The H-1B Program and Labor Certification:
Attestation and PERM

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Executive Summary

The Sloan West Coast Program on Science and Engineering Workers held its first seminar January 18, 2008 at UC Davis to discuss the US Department of Labor's role in admitting foreign scientists and engineers as temporary workers and immigrants. The three major sessions dealt with the US Department of Labor's handling of employer attestations and certifying the need for immigrants to fill particular job vacancies and enforcing program rules, the impacts of foreign scientists and engineers on US workers, and the views of employer and worker advocates on the H-1B program.

The next seminar, to be held May 12, 2008 at Stanford, will focus on S & E workers and the IT business cycle, asking what happens to those who enter the industry during booms, such as in the late 1990s, when there is a bust that leads to layoffs? Do laid-off workers return to the IT industry when hiring resumes or stay in other jobs? Those interested in participating should contact Philip Martin at: plmartin@ucdavis.edu

There were three major conclusions of the January 18, 2008 seminar. First, the H-1B program is designed to provide easy access to foreign workers, and DOL administers the program to achieve this goal. As a result, there are only computer checks of employer-filed Labor Condition Applications, and over 99 percent are approved soon after being

submitted via the internet. DOL's Wage and Hour Division can generally investigate an employer only after receiving a complaint from an "aggrieved party." There are relatively few complaints (173 in FY05), in part because H-1B foreign workers want to be sponsored by their US employers for immigrant visas and the law gives US workers few grounds for filing complaints.

DOL's Office of Foreign Labor Certification, which administers the H-1B program, sees its mission as helping employers to get the "international talent" they need. The OFLC has analysts to review employer requests for certification, which is required before immigrant visas can be issued to foreigners to fill particular jobs, but OFLC does not require the employer to submit the evidence that US workers who applied in response to required ads were not qualified to fill the job. About 85 percent of employer requests for immigrant visas are certified by DOL within 90 days. Employers may fix the issue that caused an initial denial, such as a substandard wage, and immediately resubmit the application—DOL does not charge application fees for H-1B and immigrant visa requests.

Second, most H-1Bs are not the world's best and brightest, at least according to what employers say about the US jobs they are filling and the wages they are paid. Over half of H-1B jobs are classified by employers as Level 1, entry level, with close supervision required (Level 4 is fully competent). The actual or prevailing wages offered by US employers to fill these jobs are at the low end of the range for the occupation, which means $50,000 rather than the median $65,000 in computer-related occupations in FY06.[1] The prevailing wage is tied to the job, not to the worker who fills it, which means that if the job requires a BA, an H-1B worker with an MS degree who applies to fill it can be paid a BA-level wage.

There is disagreement about the lower-than-median wages paid to H-1B visa holders in computer-related occupations. Critics argue that employers prefer H-1B workers because they are cheaper. Most are young, and many work hard to encourage their employers to sponsor them for immigrant visas. Many H-1B visa holders have qualifications that could land them in Level 3 or 4 jobs, but wind up in Level 1 and 2 jobs if employers advertise BA required and MS a plus, which means that employers get highly qualified workers at lower wages.

Third, there are many more US residents with STEM (scientific, technological, engineering, and mathematical) educations, about 15 million, than are employed in STEM occupations, about five million. A higher share of foreign-born than US-born STEM graduates begin STEM careers, about 70 versus 50 percent in recent years. Both US-born and foreign-born STEM graduates who begin S & E careers drift out of them, but the

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[1] The LCA wages may not be the actual wages paid by employers. However, LCA wages are very close to what employers actually report paying on their USCIS petitions.

foreign-born stay in STEM occupations for at least a decade before there is a significant decline, which may reflect H-1B visas and labor certification, while there is an immediate out-migration of the US-born with STEM educations from STEM occupations.

After a decade, only a third of those with STEM educations are in STEM jobs. Some STEM-educated individuals may use their S & E training in non-STEM occupations, as when an engineer is in sales or management, but the data highlight there are far more STEM graduates than STEM workers, and the gap increases with age.

The H-1B program and the quest for immigrant visas may explain the slower out-migration from STEM occupations among foreign-born graduates. If the share of foreign-born STEM graduates in STEM jobs drops sharply after 5-7 years, one research question is what happens to the wages of H-1B workers as they make the transition to immigrant, that is, is there a penalty for being an H-1B worker compared to having freedom in the US labor market?

