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Immigration and Labor Force Trends

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About the Report: The Conference Board has recently undertaken a project on innovation and competitiveness, with funding from Microsoft Corporation. The goal of the project is to provide an overview of the current state of knowledge on the nature of innovation, and its role in stimulating economic growth and improved living standards in the U.S. The project draws on experts across the academic, corporate, and policy arenas, in addition to The Conference Board's own analysis, surveys, and focus groups of the business community. Such experts met in February 2007 to present and discuss various aspects of the innovation process and measurement thereof. Each presenter wrote a summary piece focusing on his respective area of expertise. These summary documents underpin the content in *Innovation and U.S. Competitiveness*; however the conclusions drawn are those of The Conference Board alone. These papers are retained for reference in The Conference Board Economics Program Working Paper Series.

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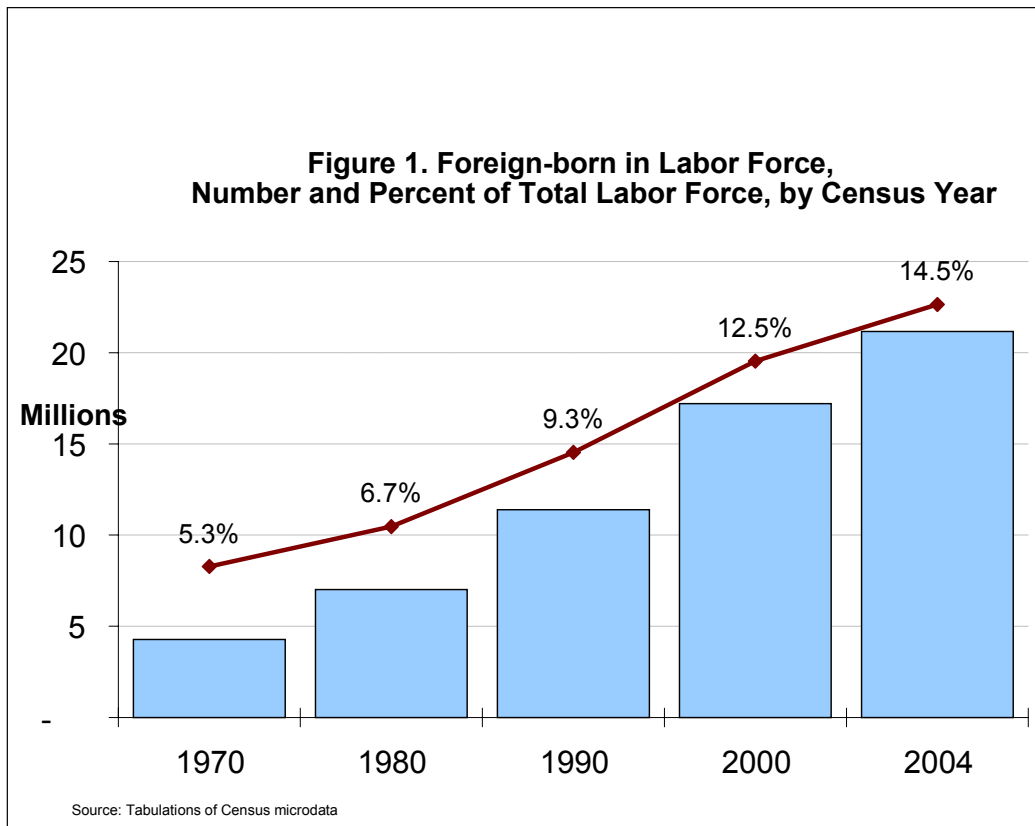
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The number of immigrants in the US labor force reached a historic high of twenty-one million, or 14.5 percent of the total labor force, in 2004. If the level of immigration to the United States continues along its current trajectory, immigrants may make up between one-third and one-half of the growth of the US labor force through 2030. Immigrant workers have played an important role in the growth of the US labor force in recent history, and will continue to play an important role in the future. However, shy of monumental increases in the number of immigrants their inflow will not offset the demographic aging of America. But immigrants will play an ever increasing role in certain occupations and most of today's projections likely under state their future overall and sector-specific growth.

The Immigration Act of 1965 opened access to the United States for immigrants from nations that had been virtually excluded since the 1920s and set in play significant growth of the foreign-born population. As the immigrant population grew, the share of immigrants in the workforce also increased. In 1970, the Census counted 4.3 million foreign-born workers aged 16 and over who made up just 5.3 percent of the total civilian labor force. Those numbers increased to 11.4 million by 1990, and 21.2 million in 2004, at which time they made up 14.5 percent of all civilian workers (see Figure 1). During the three decades from 1970 to 2000 the native labor force grew by 38 percent while the immigrant labor force grew 218 percent. Immigrant males led labor force growth throughout, with females remaining at about 40 percent of immigrant workers over this period.

