not lead firms to hire more Americans as there was no comparable response in the employment of native workers after 2004 in for-profit firms."

- H-1B visa holders contribute to productivity growth and can lead to higher wages for natives. "When we aggregate at the national level, inflows of foreign STEM workers explain between 30% and 50% of the aggregate productivity growth that took place in the United States between 1990 and 2010," according to economists Giovanni Peri, Kevin Shih and Chad Sparber. They concluded, "A 1 percentage point increase in the foreign STEM share of a city's total employment increased the wage growth of native college-educated labor by about 7–8 percentage points."

- When companies submitted applications in April 2017 (for the FY 2018 H-1B cap), the unemployment rate was 2.5% for "computer and mathematical science" occupations and 2.1% for "architecture and engineering" occupations, according to the Bureau of Labor Statistics.

- An analysis by Glassdoor showed 9 of the 10 highest paying majors 5 years out of college are in STEM (science, technology, engineering and math). Computer science and engineering fields top the list.

- According to U.S. government data, 60% of H-1B visa holders approved for initial employment possess a master's degree or higher.

The Trump administration has not advocated increasing the annual number of H-1B visas or employment-based green cards, or enacting policies that would make it easier for employers to hire high-skilled foreign nationals. Instead it has initiated or proposed many new policies and immigration restrictions against businesses. These include an increase in denials and Requests for Evidence (RFEs) for H-1B petitions (the impact of this on FY 2017 H-1B company numbers is not known); no longer deferring to prior determinations, approvals or findings of facts when extending a current H-1B or other high-skilled visas; proposing to rescind work authorization for the spouses of many H-1B visa holders; announcing it will revise the definition of an H-1B specialty occupation and further limit or potentially eliminate the ability of international students to work after graduation for 12 months on Optional Practical Training (OPT) or an additional 24 months for individuals in a STEM field; and instituting burdensome requirements when an H-1B visa holder is placed at a customer's site.

A recent NFAP analysis of government data found, likely in response to recent administration policies, international students may be having second thoughts about coming to America. "The number of international students from India enrolled in graduate level programs in computer science and engineering declined by 21%, or 18,590 fewer graduate students, from 2016 to 2017," the study found. Given how crucial Indian immigrants have been to America's technology sector (and other fields) the implications are serious.

Congress and the administration should focus on reforms to raise the annual number of H-1B visas, increase the labor mobility of H-1B visa holders, raise the employment-based green card quota and eliminate the per country limit. To benefit the economy the current regulatory and administrative actions against high-skilled foreign nationals and their employers also should end. A modern economy requires access to talent, wherever that talent happened to be born.

BACKGROUND: H-1B VISAS ONLY PRACTICAL WORK VISA FOR HIGH-SKILLED

Today, 81% of the full-time graduate students at U.S. universities in electrical engineering and 79% in computer science are international students.[1] H-1B temporary visas are important because they generally represent the only practical way a high-skilled foreign national, whether an international student or individuals educated abroad, can work long-term in the United States.[2] The process and wait times for employment-based immigrants ("green cards" for permanent residence) can take 18 months even if a category is not oversubscribed. For Indians, the primary source of high-skilled immigrants to the United States, the wait times can be 10 years or potentially decades. That is because of the per country limit and the low annual quota of 140,000, which includes dependents, for employment-based green cards.[3]

Table 2
Full-time Graduate Students and the Percent of International Students by Field (2015)

Field	Percent of International Students	Number of Full-time Graduate Students – International Students	Number of Full-time Graduate Students – U.S. Students
Electrical Engineering	81%	32,736	7,783
Computer Science	79%	45,790	12,539

Source: National Science Foundation, Survey of Graduate Students and Postdoctorates, NFAP calculations.