The larger question is why the STEM labor market appears to be a revolving door, and what this revolving door means for immigration and education policy. One hypothesis is that the STEM labor market is cyclical, hiring entry-level young graduates with a very precise skill set during industry booms. Workers laid off during industry downturns may be reluctant to return to entry-level jobs when hiring resumes or not have the precise skill set requested. The combination of a cyclical industry, rapidly changing skill requirements, and significant immigration may give personal and societal investments in STEM education a short shelf life.[2]

Three major areas for further research were identified. First is the need for more detailed analysis of US employers applying for H-1B visas, separating e.g. job shops from outsourcing firms and from direct-hire US employers. It appears that most of the complaints investigated by DOL involve job shops, especially failure to pay the promised wage or misclassifying jobs, as when a worker with Level 3 qualifications is in a Level 2 job. The major penalty on US employers who fail to pay required or promised wages is a DOL order to pay the wages that should have been paid in the first place, a fact that explains why almost no employer appeals a DOL finding that there was an underpayment of wages. Research on incentives that could promote voluntary compliance with wage requirements and promises, and cross-check promised and actual wages, would be useful.

Second is the need for closer examination of jobs versus careers in S & E. There are many occupations that offer jobs rather than careers for most workers, from seasonal farm work

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[2] It was noted that engineering education used to require about 25 more university credits than other fields, often making engineering a five-year BS degree. The engineering curriculum was revamped in the late 1960s to be a four-year degree.

to fast food to the military, giving them a revolving door quality. There are occupations that require training in which a majority of those with qualifications are not currently employed in the occupation, including nurses and teachers. STEM occupations require significant investments in education, and the STEM revolving door labor market raises questions that range from whether the education being provided is appropriate to whether there is age discrimination in a cyclical industry.

Third is the need for rethinking the debate over "S & E shortages" and the likely response to the market solution, higher wages. There is no government or economic definition of labor shortage, since wages adjust to bring supply and demand into balance. The major indicator of an "S & E shortage" is the fact that employers request more H-1B visas than are available. The shortage argument is bolstered by a variety of factoids, from higher math scores in homogeneous countries such as Singapore and Finland to the dominance of children of immigrants among winners of high-school science prizes. The distinct message is that, without more H-1B or immigrant visas, the US will lose economic competitiveness.

What **would** happen if wages in S & E occupations were to rise to market clearing levels, or if the limited supply of H-1B visas were auctioned to US employers? Those who want to raise the H-1B cap say that employers would move the work to the workers, offshoring work now being done in the US, which could have negative multiplier effects on the economy. Those who believe that labor markets adjust to wage signals believe that lower-wage work might move offshore, but that most of the work that depends on the best and brightest would remain in the US.

Advocates of using immigration to bolster the ranks of S & E workers effectively endorse human capital mercantilism. The birth of nation-states in the 17th and 18th centuries was accompanied by the theory that a nation's wealth was embodied in its stock of gold, so that government policy should promote exports and limit imports. Human capital mercantilism argues that the US should maximize its stock of science and engineering knowledge by importing S & E workers, generating benefits that include patents, innovations, and start ups. Mercantilism was upended by Adam Smith's reminder that the goal of an economy is to maximize consumption rather than the stock of gold. The question is whether human capital mercantilism will speed up the productivity growth essential for 21st century wealth.

DOL and the H-1B Program

The Trade off: Attestation and Caps

The H-1B program was created to be one kind of bridge and has evolved to be another type. The H-1B program was created by the Immigration Act of 1990 (PL 101-649)[3] at a time of feared mis-matches in the US labor market.[4] The assumption was that the US had sufficient workers, but too few US workers were prepared to fill jobs in fast-growing new industries such as high tech. The H-1B program, the reasoning went, would provide employers with easy access to foreign workers and bridge gaps in the US labor market until sufficient S & E workers could be trained.

The compromise embodied in the H-1B program gave US employers easy access to foreign professionals in "specialty occupations," but capped the number of visas at 65,000 a year. In a departure from the usual practice, H-1B visa holders were allowed to state that they wanted to seek immigrant visas while coming to the US as a temporary worker (declaring an intention to settle in the US normally leads to denial of a nonimmigrant visa).