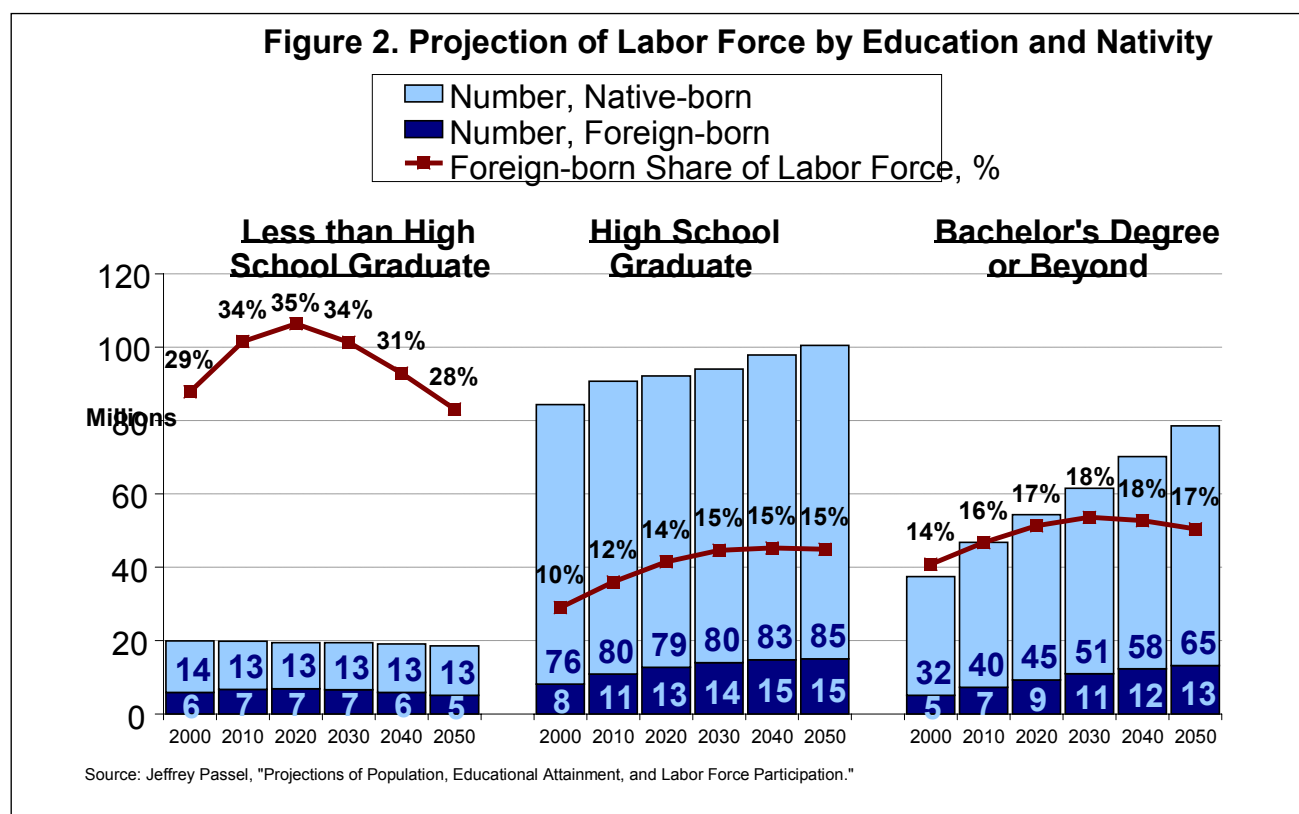


Because the 1965 Act opened up immigration from countries that now send most immigrants to the United States, there has been a significant shift from a foreign-born population dominated by Europeans in 1970, to a population dominated by Latin Americans and Asians in 2000. Whereas Europeans, Canadians, Australians, and New Zealanders made up 68 percent of all the foreign-born in 1970, by 2000 that share had dropped to just 19 percent. Meanwhile, Mexicans grew from just 8 percent of all the foreign-born to 30 percent in 2000, while the share of other Latin Americans doubled from 11 to 22 percent. Of equal significance is the increase of Asians from 9 percent of all immigrants to 26 percent during this short three-decade span.

There has also been an increase in the number of foreign-born workers who are unauthorized, particularly in the late 1990s when the number of new unauthorized migrants may have exceeded the number of legal admissions.² Of course the presence of unauthorized workers in the US workforce is not new. In 1980, there were already an estimated 1.8 million unauthorized *workers* making up over one-quarter of the foreign-born workforce. In 2004, the best available estimate places the number of unauthorized *workers* at 6.3 million or 30 percent of

² Jeffrey S. Passel, "Unauthorized Migrants: Numbers and Characteristics".

all foreign-born workers. Using a different measure, the unauthorized population was about 2 percent of the total US labor force in 1980 and 4.3 percent in 2004. The Latin American share of the unauthorized workforce may be a little more than 81 percent.



Peering into the future is fraught with difficulties of unanticipated events or sea changes in economic trends. Yet several factors are likely to generate a strong demand for immigrants, suggesting that an expectation of high growth is justified. First, immigrants already present in the country will predictably create a demand for ongoing family reunification. Secondly, the latent demand for immigrant labor will grow stronger as the baby boom generation moves into retirement and an aging population requires labor intensive personal services. Finally, as globalization knits together international labor markets, this will ensure that US employers will continue to seek to employ foreign workers across the entire occupational continuum.

LABOR FORCE PROJECTIONS

Most projections of future immigration suggest that foreign-born workers will play a significant role in the growth and skill composition of the US labor force. The BLS projects that the labor force will grow 12 percent (17.4 million), or an average of 1.2 percent per year, between 2002

and 2012, reaching a total of 162.3 million. While this is substantial growth, the rate of labor force growth has been slowing for the past twenty years. Labor force growth has slowed largely because baby boomers had only enough children to replace themselves in the labor market, but not enough to cause the working-age population to increase as it had in the past. The slowing of labor force growth is expected to accelerate after 2010, with annual job growth falling to a low of 0.3 percent between 2020 and 2030 before recovering slightly to 0.6 percent between 2030 and 2050. Projections suggest new immigration is likely to contribute between one-third and one-half of the growth of the labor force through 2030 and begin to decline afterward.³ The children of immigrants are expected to contribute over one-half of labor force growth between 2000 and 2050.

Projections for the Pew Hispanic Center of the number of college-educated workers among the labor force show growth from 37 million in 2000, to 54 million in 2020, and 78 million in 2050 (see Figure 2). Conversely, the numbers of workers who have not graduated from high school are projected to fall slowly from 20 million in 2000 to 18 million in 2050. Immigrants are predicted to represent an increasing share of workers with both high and low education, comprising 29 percent of workers without a high school diploma in 2000, but 35 percent of these workers in 2020, and 14 percent of those with a college degree or more in 2000, growing to 17 percent in 2020.⁴ The greatest gain is projected for immigrants with a high school, but not a college education; immigrants were 10 percent of workers with a high school degree in 2000 and are projected to be 15 percent by 2030.