Employers of H-1B visa holders must observe complex rules to remain in compliance, including paying the higher of the prevailing wage or actual wage paid to "all other individuals with similar experience and qualifications for the specific employment in question."[4] Foreign nationals generally must possess at least a B.A. or its equivalent and can work in the United States on short-term projects, for longer-term work or prior to receiving a green card. H-1B status can last up to 6 years (with a renewal after three years) and can be extended in one-year increments beyond that for those waiting for employment-based green cards. New restrictions on H-1B visas could violate U.S. commitments under the General Agreement on Trade in Services (GATS).[5]

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[1] National Science Foundation, Survey of Graduate Students and Postdoctorates, U.S. students include lawful permanent residents. Graduate students include master's and Ph.D.'s.
[2] Other visa categories have restrictions that limit their applicability to most high-skilled foreign nationals, such as an L-1 visa, which requires working abroad for a company for at least a year and then qualifying as a manager, executive or an employee with "specialized knowledge." Parts of the report are adapted from *H-1B Visas By The Numbers*, NFAP Policy Brief, National Foundation for American Policy, June 2017.
[3] *Stuart Anderson*, *Understanding America's Legal Immigration System*, NFAP Policy Brief, National Foundation for American Policy, December 2017.
[4] Section 212(n)(1) of the Immigration and Nationality Act.
[5] Jochum Shore & Trossevin, *Legal Analysis: Proposed Changes to Skilled Worker Visa Laws Likely to Violate Major U.S. Trade Commitments*, National Foundation for American Policy, June 2010.

H-1Bs Exhausted 16 Consecutive Fiscal Years due to Low Quota, High Demand for Skilled Technical Labor

In April 2018, U.S. Citizenship and Immigration Services announced it had received 190,000 H-1B applications, or 105,000 more applications than the 85,000-annual limit would permit for FY 2019. In FY 2018, 2017, 2016 and 2015, employers sent in, respectively, 199,000, 236,000, 233,000 and 172,000 applications.[6] (See Table 1.) The reason the annual limit on H-1B visas has been reached for the past 16 fiscal years is two-fold. First, the annual limit is small relative to the size of the U.S. labor force and economy. For for-profit employers, the limit is only 65,000 new H-1B petitions a year, plus an exemption of 20,000 for individuals with a graduate degree from a U.S. university. The 85,000 new H-1B petitions issued annually equal only 0.05% of the U.S. labor force of 160 million people.

Second, the 1990 Immigration Act established a 65,000-annual limit on H-1B visas (there had been no limit on H-1 visas) along with a 140,000 quota on employment-based green cards that retained the per country limits. The world has changed since 1990 – and those changes, specifically the World Wide Web, smartphones, mobile applications and social media, have dramatically increased the demand for high-skilled technical labor. Moreover, emerging innovations, such as driverless vehicles, also demand people with high levels of technical skill. Tesla (207 approved new H-1B petitions in FY 2017), Uber (158) and General Motors (179) all employ individuals in H-1B status. The exemption from the 65,000-annual limit for 20,000 individuals with U.S. graduate degrees and the exemption from the limit for employees of universities and non-profit and government research institutes, both added after 1990, helped but clearly have not been sufficient to keep up with the demand for talent.

Table 3
Technological Advances Since 1990

TECHNOLOGICAL ADVANCE	1990	2015
World Wide Web*	Did not exist	3.2 billion users worldwide, integrated into operations of all major companies.
Smartphones	Did not exist	Over 2 billion owners; have transformed entire industries.
Mobile Applications	Did not exist	Over 179 billion app downloads yearly on mobile devices.
Social Media	Did not exist	74% of U.S. Internet users visit a social media site.
Streaming Music	Did not exist	164 billion songs streamed in U.S. in 2014.
Streaming Video	Did not exist	84% of Internet traffic will be streaming video by 2018.
Gaming over the Internet	Did not exist	671 million people worldwide play online games.

Source: National Foundation for American Policy, Money, The Telegraph, Forbes, Pew Research Center, Nielsen SoundScan, Cisco, comScore. *Software for World Wide Web not distributed widely until 1991; in 1990 World Wide Web did not exist for individuals on a global scale.

[6] Information from USCIS press releases on the H-1B filing period for FY 2015, 2016, 2017, 2018 and 2019. USCIS reported that for the FY 2019 cap season it received 95,885 applications for the 20,000 cap exemption of for holders of advanced degrees in the U.S. and 94,213 for the 65,000 annual quota.

U.S. TECH COMPANIES INCREASE H-1B VISAS AND R&D SPENDING

America's most high-profile tech companies were awarded more H-1B visas in FY 2017, at the same time visas going to Indian-based companies fell to new lows, which would appear to undermine a key argument made against raising the annual limit on H-1B visas. (See Tables 4 and 6.)