The previous H-1 program was admitting fewer than 40,000 foreign workers a year in the late 1980s, suggesting that a 65,000 a year cap would be sufficient. For the first eight years, it was, but then a combination of economic and IT booms, middlemen who specialized in H-1B employment, and spreading knowledge of the program led employers to request more than 65,000 visas by 1998. Congress responded by raising the cap, eventually to 195,000 a year and allowing an additional 20,000 H-1B visas a year to be issued to foreigners with Masters and PhDs from US universities. An unlimited number of H-1B visas are available to nonprofit universities and research institutions.[5]

H-1B visa holders are nonimmigrants,[6] meaning they are in the US for a specific time and purpose. Most receive three-year renewable visas. However, H-1B visa holders can remain in the US longer than six years if their employers have petitioned for them to become legal immigrants. The purpose of the H-1B visa is to fill a specific job after employers receive DOL and USCIS permission to employ the named foreigner.

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[3] The H-1B program replaced the H-1 program, created in the 1952 Immigration and Nationality Act for foreigners of "distinguished merit and ability" coming to the US to fill temporary US jobs. H-1 foreigners had to promise to return; H-1B foreigners could indicate they were trying to become immigrants.

[4] DOL's Workforce 2000 report, released in July 1987, emphasized that the growth in the US labor force would slow, the US labor force would age, and that women, immigrants and minorities would be a larger share of new labor force entrants.

[5] The annual cap on H-1B visas was raised to 115,000 for FY99 and FY00, to 195,000 for FY01, 02, and 03, and then reverted to 65,000 a year in FY04. Beginning in FY01, H-1B workers employed by universities and their affiliated non-profit research organizations, as well as other non-profit and government research organizations, were exempted from the H-1B ceiling. Beginning in FY04, an additional 20,000 H-1B visas were made available to foreigners with Masters or PhD degrees from US universities.

[6] The US has 70 types of nonimmigrant visas; the major work-related visas begin with H.

DOL: Automated Review of LCAs

Employers begin the process of hiring an H-1B foreigner with at least a BA degree by filing a Labor Condition Application with DOL's OFLC via the internet. The OFLC reviews LCAs electronically "only for completeness and obvious inaccuracies" within seven days (over 99 percent are approved within minutes). DOL has an algorithm that should reject LCAs with obvious inaccuracies, such as not having sufficient digits for an employer ID, not checking appropriate boxes, or offering a wage below the minimum or prevailing wage, but GAO noted that some LCAs offering below the prevailing wage were approved (2006, 14).

Employers make four promises or attestations on their LCAs: (1) to pay the higher of the prevailing or actual wage paid to US workers, (2) that the employment of the H-1B workers will not adversely affect similar US workers, (3) there is no strike or lock out that has made the job to be filled by the H-1B worker vacant, and (4) the employer has notified workers at the place of employment of its intent to hire H-1B workers. H-1B-dependent employers, those with 15 percent or more H-1B workers, and employers who committed a "willful failure" to meet program requirements or who misrepresented a "material fact" in their H-1B applications during the previous five years, must make three more attestations, viz, they (1) did not displace a US worker 90 days before or after requesting an H-1B worker, (2) took good-faith steps to recruit US workers and offered jobs to qualified US workers, and (3) did not transfer H-1B workers to US employers who displaced US workers.[7]

Employers do not pay DOL to have their LCAs "certified." However, when they submit DOL's certification to DHS's USCIS with their I-129 nonimmigrant visa petition, they must pay a $1,500 filing fee (26 or more employees)[8] plus a $500 fraud-prevention fee. USCIS reviews employer petitions to have a named worker receive an H-1B visa and checks the foreigner's credentials. If the foreigner is inside the US, USCIS issues the H-1B visa. If the worker is outside the US, he/she takes the approved DHS petition to a US consulate for the H-1B visa.[9]

GAO (2006) reviewed 960,000 employer attestations filed between January 2002 and September 2005, and reported that DOL certified almost all of them—approval rates ranged from 99.4 to 99.7 percent (p13). The law (1) does not require employers to submit supporting documentation and (2) emphasizes that DOL should process LCAs quickly. DOL-OFLC analysts review applications that are identified as flawed by the electronic review, such as the employer offering a prevailing wage below that in DOL's

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[7] Between October 1, 2003 and March 7, 2005, these additional attestations were not required, e.g. H-1B-dependent employers could displace US workers in order to hire H-1B workers.
[8] The fee is $750 for employers with 25 or fewer employees.
[9] The US Department of Commerce screens applicants for H-1B visas from "countries of concern," including India and China as well as North Korea and Iran.

database.[10]. The OFLC review is so cursory that GAO and DOL's OIG recommended, in 2000 and 2003, respectively, that employers file their LCAs and petitions directly with USCIS, eliminating the OFLC from the process.

