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Outsourcing and Skill Imports: Foreign High-Skilled Workers on H-1B and L-1 Visas in the United States

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Abstract

This working paper looks in detail at the H-1B and L-1 visa programs for temporary employment in the United States. Based on official data from the US Citizenship and Immigration Services and the US Department of State, H-1B and L-1 visa issuance rapidly increased in the late 1990s, followed by a marked slowdown after 2001. This points to the highly cyclical nature of both visa programs. Indian nationals and immigrants working in computer-related occupations dominate the H-1B and L-1 population in the United States, but these two groups are also found to be the most cyclical segment, with very large declines in inflows after 2001. The total population of H-1B visaholders in 2003 is estimated to range between 387,000 and 746,000, of which 160,000 to 306,000 were Indian nationals. As all data on H-1B/L-1 visaholders are gross numbers and gross jobs data for comparable categories are absent, the extent of the impact of these visa programs on the US labor market cannot be gauged precisely. A broad range of US industries and educational institutions are found to be employing H-1B recipients, with the IT industry being the dominant sector. Evidence of aggressive wage-cost cutting, including paying H-1B recipients only the legally mandated 95 percent of the prevailing US wage, is found among some H-1B employers, although no systematic abuse of the system is present.

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“I’d certainly get rid of the H-1B visa cap. That’s one of the easiest decisions.”¹

Bill Gates, Microsoft Chairman

“Are employers taking advantage of [H-1B] immigrants to saturate the labor market and drive down wages for employees?”²

Marcus Courtney, WashTech President

Just as the ongoing offshore outsourcing of US jobs to low-wage countries has recently attracted the attention of politicians and business leaders, so has its mirror image—the import of foreign high-skilled labor for work in the United States. This working paper takes an in-depth look at available US official statistical data on this important phenomenon and gauges its true extent with particular emphasis on the US information technology (IT) services sector.

Section I briefly describes available data. Section II shows how the aggregate use of foreign imported labor on L-1 and H-1B visas in the United States has been highly cyclical, with a large increase up to 2001 followed by a significant decrease in subsequent years and a rebound in 2004. The section looks in detail at the sectoral and national characteristics of H-1B visa recipients and gauges the size of the entire H-1B population inside the United States. Section III focuses on the US IT services industry’s use of imported labor, the sector’s major employers, as well as the wage levels of H-1B visa recipients. Concluding remarks round off the paper.

I. WHERE DO US L-1 AND H-1B VISA DATA COME FROM?

Foreign high-skilled workers enter the US labor market temporarily,³ predominantly as either “intracompany transferees” (L-1 visaholders⁴) or “foreign specialist workers” (H-1B visaholders⁵). As

¹ Comments at the Library of Congress, April 27, 2005. Reported in CNET News at http://news.com.com/Gates+wants+to+scrap+H-1B+visa+restrictions/2100-1022_3-5687039.html (accessed on August 3, 2005).

² Comments on January 27, 2005, reported in CNET News at www.zdnet.com.au/jobs/news_trends/0,2000056653,39178682,00.htm (accessed on August 3, 2005).

³ This working paper does not deal with permanent immigrants in the United States, many of whom are also highly skilled.

⁴ L-1 visas are for individuals being transferred to work for a US-located employer. To be eligible for an L-1 visa, one should have worked abroad for one continuous year within the last three years in a related business entity in a managerial/executive position or in a so-called specialized knowledge staff capacity. For those in the former category of experience, the initial duration of an L-1 visa is three years, extendable up to seven years, while for the latter category, initial duration is also three years but with a possible two-year extension. In June 2005, the US Citizen and Immigration Services (USCIS) implemented the L-1 Visa Reform Act of 2004, which contained a number of amendments to limit the use of imported foreign high-skilled workers on L-1 visas. As such, L-1 visa recipients can no longer work (primarily) at a work site other than that of their petitioning employer if *either*: (a) the work is controlled and supervised by a different employer *or* (b) the offsite arrangement is essentially one to provide a nonpetitioning party with local labor for hire, rather than a service related to the specialized knowledge of the petitioning employer. See “USCIS Implements L-1 Visa Reform Act of 2004,” USCIS press release, June 23, 2005.

the H-1B visa program is the larger of the two programs in question, and the category for which most detail is available, its discussion will make up the majority of the content of this working paper. In all cases, official data are collected by fiscal years (from October to September) rather than calendar years. The main data sources are the US Department of Homeland Security's Citizen and Immigration Services (USCIS)⁶ *Yearbooks of Immigration Statistics*,⁷ the US State Department's annual reports of the visa office of the Bureau of Consular Affairs,⁸ the annual reports to Congress on the characteristics of H-1B visa recipients⁹ as well as the US Department of Labor's Foreign Labor Certification (FLC) online database for labor condition applications (LCAs).¹⁰

In order to relate the different data sources to each other, it is useful to first describe the process of obtaining an H-1B¹¹ and L-1 visa. An H-1B visa is sought by a US employer wishing to hire a foreign high-skilled worker. The process has two distinct parts: First an LCA is filed with the Department of Labor's Employment and Training Administration (DOLETA). In this filing, a US employer (or a legal representative—i.e., an immigration lawyer) demonstrates interest in hiring a foreign worker and provides DOLETA with the necessary information to establish that the foreign worker will be employed in the United States in accordance with US law (see below)—otherwise the application will be rejected. For data purposes, this means that a great deal of information about employers and wage levels is available from DOLETA's online database. However, it is important to emphasize that filing an LCA merely indicates a US employer's interest in hiring a foreign worker. It has no direct relation to whether an H-1B visa is issued and holds no valid information about the number of H-1B employees a particular US employer hires.

Once the LCA is approved, the US employer (or legal representative) files a petition for an H-1B visa with the USCIS in order for an H-1B visa to be issued to the individual foreign worker whom the US employer wishes to hire. For data purposes, this means that a substantial amount of data on the number and aggregate characteristics of approved H-1B petitions are available from the USCIS, and this is the source for the actual number of approved H-1B visa petitions.

However, it is important to understand that a US visa is an “entry document”—i.e., a document that aliens show at the US border to be allowed to enter the United States. But in many cases, recipients of H-1B visas are already inside the United States when the USCIS approves their H-1B petitions. These recipients receive H-1B approval notices from the USCIS and are issued H-1B visas only when they travel outside the United States for the first time while in H-1B status in order to be allowed back into the United States. As this working paper is about the importing (i.e.,

⁵ H-1B visaholders must hold a minimum of the equivalent of a US baccalaureate degree to be eligible for this visa, as well as adhere to a list of other requirements. See

<http://uscis.gov/graphics/services/tempbenefits/TempWorker.htm> for further information.

⁶ The USCIS was formerly the Immigration and Naturalization Service (INS).

⁷ Available at <http://uscis.gov/graphics/shared/statistics/yearbook/index.htm>.

⁸ Available at http://travel.state.gov/visa/about/report/report_1476.html.

⁹ Available at <http://uscis.gov/graphics/shared/services/employerinfo/H-1B.htm>.

¹⁰ Available at www.flcdatacenter.com/.

¹¹ See <http://workforcesecurity.doleta.gov/foreign/h-1b.asp> for additional information.

involving the crossing of international borders) of foreign high-skilled workers into the US workforce, the fact that many H-1B recipients are already inside the United States further complicates the choice of data. Hence, to get a better idea about the number of high-skilled workers entering the US workforce from abroad, the US Department of State's data on H-1B visas actually issued at overseas US consular offices are a better source, as they track the actual number of new high-skilled aliens entering the United States as H-1B workers.

On the other hand, much less data are available for L-1 visas. The application process is somewhat less complicated, although many of the issues from H-1B visas resurface here as well. Again, the US employer files for the L-1 visa with the USCIS on behalf of the alien worker,¹² who then, if outside the United States, uses this application to obtain an L-1 visa at a US consular office abroad. If the alien is inside the United States at the time, a change of visa status is sought at the USCIS. An important distinction from the H-1B visa is that no labor certification—i.e., statement that the alien is being employed on the same terms as US workers—is required for the L-1 visa. Unfortunately, no data are available from the USCIS on the total number of L-1 petitions approved, and to get an idea of the number, one has to look at the actual number of L-1 visas issued by overseas US consular offices.

In a different function, the USCIS also collects data on persons in both H-1B and L-1 status when they enter the United States at the border. The category “person in visa status” includes people who have changed their nonimmigrant status while inside the United States to either H-1B or L-1 status and obtained the visa from a US consular office abroad, Canadians in this status exempt from the visa requirement, and people outside the United States who have obtained their H-1B and L-1 visas from US consular offices abroad. It is evident that the number of H-1B and L-1 entries into the United States will have very little direct relation to the actual number of H-1B visaholders inside the United States at any given time or the number of H-1B or L-1 visas issued in a given period. Both H-1B and L-1 visas are multiyear visas, and individuals in H-1B or L-1 visa status obviously may enter and exit the United States numerous times in a given period for the duration of their visa status, inflating the number of entries relative to the actual number of persons in a particular visa status.¹³ Thus, the number of entries by persons in visa status in a particular visa category in a given period will be significantly higher than the number of visas issued in that period.

¹² This is done through filing an I-129 petition. For an in-depth description of the L-1 filing procedure, see Wasem (2004).

¹³ The opposite could also be the case, where a person in H-1B or L-1 visa status do not exit and reenter the United States at all for the duration of their multiyear visa, in which case the relative number of entries would be deflated. This, however, in the aggregate seems to be rare.

II. DATA RESULTS, LEVELS, AND DEVELOPMENTS

Figure 1 presents USCIS data on the number of entries by individuals in H-1B and L-1 visa status into the United States.¹⁴ A very clear rising time trend is seen from the mid-1990s to 2001, after which it declines before rebounding in 2004. Admission of high-skilled workers into the United States thus mirrors the broader economic trends in the US economy and labor market, which saw rapid job growth in the latter part of the 1990s, a recession in 2001, and subdued job growth in 2002–03, before a rebound in 2004. Data on entries of high-skilled individuals thus point to the fact that in the aggregate, utilization of the H-1B and L-1 visa programs is quite responsive to cyclical changes in the US economy.

The data in figure 1 are interesting mainly to discern this time trend and not for the absolute levels, as multiple entries significantly inflate the latter. And even so, such a time trend may be caused by external factors rather than any changes in the actual number of persons in visa status. For instance, a decline in real airfare prices since the early 1990s makes it more likely that individuals in H-1B or L-1 visa status will travel abroad (and hence exit and enter the United States) more today than they would have in 1990, resulting in a rising time trend even if the actual number of visaholders were constant. Similarly, the rapid increase of US foreign direct investment abroad and foreign investment in the United States—i.e., the rise of multinational companies—since 1990 will likely increase the number of entries and exits by individuals in the relevant visa status and hence push up the time trend. This point is particularly important in the case of India, which started its economic liberalization only in 1991.

L-1 Data in Detail

The distinction between data on visaholder entry and those on actual visa issuance becomes clear when data from figure 1 is compared with actual visa issuance data for 1990 to 2004 from the US State Department. The comparable data for total annual issuance of L-1 visas at US consular offices abroad is shown in table 1.

Actual L-1 visa issuance peaked in 2001, with 59,384 visas issued, and subsequently declined slightly in 2002 and 2003, before setting a new record in 2004 (as initial data indicate). As such L-1 visa issuance in general fluctuates with the same cyclicity as seen in the admission of individuals in L-1 visa status. The fact that actual visa issuance as a share of admissions declined from 23 percent in the early 1990s to around 20 percent in recent years is testament to the fact that in the aggregate,

¹⁴ See Wasem (2004) and Lowell (2000) for longer time series on visa issuance for larger L and H-1 visa categories.

individuals in L-1 status travel more today than before. Further, the point of visas as “entry documents” resurfaces here, as the three-year L-1 visa is renewable either twice for two additional years at a time for a total of seven years (managers/executives) or once for two additional years for a total of five years (specialized knowledge staff). If the visa recipient is already inside the United States when the USCIS approves the L-1 visa petition and never leaves the United States during his or her spell of employment, no visa will need to be issued, and the actual number of visas issued may underestimate the actual number of L-1 recipients in the US labor force at any given time. All the above-listed issues illustrate the difficulties in estimating the precise number of L-1 visaholders within US borders based on entry and actual issuance data.

