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A Reform Package

The recent debate in America on immigration reform has failed to pay sufficient attention to several accelerating trends in immigration of high-skilled workers. While legislated, the US high-skilled immigration system has been largely left unreformed and has become increasingly dysfunctional. US policymakers must urgently acknowledge the accelerating trends, summarized below, before they produce a crisis.

Summary of Findings

This policy analysis has established the following findings:

The Era of Rising Skill Levels in America's Labor Force Is Drawing to a Close. Overall skill levels in the US workforce have stagnated in the last 30 years. Measured by educational attainment, new cohorts of workforce entrants aged 25–29 and 30–34 do not possess higher skills than soon-to-retire baby boomers aged 55–59. This indicates that the qualitative, compositional improvement of the skill level in the US labor force associated with the retirement of workers less skilled than those entering will stop for the first time in US history. Retiring baby boomers will take as many skills with them into retirement as their children simultaneously entering the workforce possess.

The Number of High-Skilled Workers in Other Countries Is Rising Faster than in America. American baby boomers aged 55–64 led the global economy in tertiary education when they entered the workforce in the 1970s. Today's American workforce entrants aged 25–34 barely make the

global top 10, signifying that America will soon start dropping down the list of nations with the most skilled workforces. At least ten percentage points more of young workforce entrants in Russia, Canada, Japan, and Korea today have a tertiary degree than does the present share of youngsters in America. This indicates that present and future generations of Americans may not possess the same relative skill advantages to thrive in the global economy as did Americans aged 55+.

Science and Engineering Degrees Are Still Popular. Measured as a share of the total number of bachelor's, master's, and doctoral degrees granted by US universities, science and engineering (S&E) degrees have held largely steady at least since the mid-1970s. Shortages of new S&E graduates are thus related more to the general educational stagnation in the United States than to any relative decline in popularity of these fields.

Foreign Science and Engineering Students Have Been Numerous at US Universities for a Generation. The foreign share of US S&E students rose substantially during the 1990s and has now stabilized at more than a third after a 9/11-related decline. More than half of all engineering and computer science students at US universities in 2005 were foreign. However, as far back as the 1980s, this share was 40 percent or more.

OECD Countries Are Increasingly Shifting Toward Managed Immigration, Focusing More on High Skills than Is America. In 2005 the United States had the most family-oriented immigration policy of the 17 OECD countries for which data were available. Many OECD countries, including those outside the group of traditional Anglo-Saxon immigrant destination countries, are aggressively courting high-skilled immigrants and especially copying US efforts to attract foreign students and provide them with employment opportunities. Moreover, traditional origin countries of many high-skilled emigrants to the United States, like China, have in 2007 actively begun luring their nationals back via special offers. This raises the question whether the United States can retain its large share of all foreign high-skilled immigrants and maintain its traditionally very high retention rate among its foreign student body.

High-Skilled Immigrants Are Increasingly Important as US High-Tech Entrepreneurs. Up to 25 percent of all US high-tech startups since the early 1990s have had at least one foreign-born cofounder. This share is an increase from less than 10 percent in the 1970s.

Green Cards Keep High-Skilled Foreigners in the United States, but Don't Grant Them Entrance. More than 90 percent of the green cards (i.e., the granting of legal permanent residence [LPR] status) to high-

skilled immigrants are issued via adjustments in visa status requested for high-skilled foreigners already residing and (most likely) employed in the United States. Green cards are thus important predominantly as a tool to maintain the existing high-skilled workforce in the United States, rather than expanding it. This indicates that temporary visas perform a "gatekeeping" function for most high-skilled permanent immigrants to the United States and that overwhelmingly it is temporary work visas, rather than green cards, that in the first place attract "the best and the brightest" to the United States.

The Present Green Card System May Force Many Employed High-Skilled Workers to Leave the United States. Due to the limited number of green cards that can be issued to any single country's nationals, most high-skilled immigrants from China, India, and the Philippines have had to wait several years to be able to acquire permanent residency in the United States. Such national bottlenecks in the green card system may force many of them to abandon high-skilled US employment and leave the US workforce.