Before the mid-1990s, most H-1B requests were for (physical) therapists. Since then, the largest occupational category has been computer-related occupations. In FY05, 45 percent of the H-1B requests were for computer-related workers, and almost a third were for jobs in CA and NY.[11] USCIS reported that 42 percent of the newly approved H-1B foreigners in FY05 had BA degrees and 39 percent had Masters' degrees (the one percent with less than a BA are presumably fashion models). About 49 percent of H-1B visas in FY05 were issued to Indians, followed by nine percent to Chinese nationals.

The jobs and wages in the LCAs filed by employers attesting to their need for H-1B workers are available from the US Department of Labor (www.flcdatacenter.com). DOL classifies the jobs for which H-1B workers are sought into four levels based on the skills required: entry, qualified, experienced, and fully competent. Over half of the LCAs filed in recent years have been for the lowest-skill level, Level 1, meaning that the job requires a BA degree and the wage is in the 15th to 20th percentile of all wages in that occupation.[12] Newly approved H-1B foreigners in computer-related occupations had a median wage of $50,000 in FY05, down from $55,000 in FY01. H-1B foreigners approved for continued US employment in computer-related occupations had a median wage of $68,000 in FY05, down from $69,000 in FY01 (CRS, 2007, 10).

DOL: WHD Enforcement

DOL's Wage and Hour Division investigates complaints filed against employers. WHD received 1,026 H-1B-related complaints between FY00 and FY05, and reported that the number is rising. WHD has had authority since 1998 to do random audits of employers found to be willful violators of H-1B regulations for five years after they are listed, and began to conduct such audits in April 2006. Resources for H-1B investigations are reported to be ample, but WHD appears to be doing only two audits of willful violators employer on its list in each of DOL's 10 regions.

Violations of H-1B regulations are classified in four levels: nonwillful (honest mistakes), substantial (honest mistakes made 10 or 20 times), willful, and willful and substantial, the most serious. Aggrieved parties must complain within 12 months of a violation, and the most common complaint comes from employees alleging underpayments or

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[10] The H-1B program allows employers to use a prevailing wage determined by a State Workforce Agency, a collective bargaining agreement, or a private employment survey, and DOL has advised employers of its preference for SWA-calculated prevailing wages.
[11] About 90 percent of the requests were for one H-1B worker
[12] In IT jobs, the employer must use Level II qualified if the foreigner has a MS or more.

misclassification, as when a job classified as Level 1 is actually Level 2 or 3.[13] In such cases, WHD typically requires employers to provide back wages to affected workers, often $10,000 or more a year. Other violations include not providing equal benefits or working conditions to H-1B and US workers, collecting USCIS fees from H-1B workers, and having excessive early termination penalties, as when an H-1B worker who leaves a job shop before a three-year period expires must repay $10,000 or $20,000 to the job shop for the "training" provided in his/her first several weeks in the US.

WHD can impose civil money penalties that generally range from $1,000 to $10,000, but can be up to $35,000 if the violation is willful and there is US employee displacement. The Northern CA WHD district that includes Silicon Valley has about 75 cases a year that result in CMPs. Because of the public access requirement—employers filing LCAs must agree to make payroll data available—DOL typically has access to more information from the employer than in other cases, which speeds up investigations. The $500 anti-fraud fee makes WHD H-1B enforcement efforts well-funded.

WHD can debar a US employer from bringing new H-1B workers into the US for 1-3 years. This does not mean that the employer is excluded from the H-1B program; debarred employers can continue to employ the H-1B workers they have in the US, but cannot obtain additional H-1B visas. DOL's WHD has won the authority to hold corporate owners of job shops personally liable for back wages, an effort to prevent them from going bankrupt when they are ordered to pay back wages.

Research: H-1B and PERM

H-1B Wage Data

Matloff examined wage data from the ETA Form 9089 filed by employers seeking certification to obtain immigrant visas for named foreigners in 2006. Most held H-1B visas, so these PERM data provide insights into wages paid to H-1B workers. The data provide occupational detail on the jobs and some data on the workers filling them, but not level of education of the foreigner for whom the immigrant visa is sought.

About 29 percent of the 52,000 jobs were classified by employers as Level 1, 40 percent as Level 2, 20 percent as Level 3, and 12 percent as Level 4, that is, almost 70 percent were Levels 1 and 2. Some 65 percent of the 6,500 software engineer jobs were in Levels 1 and 2, while 80 percent of the 2,400 programmer jobs and the 600 electrical engineering jobs were in Levels 1 and 2. A third of the 52,000 foreigners for whom immigrant visas were requested were Indian, followed by 10 percent from China.

