

May 2013

FUELING THE RECOVERY: How High-Skilled Immigrants Create Jobs and Help Build the U.S. Economy

With the U.S. economy still recovering, it may seem counterintuitive to believe that any industry would benefit from having more workers. But that is precisely the case when it comes to those industries which depend upon highly skilled workers. The United States has long faced a dilemma in this respect: the U.S. economy is, in general, absorbing more high-skilled professionals than the U.S. educational system produces or that are available in our workforce. That is one reason so many highly skilled workers in the United States are immigrants. For instance, in “STEM” occupations (science, technology, engineering, and mathematics), the foreign-born account for 26.1 percent of workers with PhDs and 17.7 percent of those with master’s degrees.¹ However, arbitrary limits imposed by the U.S. immigration system, particularly the inadequate supply of green cards and H-1B visas, have restricted the ability of the U.S. to compete in the global battle for talent and ideas. Given that highly skilled professionals tend to *create* jobs through their innovative work, such limits are economically self-defeating.

High-skilled immigrant workers create new jobs.

- According to a 2012 [report](#) from the Information Technology Industry Council, the Partnership for a New American Economy, and the U.S. Chamber of Commerce, research has found that “every foreign-born student who graduates from a U.S. university with an advanced degree and stays to work in STEM has been shown to create on average 2.62 jobs for American workers—often because they help lead in innovation, research, and development.”²
- A 2011 [report](#) from the Partnership for a New American Economy concluded that immigrants were founders of 18 percent of all Fortune 500 companies, many of which are high-tech giants. As of 2010, these companies generated \$1.7 trillion in annual revenue, employed 3.6 million workers worldwide, and included AT&T, Verizon, Procter & Gamble, Pfizer, Comcast, Intel, Merck, DuPont, Google, Cigna, Sun Microsystems, United States Steel, Qualcomm, eBay, Nordstrom, and Yahoo!³
- A 2007 [study](#) by researchers at Duke University and Harvard University concluded that one-quarter of all engineering and technology-related companies founded in the United States from 1995 to 2005 “had at least one immigrant key founder,” and that these companies “produced \$52 billion in sales and employed 450,000 workers in 2005.” Moreover, these immigrant-founded firms have “contributed greatly to the country’s economic growth over time.”⁴

- A 2006 [study](#) by the National Venture Capital Association found that, during the previous 15 years, immigrants started one-quarter of the public companies in the United States backed by venture capital. These companies had a market capitalization of more than \$500 billion and employed 220,000 workers in the United States in 2006. The largest of these immigrant-founded firms were Intel, Solectron, Sanmina-SCI, Sun Microsystems, eBay, Yahoo!, and Google.⁵
- A 2001 [study](#) by researchers at Georgia State University and the University of Missouri-St Louis found that foreign-born scientists and engineers in the United States are “disproportionately represented” among individuals elected to the National Academy of Sciences and National Academy of Engineering, among authors of scientific papers and patents, and among founders and chairs of biotechnology companies.⁶

High-skilled immigrants supplement rather than displace native-born workers.

- The 2012 [report](#) from the Information Technology Industry Council, the Partnership for a New American Economy, and the U.S. Chamber of Commerce finds that many STEM occupations “have markedly low unemployment, and that foreign-born STEM workers currently in the workforce are complementing, not displacing their U.S. counterparts.”⁷
 - There is full employment among U.S.-citizen STEM workers with advanced degrees. The federal government defines “full employment” as an unemployment rate of no more than 4 percent (to account for people who are “unemployed” because they are in the middle of changing jobs, moving, etc.). But for U.S.-citizen STEM workers with PhDs the unemployment rate is only 3.15 percent, and for those with master’s degrees it is 3.4 percent.⁸
 - In some STEM occupations, the unemployment rate is even lower. Unemployment among Petroleum Engineers, for instance, is 0.1 percent, for Computer Network Architects it is 0.4 percent, and for Nuclear Engineers it is 0.5 percent.⁹
 - Those STEM fields in which large shares of workers are foreign-born have low unemployment rates among native-born workers. For example, just under one-quarter of Medical Scientists are foreign-born, but native-born Medical Scientists have an unemployment rate of just 3.4 percent.¹⁰
- According to a 2011 [report](#) from Georgetown University’s Center on Education and the Workforce: “High and rising wage premiums are being paid to STEM workers in spite of the increasing global supply. This suggests that the demand for these workers is not being met.”¹¹
 - This demand is not only coming from industries that traditionally hire STEM workers, but also industries like Professional and Business Services, Healthcare Services, Advanced Manufacturing, Mining, and Utilities and Transportation. Employers in these industries are willing to pay top dollar for workers with STEM backgrounds, which has the effect of “diverting” many STEM graduates into non-traditional career paths.¹²