The Current Cap on Annual H-1B Issuance Is Pure Political Rhetoric. More than 275,000 H-1B visas were issued in FY2004 and FY2005, despite the cap being nominally set at 65,000. This is a direct and intentional result of congressionally mandated legal exceptions and is unrelated to large-scale visa fraud.

A Dual Trend Dominates Temporary High-Skilled Visa Issuance in the L-1 and H-1B Programs, and Indians Now Dominate Both. The issuance of H-1B and L-1 visas to Indian nationals has rapidly increased in recent years, so that Indians now account for 30 to 50 percent of all temporary high-skilled visas issued, depending on the subcategory. Visa issuance to nationals from the rest of the world has been largely stagnant since 2000. More detailed occupational data for H-1B recipients show that the gross number of Indian recipients, recipients in computer-related occupations, and recipients in the IT services sectors fluctuates wildly and broadly as would be directionally predicted by the business cycle. Gross H-1B visa issuance to other recipient categories is generally stable. Foreign high-skilled workers in computer-related occupations in all probability increasingly dominate both programs.

New Firm-Level Data on L-1 and H-1B Usage for 2006 Show a Limited Number of Indian IT Companies at the Very Top. Recent data released by Senators Richard Durbin and Charles Grassley on employers that request L-1 and H-1B visas show that up to a dozen Indian IT services/software companies were the top petitioners of L-1 and H-1B visas in 2006. Several major US IT companies are also heavy users of the two programs.

However, Indian IT services/software companies do not feature beyond the top 10. Instead, a very broad range of US and multinational companies, as well as US public institutions from different sectors of the US economy, account for the remaining demand for foreign high-skilled workers. Firm-level data thus confirm the importance of both the L-1 and H-1B visas to the IT services/software industries and a few Indian companies in particular, while simultaneously indicating a broad-based demand for foreign high-skilled workers throughout the US economy.

US Software Workers Have Not Been Adversely Affected by the Uniquely Large Inflow of Foreign High-Skilled Workers in this Occupation. No other high-skilled occupation in the United States has seen an inflow of foreign workers that approaches that of software workers. Yet, numerous media reports and congressional testimony notwithstanding, unemployment rates for both US computer programmers and software engineers have hovered around 2 percent since 2005, indicating full employment in these occupations. Latest available data show total software employment was at a record high in 2006, surpassing the level reached at the peak of the internet/Y2K boom.

Wage growth for US software workers has in recent years surpassed that for 80 percent of the US workforce. This further suggests that US high-skilled workers have not suffered adverse labor-market effects by the inflow of foreign high-skilled workers in recent years. It is therefore crucial that nonempirical alarmist rhetoric and anecdotes not be allowed to dominate the public discourse on this topic in America, as these will likely have an unwarranted negative effect on the willingness of US students to pursue careers in software occupations.

The Use of Quotas for H-1B Visas May Generate up to $1 Billion in Annual Rents in the Form of Fees to the USCIS and Immigration Lawyers. Turning access to H-1B visas into a scarce resource through the use of a quota heavily favors the most resource-rich and intensive/dependent users of the program, likely at the expense of smaller US startups and small and medium-sized companies.

Implications and Recommendations for Reform

Any reform of US immigration laws is today more than ever "politics as the art of the possible" rather than the ideal. As even successful education reforms take decades to yield marked skill improvements in the labor market, it should be noncontroversial that the United States will need to increase its intake of high-skilled foreigners to avoid substantial and broad skill shortages in the coming decade. Hence, the current overwhelming emphasis on family-based immigration must be altered in the direction

of a more skills-oriented approach. However, accepting that such fundamental redirection of US immigration policies invariably will touch upon areas and issues outside the subjects relevant to high-skilled immigration covered in this policy analysis, I will refrain from proposing sweeping reforms toward this broader goal.

Keeping in mind the current political sensitivity of the issue, most recently exemplified by the collapse of the June 2007 Senate immigration "grand compromise," I instead offer a package of minimalist policy proposals—i.e., biased in favor of changes that are most necessary but require only the least ambitious legislative agenda. Proposing limited reforms is also acknowledging the fact that despite its increasing number of shortcomings, the US high-skilled immigration system does contain many well-functioning and efficient rules and regulations, altered at lawmakers' peril.