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[13] One aggrieved party was the ex-wife of an H-1B worker who complained because her husband's payments were too low, which was due to wages that were too low.

Matloff examined which US firms sponsored the 52,000 foreigners for immigrant visas in 2006. Microsoft sponsored 1,200, Intel, 1,100, and Motorola almost 500, and the immigrants these companies sponsored were mostly in Level 1 and 2 jobs. The exceptions were Texas Instruments and Sun, which had 35 and 19 percent of the immigrants they sponsored in Level 4 jobs; many of these Level 4 immigrants are from Canada and the UK. Matloff concluded that the best and brightest foreign workers **are** paid premium wages, but there are relatively few of them and they come disproportionately from Canada and the UK.

Matloff also reviewed studies of the effects of H-1B workers on wages in computer-related occupations. There are two types of savings from hiring H-1B workers: paying H-1B workers less than US workers (Type 1 savings) and hiring younger H-1B workers who command lower salaries (Type 2 savings). In some studies, employers save up to 20 percent by paying H-1B workers less (Type 1), and up to 40 percent by hiring younger H-1B workers (Type 2).

PERM

The US makes 140,000 immigrant visas a year available to foreigners (and their family members) for economic/employment reasons. In FY06, 159,000 immigrant visas were issued for employment/economic reasons. Most of these foreigners (and their family members) are in the US when they receive immigrant visas, 77 percent in FY06, so they remained in the US and adjusted their status. There were 3,000 immigrant visas issued to 3rd preference principals with BA degrees, most H-1B workers, and 95 percent were in the US and adjusted their status.

In most cases, a US employer can get an immigrant visa for a foreigner only if DOL certifies that "there are no qualified U.S. workers able, willing, qualified and available to accept the job at the prevailing wage for that occupation in the area of intended employment and that employment of the alien will not adversely affect the wages and working conditions of similarly employed U.S. workers." (www.foreignlaborcert.doleta.gov/perm.cfm). As with the H-1B program, after DOL certifies the unavailability of US workers and no adverse effects, USCIS determines whether the foreigner in question has the qualifications necessary to fill the job.

Beginning March 28, 2005, DOL implemented the PERM system to handle employer requests for immigrant visas for named foreigners to fill vacant jobs; the date of the employer's filing of a 10-page ETA Form 9809 becomes the priority date used to determine a foreigner's priority for a visa. Form 9809 lists the prevailing wage offered, information about the job, recruitment information (how did you determine the foreigner was best qualified to fill the job), and the qualifications of the foreigner for whom the employer wants an immigrant visa. Both the employer and the foreigner sign the form. Employers include with Form 9809 a recruitment report that has a copy of the ad used to recruit US and workers and explains why any US workers who applied for the job were

not hired. They do not include the names of the US workers who were not hired, but are to retain this recruitment information for five years in the event of an audit.

The PERM process is a trust-the-employer approach in the sense that employers make assurances to DOL and can be audited, which means that they must submit the resumes of the US workers who were not hired. Critics say employers seeking to save money cannot be trusted. One common ploy, they say, is to advertise a job as BA required and Masters a plus, so that the employer can offer a BA-level salary, discourage US workers with Masters from applying for the lower-wage job, and get certified for the H-1B worker with a Masters who is filing the job.

Many young foreigners want immigrant visas. They can arrive as students on F-1 visas, and make the transition directly to immigrant if they can find a US employer to sponsor them, or obtain an H-1B visa and then make the transition to immigrant. Lowell estimated that about half of foreign MA graduates stay in the US, as do nearly three-quarters of foreign PhDs recipients from US institutions. About one quarter of the MAs, and almost half of the PhDs, stay in the US with H-1B visas; most of the rest receive immigrant visas immediately. Lowell estimated that over half of H-1B visa holders eventually become immigrants, and CRS reported that half of the employment-based immigrant visas were issued to former H-1B visa holders (CRS, 2007, 10, footnote 19).[14]

The fact that many young foreigners become immigrants after US studies or work provokes two responses. One says that, if US employers want to hire these foreigners, they are obviously needed, since employers are in the best position to determine which workers are best to fill particular jobs. Furthermore, they argue, the US gains by allowing and encouraging the best and brightest foreign students and workers to settle, since their presence adds to the stock of S & E workers and thus enhances US competitiveness. The other side argues that most of the employer preference for foreign students and workers reflects their willingness to work hard at relatively low wages in a fast-changing industry, and that most of those issued temporary work and immigration visas are not the best and the brightest who may arguably add to US competitiveness.