Digging a little deeper into the additional available data by nationality on entries into the United States by individuals in L-1 visa status and actual issuance of L-1 visas at US consular offices, one sees in table 2 that rich countries such as Britain, Japan, and Germany, with which the United States shares very close economic relations in terms of direct investment and cross-ownership of companies, consistently top the list of countries whose citizens are admitted in L-1 status. Britain consistently accounts for the highest share of the L-1 visa population, which is in accordance with its status as the top foreign investor in the United States (and vice versa). Sharing the same language and Anglo-Saxon business culture facilitates intracompany employee transfers.

While rich countries dominated in terms of the number of individuals admitted on L-1 visa during 1996–2003, in terms of actual L-1 visa issuance they were overtaken by India after 2000. Actual L-1 visa issuance to Indian nationals rose by more than thirteen-fold, from 1,350 in 1996 to more than 18,000 by 2003. This increase occurred at the same time as the number of L-1 visas issued to Chinese citizens declined by almost 75 percent, from 4,256 in 1996 to just 1,098 in 2003, clearly indicating that just because a developing country is growing rapidly and economically integrating with the world does not mean that its nationals will be issued L-1 visas more intensively. In other words, the rapid increase in Indian nationals’ use of L-1 visas does not seem to be just a story of rapid Indian economic growth and embrace of globalization, as this has also occurred in China—something else seems to have happened.¹⁵

It is clear from table 2 that in terms of how frequently a country’s citizens in L-1 status travel in and out of the United States, India stands out with a much lower average rate of entry (and exit) than other similar countries. The fact that Pakistanis in L-1 status, who in terms of family traditions and geography are “closely related to Indians,” seem not to be significantly more likely to travel in (and out) of the United States than other nationalities makes India a particular outlier. Indeed, the actual number of L-1 visas issued to Indian nationals is almost the same as the number of Indian nationals in L-1 status entering the United States, possibly indicating that the work of Indians in L-1

¹⁵ While more geopolitical tension existed between the United States and China during the period in question than between the United States and India, in neither case has this tension reached a level where it can reasonably be said to have influenced the increasing economic cooperation between the two countries and the United States.

visa status is much more fixed inside the United States than is the case for other nationals. This interpretation would be consistent with the use of L-1 visas to import Indian workers to the US labor market.

On the other hand, when looking at detailed entry data for Indian nationals for fiscal 2003, one sees in table 1 that 21,748 Indians in L-1 visa status entered the United States. During that same period, 10,664 Indians in L-2 visa status—either the spouse or children of an individual in L-1 status—entered the United States¹⁶—i.e., roughly the same 2:1 ratio between L-1 visaholders and their spouses and children as that found among other countries and in the aggregate data. This large relative number of Indian family members to Indians in L-1 visa status in the United States seems somewhat at odds with notions that the L-1 visa program is dominated by young, single, male Indian IT workers being imported temporarily into the United States to work in the IT sector. In summary, the use of the L-1 visa program has increased rapidly in recent years, and Indian nationals now account for a larger share of the total L-1 population. The rising trend in L-1 visa usage indicates increased import of foreign labor (especially Indians) to the US labor market via this program. However, one cannot discern from available data whether this increase in the number of Indians in L-1 visa status is in any specific industry or occupation, particularly IT.

H-1B Data in Detail

Much more official data exist on H-1B than on L-1 visas, which significantly aids the analysis. The American Competitiveness and Workforce Improvement Act of 1998¹⁷ requires US immigration authorities to annually collect and present to the US Congress information on the countries of origin, occupations, educational attainment, and compensation paid to aliens whose employers successfully petition for their H-1B status. However, more data also mean that they could be misinterpreted. Therefore, it is important to distinguish between the four data sources for H-1B information: 1) LCAs; 2) entry data; 3) successful H-1B visa petitions; and 4) actual H-1B visas issued. A numerical comparison of the latest available data illustrates the following:¹⁸

- 1) LCAs: No data on the total number of LCAs filed in 2003 exist at the time of writing, as multiple processes for filing were available at the time.¹⁹ But as mentioned above, this number is essentially meaningless as it has little or no relation to the actual number of H-1B visa petitions approved and visas actually issued.

¹⁶ Data are from the USCIS *Yearbook of Immigration Statistics 2004*, table 23, 93.

¹⁷ See Public Law 105-777, Division C, American Competitiveness and Workforce Improvement Law, Section 416(c)(2).

¹⁸ See also Assem (2004) for an in-depth description of the different types of H-1B visa data.

¹⁹ In 2002, employers filed applications online (H-1B E-File) or faxed them (H-1B fax data). Only the E-File data are available. See DOLETA's datacenter at www.flcdatacenter.com/CaseH-1B.aspx.

- 2) Entry data: In 2003, 360,498 individuals in H-1B visa status entered the United States (figure 1).
- 3) Successful H-1B visa petitions: In 2003, 217,340 H-1B visa petitions were granted by the USCIS, which is only 60 percent of the number of times an individual in H-1B visa status entered the United States in 2003.
- 4) H-1B visas issued: The US State Department issued a total of 107,196 visas in 2003, or only 30 percent of the number of times an individual in H-1B visa status entered the United States in 2003 and only 49 percent of the number of visa H-1B petitions approved by the USCIS.

The reasons that the number of entries to the United States by H-1B visaholders is significantly above both approved H-1B visa petitions and actual H-1B visas issued are similar to those of L-1 visas, as the H-1B visa is also a multiyear visa. However, it is more surprising that there is an almost 50 percent difference between the number of approved H-1B petitions and actual H-1B visas issued. This difference has four main reasons: First, it is of course always possible that an alien for whom an employer has petitioned for an H-1B never “shows up” and hence does not need a visa. The extent of such “absenteeism” among foreign H-1B beneficiaries cannot be gauged but should be expected to be limited, especially in the IT sector, where large differences in wages exist between countries (for instance, between India and the United States). Second, “multiple employers” (frequently at different levels within the same organization) often petition for the same foreign worker, who subsequently may be granted multiple petitions. Third, employers may apply for multiple H-1B visas in their individual petitions to the USCIS, and as the “immediate use” of approved petitions is not a requirement, US employers may “hoard” such successful petitions, thus inflating the number compared with actual H-1B visas issued in a given period. Fourth, as with L-1 visas, H-1B visas are “entry documents,” so if an alien is already inside the United States at the time his or her petition is approved and never leaves the United States during his or her time in employment, no actual H-1B visa needs to be issued.²⁰

Table 3 brings together statistics from USCIS annual reports to the US Congress on the country of origin, occupation, industry sector, and average wage levels of recipients of successful H-1B petitions. It is separated into two panels: Panel A shows data on H-1B petitions granted for initial employment—i.e., to new aliens entering the US labor market (columns 1 to 5). Panel B shows data on H-1B petitions granted for continuing employment—i.e., to aliens already in US employment at the time of issuance (columns 6 to 10). As the trends in the data in the two panels are roughly similar,

²⁰ Depending on the visa reciprocity with the alien’s country of origin, his or her H-1B visa may be limited to a shorter period of validity than the initial three-year duration of the H-1B work permit, and/or fewer entries. If this is the case, an individual may need to have more than one H-1B visa issued during the three-year duration of the H-1B work petition. This, however, is not relevant for any of the individual countries discussed in this paper.

this discussion will focus predominantly on H-1B visas granted for initial employment in the United States.

Row 2 in panel A shows the number of H-1B visa petitions as a share of the total number of individuals in H-1B visa status entering the United States. This number varies quite a bit between a high of 86 percent in 2001, the year when the number of new H-1B visa petitions granted peaked at 331,206, to a low of 53 and 60 percent in 2002 and 2003, respectively.²¹ Similarly, row 3 in panel A shows that the share of H-1B visa petitions granted for initial employment also peaked in 2001 to 201,787 or 61 percent of the total,²² before dropping to only 103,584 in 2002 and 105,314 in 2003—indicating that the number of H-1B petitions approved for initial employment was cut in half after 2001. This drastic decline is quite remarkable considering that all the years in question (2001, 2002, and 2003) had the same 195,000 congressional cap (box 1) in place and hence did not occur due a regulatory change in US visa laws. Instead, it is evident that the granting of H-1B visa petitions for initial employment is even more cyclical than the entry of individuals in visa status in figure 1.

An alien for whom an employer initially applies for an H-1B visa may be either outside the United States or already in the United States at the time of the application. If the alien is outside the United States, a successful petition (and subsequent visa issuance at a US consular office and entry into the United States) will result in an addition to the US labor force. If the alien is inside the United States, a successful petition need not necessarily result in an addition to the US labor force, as the alien may be transferring from another US visa category and may already be in the US labor force. For example, an alien could transfer from an academic F-1 visa, which gives the visaholder an option to work for one year (called optional practical training, or OPT) within the United States after graduation from an accredited US educational institution with a baccalaureate or higher academic degree. So if this student were granted an H-1B visa while working in the United States on OPT, it would not result in an addition to the US labor force. With respect to aliens in this “educational pipeline,” the US Immigration and Naturalization Service (now the USCIS) provides statistical detail on the previous visa status of beneficiaries of H-1B visa petitions in 1999 who were present in the United States at the time their H-1B visa petitions were approved (numbering 53,300). Of these, 60 percent (30,800) were students. Hence in 1999, about a quarter of the total number of H-1B visa petitions granted for initial employment (134,400) went to aliens who had studied in the United States and then upon graduation or finishing a year of OPT entered the US labor force. Given that it is relatively administratively simple (and cheap) for an F-1 student graduating from a US university to

²¹ This is further supported by data from a GAO report (GAO 2000), which shows that from 1992 to 1998, the number of “new H-1B nonimmigrants approved” was between 50,000 and the annual cap of 65,000. This is substantially lower than the roughly 100,000 entries by individuals in H-1B visa status seen in figure 1. However, data from the GAO publication refer only to those approved H-1B visas that count toward the annual congressional cap.

²² The fact that this number for H-1B petitions for initial employment exceeds the 195,000 congressional cap is testament to why one should not take the cap as an indicator of the number of H-1B visas available annually.

Box 1 The congressional cap on H-1B visas

Possibly the most discussed single number with respect to H-1B visaholders and their economic impact on the US economy is the congressional cap on annual H-1B petitions. This is somewhat unfortunate, as this particular number is almost entirely meaningless when analyzing the actual number of H-1B visaholders in or entering the US labor market.

From fiscal 1992 to 1998, the annual cap was 65,000 before being temporarily raised to 115,000 in 1999 and 2000 and to 195,000 from 2001 to 2003. In 2004, it dropped back to 65,000, before being raised through the H-1B visa Reform Act of 2004 by 20,000 for fiscal 2005 and subsequent years. However, the additional 20,000 H-1B visas made available for fiscal 2005 and subsequent years are earmarked only for aliens who have earned a master's or higher degree from a US institution of higher learning (USCIS 2005).

However, the following H-1B applicant categories are exempt from the annual congressional cap:

- * J-1 visa holders in medical education and training, who have been granted a waiver of the posteducation two-year home residency requirement;
- * beneficiaries employed at an institution of higher education or related affiliated nonprofit entity;
- * beneficiaries employed at a nonprofit or governmental research organization; and
- * beneficiaries who are renewing their H-1B visa status after the expiry of the initial three-year period.

The second and the fourth categories are substantial categories of exemption, as will be illustrated below (see shaded area in table 3). Indeed, exempt categories made up the majority of all successful H-1B petitions approved by the USCIS in 2002 and 2003, which evidently makes the annual congressional cap a very poor indicator of the actual number of new H-1B visas available in a given year.

The two recent US free trade agreements (FTAs) with Chile and Singapore have also had direct implications on the congressional cap such that the agreements earmarked 1,400 and 5,400 H-1B visas per fiscal year to Chilean and Singaporean nationals, respectively. In other words, this in effect cut the number of H-1B visas available to all other aliens from fiscal 2004 onward to just 58,200, or by just over 10 percent.