Table 4
New Approved H-1B Initial Petitions for Leading U.S. Tech Companies: FY 2017

U.S. High-Tech Company	New Approved H-1B Initial Petitions (FY 2017)	Increase from FY 2016
Amazon	2,515	+1,099 (+78%)
Microsoft	1,479	+334 (+29%)
Intel	1,230	+200 (+19%)
Google	1,213	+289 (+31%)
Facebook	720	+248 (+53%)
Apple	673	+42 (+7%)

Source: U.S. Citizenship and Immigration Services; National Foundation for American Policy.

Four of the 6 U.S. tech companies – Amazon (2,515), Microsoft (1,479), Intel (1,230), and Google (1,213) – were among the top 10 employers for approved H-1B petitions for initial employment in FY 2017. Facebook, with 720 new H-1B initial petitions approved in FY 2017, an increase of 248, or 53%, and Apple, with 673, a 7% increase, were 14th and 15th on the list. Amazon had the second most number of H-1B petitions approved for initial employment in FY 2017, with an increase from 1,416 in FY 2016 to 2,515 in FY 2017, a 78% increase.[7] Amazon's use of H-1Bs reflects its increased growth in the U.S., particularly in research and development.

The top H-1B employers among high-profile tech companies match up with the U.S. companies that spend the most on research and development (R&D). In 2017, Amazon spent almost $23 billion on R&D, Alphabet (Google) was second with $16.6 billion, Intel was third with $13.1 billion, Microsoft fourth with $12.3 billion, Apple fifth with $11.6 billion and Facebook was ninth with $7.8 billion.[8] Research and development is important to a country's economic growth. "The Bureau of Economic Analysis revised the GDP (gross domestic product) calculation in 2013 and started treating R&D expenditures as a fixed asset (i.e., an investment) . . . As a result, R&D expenditures are now part of GDP," according to economist Ana Maria Santacreu.[9]

[7] USCIS. NFAP attempted to identify subsidiaries of companies and to avoid counting companies with similar names that were not part of the same company.
[8] Rani Molla, "Amazon Spent Nearly $23 Billion on R&D Last Year – More Than Any Other U.S. Company," Recode, April 9, 2018.
[9] Ana Maria Santacreu, "Impact of Including R&D in GDP," On the Economy Blog, Federal Reserve Bank of St. Louis, December 22, 2016.

Table 5
Top U.S. Companies Ranked by R&D Spending (2017)

Company	Research & Development Spending (2017)
1) Amazon	$22.6 billion
2) Alphabet	$16.6 billion
3) Intel	$13.2 billion
4) Microsoft	$12.3 billion
5) Apple	$11.6 billion
9) Facebook	$ 7.8 billion

Source: FactSet, Recode. Ranked for 2017 R&D spending by U.S. companies.

The H-1B cases approved for initial employment in FY 2017 come from the FY 2018 H-1B "lottery" held in April 2017, which means these numbers reflect individuals who started working on a new H-1B petition in FY 2018 (which started October 1, 2017), according to U.S. Citizenship and Immigration Services. USCIS distributes H-1B petitions in a random selection process when more H-1B applications are received than available under the numerical limit. Cases filed in one fiscal year may be approved in a different fiscal year, notes USCIS. (NFAP received the data from USCIS.)

It is unclear to what extent Trump administration policies affected company approvals of H-1B petitions for FY 2017. "According to the data, 17.6 percent of completed H-1B applications — meaning they were reviewed by the government — were denied in November [2017]," according to a *San Francisco Chronicle* review of USCIS data on H-1Bs. "This compares with 7.7 percent in November 2016. From August to September, the proportion of challenged applications more than doubled to 37.9 percent. By November, nearly half received the evidence requests."[10] However, we do not know how many of those cases were for initial petitions for FY 2017, the data discussed in this NFAP report, or were extensions for existing H-1B visa holders. Since the increased denials and Requests for Evidence (RFEs) came towards the end of the fiscal year, it is not known to what extent they affected H-1B cases selected in the "lottery" held in April 2017.

[10] Trisha Thadani, "More H-1B Hopefuls Denied Under Trump, Data Show," *San Francisco Chronicle*, December 18, 2017.