Employer and Worker Perspectives
Intel, which derives half of its revenue from Asia, has significant fluctuations in hiring from year to year, e.g. there were 10,000 US hires in 2006, including 1,000 H-1B workers, about 10 percent (H-1B visa holders have averaged about 4 percent of Intel hires over the past decade). The two most common S & E type of workers hired are electrical and computer engineers, and the foreign-born share of PhD students in these fields began to exceed the US share in the mid-1990s. Intel is competing with other chip makers, and

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[14] USCIS collects data on a foreigner's status who is adjusting to immigrant inside the US, but the data are missing on up to 40 percent of the records. An analysis of the data available found that up to a third of the foreigner adjusting status inside the US were former students or temporary workers.

aims to gain a competitive edge in the global market where ever it can, as with chips invented in one country, produced in another, sold to a computer manufacturer in another, and used in yet another country.

Most immigration lawyers believe that more immigration is in the US national interest, and that immigrants with S & E training are especially desirable, since they fill vacant jobs and, with their different perspectives on problems, can speed up US innovation and growth. They cite a long list of studies that suggest more foreign students in S & E fields and foreign S & E workers in the US labor market can increase economic growth and the per capita incomes of US-born residents with few or no adverse impacts on US students and workers.

Those representing especially older US S & E workers believe that especially the H-1B program stacks the deck against them. For example, we know that 150,000 US employers applied for the 65,000 H-1B visas available for FY08 in April 2007, but the names of these employers were not revealed until October 2007, so that US employees did not learn about these jobs. US programmers believe that H-1B workers are hired even when US workers are available because the foreigners are willing to work cheaper and harder.

The programmers' guild created a web site, www.hireamericansfirst.org, aims to change the H-1B program to require US employers to pay higher wages to H-1B workers, to require US employers to attempt to recruit US workers before receiving permission to employ H-1Bs, and to limit the use of H-1B visas to US-based firms producing products or providing services, that is, eliminate their availability to job shops and outsourcing firms. The programmers' guild notes that many employer ads are designed with particular foreigners in mind, sometimes setting requirements that are virtually impossible to meet. It would like US ads under the PERM program collected by DOL on one web site, so that US workers could more easily be aware of these jobs.

Boeing is a major employer of engineers. Its business is cyclical, meaning there are cycles of hiring and layoff. AAES's Engineering Workforce Commission (www.ewc-online.org) reports that undergraduate engineering enrollments peaked at over 400,000 in the early 1980s, fell to a low of about 325,000 in the late 1990s, and have rebounded to about 375,000 in recent years. About 100,000 freshman a year enroll in engineering degree programs, and 76,000 Bachelors' degrees were granted in 2005. Foreign nationals received seven percent of the BS degrees in engineering in 2006, 40 percent of the masters' degrees, and 62 percent of the PhDs.

The Boeing engineers' union believes that globalization has allowed public and investor interests to diverge, so that what is good for Boeing may not necessarily be good for the US. For example, the H-1B program implicitly assumes that employer decisions to hire H-1B workers are in both the employer and the national interest but, if the interests of

multinationals are not necessary in the national interest, the easy attestation procedure followed to hire H-1B workers may not be in the national interest.

Congress: H-1B Program
The 65,000 H-1B visas available were oversubscribed on the first day they were made available for FY08. With demand for H-1B visas exceeding supply, there are several policy options being debated. Perhaps the most likely to be enacted is another trade off, this time offering more H-1B visas in exchange for more US worker protections, including requiring all US employers to attest that they did not lay off US workers to open jobs for H-1B workers. There may also be administrative changes, such as more closely checking employer attestations and perhaps having DHS charge higher fees.

The Comprehensive Immigration Reform legislation debated by the Senate in May-June 2008 (S.1348) included amendment 1150, which would have increased the annual ceiling on H-1B visas to 115,000 (and potentially 180,000) a year and added new enforcement measures to minimize fraud.

Pro and Con Arguments
There are two perspectives on "importing foreign talent," and both are represented in Congress (CRS, 2007). Proponents of large foreign student and H-1B programs and an easy conversion process from foreign student to H-1B to immigrant argue that the US should practice a form of human capital mercantilism, that is, maximize the stock of human capital, including via importing foreign students and workers.