So projections of total immigration at levels similar to those seen since the late 1990s suggest that the number of immigrants, and their share of the labor force, will peak in the year

³ The estimates here are based on separate BLS projections of the number of all workers (see Mitra Toossi, "A Century of Change: The US Labor Force, 1950-2050," *Monthly Labor Review* 125, no. 5 (May 2002), <http://www.bls.gov/opub/mlr/2002/05/art2full.pdf>) and Jeffrey Passel's projections of the immigrant percent of the labor force (see n. Passel, "Projections of Population, Educational Attainment, and Labor Force Participation."). Another report estimates that if immigrants' labor force participation rate follows historical trends, 4.25 million immigrants will join the workforce between 2002 and 2012 and account for a fourth of total projected labor force growth. See Immigration Policy Center, "Economic Growth & Immigration" (Washington, DC: American Immigration Law Foundation, November 2005).

⁴ Jeffrey S. Passel, "Projections of Population, Educational Attainment, and Labor Force Participation". Immigrants represent a large share of workers without a high school diploma partly because immigrants at this education level are more likely to work than their US-born counterparts. In 2004, 59.5 percent of immigrants without a high school diploma were in the labor force compared to only 36.8 percent of natives. See Immigration Policy Center, "Economic Growth & Immigration".

2030.⁵ In that year there could be thirty-two million immigrant workers making up 18 percent of the total US workforce. Between 2000 and 2030, immigrants are projected to grow from 10 to 15 percent of workers with a high school degree, from 14 to 18 percent of those with a college education, and from 29 to 34 percent of those with less than a high school education.

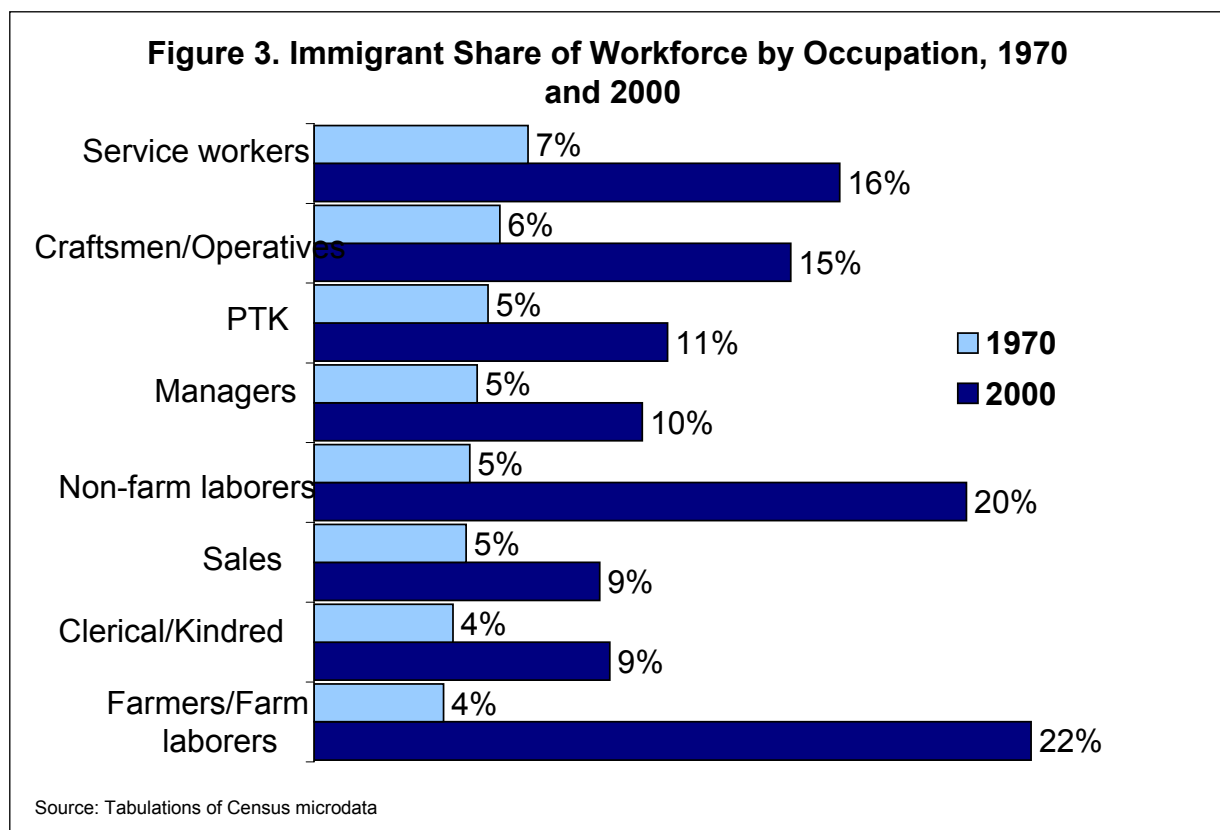
PAST AND PRESENT OCCUPATIONS

Immigrants have been employed in the same *broad occupational groupings* as natives from 1970 to 2000. Both groups experienced the same thinning of ranks of craftsmen/operatives (a process fueled by the long-term decline in manufacturing) and simultaneous increase in employment in professional, technical and kindred (PTK) jobs. Nevertheless, immigrants were more likely to be employed as lower-skilled craftsmen/operatives and, by 2000, especially as non-farm laborers than natives. Finally, immigrants also retained a greater likelihood of being employed as service workers than natives in both 1970 and 2000. In contrast, natives were actually slightly less likely to be employed in PTK jobs in 1970 than immigrants, but had a distinct employment edge in PTK by 2000.⁶

While the relative distribution of immigrants and natives in different occupations appears to be remarkably stable, the immigrant share of each occupation's workforce has increased dramatically over the past three decades. On the one hand, this is not very surprising as the immigrant share of the total labor force more than doubled between 1970 and 2000 from 5.3 to 12.5 percent. However, within certain occupations, the immigrant share of the workforce can be quite striking. The most notable gains were in farmer/farm laborer occupations which was 4 percent immigrant in 1970 and 22 percent immigrant by 2000 (see Figure 3). Immigrants also saw their share increase from 5 percent to 20 percent of non-farm laborers during the same time period. And while the share of all workers who were craftsman/operatives declined during this period, the immigrant share of this workforce increased from 6 to 15 percent. Immigrants are now a substantial part of the workforce of all major occupational groupings.