INDIAN-BASED COMPANY H-1B NUMBERS CONTINUE TO FALL

The top 7 Indian-based companies received only 8,468 approved H-1B petitions for initial employment in FY 2017, a decline of 43% for these companies since FY 2015. Given that 199,000 applications were filed in FY 2017 for the FY 2018 cap year – 105,000 in excess of the FY 2018 H-1B annual limit – even if none of these companies received new H-1B visas the annual limit still would have been reached on the first day of the April filing period. The data indicate the problem is not which companies are receiving H-1B visas, which some contend, but that the 85,000-annual limit is too low for an economy the size of the United States. To place these numbers in perspective, the 8,468 new H-1B visas for Indian-based companies in FY 2017 equaled only 0.006 percent of the 160 million in the U.S. labor force, and would fill up less than half of a typical NBA basketball arena.

Table 6
New Approved H-1B Initial Petitions for Top 7 Indian-Based Companies: FY 2015 to 2017

COMPANY	FY 2015	FY 2016	FY 2017	FY 2017 CHANGE FROM FY 2016	FY 2017 CHANGE FROM FY 2015
TCS	4,674	2,040	2,312	*+272 (+13%)*	*-2,362 (-51%)*
Infosys	2,830	2,376	1,218	*-1,158 (-49%)*	*-1,612 (-57%)*
Wipro	3,079	1,474	1,210	*-264 (-18%)*	*-1,869 (-61%)*
HCL America	1,339	1,041	866	*-175 (-17%)*	*-473 (-35%)*
Larsen & Toubro	830	870	479	*-391 (-45%)*	*-351 (-42%)*
Tech Mahindra	1,576	1,228	2,233	+1,005 (+82%)	+657 (+42%)
Mindtree	464	327	150	-177 (-54%)	-314 (-68%)
TOTAL	**14,792**	**9,356**	**8,468**	***-888 (-9.5%)***	***-6,324 (-43%)***

Source: U.S. Citizenship and Immigration Services; National Foundation for American Policy.

As discussed in last year's NFAP report, the drop in H-1B visas for Indian-based companies is due to industry trends toward digital services such as cloud computing and artificial intelligence, which require fewer workers, and a choice by companies to rely less on visas and to build up their domestic workforces in the United States.[11] In most cases, companies require fewer people per project. Also, like all companies, including U.S. companies, restrictions on visas may result in more work being performed outside the United States, which is the unintended consequence of many immigration restrictions in a global economy. Indian-based companies, of course, must compete for the same relatively limited pool of tech talent in the U.S. as other companies.

[11] *H-1B Visas By The Numbers*, NFAP Policy Brief, National Foundation for American Policy, June 2017. Ananya Bhattacharya and Itika Sharma Punit, "Indian IT Firms Have Been Preparing for Changes in H-1B Visa Laws for Nearly a Decade," *Quartz India*, February 3, 2017.

The number of new H-1B petitions for Tata Consultancy Services (TCS) declined by over 50% from FY 2015 to FY 2017 (from 4,674 to 2,312). The same is true for Infosys (a 57% decline from FY 2015 to FY 2017) and Wipro (a 61% decline from FY 2015 to 2017). Five of the 7 top Indian-based companies saw declines in FY 2017 from FY 2016 – Infosys, Wipro, HCL America, Larsen & Toubro and Mindtree. Only TCS, with an increase of 13%, and Tech Mahindra, which increased by 42%, had more H-1B petitions for initial employment approved in FY 2017 than in FY 2016.[12]

Corporate clients of both U.S. and Indian-based IT services companies are requesting digital engineering and more sophisticated services, including better data analysis, that require fewer workers and more advanced technology, and this is reflected in the H-1B visa numbers. While Cognizant, an IT services company headquartered in Teaneck, New Jersey, had the most H-1B petitions approved for new employment in FY 2017, with 3,194, that represented a decline of 800 approved petitions, or 25% from FY 2016.

Table 7
New H-1B Initial Petitions in Context of the U.S. Labor Force

New H-1B Petitions as a Percentage of U.S. Labor Force (2017)
0.05%

Source: U.S. Citizenship and Immigration Services. Data for "initial" petitions in FY 2017. Additional calculations performed based on BLS data, assumption of 85,000 new H-1B initial petitions annually for for-profit employers.