Permanent Immigration—Green Card Issuance

The present green card system generally functions reasonably well with respect to high-skilled workers and ought to carry on with its current function as the principal means with which to keep the best and the brightest in the United States rather than attract them. The findings in this policy analysis suggest that, apart from speeding up the processing of LPR applications, two changes to current rules should be made:

Drop the Department of Labor (DOL) Foreign Labor Certification for LPR Categories E-2 and E-3. The US labor force will shortly start experiencing a stagnation in the skill level of the resident workforce, leaving the resident high-skilled workers unaffected by foreign high-skilled inflows. Hence the current requirement that foreigners seeking LPR status in categories E-2 and E-3 obtain a labor-market certification is superfluous and will only lead to rent-seeking behavior.

Exempt LPR Categories E-1, E-2, and E-3 from the Annual Per-Country National Limit. High-skilled foreigners from many different origins seek LPR status via the E-2 and E-3 categories, but the population sizes of countries vary widely. Recent evidence shows that literally hundreds of thousands of would-be permanent residents from China, India, and the Philippines applied for LPR status immediately when offered the chance in July and August 2007. Moreover, up to 40 percent of the world's population is already from either India or China, and the pool of high-skilled university graduates from these two countries is expanding rapidly every year. It no longer makes any sense to restrict the number of high-skilled people who can annually enter the United States from any one country.

L-1 Intracompany Transferees

The L-1 visa program grants employers utmost freedom to independently select which foreign high-skilled workers they require and bring them to the United States without having to concern themselves with visa quotas, labor certifications, or other regulatory obstacles. This is a very efficient program, which lets employers identify and access the precise foreign high-skilled workers they need. As such, no major specific reforms of the L-1 program are presently required.

However, the L-1 program has seen a major rise in applications filed on behalf of Indian nationals and is very intensively used by a very small group of Indian and US IT services/software companies. This finding broadly mirrors that for the H-1B program, and the appropriate, integrated policy response is covered in the next subsection.

H-1B Specialty Occupations

The H-1B program, similar to the L-1 program, allows employers in the United States the freedom to identify the foreign workers who possess the skills they most require. This aspect of the H-1B program should be maintained, but several others need to be reformed.

Drop the DOL Foreign Labor Certification for H-1B Workers. This policy analysis has shown that despite the uniquely large inflows of high-skilled foreigners in computer-related occupations in recent years, US software workers in the aggregate have not suffered in the US labor market. Given that no other job occupation has seen inflows of the same magnitude and is thus extremely unlikely to have suffered as a result of such foreign inflows, the foreign labor certification for H-1B workers is unnecessary. When full employment exists in an occupation, there is no further economic or labor-market reason to demand that employers explicitly attempt to hire US workers before bringing in a foreign high-skilled worker. Considering the large additional administrative costs for companies—application filing fees, attorneys' fees, time value of postponed hiring, etc.—it seems highly unlikely that any company would at prevailing wages seek to hire a foreign worker ahead of an American if the two possessed otherwise identical skill sets.

Increase, Unshackle, and Target Enforcement of Prevailing Wages to Intensive Users of H-1B Visas. H-1B workers must be paid prevailing US wages as determined only by the DOL, and, given the very high concentration of H-1B workers at a relatively small number of companies, the

appropriate way to do so is through unrestricted DOL enforcement of this provision.[1]

Abolish the Annual Congressional Cap for H-1B Visas. With high-skilled green cards overwhelmingly going to aliens already inside the United States, it is imperative that the "doorway of initial entry"—i.e., temporary high-skilled visas that attract the best and the brightest—be kept wide open. Visa quotas are inherently arbitrary, if not explicitly politically manipulated in size, and invariably lead to large efficiency losses. Moreover, this policy analysis has shown that the share of H-1B visas that go to initial employment (i.e., count towards the cap) in noncomputer-related occupations is relatively stable at about 65,000 to 75,000 in total during 2000–2005 (the period for which data are available). Given this stability and variety in noncomputer-related demand for H-1B visas, it is unlikely that abolishing the congressional cap will lead to a massive instantaneous increase in demand for visas, and hence the cap is unnecessary. Alternatively, a "de facto nonbinding cap" deliberately set at a sufficiently high level that would not be approached under normal economic circumstances—say, 500,000 annually—could be maintained in the books as a legal safety guard.