- Native-born workers with S&E degrees aren't being driven out of S&E occupations by immigrants; they are being lured into non-S&E occupations where their S&E skills are in high demand and command higher salaries. In other words, they face a wide range of opportunities, not a shortage of options.¹³
- Native-born STEM graduates are the most likely to be “diverted” into non-traditional career paths for a variety of economic, social, and cultural reasons. And this “diversion” of native-born STEM graduates “will continue and likely accelerate in the future.” As a result, there is likely to be “an increasing reliance on foreign-born STEM talent among American employers.”¹⁴

High-Skilled Immigrant Workers Improve the Wages of Native-Born Workers

- A 2011 [study](#) from the Institute for the Study of Labor found that earnings are higher among H-1B visa-holders than among native-born workers with at least a bachelor's degree.¹⁵
 - Computer and Information Technology: After controlling for age differences, education, occupation, and industry effects, results show that newly arrived H-1B workers earn close to 7 percent more than U.S.-born workers of the same age, education, and specific occupation, with an additional increase of about 5 percent for those renewing their visas.¹⁶
 - Engineering: When age differences are accounted for, recent H-1B visa-holders experience a 13 percent wage advantage over native-born workers. Further, there is no statistical difference in earnings between new and renewing visa holders.¹⁷
 - Science and Mathematics: The research results show that there is no statistical difference in earnings between H-1B visa holders, naturalized citizens, and similar native-born workers.¹⁸
 - Healthcare: In this industry, H-1B visa-holders tend to earn more overall. Furthermore, the authors suggest that, when taking into account education levels, there is little or no statistical difference in wage earnings between H-1B workers and native-born workers.¹⁹
- A 2013 [study](#) by the Brookings Institution found that H-1B visa-holders are paid more than non-H-1B workers within the same occupations among workers with similar experience. Overall, on average, H-1B workers earn higher wages than employed U.S.-born workers with bachelor's degrees (\$81,322 compared to \$67,301), but are also 10 years younger and more educated.²⁰
- The same [study](#) found that for occupations with the most H-1B requests, wage growth in recent years has been much higher than the national average.²¹
 - From 2009 to 2011, there was nominal wage growth for U.S.-born workers with at least a bachelor's degree, but that growth was relatively high for most prominent occupations with large numbers of H-1B applications. In particular,

wage growth was strong in large H-1B occupational categories including computer occupations (1.3 percent growth) and engineering (2.1 percent growth).²²

- Wage growth was stronger than the national average since 2009 for every prominent H-1B occupational category except life scientists, and since 2000, all prominent H-1B categories except postsecondary teachers witnessed higher than average wage growth.²³ Since 2000, wage growth was 2.7 percent for computer occupations, 3.0 percent for engineers, 3.4 percent for financial specialists, and 2.9 percent for mathematical science occupations.²⁴
- Furthermore, in the industry category with the most H-1B requests, Computer Systems Design and Related Services, wage growth has been much larger than the national average since 1990 (5.5 percent growth) and since 2009 (7.7 percent growth). This is in comparison to wage growth across all industries of 0.8 percent since 1990 and 1.6 percent since 2009.²⁵

To create the best possible high-skilled workforce, the United States must reform both its educational and immigration systems.