This belief is often linked to the idea that US employers should determine who is the best person to fill a particular job, and that is foolish for the US government to require foreign students or H-1B workers desired by US employers to leave, especially given that a high share of persons in science and engineering graduate programs in US universities are foreign-born. There can also be positive job-creation impacts of H-1B workers and immigrants, as when their presence preserves or creates jobs for US workers.

Opponents note that there is little evidence of widespread labor shortages in science and engineering, such as sharply rising wages, and that the US would better maintain its competitiveness if it discouraged easy access to foreign workers and encouraged US students and workers to fill jobs now filled by foreign-born workers. Opponents often cite instances of fraud and abuse to recommend strict caps on visa numbers and more enforcement. Some argue that the H-1B ceiling could be increased if there were strict enforcement of labor laws, so that employers did not turn to H-1B workers as cheap labor.

Does the US need more S & E workers? The US has almost 16 million residents with at least one degree is in an S&E field, but less than five million in S&E occupations (NSF,

2007).[15] This is not for lack of interest in S & E. A third of US high-school seniors report an interest in S & E, and just under a third of the 1.4 million Bachelors' degrees conferred each year are in broadly defined S & E fields. US students in some states score near the top of the scale in international measures of ability in math (the diverse US population puts the US in the middle of most rankings).

A year or two after graduation, only about half of all S&E graduates are working in S&E occupations or continuing their S & E studies. S&E training may be useful in other fields including management, but the fact that there are two workers trained in S&E subjects for every worker employed in S & E a year after graduation casts doubt on "shortage" claims.

What role does immigration play in the leakage from STEM education to STEM occupations? Lowell estimated that, H-1B workers have been 20 percent of the growth in US STEM employment in recent years, as 100,000 new H-1B workers joined the 500,000 to 600,000 H-1B visa holders already in the US.

One scenario outlined by Lowell is that Indians and other foreigners take on debt to obtain a US education and then assume that they will become H-1B workers in the US, repay their education loans, and become immigrants who can sponsor their families to admission. Under this scenario, the 65,000 a year cap on H-1B visas may explain part of the drop in F-1 student visas issued to foreigners in IT fields after 2001. Lowell noted that Indians had the fastest growth in unauthorized migration in recent years, and that many of the unauthorized Indians in the US are well educated. The presumption is that some are H-1B workers unable to obtain immigrant visas, although Lowell estimates that at least 60 percent of H-1B visa holders eventually adjust to immigrant status.

Many multinationals are creating research centers in the countries that are home to many F-1 and H-1B workers, including India and China. Both countries have large Diasporas around the world, and both have been growing very fast in the past decade, encouraging Foreign Direct Investment, including in R & D centers. Trumpbour reported despite rapidly rising wages for professionals in India and China, those who returned from the US reported lower wages, but were motivated to return by pride national development, frustration with US immigration delays, and desires to be closer to extended families (Indian returnees report an easier time hiring domestic helpers than Chinese returnees).

The Reform Debate
The major reform proposal debated in Congress was the Kennedy-Specter amendment 1150 offered during the May-June 2007 debate on comprehensive immigration reform would have required W-2 forms to be submitted with H-1B renewal petitions. It would have also required all US employers to attest that they made a good faith effort to hire US

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[15] NSF (2007) reported 15.7 million persons with at least one S & E degree, but 4.8 million persons employed in S & E occupations.

workers, and that the presence of the H-1B visa holder would not displace a US worker. Amendment 1150 would have prohibited US employers from hiring H-1B workers who are outsourced to other US firms and prohibited US employers with at least 50 employees, at least half of whom are H-1B visa holders, from being approved to hire more. DOL would have received more authority to review H-1B applications for fraud and mis-representation, and give DOL more room to conduct employer investigations.

Most of the other bills introduced in Congress in 2007 would increase the annual cap on the number of H-1B visas available for foreign graduates of US universities with Master and PhD degrees (currently 20,000 a year). Some would simply raise the 65,000 a year cap, some would raise the cap and require additional employer-paid fees for scholarships for US students, and some would allow the cap to rise if employers requested all available visas.

Conclusions

The H-1B program was created to deal with perceived mis-matches in the US labor market at a time when it was thought that there were sufficient US workers, but not enough with the skills needed to fill jobs in fast-growing industries that employed S & E workers. The H-1B program, the reasoning went, would provide employers with easy access to foreign workers and bridge the labor gap until sufficient US S & E workers could be trained.