Abolish the Annual 20,000 Congressional Cap and Grant Automatic H-1B Visas to Interested Foreign Master's and Doctoral Graduates from US Universities. With rising shares of foreign students, especially in S&E fields, and increasing global competition for international students, it makes less sense than ever to prevent foreign high-skilled students, educated in America, usually supported by US tax-benefited university scholarships, from obtaining employment in the United States. The current situation is such that the 20,000 H-1B visas available for FY2008 were exhausted on May 4, 2007—i.e., prior to university graduations this year. Unless a foreign student graduating in 2007 has one year of optional practical training (OPT) available, he or she will be effectively barred from seeking employment in the US for-profit sector.[2] Interested foreign recipients of master's and doctoral degrees from US universities with a US employer petitioning on their behalf should be guaranteed access to an H-1B visa.

1. In April 2007 Senators Durbin and Grassley sensibly suggested giving "the DOL the ability to conduct random audits of any company that uses the H-1B program, and would require DOL to conduct annual audits of companies with more than 100 employees that have 15% or more of those workers on H-1B visas." See Durbin and Grassley Introduce First Bipartisan H-1B Visa Reform Bill to Protect American Workers, April 2, 2009, available at http://durbin.senate.gov.

2. See USCIS press release, USCIS Reaches Exemption Cap for Fiscal Year 2008, May 4, 2007, available at www.uscis.gov.

Restrict the Share of Foreign High-Skilled Workers that a Single Business Entity over a Certain Size Can Employ on Temporary Work Visas—i.e., Including Both H-1B and L-1—to a Sensible Level. The H-1B and L-1 programs were designed to allow US employers to identify foreign high-skilled workers and bring them to America, as economic circumstances dictated, to supplement resident workers. This policy analysis has established that instead a very small number of Indian and US IT services/software companies seem to use these temporary work visa programs as a way to sustain an on-site delivery model in the United States, overwhelmingly staffed by foreign high-skilled workers in the IT services/software sector. While perfectly legal, this use of the H-1B and L-1 visa programs is scopewise unintended. In order to politically safeguard these programs for their original beneficial and increasingly necessary economic function, this novel use should be curbed. Such actions of a handful of IT companies, though completely legal, must not hold the entire US high-skilled immigration debate hostage. These actions can be curbed, for instance, as suggested by Senators Durbin and Grassley in April 2007, by prohibiting companies with over 50 workers from employing more than a 50 percent share of foreign workers on H-1B, or L-1, work visas.[3]

Such a restriction would affect only a very limited number of Indian and US IT services/software companies and not concern any major household US IT company. Moreover, as stated by Tata Consultancy Services head of global human resources S. "Paddy" Padmanabhan, in a May 2007 interview with technology weekly *InformationWeek*,[4] 99 percent of the company's high-skilled workers on temporary H-1B visas leave the United States upon visa expiry, rather than pursue a green card. This indicates that limiting the number of temporary visas available to this group of IT services/software companies will not jeopardize the flow of high-skilled workers seeking permanent US residency.

Strike a Bilateral Immigration Agreement with India and Create a New Visa Category for Workers in the IT Services/Software Sector. Undoubtedly, the above proposal to restrict the share of foreign high-skilled workers that any but the smallest company can hire will, based on firm-level data presented in this policy analysis, disproportionately affect Indian IT

3. Senators Durbin and Grassley suggested that the threshold be 50 workers, and 50 percent of the workforce could be on H-1B visas alone and not include L-1 visas. See Durbin and Grassley Introduce First Bipartisan H-1B Visa Reform Bill to Protect American Workers, April 2, 2007, available at http://durbin.senate.gov.

4. See Chris Murphy and Marianne Kolbasuk McGee, "Majority Of U.S. Staffers At Indian Outsourcers Are On H-1B Visas," *InformationWeek*, May 15, 2007, available at www.informationweek.com.

services companies and Indian nationals.[5] Via their intensive use of the L-1 and H-1B visa programs to sustain their on-site delivery business models, these companies are benefiting from a novel way to utilize the current US temporary high-skilled immigration system. However, as already mentioned, this benefit has accrued to Indian IT services/software companies and their US clones largely though a new, unintended, and—crucially—politically unsustainable use of these US high-skilled visa programs.