- The 2012 [report](#) from the Information Technology Industry Council, the Partnership for a New American Economy, and the U.S. Chamber of Commerce notes that the unmet demand for high-skilled professionals calls for an overhaul of the U.S. educational system at all levels to equip more native-born students for careers in STEM fields. But that is a long-term investment that will take many years to produce results. In the meantime, “there are talented and accomplished STEM graduates from U.S. universities who are blocked from contributing to the U.S. economy by current immigration law.”²⁶
- As Microsoft argues in a 2012 [policy proposal](#), the United States needs “a two-pronged approach that will couple long-term improvements in STEM education in the United States with targeted, short-term, high-skilled immigration reforms. If done correctly, the latter can help fund the former.”²⁷ Specifically, Microsoft calls for an increase in the number of H-1B visas and green cards available to highly skilled professionals from abroad.²⁸
- A 2011 [report](#) from the U.S. Chamber of Commerce and American Council on International Personnel concludes: “Closing the door to highly educated individuals... who aid the competitiveness of U.S. companies will weaken, not strengthen, our country and will diminish the competitiveness of American employers. In the global economy, investment follows the talent and attempts to restrict the hiring of talented foreign-born professionals in the United States encourages such hiring to take place overseas, where the investment dollars will follow.”²⁹

Endnotes

¹ Information Technology Industry Council, the Partnership for a New American Economy, and the U.S. Chamber of Commerce, [Help Wanted: The Role of Foreign Workers in the Innovation Economy](#) (Washington, DC: December 2012), p. 2.

² Ibid., p. 3.

-
- ³ Partnership for a New American Economy, [*The “New American” Fortune 500*](#) (New York, NY: June 2011), pp. 11, 17, 21.
- ⁴ Vivek Wadhwa, AnnaLee Saxenian, Ben A. Rissing, and Gary Gereffi, [*America’s New Immigrant Entrepreneurs: Part I*](#), Duke Science, Technology and Innovation Paper No. 23 (Durham, NC: Duke University, January 2007).
- ⁵ Stuart Anderson and Michaela Platzer, [*American Made: The Impact of Immigrant Entrepreneurs and Professionals on U.S. Competitiveness*](#) (Arlington, VA: National Venture Capital Association, October 2006), pp. 6-7.
- ⁶ Paula E. Stephan and Sharon G. Levin, “[Exceptional contributions to US science by the foreign-born and foreign-educated](#),” *Population Research and Policy Review* 20, Issue 1-2, April 2001: 59-79.
- ⁷ Information Technology Industry Council, the Partnership for a New American Economy, and the U.S. Chamber of Commerce, [*Help Wanted: The Role of Foreign Workers in the Innovation Economy*](#) (Washington, DC: December 2012), p. 3.
- ⁸ *Ibid.*, p. 2.
- ⁹ *Ibid.*
- ¹⁰ *Ibid.*
- ¹¹ Anthony P. Carnevale, Nicole Smith, and Michelle Melton, [*STEM: Executive Summary*](#) (Washington, DC: Center on Education and the Workforce, Georgetown University, October 2011), p. 2.
- ¹² *Ibid.*, p. 3.
- ¹³ *Ibid.*
- ¹⁴ *Ibid.*
- ¹⁵ Magnus Lofstrom and Joseph Hayes, “[H-1Bs: How do They Stack Up to US Born Workers?](#)” (Bonn, Germany: Institute for the Study of Labor, 2011).
- ¹⁶ *Ibid.*
- ¹⁷ *Ibid.*
- ¹⁸ *Ibid.*
- ¹⁹ *Ibid.*
- ²⁰ Jonathan T. Rothwell and Neil G. Ruiz, “[H-1B Visas and the Stem Shortage: A Research Brief](#)” (Washington, DC: The Brookings Institution, May 9, 2013).
- ²¹ *Ibid.*
- ²² *Ibid.*
- ²³ *Ibid.*
- ²⁴ *Ibid.*
- ²⁵ *Ibid.*
- ²⁶ Information Technology Industry Council, the Partnership for a New American Economy, and the U.S. Chamber of Commerce, [*Help Wanted: The Role of Foreign Workers in the Innovation Economy*](#) (Washington, DC: December 2012), p. 3.
- ²⁷ Microsoft, [*A National Talent Strategy: Ideas For Securing U.S. Competitiveness and Economic Growth*](#) (Redmond, WA: 2012), p. 4.
- ²⁸ *Ibid.*, p. 23.
- ²⁹ Stuart Anderson, [*Regaining America’s Competitive Advantage: Making our Immigration System Work*](#) (Washington, DC: Labor, Immigration & Employee Benefits Division of the U.S. Chamber of Commerce and the American Council on International Personnel, August 2010), p. 1.