The USCIS data on initial employment for FY 2017 show that it can be misleading to rely on alternative H-1B statistics absent the proper context. For example, as noted, Cognizant had 3,194 new H-1B petitions for initial employment approved in FY 2017. However, because of extensions for existing H-1B employees and, in particular, a USCIS policy change in 2015 (*Matter of Simeio Solutions*) that requires companies to file amended petitions when work will take place in a new metropolitan statistical area (MSA), a recent USCIS report lists Cognizant with 28,908 approved petitions in FY 2017. Those 28,908 approved petitions – 9 times the number of new H-1B professionals approved for the company in FY 2017 – do not represent 28,908 new workers but reflect compliance with government rules when existing workers are moved to new locations.[13]

[12] NFAP was unable to identify other Indian-based information technology services companies that had a large number of approved petitions for initial employment in FY 2017. U.S.-based Blackstone Group is the parent company of the IT services company Mphasis. KPIT Infosystems, headquarted in India, was formed out of an investment with the U.S. manufacturer Cummins and has significant non-IT service lines, including automotive. It had 143 approved H-1B petitions for initial employment in FY 2017. Indian-based Persistent Systems had 84 approved H-1B petitions for initial employment in FY 2017.
[13] The 29,908 figure is contained in a USCIS report on its website on Approved H-1B Petitions by Employer, FY 2017. Unlike the data contined in this NFAP report that focus on initial petitions, the USCIS report contains a combination of initial petitions, amended petitions and extensions.

Table 8
Top 30 Employers of New Approved H-1B Initial Petitions (FY 2017)

EMPLOYER	New Approved H-1B Initial Petitions (FY 2017)
Cognizant	3,194
Amazon	2,515
TCS	2,312
Tech Mahindra	2,233
Microsoft	1,479
IBM	1,231
Intel	1,230
Infosys	1,218
Google	1,213
Wipro	1,210
Deloitte	961
Accenture	954
HCL America	866
Facebook	720
Apple	673
Syntel	636
PricewaterhouseCoopers	616
Capgemini	562
Ernst & Young	481
Cisco	479
Larsen & Toubro	479
Oracle	447
Qualcomm	382
Yahoo!	316
Mphasis	310
UST Global	300
Synechron	282
Goldman Sachs	267
NTT Data	254
JPMorgan Chase	240

Source: U.S. Citizenship and Immigration Services; National Foundation for American Policy.

THE BENEFITS OF HIGH-SKILLED IMMIGRATION

The benefits of highly educated foreign nationals working in the United States have been well documented and the argument against the admission of high-skilled professionals is weak. The reduction of the H-1B annual limit in 2004 after the temporary increases of FY 1999 to FY 2003 did not increase the hiring of U.S.-born professionals and, research shows, resulted in fewer opportunities for the most highly skilled foreign nationals to work for U.S. companies. An analysis of data "implies that H-1B restrictions have particularly hindered the employment of the

highest ability foreign-born workers," according to economists Anna Maria Mayda, Francesc Ortega, Giovanni Peri, Kevin Shih and Chad Sparber. "We also find that the reduced pool of H-1B workers available to for-profit firms did not lead firms to hire more Americans as there was no comparable response in the employment of native workers after 2004 in for-profit firms."[14]

First, immigrant entrepreneurs contribute to America through innovation and job creation. "Immigrants play a key role in creating new, fast-growing companies, as evidenced by the prevalence of foreign-born founders and key personnel in the nation's leading privately-held companies," according to a National Foundation for American Policy study. "Immigrants have started more than half (44 of 87) of America's startup companies valued at $1 billion or more and are key members of management or product development teams in over 70% (62 of 87) of these companies. The research finds that among the billion dollar startup companies, immigrant founders have created an average of approximately 760 jobs per company in the United States."[15]

Second, H-1B visa holders contribute to productivity growth. "When we aggregate at the national level, inflows of foreign STEM workers explain between 30% and 50% of the aggregate productivity growth that took place in the United States between 1990 and 2010," according to economists Giovanni Peri (UC, Davis), Kevin Shih (UC, Davis) and Chad Sparber (Colgate University).[16] They concluded, "A 1 percentage point increase in the foreign STEM share of a city's total employment increased the wage growth of native college-educated labor by about 7–8 percentage points."[17]

Third, economist Madeline Zavodny analyzed the impact of H-1B visa holders on natives: "The findings here suggest that expanding the H-1B program for skilled temporary foreign workers would increase employment for U.S. natives."[18] Examining the years 2001 to 2010, she concluded, "Each additional 100 approved H-1B workers being associated with an additional 183 jobs among U.S. natives" and wrote that the "results give clear evidence" that H-1B visas "correspond to greater job opportunities for U.S.-born workers."[19]