The inclusion of such visa rules in US FTAs caused some initial political tension in the US Congress. But the actual effect of FTAs on US visa issuance so far has been very modest, since less than 100 H-1B slots were used by Chileans and Singaporeans during the first year of the two FTAs in fiscal 2004. The remaining more than 6,700 unused H-1B slots were returned to the total pool of 65,000.

The introduction of the "E-3" visa in the US-Australia FTA in May 2005, which is essentially an H-1B visa only for 10,500 Australians a year, is another novelty that invariably will make the annual congressional H-1B cap less reliable as a measure of foreign high-skilled labor inflows into the United States.¹ The E-3 further indicates that at least for "allied developed countries," high-skilled visas are increasingly becoming a bargaining chip in FTA negotiations. This does not, however, so far seem to be the case in US FTA negotiations with developing countries.²

However, as technical capabilities for disaggregation of the value chain of service providers and the supply of high-skilled workers in developing countries both continue to increase, this topic is certain to remain on trade policymakers' agendas. Already several developing countries—most notably India—have submitted demands for the inclusion of visa regulation and the movement of natural persons (GATS mode 4) in the ongoing Doha service-sector negotiations (Government of India 2002).

¹ For details on the new visa, see the Australian government's Web site at www.dfat.gov.au/geo/us/e3_visa.html.

² See comments on the issue by Congressman James Sensenbrenner at the Australian Parliament, May 31, 2005, at <http://canberra.usembassy.gov/sensenbrenner%20Q&A.htm>.

get his or her one-year OPT, compared with getting an H-1B immediately, it is likely that the majority of F-1 visaholders transfer into H-1B visa status only after the OPT period expires. This is further made likely by the fact that aliens on OPT are exempt from US social security taxes, which aliens in H-1B visa status are not.

It becomes clear from rows 4 and 5 of panel A that 80 percent of the drastic decline in the total number of successful H-1B visa petitions approved for initial employment between 2001 and 2002 (79,000 out of a decline of 100,000) occurred in the number of petitions approved for aliens outside the United States at the time of the petition. In other words, importing of foreign high-skilled workers from outside the United States into the US labor force was the most cyclical of all relevant

aggregate H-1B categories and saw by far the biggest numerical decline following the end of the long US economic boom in 2001.

In contrast, the number of H-1B petitions for initial employment approved for aliens who were inside the United States at the time of the petition (row 5) has been relatively stable since 2000, at approximately 65,000 a year, albeit rising slightly to 85,000 in 2001. Recalling that most in this group were on academic F-1 visas, the relative stability over the entire period further indicates that any fallout from reduced applications to US universities has yet to reflect in the number of foreign graduates entering the US labor market. As such, while US companies have reduced their import of foreign high-skilled workers, they have continued to hire approximately the same number of foreign graduates from US universities as they did in 2000.²³

Here it should be emphasized that the regulations concerning H-1B (as well as L-1) visas, unlike those for other US temporary visas, allow a visaholder “dual intent.” This means that aliens may temporarily enter the United States for work purposes and simultaneously lawfully pursue permanent residency (for both themselves and their immediate family) while in the United States without affecting their H-1B visa status. The lack of a requirement for foreign residence while applying for a “green card,” as well as the opportunity to travel in and out of the United States during such an application process, make the H-1B visa a desirable way to obtain US permanent residency. The stability in the number of foreign students hired indicates that the utilization of this channel by this group has not been affected by either the recent tighter US labor market or the post-9/11 security fallout. Hence, in the last couple of years, the H-1B program has continued to be a part of the path of “first a US degree, then a US job, then US permanent residency” for many high-skilled immigrants to the United States. (However, this path has ever more obstacles; see box 2.)

Digging deeper into the data on country of origin (rows 6 to 8 in panel A), one sees that Indian citizens account for by far the largest share of H-1B petitions, about half of all petitions granted in 1999–2001, followed at a distance by China, Canada, and Britain. The data in rows 9 to 11, which show that “computer-related occupations” are by far the biggest occupational category for successful H-1B petitions, and in rows 12 and 13, which show that in 2001 about half of all recipients of successful H-1B petitions were employed in the US IT services and hardware industry indicate that in these particular sectors, the use of imported high-skilled Indian labor was widespread during the boom years.²⁴

²³ The 2004 H-1B Visa Reform Act, which adds an additional 20,000 H-1B visas exclusively for foreign nationals who have obtained a master’s degree or higher from a US institution of higher education, is a direct attempt at facilitating the continued employment inside the United States of foreign graduates of US educational institutions. However, the fact that only 9,358 (of the 20,000) have been applied for (as of July 28, two months before the end of fiscal 2005) indicates a possible slowdown in the employment by US businesses of foreign high-skilled graduates from US universities. See USCIS public notice, May 24, 2005, at <http://uscis.gov/graphics/services/tempbenefits/cap.htm>.

²⁴ The rapid rise in employment of “imported high-skilled IT workers” by US-located firms during the 1990s is further illustrated by the fact that in 1992, only about 6,000 H-1B visas (out of an approximately 50,000 granted that year) were issued to IT-related occupations. Fiscal 1992 was the first year when the H-1B visa

Box 2 From high-skilled import to permanent US resident

“Dual intent” provisions, which allow both L-1 and H-1B visaholders to apply for permanent US residence (a green card) while working in the United States, directly link the entry regulation of temporary high-skilled workers and permanent additions to the US workforce through immigration. However, a number of particular rules concerning the granting of “green cards” make pursuing “dual intent” far more difficult for some nationals—particularly Indians—than others.

The Immigration and Nationality Act (INA, section 201)¹ stipulates that an annual maximum of 366,000 immigrants may be granted permanent residence in the United States under family and employment-based preferences, the latter of which is of relevance to L-1 and H-1B workers. The INA (section 202) further prescribes that the per-country limit for such preference immigrants is 7 percent of the total (i.e., 25,620 of the current 366,000 maximum).

Three types of employment preferences are relevant here: 1) priority workers—multinational company managers, executives, persons with extraordinary ability, outstanding researchers, and academics; 2) holders of advanced degrees (PhDs) and/or possessing exceptional abilities; and 3) skilled workers, professionals, and other workers (the majority of H-1B/L-1 visaholders fall in this category).

All applications for employment-based preferences are processed chronologically from the date of application. This, combined with the 7 percent per-country limit for green card applications and the lop-sided national distribution of dual-intent H-1B and L-1 visas, with Indian nationals making up by far the largest share of visa recipients, has created severe delays for some nationals in acquiring a green card. The Department of State therefore has created “cut-off dates,” which essentially is the earliest date by which those from “over-subscribed nationalities” must apply for permanent residence in order for their applications to realistically be processed in a given fiscal year.

The October 2005 Department of State Visa Bulletin (at http://travel.state.gov/visa/frvi/bulletin/bulletin_2631.html#) indicates that in fiscal 2005, nationals from China (mainland-born), India, Mexico, and the Philippines are expected to face numerical restrictions and delays. As such, under the third preference (skilled worker, professionals and other workers), only those Indians who filed for permanent residence in January 1, 1998, can expect to have their applications processed in 2005—in other words, most Indian H-1B and L-1 visaholders face a more than seven-year delay in acquiring an employment preference-based permanent US residence. The similar cut-off date for Chinese nationals is May 2000, indicating an approximately five-year delay.

As the maximum duration for H-1B visas is six years, these delays will frequently force Chinese or Indian H-1B (or L-1) visaholders to leave the United States before they will be eligible for permanent residency. Obviously, this in effect undermines the “dual-intent” provision for such H-1B (and L-1) visaholders of Chinese and Indian nationalities.

The very long delays facing Indian nationals therefore make it highly unlikely that many—if not most—of the H-1B/L-1 visa recipients from India, who arrived in the United States during and immediately after the information technology boom, will be able to acquire permanent US residency without first having to leave the United States for a prolonged period.

While the likely inability of many recently imported Indian IT specialists to acquire permanent US residence will be applauded by some, its longer-term effects are difficult to immediately gauge. It could be viewed as an expedient way to rid the US labor force of some workers who may no longer be needed as much as they were in 1999–2000, thus plausibly providing better employment opportunities to American workers. However, such a viewpoint is mitigated by the adverse impact of reverse brain drain. These are highly skilled people, whose skills the US economy would benefit from in general. Furthermore, such workers might take up employment and utilize the skills acquired while in the United States in foreign-located direct competitors of US-located companies, which may prove a longer-term competitive threat to these US-located companies.

¹ Available at <http://uscis.gov/lpBin/lpext.dll/inserts/slb/slb-1/slb-22/slb-1150?f=templates&fn=document-frame.htm> (accessed on September 17, 2005).

On the other hand, Indians account for about 70 percent of the total decline in the number of H-1B petitions approved for initial employment from 2001 to 2002 (70,000 out of a total decline of 100,000). This decline of about 70,000 corresponds very closely to the decline in the number of petitions approved for aliens in computer-related occupations and for aliens employed in the US IT

could be granted to aliens under the Immigration Act of 1990, and hence most granted visas that year counted toward the 65,000 annual cap, especially since no extensions could logically be granted. Earlier, H-1B visas were referred to as “specialty occupation visas” and had no upper limit (GAO 2000:8)

services and hardware sectors.²⁵ Because individual petitions cannot be “cross-tabbed,” it cannot be discerned with absolute certainty whether the same petitions account for the similar level of decline in all three categories. Nevertheless, it strongly indicates that the number of H-1B visas granted for initial employment to Indians in computer-related occupations, employed in the US IT services and hardware sectors, drastically declined from 2001 to 2002 and that the level in all three categories remained low in 2003.²⁶

The data in the addendum to table 3 (rows 14 to 17 in panel A) on actual H-1B visa issuance abroad to Indians corroborate this interpretation. The number of actual H-1B visas issued to Indians declined by roughly 40 percent (or about 30,000) from 74,000 in 2001 to only 44,000 in 2002 and further to 42,000 in 2003. As such, Indians also make up 70 percent of the 43,000 decline in actual H-1B visa issuance from 161,000 in 2001 to 118,000 in 2002. Also, Indians’ share of total H-1B issuance declined from 46 percent in 2001 to 37 percent in 2002, rising slightly to 39 percent in 2003.

Size and Impact of the H-1B Population in the United States

Estimating the actual number of H-1B visaholders in the US labor market at any given time is particularly challenging, given the data limitations illustrated earlier. However, the data in table 3 give an idea of the range of the number of H-1B beneficiaries in the US economy in recent years. Keeping in mind that an H-1B visa is valid for a maximum of three years, and assuming that all the aliens whose H-1B petition were approved from 2000 to 2003 were inside the United States for the entire duration of their visas, one can obtain from row 2 in panel A the absolute maximum potential H-1B population in the United States of 786,000 and 746,000 in 2002 and 2003, respectively.²⁷

However, as seen earlier, the actual number of H-1B visas issued by the State Department is much lower than the number of H-1B petitions approved by the USCIS. Data in row 14 yield a total H-1B population in the United States of 411,000, 413,000, and 387,000 in 2001, 2002, and 2003, respectively—again assuming that all recipients remained in the United States for the entire three-year period of their visa but more important, assuming that no alien received a “change of visa status to H-1B” while already inside the United States and that the only H-1B recipients inside the United States came directly from abroad. As such, the data in row 14 surely underestimate the actual

²⁵ A similar trend is visible for recipients of extensions of H-1B visas (panel B, columns 8 and 9), where the number of Indian recipients and recipients in computer-related occupations and IT services and hardware sectors all declined by about 30,000 from 2001 to 2002.

²⁶ These data are in part corroborated by other sources. For instance, NASSCOM, the Indian IT industry association, estimates that the number of Indian IT professionals traveling to the United States on H-1B visas dropped from 77,000 in 2001 to 33,000 in 2002 and 30,000 in 2003 (as of March 2003). The source for these data is Wipro Ltd.’s 2004 20-F filing with the SEC.