⁵ The drop-off in the immigrant share of the labor force after 2030 reflects Census Bureau assumptions that net migration will fall after 2030 as emigration rates remain steady but immigration falls in response to a decreasing dependency ratio. The dependency ratio is expected to drop following high dependency ratios during the retirement period of baby boomers.

⁶ In tabulations not included here it can be shown that, with time in the United States, long-term immigrants are more likely to be found in higher skilled occupations, while recent arrivals are more likely to find employment as farm and non-farm laborers.



Nevertheless, there are notable occupational differences between natives and immigrants when place of birth and gender are considered. Mexican-born workers are much more likely than natives to find employment in food preparation, building and grounds maintenance, construction, and production occupations (see Table 1). Other Latin American-born workers show similar differences, although they are somewhat more similar to natives in their employment in sales/administrative support jobs, as are Asian and European-born workers.

PROJECTIONS OF WORKERS BY OCCUPATION

The skill levels demanded by occupations projected to grow over the next several years parallel the educational profile of the labor force, suggesting ongoing demand across the skill spectrum. Every two years, the BLS publishes projections about the number of net jobs that will be created or lost in each occupation.⁷ The latest projections, for the years 2002 to 2012, forecast a slowing

⁷ Overall, the BLS projects that the number of jobs in the country will increase, on net, by 21.3 million between 2002 to 2012. The BLS also projects 56.3 million total job openings over this ten year period. Job openings include new jobs as well as jobs that will open due to workers switching jobs or leaving the workforce. Although the

in the rate at which the total labor force is growing, as mentioned above. However, there is substantial variation in the fortunes of various occupations.

Tomorrow's economy will generate demand for jobs that are different from today and the skills that workers need to do those jobs will likewise change. The BLS separates out occupations that are projected to have the largest numerical growth and those that are projected to experience the fastest rate of growth.⁸ Immigrants make up a significant share of the labor force in many large and fast-growing occupations. Importantly, the BLS further classifies occupations by the degree of skill required for the job, showing that there will be a continuous demand for both low and high-skilled workers. (See tables at the end of this report).

Large-Growth Occupations. For occupations forecast to experience large-growth, eleven out of the fifteen require only short or moderate-term on-the-job training, suggesting lower-skilled immigrants could contribute to meeting the demand for these types of jobs. According to 2000 Census data, immigrants were overrepresented in four of these occupations. Immigrants made up 20 percent of janitors and building cleaners, 17 percent of nursing, psychiatric, and home health aides, 13 percent of waiters and waitresses, and 13 percent of cashiers. On the high skill end, three large growth occupations – general and operations managers, other teachers and instructors, and postsecondary teachers – require a bachelor's degree or higher and, as seen above, immigrants are especially well poised to continue to contribute to these.

Fast-Growth Occupations. At the same time, immigrants have made up a large share of some fast-growing occupations requiring college degrees. Of the fifteen occupations projected to grow the fastest, six are occupations in which immigrants were overrepresented as a share of the workforce in 2000. Four of these six require a college degree: computer scientists and systems analysts (projected to have 38 percent growth), database administrators (44 percent growth), and computer software engineers (45 percent growth), and network systems and data communications analysts.⁹

projected size of net job growth is larger than the projected labor force growth, the BLS assumes there will not be a labor shortage, as some workers may fill more than one job.

⁸ Our projections of the fifteen fastest and largest growing occupations differ slightly from those of the BLS since we matched our occupational categories to the ones used by the Census Bureau. In some cases, this resulted in groupings of several occupations that the BLS examined individually.

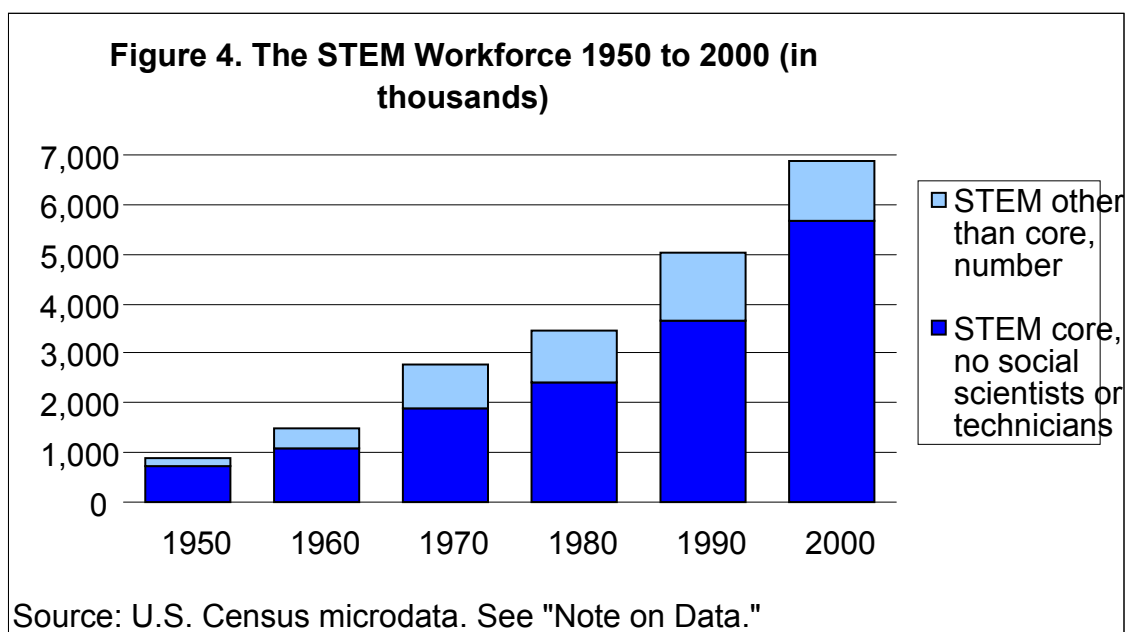
⁹ Looking at things another way, of the fifteen occupations in which immigrants make up the largest share of the workforce, five occupations are predicted to grow more than the average net employment increase of 15 percent (see Appendix).