Fourth, an important benefit of H-1B visa holders is their children. "75% – 30 out of 40 – of the finalists of the 2016 Intel Science Talent Search, the leading science competition for U.S. high school students, had parents who worked in America on H-1B visas," reported an NFAP study. "That compares to 7 children who had both parents born in

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[14] Anna Maria Mayda, Francesc Ortega, Giovanni Peri, Kevin Shih, Chad Sparber, "The Unintended Selection Effects of Cutting the H-1B Quota," Vox CEPR's Policy Portal, April 1, 2018.
[15] Stuart Anderson, *Immigrants and Billion Dollar Startups*, NFAP Policy Brief, National Foundation for American Policy, March 2016.
[16] Giovanni Peri, Kevin Shih and Chad Sparber, "STEM workers, H-1B Visas and Productivity in U.S. Cities," *Journal of Labor Economics*, vol. 33 No. S1. U.S. High-Skilled Immigration in the Global Economy (Part 2, July 2-2015), pp. S225-S255.
[17] Ibid. Emphasis added.
[18] Madeline Zavodny, *Immigration and American Jobs,* American Enterprise Institute and Partnership for a New American Economy, 2011*,* p. 5.
[19] Ibid., p. 11.

the United States. These outstanding children of immigrants would never have been in America if their parents had not been allowed into the U.S."[20]

Other research has shown immigrants increase the number of patents awarded and that H-1B visa fees have funded 70,000 scholarships for U.S. students.[21]

The more Congress and executive branch agencies restrict immigration, particularly the use of H-1B and L-1 visas, the more likely companies are to increase their investments outside the United States, both in their own offices and affiliates, and through contracting out to other companies. Nearly every major company in America, and many mid-sized companies, have increased their presence outside the United States in response to immigration restrictions and other U.S. government policies, as well as to be closer to customers. Further increasing these investments may be a second-best option but it seems unwise to believe it will not happen. New restrictions on the ability of IT services companies to hire people on H-1B visa holders or transfer in employees with specialized knowledge will increase the amount of work that is performed outside the United States.

Economists understand the dynamic between outsourcing and immigration. "If you're worried about outsourcing, you should probably have a more liberal rather than a less liberal attitude toward immigration," writes George Mason University economist Tyler Cowen. "If the United States takes in more immigrants, the areas in which those immigrants work are less likely to see jobs outsourced abroad. Immigration makes it possible to keep those jobs at home. In fact, the bigger a threat outsourcing becomes, the more important immigration is for keeping us competitive and for keeping other complementary jobs in place."[22]

When companies submitted applications in April 2017 (for the FY 2018 H-1B cap), the unemployment rate for "computer and mathematical science" occupations was 2.5% – a very low rate, even lower than the 4.4% for "all occupations," according to tabulations from the Bureau of Labor Statistics April 2017 Current Population Survey Public Use file.[23] The unemployment rate for "architecture and engineering" occupations was even lower at 2.1%. While current unemployment rates should not be decisive factors in making long-term immigration policy, they point to a disconnect between reality and claims that high-skilled foreign nationals are taking away jobs from U.S. workers or preventing them from pursuing careers.

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[20] Stuart Anderson, *The Contributions of the Children of Immigrants to Science in America*, NFAP Policy Brief, National Foundation for American Policy, March 2017.
[21] William R. Kerr and William F. Lincoln, "The Supply Side of Innovation: H-1B Visa Reforms and U.S. Ethnic Invention," Harvard Business School, Working Paper, 09-005, 2009, p. 29-30; National Science Foundation.
[22] Tyler Cowen, *Average is Over*, (New York: Dutton, 2013), p. 169.
[23] Tabulations from the Bureau of Labor Statistics April 2017 Current Population Survey Public Use file.

Table 9
Unemployment Rate by Occupation Group (April 2017)

OCCUPATION GROUP	UNEMPLOYMENT RATE (April 2017)
Architecture and Engineering Occupations	2.1%
Computer and Mathematical Science Occupations	2.5%
All Occupations	4.4%

Source: Tabulations from the Bureau of Labor Statistics April 2017 Current Population Survey Public Use file. All education levels.