²⁷ 2002 and 2003 are the only two years for which enough data are available to make three-year aggregate summations.

population. Therefore the actual H-1B population ought to be within the approximate range of 400,000 and 750,000.²⁸

Similar simple three-year summations of data in table 3, again assuming all aliens with a successful H-1B petition (both for initial and continuing employment, i.e., panels A and B) were present for the entire three-year period, yield a maximum estimated Indian H-1B population of 351,000 in 2002 and 306,000 in 2003, with a minimum (from table 3, panel A, row 15) of 191,000 in 2001, 180,000 in 2002, and 160,000 in 2003. Meanwhile, a maximum of 415,000 and 350,000 foreigners may have worked in computer-related occupations in 2002 and 2003, respectively.

The population of high-skilled foreigners on H-1B visas in the United States is thus substantial, regardless of the estimation technique. But when estimating the impact of this population on the US economy, especially on US workers, data must be used with care. The total population of H-1B recipients is of direct relevance only if one assumes that a 1:1 (or closer) relationship constantly exists between the number of aliens in employment in the United States and the number of unemployed US citizens and permanent residents—i.e., all foreigners on H-1B visas are continuously replacing “a US worker.”

If instead one wishes to gauge the impact of H-1B recipients on the hiring of US workers at a point in time, it would be more appropriate to use data for H-1B petitions approved for initial employment, as only these aliens will be competing with out-of-job Americans for new jobs. H-1B recipients with successful H-1B petitions for continued employment—i.e., aliens already in employment in the United States—do not directly compete in the “new hiring” market. This is particularly so as the opportunities for “job switching” by employed H-1B recipients are limited (see below). As such, the relevant numbers of successful H-1B petitions for initial employment are found in row 3 of panel A in table 3. It should be emphasized that these are the maximum possible numbers of relevant H-1B petitions.

Further, the data in table 3 are all gross numbers—i.e., they indicate only those aliens with successful H-1B petitions. As such, each alien with a successful petition may be viewed as one “filling a vacancy inside the United States.” These numbers, however, do not include any information about H-1B visaholders who lose their jobs and then leave the United States. Therefore, these data are not “net H-1B employment data.” This is an extremely important distinction to make when considering what to compare table 3 data with.

Most dynamic US labor-market analysis is carried out using changes in net employment as measured in the Bureau of Labor Statistics (BLS) Current Employment Statistics (CES) and Current Population Survey (CPS) programs.²⁹ However, comparing changes in “net employment” with the

²⁸ More sophisticated estimates can be made, adjusting these population numbers for deaths, emigration from the United States, and transfers to permanent US residence, among others. See, for instance, Lowell (2000). However, introducing such additional assumptions in the estimations is both beyond the scope of this working paper and unlikely to materially alter the results.

²⁹ See www.bls.gov/ces/home.htm and www.bls.gov/cps/home.htm for more information on these programs.

gross number for successful H-1B petitions for initial employment (i.e., a proxy for vacancies filled by foreigners) is erroneous.³⁰ Instead, the number of successful H-1B petitions for initial employment ought to be compared with the gross job gains (i.e., total vacancies filled) in the relevant period and category.

Such comparisons, however, face terminal data problems, as data on US gross job gains are extremely limited. The BLS Business Employment Dynamics program³¹ currently collects data on gross job gains and losses on a quarterly basis for the entire US private nonfarm economy and a limited number of large economic sectors.³² BLS staff Pinkston and Spletzer (2004) have made limited calculations of the number of annual gross job gains and losses.³³

But to make valid “apples-to-apples” comparisons between data on successful H-1B petitions and gross job gains, detailed gross job gain data for only high-skilled jobs are required, as H-1B visas by definition are given only to applicants with a bachelor’s or higher degree.³⁴ For instance, if one were to take the ratio of the number of all successful H-1B petitions for initial employment and the total number of gross job gains in the US economy, the result would be vastly understated and invariably show a very limited share of new jobs snapped up by H-1B recipients. This would be because the very large number of gross new low-skilled jobs created in the US economy would very substantially “inflate the ratio denominator”—i.e., the total number of gross job openings.

Currently, data on gross job gains for only high-skilled jobs (or high-skilled by occupation) do not exist in the United States. Therefore, such attempts to accurately gauge the direct impact of H-1B recipients on hiring of US workers are not possible.

In the presence of such severe data limitations, it is nonetheless pertinent to point to the best approximation of the number of “imported high-skilled foreigners” in the US labor market. This number is found in panel A, row 4 of table 3, which shows the number of successful H-1B visa petitions approved to foreigners for initial employment who were outside the United States at the

³⁰ See, for instance, Department of Commerce, *Digital Economy* (2000), p. 51, for such an incorrect comparison of gross data with net changes in employment. Comparing the number of approved H-1B visa petitions in IT occupations in 1999 with the change in net high-skilled employment yields the grossly inflated result that H-1B recipients took up 28 percent of all new IT occupation jobs. The fact that this comparison is based on all H-1B petitions, rather than just the petitions approved for initial employment, further inflates this result.

³¹ See www.bls.gov/bdm/home.htm for additional information.

³² These sectors are “Total Private Sector,” “Goods Producing,” “Natural Resource and Mining,” “Construction,” “Manufacturing,” “Service Providing,” “Whole Sale Trade,” “Retail Trade,” “Transportation and Warehousing,” “Utilities,” “Information,” “Financial Activities,” “Professional and Business Services,” “Education and Health Services,” “Leisure and Hospitality Services,” and “Other Services.”

³³ It is important to realize that, unlike with net employment growth data, one cannot simply annualize quarterly gross flow data to get annual data by summation. Gross annual data look at the gross number of jobs gained *over* the year, while quarterly data examine gross jobs gained *during* the year. See Pinkston and Spletzer (2004).

³⁴ Long work experience may also qualify applicants without a bachelor’s degree or higher. As such, in 2003, 1.6 percent of all approved petitions were from applicants with less than a bachelor’s degree (USCIS 2004, table 7).

time of the petition. These data intuitively correspond to the concept of “imported skills” as “the bringing into the United States of an alien to fill a new position.”³⁵

It is clear that the extent of such importing of skills during the boom years from 1999 to 2001 was not negligible. During the last three years of the economic boom, US-located companies brought in about 270,000 highly skilled workers from abroad to fill newly created US jobs. However, as the job prospects in the US labor market deteriorated dramatically after 2001, the number of imported aliens declined considerably, reflecting the cyclical nature described above.

The fact that 25,637 and 28,879 H-1B petitions were granted for initial employment in computer-related occupations in 2002 and 2003, respectively, nonetheless indicates that there continues to be a large demand from US-located IT services corporations for high-skilled foreign workers, even under adverse IT sector labor-market conditions and at average wages close to the US average in these occupations (\$50,500 in 2003 for new H-1B visa holders in computer-related occupations and \$63,000 for H-1B recipients continuing employment—i.e., with a minimum of three years’ work experience).³⁶ A negative impact on IT workers’ wage levels from this continued foreign labor supply therefore is possible. Some researchers argue that the matter is not one of IT occupational labor shortages but rather one of US IT companies aggressively pursuing through the H-1B program the cheapest legally available labor.³⁷

It must be kept in mind, however, that the fact that more H-1B petition recipients in computer occupations entered the US job market, while net employment in computer occupations declined, does not in itself mean that “foreigners replaced Americans in the computer sector.” This is because even as net employment declines, gross job creation in the US economy remains high. Consider that during the 2001 recession, when net US private nonfarm employment declined with more than 2 million jobs from the peak in March 2001 to the recession trough in November 2001, the average quarterly gross job gain (Q2, Q3, and Q4) was 8 million.³⁸ While no data exist for gross high-skilled jobs gains, it seems very unlikely that total gross high-skilled job gains should have declined as much as the (gross) number of successful H-1B petitions for initial employment, namely 68 percent, from 2001 to 2002. If anything, it seems likely that such H-1B recipients took up a much smaller share of the new jobs created after 2001.

³⁵ Note, however, that such a number is not available on an occupational basis, only in the aggregate. All the occupational data thus consist of petitions granted to aliens both inside and outside the United States at the time of the petition.

³⁶ In May 2004, the average annual wage for all US computer and mathematical occupations—irrespective of experience—was \$65,510. As the classifications, tenure, and experience levels of the two groups are dissimilar, the exact numerical difference in wage levels cannot be directly compared.

³⁷ It is disputed whether an actual labor shortage existed among IT occupations (Veneri 1999, NRC 2001) or whether it was a shortage of cheap labor (Matloff 2003). See also Wasserman (2001) for research suggesting that increased demand for skilled workers worldwide caused by technological change makes separating out the impact of high-skilled immigration on wages difficult.

³⁸ Data from the BLS Current Employment Statistics and Business Employment Dynamics Programs.

All told, the visa data clearly indicate that “skills import” by US-located IT services and hardware companies of foreign—largely Indian—computer-related H-1B visaholders was substantial in the years of rapid economic growth in the sector and hence underpinned sectoral nonwage inflationary growth. The data show a very large decline after 2001 in the number of new visa petitions approved (and visas issued) for aliens seeking initial employment, particularly from India, in the IT services sector. As such, the data point toward a much diminished aggregate impact on the US labor market of H-1B visas after 2001. This strongly cyclical nature of import of IT workers to the United States is also found in other developed economies, such as Canada and France, where data are available.³⁹

III. WHO HIRES H-1B VISAHOLDERS AND AT WHAT WAGES?

It is obvious that due to the vast differences in the average wage levels between the United States and countries such as India, many highly skilled Indian IT workers would be willing to work in the United States at wages less than the prevailing US wage, as even a fraction of the prevailing US wage would allow them to well support a family in India. It is equally obvious that IT companies located in the United States would have a direct interest in hiring such highly skilled workers at such lower wages.

In order to avoid such downward wage pressure from H-1B visaholders, US law contains a number of specific rules about what H-1B visaholders must be paid: H-1B recipients must be paid either 1) the *actual wage*—i.e., the wage rate paid by the employer to all other individuals with similar experience, qualifications, education, job responsibilities and function, specialized knowledge, and other legitimate business factors for the specific employment in question, or 2) in the absence of similar US workers at the workplace of the H-1B recipient, the *prevailing wage* for the occupational classification in the area of intended employment.⁴⁰

Several sources may be consulted to find the correct prevailing wage for a given H-1B visa petition. A request for a prevailing wage determination may be filed with the local State Employment Security Agency (SESA) or the Bureau of Labor Statistics Occupational Employment Statistics;⁴¹ the federal government online wage determination⁴² may be consulted, as may other independent authoritative sources, such as private compensation surveys from companies like Watson Wyatt,⁴³ the Economic Research Institute,⁴⁴ and the American Society of Employers.⁴⁵

³⁹ See *OECD Information Technology Outlook* 2004, 242–44.

⁴⁰ See <http://workforcesecurity.doleta.gov/foreign/wages.asp> for additional information.

⁴¹ See www.bls.gov/oes/home.htm.

⁴² See www.wdol.gov/sca.aspx#0.

⁴³ See www.watsonwyatt.com/.

⁴⁴ See www.ericri.com/.

⁴⁵ See www.aseonline.org/Home.HTML.

The employer is responsible for the truthfulness of the information provided in the H-1B petition. That the employer has several sources to choose the prevailing wage from raises the issue of whether employers choose the one that provides the lowest estimate. Therefore, it is incumbent upon the Department of Labor to determine whether a given source is acceptable and to deny the foreign labor certification if the provided prevailing wage information is deemed nonauthoritative. Third parties may launch a complaint with the Department of Labor alleging inaccuracy of the provided prevailing wage information in individual petitions.

A SESA prevailing wage determination cannot be challenged, nor does it seem probable that a prevailing wage that is in accordance with wage sources provided by the Department of Labor itself can be so successfully challenged. The majority of H-1B petitions use official prevailing wage data from these sources (figures 2 to 21), so it seems unlikely that employers are systematically depressing wages by providing inaccurate data on prevailing wages.