Considering that the US market accounts for up to two-thirds of Indian IT exports, worth up to $10 billion in 2007,[6] the present level of access to temporary US high-skilled visas is of substantial value to the Indian economy. In some respects, this benefit has been at least partly acquired by legally gaming the existing US temporary high-skilled immigration system, indirectly at the expense of other potential US-based users of available visas. The US Congress should overcome jurisdictional turf wars between trade negotiators and immigration officials[7] and realize the negotiating value temporary high-skilled work visas hold today in negotiations with India. In return for appropriate Indian policy concessions—for instance, as a major pillar in a US-India free trade agreement (FTA)—the United States should agree to establish an entirely new visa category—say, "IT visa"—that would be applicable to high-skilled Indian workers in computer-related occupations.

An IT visa for Indian nationals would follow a string of bilateral deals made by US trade negotiators concerning high-skilled visas in recent years. Australia got an annual quota of 10,500 high-skilled E-3 visas as part of its FTA negotiations with the United States.[8] Chile[9] and Singapore got quotas of 1,400 and 5,600 H-1B visas, respectively, of the annual 65,000

5. It should be noted that many of the main Indian IT companies—Tata Consultancy Services, Infosys, and Wipro being the three biggest—are currently recruiting increasingly aggressively across the world, including at US campuses. As such, their stated business strategies to become truly global multinational companies will at the same time gradually make them less dependent on Indian nationals in their workforces. These companies have grown rapidly from their Indian bases in just the last decade. Turning into truly global services companies—say, like IBM—will take time but nonetheless will gradually make them less dependent on US work visas and other "export markets" for Indian nationals.

6. Data are from NASSCOM (2007). Much uncertainty surrounds the precise dollar level of Indian IT services exports, but what is not in doubt is that the United States is India's largest market.

7. See, for instance, the May 2005 letter from then House Judiciary Committee Chairman F. James Sensenbrenner, Jr. and Ranking Member John Conyers, Jr. to then US Trade Representative Robert Portman, insisting that the administration not include immigration provisions in trade deals that require changes in US laws (*Inside US Trade,* June 1, 2007, 3).

8. See US embassy in Australia, "E-3 Visas," http://canberra.usembassy.gov.

9. See US embassy in Chile, "Nonimmigrant Visas," http://santiago.usembassy.gov.

quota as part of their FTAs with the United States. Canadian and Mexican citizens, as part of the North American Free Trade Agreement (NAFTA), became eligible for work in the United States as nonimmigrant NAFTA professionals,[10] provided that their profession is on the NAFTA list of eligible professions and that they possess the required skills.[11] A bilateral high-skilled visa agreement with India, however, would be "the big one" and carry a correspondingly large bargaining-chip significance in any potential US-India FTA negotiations.

An IT visa for Indians would be an appropriate response to the on-site delivery business model pioneered to scale by Indian IT services/software companies. It would further be a partial recognition of the new international factor mobility in the services sectors, initially indicated by the General Agreement on Trade in Services (GATS) mode 4—the cross-border supply of a service by a country's service suppliers through the presence of natural persons in the territory of another country. Quite a large literature exists on the broader topic of the "GATS visa," which would presumably be multilateral in nature and horizontal—i.e., cover all services sectors.[12] In 2003 14 developing countries, including India, submitted such a proposal for liberalizing mode 4 as part of the GATS negotiations.[13]

This proposed bilateral US-India IT visa would be far more limited in nature and cover only Indian nationals with at least a bachelor's degree and employed at prevailing US wages at a company with a contract to perform IT services/software-related work in the United States. It would be open to both employees at contractual service suppliers and independent professionals. Such a visa would be temporary only and perhaps be valid initially for up to two years and renewable as required.

More broadly, it seems clear that trade relations via mode 4—i.e., through the on-site delivery model—will increasingly spread to other sec-

10. See US Department of State, "Mexican and Canadian NAFTA Professional Worker," http://travel.state.gov.

11. See NAFTA website for complete list of eligible occupations and required skills at www.nafta-sec-alena.org. It has also been suggested that Korea, as part of the final negotiations of its FTA with the United States, should seek an H-1B carve-out similar to that of Chile and Singapore. Its outcome is, however, at present unknown. See *Inside US Trade,* June 1, 2007, 3.