In an indication of the demand for STEM (science, technology, engineering and math) degrees relative to other college majors, an analysis by Glassdoor showed 9 of the 10 highest paying majors 5 years out of college are in STEM. Nursing was the only exception, although it could be argued that it is a STEM field as well. Computer science and engineering fields top the list.[24]

Table 10
10 Highest Paying Majors (5 Years Out of College)

MAJOR	MEDIAN BASE SALARY
Computer Science and Engineering	$70,000
Electrical Engineering	$68,438
Mechanical Engineering	$66,040
Chemical Engineering	$65,000
Information Technology	$63,500
Civil Engineering	$63,000
Nursing	$63,000
Industrial Engineering	$62,270
Management Info. Sys.	$60,960
Statistics	$60,000

Source: Glassdoor.

The Government Accountability Office found H-1B professionals generally earn the *same as or more* than their U.S. counterparts after comparing the median reported salaries of U.S. workers and H-1B professionals in the same fields and age groups. [25] In addition, the median salary in 2015 for H-1B computer-related recipients who have worked about three years (listed as "continuing employment" in DHS data) was about $7,000 higher than the median

[24] Emily Moore, "The Top 10 Highest-Paying College Majors," Glassdoor, May 9, 2017.
[25] *H-1B Visa Program: Reforms Are Needed to Minimize the Risks and Costs of Current Program*, Government Accountability Office, GAO-11-26, January 2011. To conduct the research, the GAO analyzed Current Population Survey (CPS) data on U.S. workers and information on H-1B salaries from the U.S. Citizenship and Immigration Services (USCIS) CLAIMS database.

salary in the industry.[26] Note also that 60% of H-1B visa holders approved for initial employment possess a master's degree or higher.[27]

Table 11
Median Reported Salaries of H-1B and U.S. Workers: Systems Analysis, Programming, and Other Computer-Related Occupations

Age Group	H-1B	U.S. Workers
20-29	$60,000	$58,000
30-39	$70,000	$70,000

Source: *H-1B Visa Program: Reforms Are Needed to Minimize the Risks and Costs of Current Program*, Government Accountability Office, GAO-11-26, January 2011, Table 1. Salaries are 2008.

MERIT-BASED IMMIGRATION IN THEORY, RATHER THAN PRACTICE

Two experienced immigration lawyers were recently asked if they could name policies the Trump administration has established or proposed to make it easier for high-skilled foreign nationals to work in or immigrate to the United States. Both replied they could not name any such policies.[28]

The Trump administration has used the term "merit-based immigration" to call for significant reductions in legal immigration by eliminating most family immigration categories and the Diversity Visa Lottery. The administration has not advocated increasing the number of employment-based immigrants or enacting any policies that would make it easier for employers to hire high-skilled foreign nationals. In fact, as the list below shows, the administration has initiated or proposed many new policies and restrictions against high-skilled immigrants that run counter to a narrative of reducing the regulatory burden on businesses.[29]

- Under the "Buy American and Hire American" executive order a series of administrative and regulatory actions have been implemented or proposed. One policy in particular that has created uncertainty (and worse) for employers and high-skilled foreign nationals is instructing U.S. Citizenship and Immigration Services adjudicators to no longer "defer to prior determinations," approvals or findings of facts when extending a current H-1B or other high-skilled visas.

[26] *Characteristics of H-1B Specialty Occupation Workers*, Fiscal Year 2015 Annual Report to Congress, U.S. Citizenship and Immigration Services, Department of Homeland Security, March 17, 2016, Table 12; Bureau of Labor Statistics.
[27] *Characteristics of H-1B Specialty Occupation Workers*, Fiscal Year 2016 Annual Report to Congress, U.S. Citizenship and Immigration Services, Department of Homeland Security, May 5, 2017, Table 7.
[28] Stuart Anderson, "Attorneys: Trump Team Wraps Immigrants and Their Employers in Red Tape," *Forbes*, March 8, 2018.
[29] The list of policy actions is adapted from Stuart Anderson, "Right Now, 'Merit-Based' Just Means Fewer Immigrants," *Forbes*, February 12, 2018.