On the other hand, federal law CFR 665.731 (d) (4)⁴⁶ explicitly states that “[N]o prevailing wage violation will be found if the employer paid a wage that is equal to, or more than 95 percent of, the prevailing wage....” Therefore, it is essentially legal for US employers to pay H-1B recipients 5 percent less than the prevailing wage, which, not surprisingly, is the lower range for wages offered to H-1B recipients. If US employers are found by the Department of Labor to pay their H-1B workforce less than 95 percent of the prevailing wage, they will be required to pay them the full 100 percent. In other words, companies face no real financial penalty for paying their foreign high-skilled workers up to 5 percent less than the prevailing wage.

Furthermore, it is the employer that applies for the H-1B on behalf of a foreign worker. Therefore, the opportunities for “job-hopping” in search of better wages elsewhere in the United States are limited for the alien, as he or she has to find another employer to file the H-1B petition.⁴⁷ This might give employers some scope for further downward wage pressure, despite what their LCA filing may state. The fact that an H-1B petition costs an employer a minimum of \$1,435 likely adds to the sway that employers have over H-1B recipients.⁴⁸ Therefore, the official filing data from the FLC database should not be viewed as definitive data, rather as the best aggregate data available.⁴⁹

An interesting question is, who are the US companies that hire aliens on H-1B visas? Two detailed data sources reveal the US-located companies that apply for permits to employ H-1B

⁴⁶ Available at www.dol.gov/dol/allcfr/ETA/Title_20/Part_655/20CFR655.731.htm.

⁴⁷ If the H-1B visaholder loses his or her job in the United States, he or she has only a very limited period in which to find a new sponsor. The exact period varies (generally measured in weeks) depending on the country of citizenship of the H-1B visaholder.

⁴⁸ The fee depends on the size of the company. For example, for a company with more than 26 employees, the fee is \$2,085. On the other hand, employers may on each petition file for multiple employees, which will reduce the average costs per individual H-1B recipient substantially. See “USCIS Announces New H-1B Procedures for FY 2005 and FY 2006,” USCIS press release, May 4, 2005.

⁴⁹ This is particularly so, as the GAO (2000, 2003) found statistically significant lower wages among H-1B recipients than similar US citizens doing the same jobs. The GAO also found that the Department of Labor’s investigative authority is in reality limited by resources and the requirement for a third party to launch a complaint, which may prevent comprehensive checks from being carried out.

visaholders. In 2000, the then INS published a list of the leading US employers of H-1B visaholders between October 1999 and February 2000 (INS 2000b). And secondly the Department of Labor maintains an online database of all the US companies that file LCAs petitions for employing foreign workers on H-1B visas.⁵⁰ At the time of writing, this database held information on H-1B LCA petitions filed (both approved and rejected applications) in fiscal years 2002, 2003, 2004, and early 2005.

However, it is crucial to realize that an LCA filing by an employer does not mean that an H-1B petition will automatically be approved by the USCIS. The FLC department explicitly states that a one-to-one relationship does not exist between the number of approved LCA filings and the number of H-1B petitions ultimately approved. The number of LCAs the Department of Labor typically certifies is more than three times the number of H-1B visa petitions the USCIS approves.⁵¹ Because of such large discrepancies at the aggregate level, one cannot relate the number of certified LCAs a company has (from the FLC database) with the number of H-1B visaholders it actually employs.

Table 4 uses the special data on H-1B visas actually issued directly from INS (2000b) and not data for LCAs from the FLC database.

The vast majority of big employers of H-1B in late 1999 and early 2000 were household US corporate names in the IT industry, such as Motorola, Oracle, Cisco, Intel, and Microsoft. The US financial industry and major educational institutions were also well represented. Only seven of the top 100 (not all 100 are shown in table 4) US-located employers were Indian IT services companies.

Several companies, both Indian and US, as stated in their filings with the Securities and Exchange Commission (SEC), rely very heavily on foreign H-1B (and L-1) visaholders in their US work force in 2003.⁵² This could be an indication that some companies' primary model for US-located business is bringing in foreign (probably mostly Indian) IT workers to carry out the tasks.

⁵⁰ This Department of Labor database is available at <http://archive.flcdatacenter.com/casesearch.asp>. Currently, only data on H-1B E-Filings—i.e., applications filed by the employer at the Department of Labor's FLC online filing site at www.lca.doleta.gov—are available for fiscal years 2002, 2003, and 2004. Employers may also choose to file through the H-1B-fax filing system, for which data only for 2004 are available. According to the Department of Labor, in fiscal 2004, approximately 90 percent of employers filed using the H-1B-E-File system.

⁵¹ See www.flcdatacenter.com/CaseData.aspx.

⁵² The fact that no data are available for most of the companies in table 4 does in no way mean that the average for those companies for which data are available is the average for all companies. The companies for which data are available generally provide these data in the SEC filings, as part of their general description of their business model and risks associated with it. This probably means that companies provide information about the number of H-1B/L-1 visaholders in their US workforce only if the number is so big that it is important to their business model. In other words, the fact that no data are available for most companies—for instance, #1 ranked Motorola—likely means that for these companies, the share of H-1B/L-1 visaholders is very low. This, however, does not apply to those Indian companies for which no data are available. In their case, the lack of data is because they are privately held companies that do not submit filings to the SEC or similar entities. As these companies directly compete with public Indian companies, the average number of H-1B/L-1 visaholders in these companies is likely to be similar to that in Indian companies for which data are available.

US immigration legislation regulating the H-1B visa program has already attempted to address the issue of using an “exclusively H-1B visa recipient workforce.” Legislation covering H-1B visas (CFR 655.736) defines “H-1B-dependent employers” and “willful violators.”⁵³

An “H-1B-dependent employer” is defined as one that either

1. had fewer than 25 full-time equivalent employees⁵⁴ employed in the United States and employed more than seven H-1B nonimmigrants;
2. had at least 26, but not more than 50, full-time equivalent employees in the United States and employed more than 12 H-1B nonimmigrants; or
3. had at least 51 full-time equivalent employees employed in the United States and employed H-1B nonimmigrants in a number that was equal to at least 15 percent of the number of such full-time equivalent employees.

A “willful violator” is defined as an employer that either

1. violated Department of Labor proceedings under section 212(n)(2) of the Act (8 U.S.C. 1182(n)(2)(C) or Department of Justice proceedings under section 212(n)(5) of the Act (8 U.S.C. 1182(n)(5) or
2. committed either a willful failure or a misrepresentation of a material fact during the five-year period preceding the LCA and this has been made public on or after October 21, 1998.

US-located employers that are “H-1B-dependent employers” or “willful violators” are subject to two additional attestation obligations that other US employers seeking to employ H-1B visa recipients are not. First, they are prohibited from hiring any H-1B recipients (see below for description of an exempt group) if it leads to the displacement⁵⁵ of any US worker(s), either directly (i.e., in its own workforce) or indirectly (at a worksite of a second employer).⁵⁶ Second, such employers are required to take good faith steps to recruit US workers in the United States for the US jobs for which H-1B visas are being sought. Such measures must entail procedures that meet

⁵³ Available at www.dol.gov/dol/allcfr/ETA/Title_20/Part_655/20CFR655.736.htm

⁵⁴ Excluding bona fide consultants or independent contractors but including all persons who are consistently treated as “employees” by the employer for all purposes including FICA, FLSA, etc.

⁵⁵ Displacement has two components: One, it entails a US worker being “laid off,” i.e., a US worker loses his or her job for reasons other than discharge due to inadequate performance, violation of workforce rules, or other causes related to the worker’s performance or behavior at the job. Two, it entails that the H-1B worker takes over an “essentially equivalent job” previously held by a US worker, as determined by job responsibilities, qualifications, and experience of the workers and area of employment.

⁵⁶ See CFR 655.738 at www.dol.gov/dol/allcfr/ETA/Title_20/Part_655/20CFR655.738.htm for further details.

industrywide standards and offer the prevailing compensation—at least as much as the compensation to be paid to the H-1B recipient.⁵⁷

In other words, the several Indian (and similar US) companies that, according to their SEC filings, employed a large number of H-1B recipients, thus yielding workplace ratios far in excess of the thresholds listed above (15 percent of the total workforce, given the size of the operations of these Indian and US companies), will qualify as “H-1B dependent employers” and subsequently be unable to hire H-1B recipients who directly replace US workers.

On the face of it, therefore, the frequently mentioned stories of US workers in IT companies being “forced to train their replacements (frequently Indian) and thereafter fired”⁵⁸ would be against US legislation, and such companies could be pursued legally. Therefore, prevention of such “instances of abuse” is entirely a matter of enforcing existing US legislation, rather than a broader issue for the H-1B visa program.

However, certain H-1B visa recipients are exempt from these regulations, and their hiring even by “H-1B dependent employers” and “willful violators” does not require that these US-located companies adhere to the additional attestation obligations laid out above. This group of H-1B recipients consists of those who either:⁵⁹

1. are receiving a wage at an annual rate of \$60,000, including cash bonuses and similar compensation but excluding benefits such as health insurance, life insurance, and pension plans⁶⁰ or
2. have attained a master’s degree or higher (or its equivalent) in a specialty related to the intended employment.⁶¹

This means that it is indeed possible to start a business in the United States and staff it entirely with H-1B visa recipients or replace entirely an existing company’s US workforce with H-1B visa recipients, provided that these workers are paid more than \$60,000 per annum or all have relevant master’s or higher degrees. As such, the only particular constraints facing such a business model,

⁵⁷ See CFR 655.739 at www.dol.gov/dol/allcfr/ETA/Title_20/Part_655/20CFR655.739.htm for further details.

⁵⁸ One of the best places to find such press anecdotes is the news section of the Washington Alliance of Technology Workers (Washtech) at www.washtech.org/news/.

⁵⁹ See CFR 665.737 at www.dol.gov/dol/allcfr/ETA/Title_20/Part_655/20CFR655.737.htm for further details.

⁶⁰ The H-1B recipient is required to receive at least \$60,000 per annum, and the required salary cannot be decreased or prorated if the H-1B recipient has a part-time schedule.

⁶¹ The master’s or higher degree must be from an institution that is accredited or recognized under the law of the country where the degree was obtained and equivalent to a master’s or higher degree issued by a US academic institution. An academic degree *cannot* be substituted with experience or demonstration of expertise in the academic specialty (i.e., no “time equivalency” or “performance equivalency” will be recognized as substituting for a degree issued by an academic institution). Relevant US authorities—the USCIS and the Department of Labor—are solely responsible for consulting appropriate sources of expertise in determining the equivalency between a foreign and a US academic degree.

which seems to be present in the US IT services sector (table 4), in terms of acquiring H-1B visas are the salary floor of \$60,000 per annum, where none exist for other employers of H-1B visa recipients, and the requirement for a master's degree or higher, where a bachelor's degree will suffice for all other H-1B visa recipients.⁶²

Figures 2 to 21 plot by company the wage offered (on the y-axis) to each individual H-1B visa recipient, as well as the prevailing wage (on the x-axis) for the occupation in question. The figures also note the share of applications with prevailing wage from a US government source. The source of these data is the US Department of Labor's FLC database, which contains information on all LCA applications sent in by individual companies or other entities. The dots in the figures correspond to individual LCA filings and not to approved H-1B petitions and have no direct relation to the number of H-1B visaholders each company in reality hires.

Figures 2 to 7 list LCA filings for fiscal 2004 for six of the most well-known Indian IT services companies in the United States (also found in table 4); figures 8 to 14 list the same for those US IT companies that were included in the *BusinessWeek* 2004 Info Tech 100, with revenues above \$20 billion; and figures 15 to 21 list fiscal 2004 LCA filings for a select number of other US businesses and organizations. All figures are constructed such that, if a dot is above the diagonal line, it indicates that the H-1B visa recipient is offered a wage above the prevailing wage; if it is below the diagonal, the wage offered is below the prevailing wage. Only data for fiscal 2004 are presented, as this is the only period for which data for all—i.e., both online and fax-based—LCA filings are available. All wages are expressed in annual terms.