Occupations to Serve an Aging Population. Immigrants are also found in jobs that will be important in serving tomorrow's aging population. Seniors are expected to generate increasing demand for medical, home care, and other services, many of which require workers with only on-the-job training. According to analysis of BLS data, eight of the fifteen occupations projected to grow most rapidly and three of the occupations projected to have largest absolute growth are medical support occupations including medical records technicians, nursing and home health aides, registered nurses, occupational therapist assistants and aids, and personal and home care aides. Immigrants were well represented in these occupations in 2000.

In summary, forecasts of occupational growth suggest occupations requiring better educated workers will continue to grow strongly. There will also be a substantial growth of jobs requiring little training and in which immigrants are already substantially well represented. Educational forecasts suggest that throughout the next decade, immigrants are likely to play an important role in the restructuring of the US labor force.

SCIENCE AND ENGINEERING EMPLOYMENT

The Scientific, Technical, Engineering, and Mathematical (STEM) work force grew significantly during the five decades 1950 to 2000. It was 7.7 times as large in 2000 as it was in 1950 (Figure 4). The STEM work force growth far outstripped the total labor force growth, which grew 2.3 times. It even outstripped the growth of all managers and professionals, which grew to be 4.9 times larger from 1950 to 2000. Of course, the rapid growth of these highly skilled occupations is no surprise because the United States evolved from an industrial to a knowledge-based economy after World War II.



Still, STEM workers went from just 1.5 percent of all workers in 1950 to just 5 percent in the year 2000. Clearly, STEM workers remain a rather small percentage of the U.S. labor force, despite the noticeable growth of their relative and absolute number. It is remarkable that such a small percentage of the U.S. labor force plays a leading role in generating today's knowledge-based products.

Most notable has been the explosive growth of mathematics and information technology, particularly after 1970 which was the first year that computer occupations were included in Census surveys. By 1990 mathematicians and especially information technology workers comprised 29 percent of all STEM workers and by 2000 nearly half (48 percent). Engineering historically has been the biggest field. It retained 27 percent of all STEM workers in 2000, even though it grew only 2 percent in the 1990s. Life sciences have shown solid growth decade to decade; physical sciences, where growth has been less steady, grew 48 percent in the 1990s. Likewise, social scientists showed significant growth in the 1970s and 1980s, only to decline in numbers during the 1990s, which might have been partially due to definitional shifts.

The percent of foreign-born STEM workers grew from a low of 6 percent in 1960 to 17 percent in the year 2000. This was a substantial gain, albeit all foreign-born STEM workers were only 1.3 times more likely to be employed in STEM as they were in the total labor force. Yet, the foreign born have been underrepresented in managerial and professional occupations, so highly

skilled foreign-born workers historically have been more likely to find employment in STEM than elsewhere.

The foreign born have made significant employment gains across time, particularly in the 1990s. Their representation in the life and physical sciences doubled during that decade. As of 2000, the greatest representation of the foreign born was in the life and physical sciences in which they made up roughly 24 percent of each work force. Indeed, the foreign born have historically had their greatest representation in the physical sciences. Their next greatest concentrations today are in engineering (16 percent), and mathematics and information technology (18 percent). The foreign born have been and continue to be somewhat underrepresented as STEM technicians. They are least represented in the social sciences where they have also made the least employment gains over time.

Information Technology Employment. The strong employment gains by immigrants in information technology (IT) employment—the strongest growth sector of the STEM sector—is dominated by computing and electrical engineering jobs. The number of all computer and engineering workers as reported in Census data increased 153 percent in the 1980s and 167 percent in the 1990s.¹⁰ These decade-to-decade rates of growth are much greater than that of the labor force overall, but the IT workforce is relatively small being just less than 4 percent of the U.S. labor force. And as the U.S. labor force is about 150 million, it is worthwhile noting that in the context of the IT workforce even seemingly small numerical changes may be significant.

The U.S. Bureau of Labor Statistics (BLS) most recent projections assume an increase in the IT workforce from about 3.6 million in 2004 up to 5.8 million in 2014. That change represents a 161 percent increase in ten year's time.¹¹ The BLS projections factor in future demand based on things such as GDP growth and technology shifts.¹² Some of the past IT projections by the BLS have been higher than those actually achieved (say for programmers and electrical engineers). Although a last round of projections through 2000 slightly underestimated

¹⁰ Lowell, B. Lindsay and Mark Regets, 2006. "A Snapshot of Half of a Century: The STEM Workforce from 1950 to 2000," White Paper for the STEM Workforce Data Project, Center for Professionals in Science and Technology.

¹¹ However, the BLS counts and those of the Census are not of the same magnitude. See Horrigan, Michael W., 2004. "Employment Projections to 2012: Concepts and Context," *Monthly Labor Review*, February, pages 3-22; and see <http://www.bls.gov/emp/>.

¹² Daniel E. Hecker, 2005. "Occupational employment projections to 2014," *Monthly Labor Review*, November, pages 70-101.