- Under the Trump Administration, USCIS has denied more H-1B applications and issued more Requests for Evidence.[30]
- The administration has announced it would rescind the 2015 regulation that provides work authorization for many spouses of H-1B visa holders.
- The Trump administration has also taken action to rescind a rule that allows foreign-born entrepreneurs to be issued parole if they have new business and associated jobs.
- DHS has announced it will "revise the definition of specialty occupation" with the apparent goal of making it more challenging for employers to obtain H-1B status for high-skilled foreign nationals.
- DHS plans to propose to further limit or potentially eliminate the ability of international students to work after graduation for 12 months on Optional Practical Training (OPT) or an additional 24 months for individuals in a STEM (science, technology, engineering and math) field.
- The Trump administration has required in-person interviews for employment-based immigrants in the United States.
- The different versions of the administration's travel bans have prohibited professionals from the nations targeted to work in the United States.
- In one of its most recent actions, U.S. Citizenship and Immigration Services changed its policies for placing H-1B visa holders at the site of customers, referred to as third-party placements. "Companies in the information technology (IT) services, management consulting, healthcare, and staffing fields are going to feel this change most acutely as it requires increased documentation to gain approval of an H-1B petition if the visa holder will work at a customer site," according to immigration attorney Vic Goel. "In such cases, USCIS has indicated it will require employers to provide detailed documents proving their clients have confirmed an H-1B worker's job duties, the degree requirement for that job, and how long the job will last. This will obviously have a chilling effect on the relationship between companies and their clients, since few clients will be comfortable weighing in on what an individual employee of a contractor will be working on and whether his or her job requires a specific degree. While it's clear that USCIS intended to take aim at IT outsourcing firms with this change, its implications will be felt in other industries, and by investors and consumers in the long run." [31]

  The policy change on third-party placements will make U.S. companies less competitive, since a primary way companies in America today become more productive is to focus on core competencies and contract with firms to deliver specialized IT (and other) services. It is also likely to push more work outside of the United States to avoid the disruptive impact of the policy.

[30] Trisha Thadani, "More H-1B Hopefuls Denied Under Trump, Data Show."
[31] Stuart Anderson, "Attorneys: Trump Team Wraps Immigrants and Their Employers in Red Tape."

CONCLUSION

A recent NFAP analysis of government data found international students may be having second thoughts about coming to America, likely in response to recent administration announcements and policies that have made it more difficult for high-skilled foreign nationals to work in the United States. "The number of international students from India enrolled in graduate level programs in computer science and engineering declined by 21%, or 18,590 fewer graduate students, from 2016 to 2017," the study found.[32] Given how crucial Indian immigrants have been to America's technology sector (and other fields) the implications are serious for U.S. universities, businesses and the country as a whole.

Congress and the administration should focus on reforms to raise the annual number of H-1B visas, increase the labor mobility of H-1B visa holders, raise the employment-based green card quota and eliminate the per country limit. To benefit the economy the current regulatory and administrative actions against high-skilled foreign nationals and their employers should end. A modern economy requires access to talent, wherever that talent happened to be born.

[32] *Declining International Student Enrollment at U.S. Universities and Its Potential Impact*, NFAP Policy Brief, National Foundation for American Policy, February 2018.

APPENDIX

H-1B VISAS ISSUED AGAINST THE CAP BY FISCAL YEAR

Year	CAP*	#Issued	#Unused
1992	65,000	48,600	16,400
1993	65,000	61,600	3,400
1994	65,000	60,300	4,700
1995	65,000	54,200	10,800
1996	65,000	55,100	9,900
1997	65,000	65,000	0
1998	65,000	65,000	0
1999	115,000	115,000	0
2000	115,000	115,000	0
2001	195,000	163,600	31,400
2002	195,000	79,100	115,900
2003	195,000	78,000	117,000
2004	65,000	65,000	0
2005	65,000	65,000	0
2006	65,000	65,000	0
2007	65,000	65,000	0
2008	65,000	65,000	0
2009	65,000	65,000	0
2010	65,000	65,000	0
2011	65,000	65,000	0
2012	65,000	65,000	0
2013	65,000	65,000	0
2014	65,000	65,000	0
2015	65,000	65,000	0
2016	65,000	65,000	0
2017	65,000	65,000	0
2018	65,000	65,000	0
2019	65,000	65,000	0

Source: Department of Homeland Security; National Foundation for American Policy. *Does not include exemptions from the cap, which include those hired by universities and non-profit research institutes and 20,000 individuals who received a master's degree or higher from a U.S. university.

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