Figures 2 to 7, which show individual LCA filings of six of the biggest Indian IT services companies with operations in the United States—Tata, Infosys, Wipro, Satyam, Birla, and Ramsoft—clearly reveal several characteristics. First, all these companies are palpable “H-1B dependent employers” but have a substantial range in the wages they offer their prospective H-1B recipients. With many prospective employees offered wages below \$60,000 a year, it can be concluded that in order to legally be in the United States, all workers in this group must possess a master's degree or higher in a specialty related to the occupation in question. In other words, this is genuinely a group of companies that seeks to hire very highly skilled foreign workers to work in the United States. It cannot be discerned with certainty whether these H-1B recipients are inside or outside the United States when the company applies for the H-1B visa, but it seems likely that the vast majority of these workers are hired directly in India—i.e., “imported to work in the companies' US operations.”

Second, many of these H-1B visa recipients are paid very close to 95 percent of the prevailing wage. While in full accordance with US labor-market regulation, these wages strictly speaking, undercut those of similar US workers by the legal 5 percent. Hence, it seems readily justified when this group of companies is accused of suppressing the wages of US high-skilled IT

⁶² See <http://uscis.gov/graphics/services/tempbenefits/ecrd.htm#anchorH-1B> for the general documentation requirements for H-1B visa recipients.

workers, in addition to the downward pressure on wages applied by the additional relevant labor supply. But since this group of Indian companies (and their direct US competitors—see, for instance, Cognizant Technology Solutions in figure 20) are operating in accordance with all US labor-market laws, it is not justified to accuse them of systematic “abuse” of the H-1B program. Third, it should be noted that many of the H-1B visa recipients hired by this group are indeed offered wages significantly above relevant US prevailing wages, indicating that these workers possess additional relevant skills that companies must (and are willing to) compensate them for.

A similar temporary visa program in Germany, where up to 20,000 “IT green cards” were available to IT specialists from August 2000 to August 2004, was a failure, as it could not attract 20,000 applicants.⁶³ This indicates the strong cyclical downturn in the German economy but also that the US labor market continues to be a huge draw, relative to other developed economies, for high-skilled IT labor.

It is clear from figures 8 to 14, which show LCA filings for the leading US IT companies, that the practice of offering many H-1B visa recipients only 95 percent of the US prevailing wage in fiscal 2004 is not just among Indian (or similar US) IT services companies but also among such US IT industry household names as IBM, HP, Intel, Motorola, Microsoft, Dell, and Cisco. That such legal wage-cost cutting is also occurring among US IT industry leaders should probably not be surprising, given the intense competitive pressures in this industry. However, it is also clear that relative to the Indian IT services companies, many more H-1B recipients to be possibly employed at major US IT companies are offered wages significantly above the US prevailing wage. This is likely an indication both of the more diverse operations of the bigger US companies and of the H-1B system continuing to be an oft-used way for these companies to access highly skilled and experienced alien workers more broadly.

Assuming that what was found above—i.e., that a very large group of these workers are indeed of Indian origin and brought to the US from here and hence, at the US prevailing wage, can be expected to earn significantly above what would be possible in India—concerns the entire cohort, several issues must be addressed.

Considering that it is illegal for H-1B visa recipients to obtain employment at any other US employer other than the sponsoring one, the fact that so many of them are offered wages significantly above the legal minimum of 95 percent of the prevailing wage, indicates that for this group of US and Indian IT services companies, “worker turnover” may nonetheless be an important issue. Why else would wages significantly above the legally mandated 95 percent of the US prevailing wages be offered to people who cannot look for work elsewhere in the United States?

⁶³ Only 17,177 “IT green cards” were issued by the German authorities during the four-year period, and of these, only 12,406 had very long-term work and residency permits of three months or more. About a quarter of the visa recipients were Indian, with between 500 to 900 each from Romania, Russia, Poland, and China. See “Information Und Kommunikation In Aktuellen Zahlen,” Statistische Bundesamt, October 5, at www.destatis.de/presse/deutsch/pm2004/p4220024.htm (accessed May 16, 2005).

The answer probably has two aspects: First, it is possible that competing US IT services companies can poach individual H-1B visa recipients from one another, only that each time they have to go through the rather cumbersome and costly H-1B application process.⁶⁴ Hence, in a competitive industry, the very best H-1B visa recipients possessing the most genuinely sought after skills can negotiate a wage premium by requiring different US IT services firms to “outbid” each other. Second, with employment opportunities in countries like India expanding, the very best Indian IT workers will demand substantially above US prevailing wages to be lured to work in the United States, even though US prevailing wages in IT are substantially more than wages at home. Hence, this wage premium offered to many H-1B visa recipients in the IT services sector might be an early indication that a truly global market for the very best IT talent has already emerged.

Figures 15 to 21 underline the broader importance of the H-1B visa program. They show how some of the leading US financial and industrial companies (GE and Goldman Sachs), universities (Harvard, MIT, and Los Alamos National Laboratory), and healthcare providers (Kaiser Foundation Hospitals) are also frequent users. In these non-IT industries, the wage offered to H-1B recipients generally is likely to be far more in excess of the US prevailing wage than seems prevalent in the IT industry. This, in extension of the paragraph above, indicates that many H-1B visa recipients hired by these organizations possess valuable skills in excess of those required to be eligible for an H-1B visa. As such, it seems that these organizations are already engaged in the broader global hunt for the very best employees, which is also evident in the IT services industry.

Finally, as the vast majority of the LCA filings by the companies/institutions in figures 2 to 21 provide prevailing wages from official US sources, there does not seem to be any problem with US employers speculating in using the “lowest prevailing wage source.”

In summary, it is clear that in the IT sector Indian and similar US “outsourcing-type IT services providers” are utilizing US labor-market legislation to the limit to push for competitive labor cost advantages, frequently resulting in a 5 percent legal undercutting of US prevailing wages by H-1B visa recipients. Thus, there seems to be reason to believe that limited downward wage pressure exists from the H-1B program in particular IT services, in addition to the wage-moderating effects of the additional foreign supply of such high-skilled workers. On the other hand, many H-1B recipients, employed both in the IT services sector and other economic sectors, receive wages substantially above the prevailing US wage. This premium indicates that this group is indeed bringing highly sought after skills and experience into the US labor market, well above what is required for visa eligibility.

⁶⁴ This “visa portability” for H-1B visaholders—the ability to change employers during their stay once the new employer files successfully for a new H-1B petition on their behalf—was instituted by Congress only in 2001. See GAO (2003, 9).

IV. CONCLUDING REMARKS

This working paper presents as detailed a picture as possible of the extent of imports of high-skilled foreign labor on H-1B and L-1 visas to the United States. The number of such foreign workers in both categories substantially increased until 2001 but declined sharply in subsequent years. The two visa programs have been found to be very responsive to cyclical developments in the US economy, particularly with respect to new visa petitions for initial employment in computer-related occupations and for Indian nationals, where large declines have occurred.

Due to scarce data, one can estimate only a wide range for the total H-1B population—roughly between 400,000 and 750,000 in 2002 and 2003. Due to the gross, not net, nature of data on H-1B petitions and visas, and the dearth of similar aggregate gross job gains data for high-skilled workers, currently available data do not allow for systematic investigation of the impact of foreign workers on the hiring prospects of US workers. However, it is possible that the substantial H-1B population in the United States may adversely affect US wages in some, particularly computer-related, occupations.

H-1B visaholders are a very important source of labor for several Indian and US IT services companies. No evidence of systematic abuse of the H-1B visa programs by these companies exists in the official data examined, although such “offshoring/outsourcing type IT services providers” aggressively pursue all legally available paths to cut labor costs, including paying foreign workers only the legally mandated 95 percent of the prevailing wage.

Large US IT, financial, and manufacturing-sector companies, as well as leading educational institutions, continuously demand H-1B visaholders. These institutions frequently offer their foreign H-1B recipients wages substantially above the prevailing US wage, indicating that such workers continue to bring to the US economy highly sought-after skills that command a substantial wage premium in the labor market.

The highly cyclical character of both the H-1B and L-1 visa programs, which led to significant imports of foreign high-skilled labor during the economic boom but much less subsequently, combined with continued heavy use of the programs by leading companies in the United States, leads to the aggregate conclusion that the programs do exactly what they were meant to do in the 1998 American Competitiveness and Workforce Improvement Act, namely improve the US workforce and US competitiveness. Reductions in the programs could therefore lead to an unnecessary decline in the competitiveness of US companies and the US economy as a whole.

If global US companies face more legislative obstacles to employing highly skilled and competitively priced taxpaying people in the United States at US wage levels, they will continue to get better opportunities to send the work overseas, thanks to declining trade barriers, technology, and improving skill levels across the world. Therefore, instead of attempting to “close the US borders” to foreign high-skilled workers, policymakers should focus on domestic initiatives to improve education

and skills of adversely affected US workers and on enforcement of existing labor regulations. Improving domestic institutions remains critical to alleviating the negative effects of globalization on the US economy.

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Table 1 L-1 visa issuance and admittance, 1990–2004

Year	Number of individuals in L-1 status admitted	Number of L-1 visas issued	Issuance as a share of admittances
1990	63,180	14,342	23%
1991	70,505	16,109	23%
1992	75,315	17,345	23%
1993	82,606	20,369	25%
1994	98,189	22,666	23%
1995	112,124	29,088	26%
1996	140,457	32,098	23%
1997	n.a.	36,589	n.a.
1998	203,255	38,307	19%
1999	234,443	41,739	18%
2000	294,658	54,963	19%
2001	328,480	59,384	18%
2002	313,699	57,721	18%
2003	298,054	57,245	19%
2004	314,484	62,700(p)	20%(p)

n.a. = not available

(p) = provisional

Source: USCIS and US State Department. L-1 visa issuance data provided by Julie Furuta-Toy, director of the Office of Public and Diplomatic Liaison, Visa Services. On file with author.

Table 2 Admissions of individuals in L-1 status and L-1 visa issuance at US consular offices by fiscal year, 1996-2003

		1996	1997	1998	1999	2000	2001	2002	2003
All countries	Admissions	140,457	n.a.	203,255	181,472	294,658	328,480	313,699	298,054
	Actual issuance	32,098	36,589	38,307	41,739	54,963	59,384	57,721	57,245
	Share	23%	n.a.	19%	23%	19%	18%	18%	19%
Germany	Admissions	10,259	n.a.	16,654	19,800	23,974	25,479	22,330	20,620
	Actual issuance	1,993	2,439	2,972	3,260	3,794	3,721	2,916	2,832
	Share	19%	n.a.	18%	16%	16%	15%	13%	14%
Britain	Admissions	24,872	n.a.	38,960	44,989	55,917	60,615	55,315	51,989
	Actual issuance	4,578	5,841	6,375	7,029	8,548	8,691	6,744	6,820
	Share	18%	n.a.	16%	16%	15%	14%	12%	13%
China	Admissions	8,281	n.a.	5,134	4,449	4,567	4,570	4,572	4,187
	Actual issuance	4,256	3,048	1,535	1,154	1,110	1,091	1,073	1,098
	Share	51%	n.a.	30%	26%	24%	24%	23%	26%
India	Admissions	2,255	n.a.	3,859	6,160	11,945	15,531	20,413	21,748
	Actual issuance	1,350	1,628	2,276	4,206	9,306	11,908	17,812	18,124
	Share	60%	n.a.	59%	68%	78%	77%	87%	83%
Japan	Admissions	24,284	n.a.	32,018	32,584	34,527	34,821	31,044	29,176
	Actual issuance	6,664	7,136	7,407	7,033	7,168	7,370	6,122	5,464
	Share	27%	n.a.	23%	22%	21%	21%	20%	19%
Mexico	Admissions	4,759	n.a.	8,987	11,387	14,516	15,723	15,283	15,794
	Actual Issuance	1,775	2,346	1,925	1,949	2,290	2,169	2,020	2,081
	Share	37%	n.a.	21%	17%	16%	14%	13%	13%
Russia	Admissions	1,296	n.a.	997	1,058	1,143	1,084	829	721
	Actual Issuance	549	404	308	350	269	216	169	137
	Share	42%	n.a.	31%	33%	24%	20%	20%	19%
South Korea	Admissions	2,179	n.a.	3,217	3,252	4,180	4,465	4,769	4,519
	Actual Issuance	752	1,093	999	835	1,107	1,275	1,123	987
	Share	35%	n.a.	31%	26%	26%	29%	24%	22%
Philippines	Admissions	917	n.a.	1,421	1,709	2,136	2,464	2,077	1,961
	Actual Issuance	296	391	475	475	731	825	634	608
	Share	32%	n.a.	33%	28%	34%	33%	31%	31%
Pakistan	Admissions	221	n.a.	313	322	461	545	525	383
	Actual issuance	75	83	114	132	173	179	157	111
	Share	34%	n.a.	36%	41%	38%	33%	30%	29%

n.a. = not available

Source: USCIS Office of Immigration Statistics, annual *Yearbooks of Immigration Statistics*; US State Department. L-1 visa issuance data provided by Julie Furuta-Toy, director of Office of Public and Diplomatic Liaison, Visa Services. On file with author.