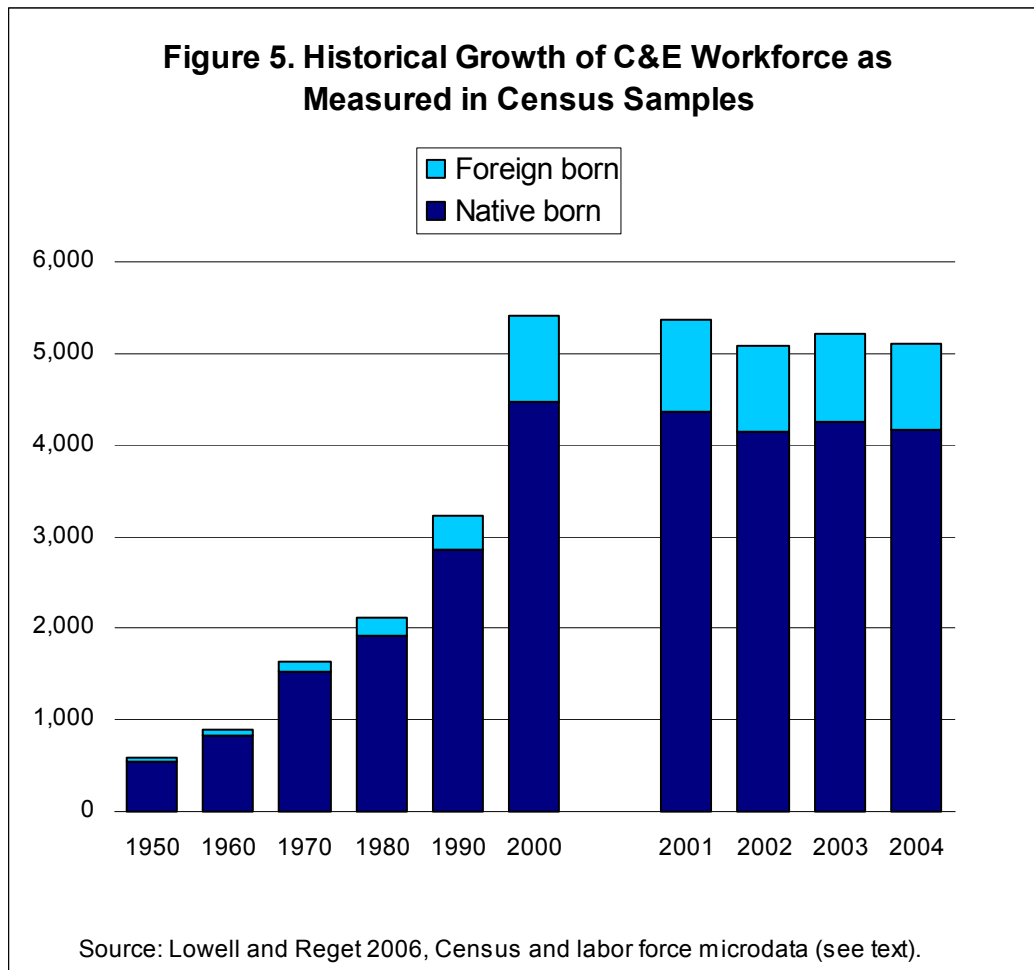
the growth of all information technology during the unprecedented 1990s boom.^{13,14} Yet, the year 2000 may have been an interim high point for IT employment according to Census data (Figure 5). These trends, and signs that the IT labor force is not showing signs of extreme labor shortages, imply moderating assumptions about the pace of future growth. They also suggest caution in the strong growth projected by the BLS through 2012.¹⁵ Indeed, the Gartner group forecasts declines in IT staff employment of 15 percent by 2010 which may be extreme, but which emphasizes the revision of outdated projections based on the trends of the now defunct new economy and today's pressures of globalization.¹⁶

¹³ McClure, George, 2006. "The Outlook for Workforce Demand," *Today's Engineer On-Line*, July, <http://www.todaysengineer.org/2006/Jul/outlook.asp>.

¹⁴ Alpert, Andrew and Jill Auyer, 2003. "Evaluating the BLS 1988–2000 employment projections," *Monthly Labor Review*, October, pages 13-37, <http://www.bls.gov/opub/mlr/2003/10/art2full.pdf>.

¹⁵ Monastersky, Richard. 2004. "Is There a Science Crisis? Maybe Not. Leaders Warn of a Labor Shortage in the U.S., but Indicators Point to an Oversupply," *The Chronicle of Higher Education*, July 9.

¹⁶ Gartner, 2005. "15% reduction in IT workforce by 2010," *ITFacts Employment* (<http://www.itfacts.biz/index.php?id=P3426>).



The trend in growth of the foreign-born in these IT occupations has been one of increasing numbers through the 1990s, followed by a stabilizing IT workforce since 2000. Since the 1950s there has been a significant shift in where foreign-born workers come from – primarily a shift from European origins to Latin American origins among low-skilled workers, and a shift to Asian origins among higher-skilled workers. In the 1950s, about 74 percent of all foreign-born workers in the total U.S. labor force were from European origins, but by 2000 only 15 percent were European and 44 percent were from Latin America. Among foreign-born STEM workers, the shift was from workers from European origins to a majority from Asian origins. The STEM sample is large enough to start tracing that shift in 1970 when 54 percent of foreign-born workers were from Europe; by 2000 about 59 percent were from Asia. Europeans still made up 20 percent of foreign-born STEM workers in 2000, while Latin American workers were just 11 percent of the foreign-born STEM work force. Asian foreign-born STEM workers in 2000 were most concentrated in core STEM occupations in which they were 60 percent of the foreign-born

employed. Asians are a lesser 48 percent of workers in the science and engineering technician jobs, and just 36 percent of foreign-born workers in social science jobs.

Yet, there is a perception that America either is losing a growing worldwide competition for highly skilled immigrants, or that business would benefit from yet more immigrants. Experts have voiced concerns about the pace of globalization and its implications for America's continued dominance of science and engineering.¹⁷ In some ways, it seems that the U.S. should do more to encourage high skilled immigration. The number of foreign students applying to U.S. institutions declined after 2001, although those numbers are now rebounding somewhat.¹⁸ The demand for high-skilled temporary specialty H-1B workers has exceeded the cap on visas for the past couple of years and the business community is asking for an increase in the H-1B visa cap. And President Bush in his 2006 State of the Union called for re-energizing our R&D enterprise and America's competitiveness. Furthermore, there are long-standing arguments in favor of tilting the admissions system toward more highly skilled workers who bring benefits and integrate more readily than low-skilled immigrants.¹⁹

IT Projections and Immigration Reform. Doubtless, concerns about future competitiveness and a need to streamline the admission process have played a role in the Senate's setting higher priority on highly skilled workers in last year's heated debate over immigration reform. While most media reports focused on the problem of undocumented migration, the Senate crafted legislation that would generate significantly greater levels of immigration for STEM workers. That bipartisan legislation (S.2166) would increase employment-based admissions and makes particular allowance for STEM workers:

- caps on *employment-based legal permanent* admissions are significantly increased,

¹⁷ National Academy of Sciences, 2005. *Rising Above the Gathering Storm: Energizing and Employing America for a Brighter Economic Future*, by Committee on Prospering in the Global Economy of the 21st Century, National Academies Press. See also: National Science Board, 2004. *The Science and Engineering Workforce Realizing America's Potential*, Arlington: National Science Foundation.