12. For an overview of this literature, see, for instance, the conference papers from the two World Trade Organization (WTO)–hosted conferences in Geneva in 2002 and 2004: Movement of natural persons (mode 4) under the GATS, Joint WTO–World Bank Symposium, Geneva, April 11–12, 2002; and Managing the Movement of People: What can be learned for Mode 4 of the GATS? Joint IOM/World Bank/WTO Seminar, Geneva, October 4–5, 2004, available at www.wto.org.

13. See WTO document TN/S/W/14, July 3, 2003. The 14 participating countries include most of the potential large origin countries for high-skilled service-sector workers: Argentina, Bolivia, Chile, China, Colombia, Dominican Republic, Egypt, Guatemala, India, Mexico, Pakistan, Peru, Philippines, and Thailand. Available at http://commerce.nic.in/trade.

tors than IT services. It would therefore be fortuitous if US immigration laws moved in a direction that gradually facilitated this trend.

The proposed "IT visa" would not—unlike the L-1 and H-1B visa categories—have a dual intent clause, and hence it would not be possible for "IT visa" holders to apply for US legal permanent resident status while inside the United States on this visa status. Hence it would facilitate Indian nationals to return to India upon visa expiration and pave the way for the formation of a sustained "brain chain" (not brain drain) of talent exchange between the United States and India. Given the serious skilled-labor constraints indicated by the rampant IT skilled-worker wage inflation in India, such a "brain chain" will make this visa agreement more valuable to India by preventing large-scale IT skills hemorrhaging. As such, the proposed IT visa will be in direct accordance with the mandate of the Indian government's High Level Committee on Indian Diaspora, which since 2003 has been tasked with "facilitating diaspora interaction with India and their participation in India's economic development."[14]

The main concerns of any business-oriented visa are generally transparency, expediency, and minimal burdensomeness, yielding a visa-wise predictable business environment for companies. Such predictability is definitely required in the IT services industry, where flexible, timely onsite delivery capacity is an important competitive parameter. Hence, the use—as in other bilateral US visa agreements—of quotas must be completely avoided. The number of available US-India IT visas would be uncapped but instead carry an explicit price tag per visa.

Considering that this policy analysis has shown how IT companies today routinely spend millions of dollars each quarter to secure an adequate number of H-1B and L-1 visas, it would not seem far-fetched, in return for guaranteed (limiting the need for immigration lawyers) and expedient (say, a two-week maximum processing time) high-skilled visa issuance, to put the price in the $7,500 to $10,000+ range per high-skilled IT visa.

From such an IT visa, Indian businesses and nationals would gain assured access to the US market. Indeed, the president of India's National Association of Software and Service Companies (NASSCOM), Kiran Karnik, has pleaded several times for precisely this type of visa.[15] Visa revenue from this IT visa could be directly channeled to improving retraining opportunities for US workers—as is being done in the H-1B visa program via retraining fees. At the same time, the "visa markup" applied to high-skilled Indian IT workers' prevailing wages would insulate similarly skilled US software workers against displacement. Lastly, the DOL would

14. See the mandate of the High Level Committee on Indian Diaspora at http://indiadiaspora.nic.in/mandate.htm.

15. See Karnik's comments in "Nasscom Moots Visas for Onsite Assignments," *Hindu Business Line*, April 27, 2003, available at the NASSCOM website, www.nasscom.in.

enforce the IT visa in a manner similar to the regular H-1B program.

Regularly Publish Official Firm-Level Immigration Data and Detailed Data on the Characteristics of All High-Skilled Immigrants. High-skilled immigration should be driven by an economy's skill requirements and the characteristics of both the employers and the high-skilled immigrants themselves. For high-skilled immigration to occur as seamlessly as possible, a high level of transparency is in the public interest. This need for transparency is accentuated by the privileged immigration status granted to high-skilled immigrants relative to other immigrants, as well as by the need to frequently dispel populist and protectionist misrepresentations of the scale, character, and impact of high-skilled immigration.