Table 3 USCIS standards on successful H-1B petitions, fiscal years 1999–2003

	1999 (1)	2000	2001	2002	2003	
	1	2	3	4	5	
a. Petitions for initial employment						
1	Number of times an H-1B visa holder was admitted into the US	302,326	355,605	384,191	370,490	360,498
2	Total number of H-1B petitions granted (percent of admittances)	n.a.	257,640 (72%)	331,206 (86%)	197,537 (53%)	217,340 (60%)
3	Of which: Number of H-1B petitions granted for initial employment (% of total petitions granted)	134,400 (n.a.)	136,787 (53%)	201,787 (61%)	103,584 (52%)	105,314 (48%)
4	Of which: Alien was outside the US at the time of employer petition (% of total initial employment petitions granted)	81,100 (60%)	75,785 (55%)	115,759 (57%)	36,494 (35%)	41,895 (40%)
5	Of which: Alien was inside the US at the time of employer petition (% of total initial employment petitions granted)	53,300 (40%)	61,002 (45%)	85,320 (43%)	67,090 (65%)	63,419 (60%)
6	Of which: #1 country of origin (% of total)	India 63,900 (48%)	India 60,757 (44%)	India 90,668 (45%)	India 21,066 (20%)	India 29,269 (29%)
7	Of which: #2 country of origin (% of total)	China 12,400 (9%)	China 12,333 (9%)	China 16,847 (8%)	China 11,832 (11%)	China 11,144 (11%)
8	Of which: #3 country of origin (% of total)	UK 4,400 (3%)	Canada 5,465 (4%)	Canada 9,184 (5%)	Canada 7,893 (8%)	Canada 6,201 (6%)
9	Of which: #1 occupational group (% of total) and median earnings		Computer-related occupations 74,551 (55%) \$50,000	Computer-related occupations 110,713 (55%) \$51,600	Computer-related occupations 25,637 (25%) \$55,000	Computer-related occupations 28,879 (27%) \$50,500
10	Of which: #2 occupational group (% of total) and median earnings	n.a.	Occupations in architecture, engineering, and surveying 17,086 (12%) \$51,480	Occupations in architecture, engineering, and surveying 25,365 (13%) \$56,485	Occupations in architecture, engineering, and surveying 14,467 (14%) \$52,000	Occupations in education 15,008 (14%) \$36,000
11	Of which: #3 occupational group (% of total) and median earnings		Occupations in administrative specializations 11,468 (8%) \$38,000	Occupations in administrative specializations 15,573 (8%) \$40,000	Occupations in education 13,996 (14%) \$35,000	Occupations in administrative specializations 13,892 (13%) \$38,900
12	Of which: Number employed in IT services industry (% of total) (2)	n.a.	n.a.	88,613 (44%)	17,803 (17%)	19,347 (19%)
13	Of which: Number employed in IT hardware industry (% of total) (3)	n.a.	n.a.	4,824 (2%)	2,210 (2%)	1,554 (1%)
14	Addendum: Number of H-1B visas issued by the US State Department (% of total H-1B petitions granted) (4)	116,513 (n.a.)	133,290 (52%)	161,643 (49%)	118,352 (60%)	107,196 (49%)
15	Addendum: Number of H-1B visas issued by the US State Department to Indian nationals (% of total H-1B petitions granted to Indians)	55,062 (n.a.)	61,530 (49%)	74,078 (46%)	44,012 (68%)	42,245 (53%)
16	Addendum: Number of H-1B visas issued by the US State Department to Chinese nationals (% of total H-1B petitions granted to Chinese)	5,775 (n.a.)	7,489 (33%)	9,076 (33%)	7,576 (40%)	5,608 (28%)
17	Addendum: Number of H-1B visas issued by the US State Department to British nationals	6,664	7,304	8,462	6,842	6,095

Table 3 (continued)

		1999 (1)	2000	2001	2002	2003
		6	7	8	9	10
b.	Petitions for continuing employment					
1	Number of times an H-1B visa holder was admitted into the US	302,326	355,605	384,191	370,490	360,498
2	Total number of H-1B petitions granted	n.a.	257,640	331,206	197,537	217,340
3	Of which: Number of H-1B petitions granted for continuing employment (% of total)	n.a.	120,853 (47%)	130,127 (39%)	93,953 (48%)	112,026 (52%)
6	Of which: #1 country of origin (% of total)	n.a.	India 63,940 (53%)	India 70,893 (54%)	India 43,914 (47%)	India 49,897 (45%)
7	Of which: #2 country of origin (% of total)	n.a.	China 10,237 (8%)	China 10,483 (8%)	China 7,009 (7%)	China 8,919 (8%)
8	Of which: #3 country of origin (% of total)	n.a.	Canada 2,900 (2%)	Canada 3,542 (3%)	Canada 3,867 (4%)	Canada 4,959 (4%)
9	Of which: #1 occupational group (% of total) and median earnings		Computer-related occupations 73,875 (61%) \$ 65,000	Computer-related occupations 80,684 (62%) \$69,000	Computer-related occupations 49,477 (53%) \$64,739	Computer-related occupations 54,235 (48%) \$63,000
10	Of which: #2 Occupational group (% of total) and median earnings	n.a.	Occupations in architecture, engineering, and surveying 14,298 (12%) \$ 65,000	Occupations in architecture, engineering, and surveying 15,023 (12%) \$68,000	Occupations in architecture, engineering, and surveying 10,730 (11%) \$ 63,600	Occupations in architecture, engineering, and surveying 14,292 (13%) \$64,756
11	Of which: #3 occupational group (% of total) and median earnings		Occupations in administrative specializations 6,951 (6%) \$50,000	Occupations in administrative specializations 8,221 (6%) \$54,429	Occupations in education 7,250 (8%) \$39,000	Occupations in administrative specializations 9,180 (8%) \$50,000
12	Of which: Number employed in IT services industry (% of total)	n.a.	n.a.	60,071 (46%)	35,814 (38%)	39,323 (35%)
13	Of which: Number employed in IT hardware industry (% of total)	n.a.	n.a.	4,347 (3%)	2,293 (2%)	3,774 (3%)

n.a. = not available

1. Period from May 1998 to July 1999.

2. Defined as NAICS categories (3341) Computer and Peripheral Equipment and NAICS (3344) Semiconductor and Other Electronic Component Manufacturing.

3. Defined as NAICS categories (5415) Computer Systems Design and Related Services, (5141) Information Services, (5142) Data Processing Services, and (5112) Software Publishers. Not data for all categories each year.

4. Actual issuance by the US State Department of H-1B visas is 1996, 1997, and 1998 amounted to 58,327, 80,547, and 91,360, respectively. India, China, and Britain ranked one, two, and three respectively in terms of visa issuance for 2000–03, followed by Japan, Philippines, and Germany. Individual country data provided by Julie Furuta-Toy, director of Office of Public and Diplomatic Liaison, Visa Services. On file with author.

Sources: INS (2000, 2002a, 2002b); USCIS (2003, 2004); US Department of State Annual Report of the Visa Office (2000a, 2001, and 2002); OECD (2004). It must be emphasized that the USCIS qualifies its annual reports to Congress on H-1B visas by stating that "very little editing has been done to the data", and there may subsequently be some errors in the data. Whether these are systematic cannot be discerned. Shaded areas denote H-1B petitions that are exempt from the congressional cap on H-1B visas.

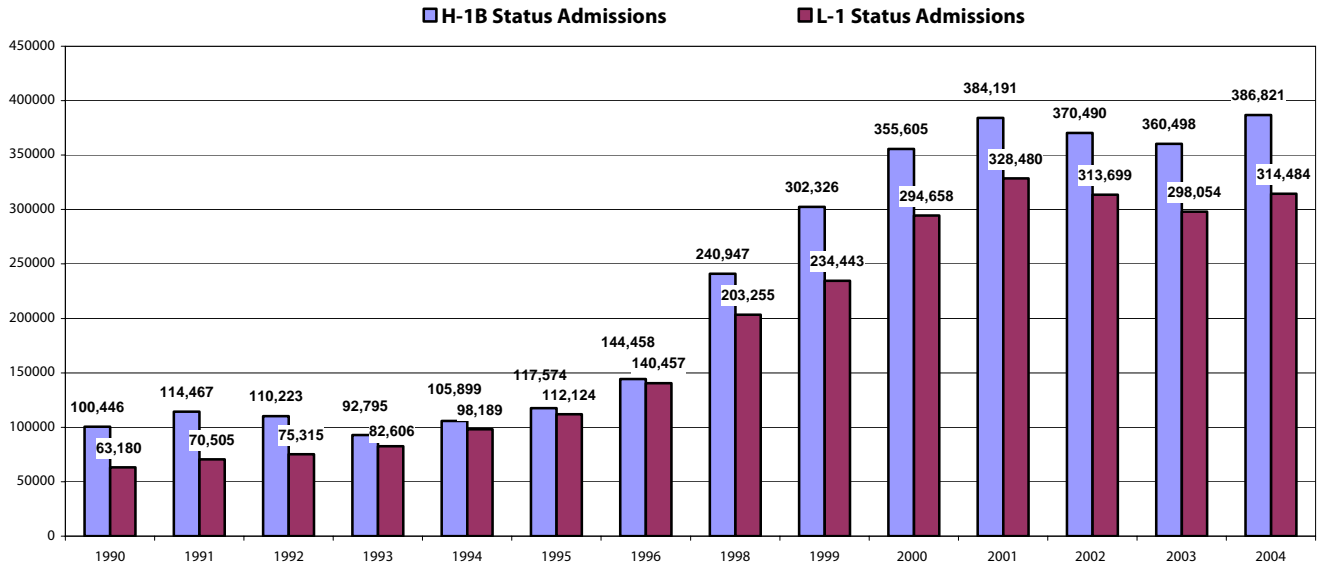
Table 4 Leading US employers of H-1B visaholders, October 1999–February 2000

Rank	Company	Number of H-1B approved	Country of origin	Share of US workforce on H-1B or L-1 visas, 2003/2004
1	Motorola Inc.	618	United States	n.a.
2	Oracle Corporation	455	United States	n.a.
3	Cisco Systems	398	United States	n.a.
4	Mastech (iGate)	389	United States	13 (H-1B only)
5	Intel Corporation	367	United States	n.a.
6	Microsoft Corporation	362	United States	n.a.
7	Rapidigm	357	United States	n.a.
8	Syntel Inc.	337	United States	59 (486 H-1B, 268 L-1)
9	Wipro Ltd.	327	India	>50 (1,130 H-1B, 1,491 L-1)
10	Tata Consulting Services	320	India	n.a.
11	PWC LLP	272	United States	n.a.
12	PeopleCom Consultancies	261	Unknown	n.a.
13	Lucent Technologies	255	United States	n.a.
14	Infosys Technologies Ltd.	239	India	>50 (3,200 H-1B, 700 L-1)
15	Nortel Networks, Inc.	234	Canada	n.a.
16	Tekedge Corporation	219	United States	n.a.
17	Data Conversion	195	United States	n.a.
18	Tata Infotech.	185	India	n.a.
19	Cotelligent USA, Inc.	183	United States	n.a.
20	Sun Microsystems, Inc.	182	United States	n.a.
26	Hewlett-Packard Co.	149	United States	n.a.
33	Birlasoft	128	India	n.a.
35	IBM	124	United States	n.a.
39	Satyam Computer Services	123	India	close to 100 (687 H-1B, 635 L-1, March 2002)
42	University of Washington	113	United States	n.a.
52	University of Pennsylvania	97	United States	n.a.
58	Merrill Lynch	87	United States	n.a.
65	General Electric	80	United States	n.a.
71	Goldman Sachs	75	United States	n.a.
75	Stanford University	73	United States	n.a.
79	Morgan Stanley	71	United States	n.a.
82	Harvard University	70	United States	n.a.
94	Ramco Systems	63	India	n.a.
99	Yale University	61	United States	n.a.

n.a. = not available

Sources: INS (2000b); company 10-K or 20 filings with the SEC; company web sites.