¹⁸ Institute for the Study of International Migration, 2006. "Reason For Concern? Trends In The Numbers of Foreign Students in Science and Engineering Through 2005," Brief, <http://www12.georgetown.edu/sfs/isim/pages/SloanProject.html#Anchor-Brief-9046>

¹⁹ Committee on Economic Development (CED), 2001. *Reforming Immigration: Helping Meet America's Need for a Skilled Workforce*, Washington, D.C.: CED, http://www.ced.org/docs/report/report_immigration.pdf; U.S. Commission on Immigration Reform (CIR) 1995. *Legal Immigration: Setting Priorities*, Washington, D.C.: U.S. CIR, <http://www.utexas.edu/lbj/uscir/>,

- *foreign students* graduating from *U.S. institutions* with advanced STEM degrees are admitted with no cap,
- *foreign students* graduating from *foreign institutions* with advanced STEM degrees are admitted with no cap after three years of U.S. work experience, and
- *temporary specialty (H-1B)* visa numbers are increased with an annual 20 percent escalator if the prior year's cap is exceeded.

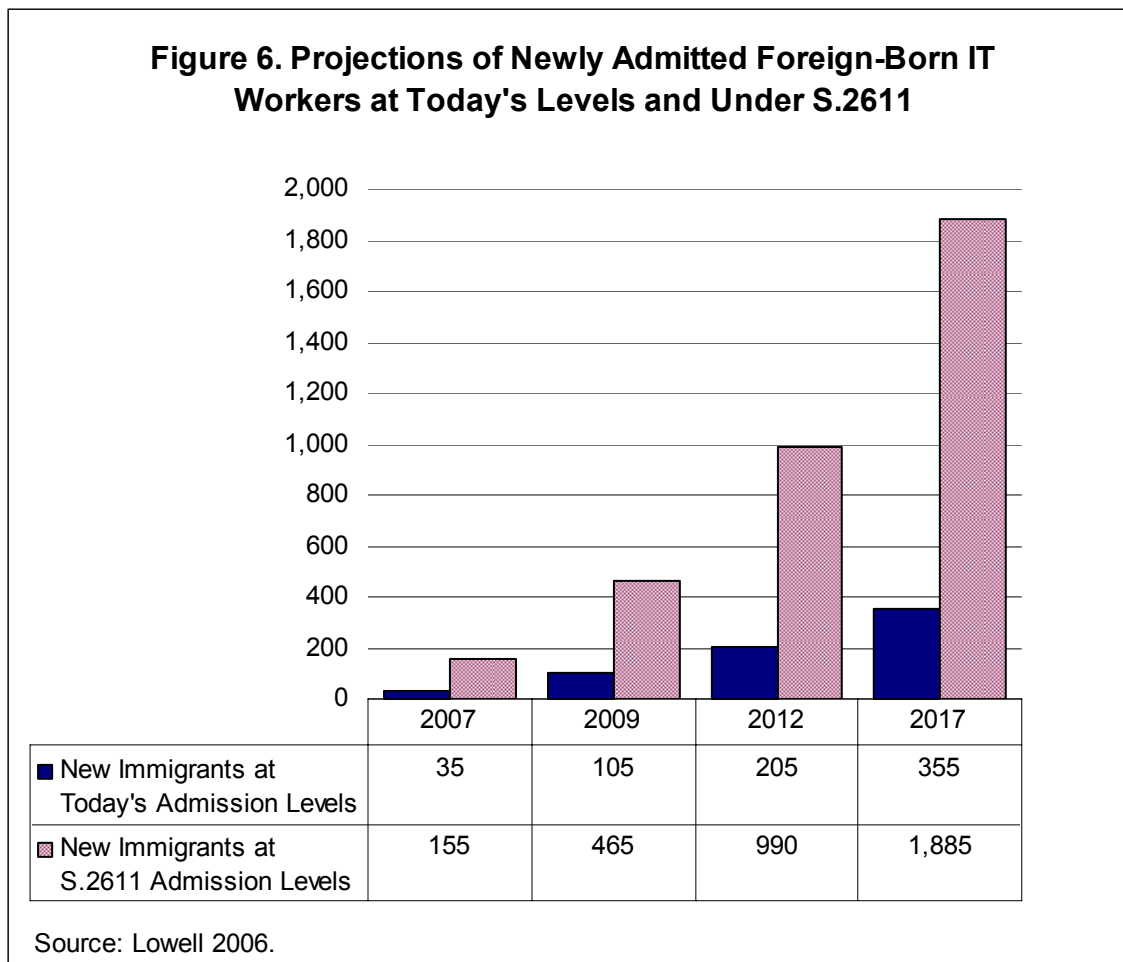


Figure 6 shows projections of the IT workforce at today's levels of new immigrant admission and the number of new admissions that the Senate S.2611 legislation *could admit if*

the various increased visa caps and escalator clauses were used.²⁰ Today's levels imply about 35,000 newly-arrived immigrant IT workers in each future year at today's level of admissions. This starting admission cohort is about one-fifth the size of that projected under S.2611 which means that the S.2611 legislation could generate a yearly admission number that is about five times larger than today's level of admission. That ratio is what should be expected given the increases that S.2611 makes to visa numbers compared with current law. It turns out, by way of a separate cross-check, that a projection of native and residual foreign-born workers requires no additional immigrants over and above current visa numbers to meet the BLS projections of IT employment. Furthermore, even given today's levels of IT immigration the IT workforce's share of foreign born continues to increase one third from 18 to 24 percent in one decade.