The H-1B program has become the keystone to a system that permits foreigners with S & E degrees to become US immigrants. There are about five million US S & E workers, and at least 600,000 H-1B visa holders. More H-1B visa holders join the US labor force each year, about 100,000, than graduate with Bachelors' degrees in engineering, 75,000.

Finding the proper balance between the appropriate number of H-1B visas and protections for US workers, especially new entrants, is complicated by overarching assertions about the need for more S & E workers to maintain US competitiveness. At one extreme are those who argue that there should be few or no limits on H-1B visas, since the US needs all the college-educated workers its employers request, and that the US should make it easy for H-1B workers to stay as immigrants. At the other extreme are those who argue that, if the US government makes it too easy to employ H-1B foreign workers, US students and workers shy away from S & E education and careers, putting the US on an immigration treadmill in science and engineering.

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Appendix: OES Data
The Occupational Employment Statistics (OES) survey (www.bls.gov/oes/) is a semiannual mail survey measuring occupational employment and wage rates for wage and salary workers in nonfarm establishments (employers). The US has about 1.2 million nonfarm establishments, and survey forms are mailed to about 200,000 each May and November—about 75 percent respond (a hot-deck method uses the nearest reporting employer to fill in missing observations). The OES reports on 23 major occupational groups and 810 detailed occupations.

Wages are reported in 12 categories, from less than $7.50 an hour to $80 and over. Wages are gross, and exclude employer-paid payroll taxes and employee benefits. A mean weighted hourly wage is reported (weighted by employment in each wage cell) and wages at various percentiles are reported. Workers are ranked from lowest to highest paid, and the 25th percentile wage is the wage earned by the 25th percentile of workers—if there were 100 workers, it would be the wage earned by the 25th worker ranked from low to high.

The May 2006 data are the latest available, and they report 3.1 million employees in computer and mathematical occupations earning an average $33 an hour or $69,200 a year; another 2.4 million workers in architecture and engineering earn an average $32 an hour or $66,200 a year (annual earnings are the hourly wage times 2,080 hours). The 25th percentile wage for computer occupations was $23 an hour, the median was $32 an hour, and the 75th percentile $42 an hour. In engineering, wages were similar: $22 at the 25th percentile, a median of $30, and $40 at the 75th percentile.

Agenda
Sloan West Coast Program on Science and Engineering Workers
The H-1B Program and Labor Certification:
Attestation and PERM
Friday, January 18, 2008
Andrews Conference Room, 2203, SSH Building, UC-Davis

This seminar focuses on the current processes by which both temporary workers and immigrants are admitted to fill US jobs in science and engineering. The papers and PPTs are at: http://migration.ucdavis.edu/wcpsew/index.php

Participation is by invitation. If you would like to participate, please contact Philip Martin at plmartin@ucdavis.edu The seminars are supported by the Sloan Foundation (www.sloan.org) and held in cooperation with the NBER's Science & Engineering Workforce Project (www.nber.org/sewp).

The next seminar will be May 12-13, 2008 at Stanford, and focus on High-Tech Workers through Boom and Bust, tracking S&E workers over the business cycle.

8am	Breakfast available
9am	Welcome and introductions, Philip Martin, UCD, Barry Klein, UCD
9:15am	From H-1B to Immigrant: An Overview of the Process and Issues
	Philip Martin, UC-Davis
9:45am	Issues in Attestation and Certification
	Alicia Cackley, Government Accountability Office
	Susana Rincon, US Department of Labor, San Jose
	David Kahn, US Department of Labor, San Francisco

10:45	Break
11am	Researchers panel 1
	Norm Matloff, UC-Davis, Patterns in Wages in the PERM Data
12pm	Lunch
1:15pm	Researchers panel 2
	John Trumpbour, Harvard SEWP, South Asian H-1Bs and Recent S&E Migration back to India
	Lindsay Lowell, Georgetown, Into the Eye of the Storm: Assessing the Evidence on Science and Engineering Education, Quality, and Workforce Demand
2:15pm	Break
2:30pm	Industry and Worker Perspectives
	Jeff Wheeler, Intel
	Lisa Spiegel, Duane Morris
	Kim Berry, Programmer's Guild
	Stan Sorscher, Society of Professional Engineering Employees in Aerospace
5pm	Adjourn and wine tasting, DeLoach Room 2127, ARE