CONCLUSIONS

The projections reviewed here are based on current estimates that are prone to revision. Indeed, the U.S. Census Bureau will release new population projections in the near future which will, in turn, result in new labor force projections. It is quite likely that those projections will be for much stronger growth of the foreign-born population and labor force—as an order of magnitude those projected numbers of foreign born are conjectured to be at least 10 percent greater than those reviewed here. While that may not sound substantial, consider that the native-born labor force is projected to grow very little and that even a small increase in immigration numbers translates into (a) a growing share of labor force growth due to immigration; (b) significantly growing shares of immigrants in certain occupations; and (c) cumulative future populations that are much larger.

Consider too that the BLS will soon come out with new employment projections, based on models of future labor demand that will certainly alter our perceptions of how many immigrants could be needed to meet putative labor shortages. While the BLS's last round of projections indicated robust growth in the IT sector, recent employment trends suggest less robust growth than was thought. Of course, projections are a tricky business and it is not just the IT sector that may grow more or less than we have thought. Employment and college enrollments in the physical sciences, for example, is growing more than was anticipated just a

²⁰ Lowell, B. Lindsay. 2006. "Projected Numbers of Foreign Computer and Engineering Workers under the Senate's Comprehensive Immigration Reform Act (S.2611)," Working Paper Institute for the Study of Georgetown University.

couple of years ago. Yet, the STEM workforce and the IT sector are especially worth monitoring because most observers feel that STEM jobs are critical drivers of innovation.

And as a further complexity to the art of projections, the U.S. Congress is still actively considering legislation that would create significant new numerical increases in the number of STEM immigrants who could be admitted. We can confidently project that immigrants will drive much of U.S labor force growth, and particularly so in the STEM sector, given *today's levels* of immigrant admissions. But if Congress enacts the type of legislation that it is contemplating the potential upside of immigration—both low and highly skilled—will almost surely exceed even optimistic Census or BLS projections. The demographic impacts of such increases are relatively easy to extrapolate, but it less easy to find consensus thinking about the knock on effects of increased supply on wages; and innovation and American competitiveness.

APPENDIX TABLES

Table 1. Fifteen Fastest Growing Occupations 2002-2012

Occupation	Percent Growth 2002-2012	Foreign-born Share of Workforce	Most Significant Source of Postsecondary Education or Training
Network Systems, Data Communication Analysts	57%	12%	Bachelor's degree
Physician Assistants	49%	11%	Bachelor's degree
Medical Records and Health Info Technicians	47%	9%	Associate degree
Occupational Therapist Assistants and Aides	46%	5%	Associate degree/ Short-term on-the-job training
Physical Therapist Assistants and Aides	46%	8%	Associate degree/ Short-term on-the-job training
Computer Software Engineers	45%	27%	Bachelor's degree
Database Administrators	44%	17%	Bachelor's degree
Dental Hygienists	43%	5%	Associate degree
Hazardous Materials Removal Workers	43%	28%	Moderate-term on-the-job training
Dental Assistants	43%	12%	Moderate-term on-the-job training
Personal and Home Care Aides	41%	18%	Short-term on-the-job training
Misc Community and Social Service Specialists	39%	8%	Moderate-term on-the-job training
Medical Assistants, Other Healthcare Support	39%	10%	Short to Moderate-term on-the-job training
Computer Scientists and Systems Analysts	38%	16%	Bachelor's degree
Environmental Engineers	38%	12%	Bachelor's degree

Table 2. Fifteen Occupations with Largest Job Growth 2002-2012

Occupation	New Jobs 2002-2012 (thousands)	Foreign-born Share of Workforce	Most Significant Source of Postsecondary Education or Training
Home Health Aides	631	17%	Short-term on-the-job training
Registered Nurses	623	11%	Associate degree
Postsecondary Teachers	603	17%	Doctoral Degree
Retail Salespersons	596	10%	Short-term on-the-job training
Driver-Sales, Truck Drivers	593	10%	Short-term on-the-job training
Cashiers	462	13%	Short-term on-the-job training
Customer Service Reps	460	9%	Moderate-term on-the-job training
Food Prep and Serving	454	10%	Short-term on-the-job training
Janitors	414	20%	Short-term on-the-job training
General & Operations Managers	376	9%	Bachelor's plus experience
Waiters and Waitresses	367	13%	Short-term on-the-job training
Sales Reps, Wholesale & Manufacturing	356	8%	Moderate-term on-the-job training
Other Teachers and Instructors	326	10%	Bachelor's degree
Receptionists & Info Clerks	325	8%	Short-term on-the-job training
Medical Assistants & Healthcare Support	324	10%	Short/Moderate-term on-the-job training

Table 3. Fifteen Occupations with Highest Immigrant Concentrations, growth 2002-2012

Occupation	Change in Number of Jobs 2002- 2012, (thousands)	Percent Change 2002- 2012	Foreign- born Share of Workforce	Most Significant Source of Postsecondary Education or Training
Shoe, Leather Workers, Repairers	-3	-16.1%	32%	Long-term on-the-job training
Maids and Housekeepers	137	9.2%	33%	Short-term on-the-job training
All Other Health Practitioners	26	24.5%	34%	Bachelor's degree
Textile & Garment Pressers	0	-0.2%	35%	Short-term on-the-job training
Physical Scientists, All Other	2	6.5%	37%	Bachelor's degree
Taxi Drivers and Chauffeurs	29	21.7%	37%	Short-term on-the-job training
Plasterers and Stucco Masons	8	13.5%	38%	Long-term on-the-job training
Misc Media and Communications	15	18.3%	38%	Long-term on-the-job training
Sewing Machine Operators	-99	-31.5%	41%	Moderate-term on-the-job training
Misc Agricultural Workers	32	4.3%	41%	Short to Moderate-term on-the-job training
Misc Personal Appearance	21	20.4%	43%	Postsecondary vocational award
Jewelers, Stone & Metal Workers	2	4.5%	44%	Postsecondary vocational award
Medical Scientists	21	23.9%	45%	Masters to Doctoral Degree
Tailors, Dressmakers, and Sewers	-12	-13.5%	46%	Short to Long-term on-the-job training
Agricultural Graders and Sorters	3	6.7%	52%	Work experience in a related occupation