Figure 1 H-1B and L-1 admissions by fiscal year



Source: USCIS 2003 Yearbook of Immigration Statistics, Temporary Admissions of Nonimmigrants to the US in 2004. No data available for 1997.

Figure 2 Tata (Tata Consulting Systems and Tata Infotech) LCAs, fiscal 2004

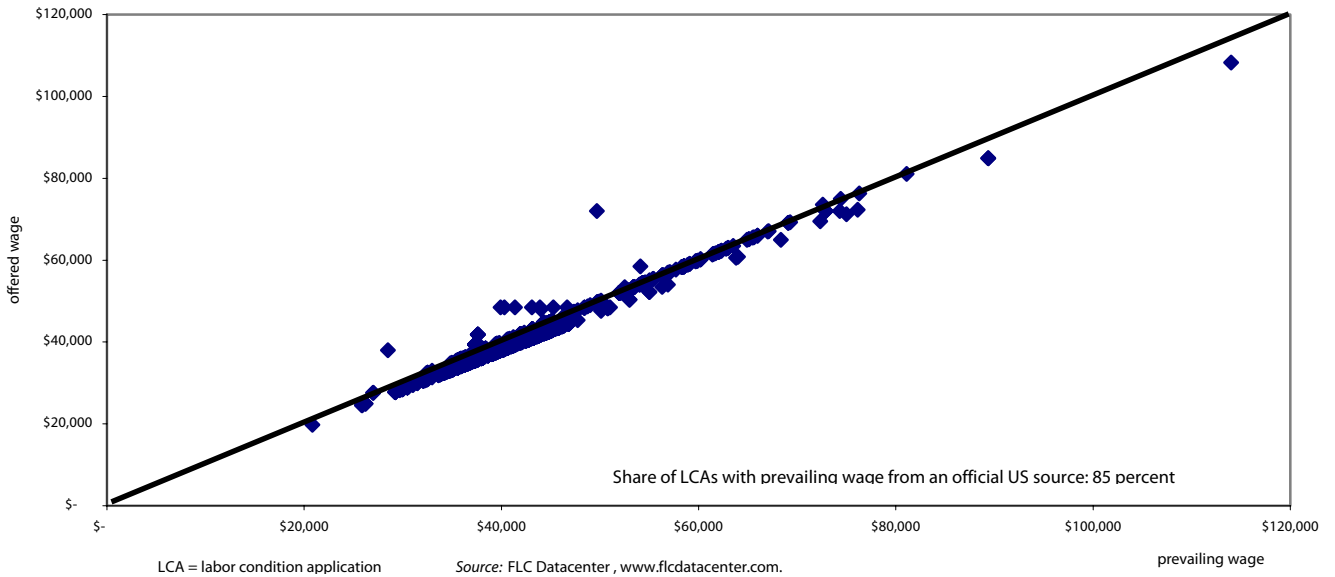


Figure 3 Wipro LCAs, fiscal 2004

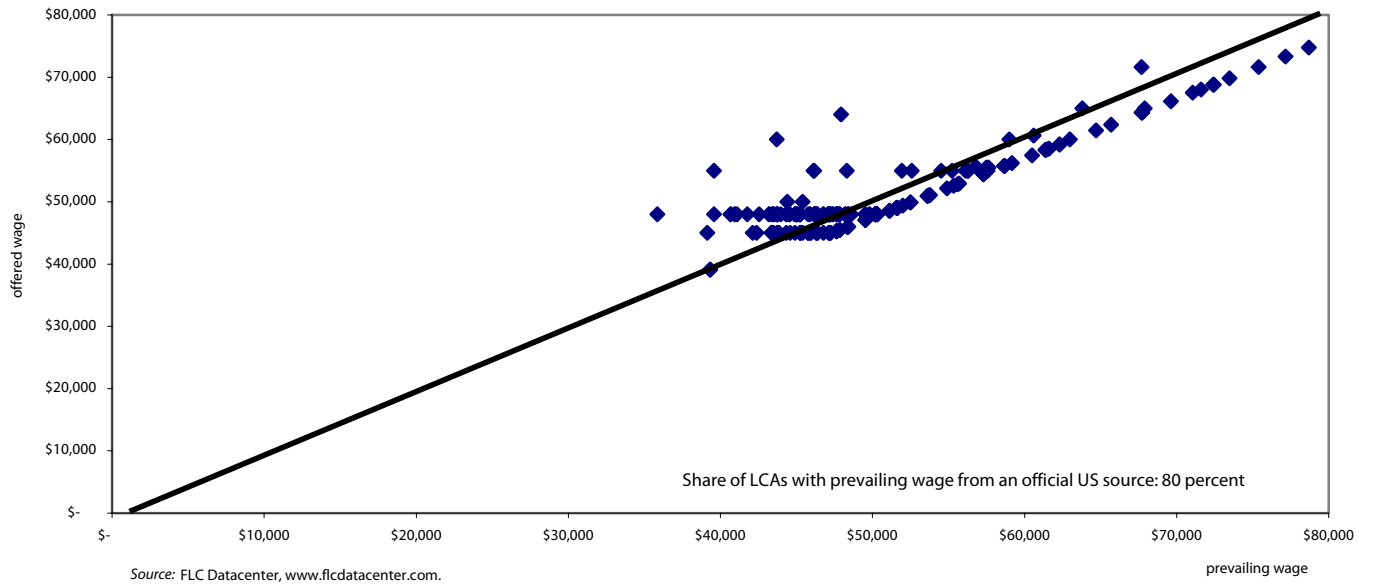


Figure 4 Infosys LCAs, fiscal 2004

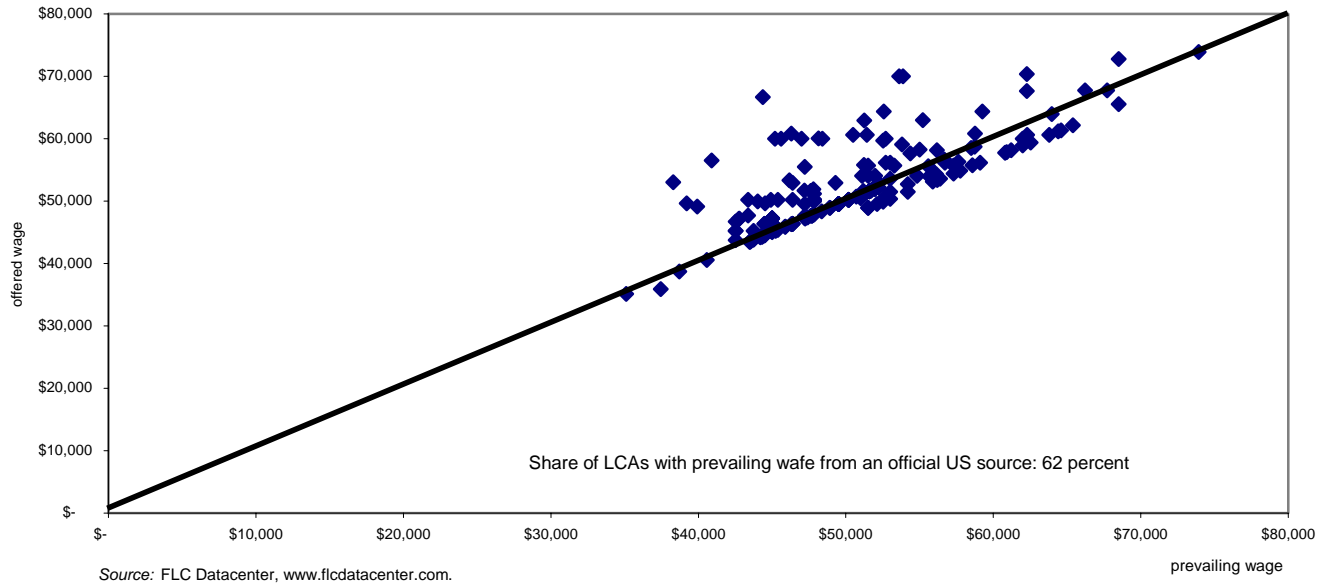


Figure 5 Satyam LCAs, fiscal 2004

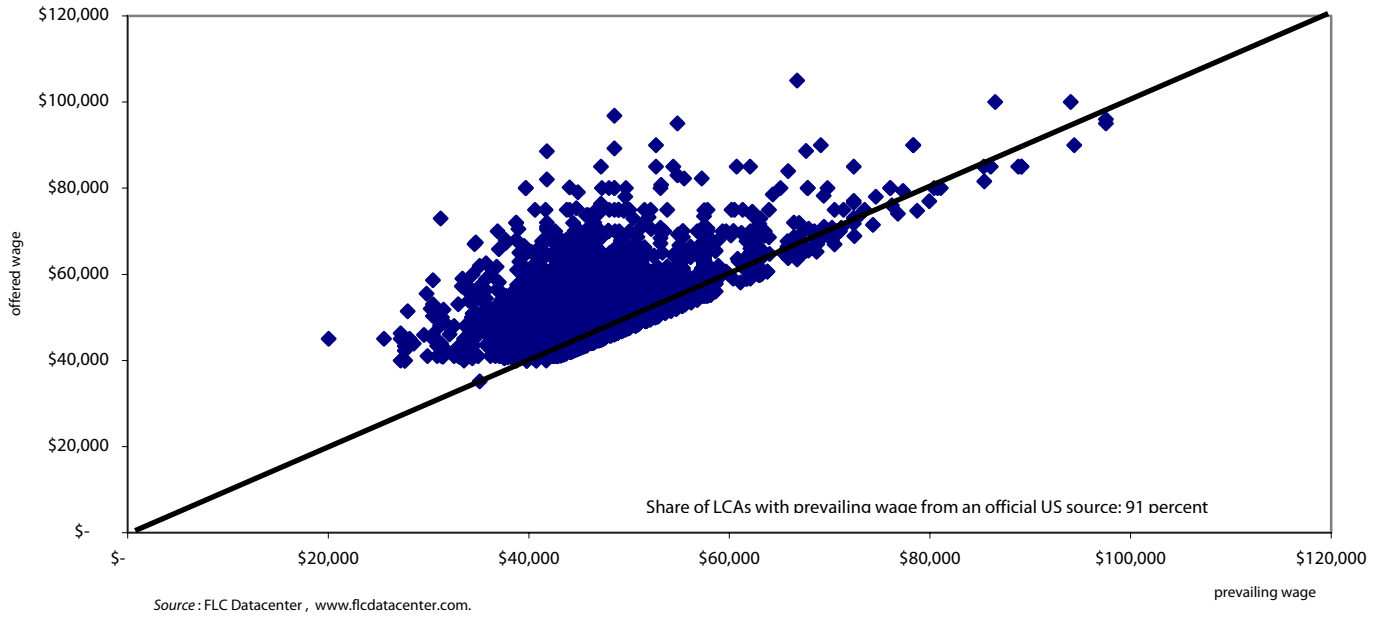


Figure 6 Birlasoft LCAs, fiscal 2004

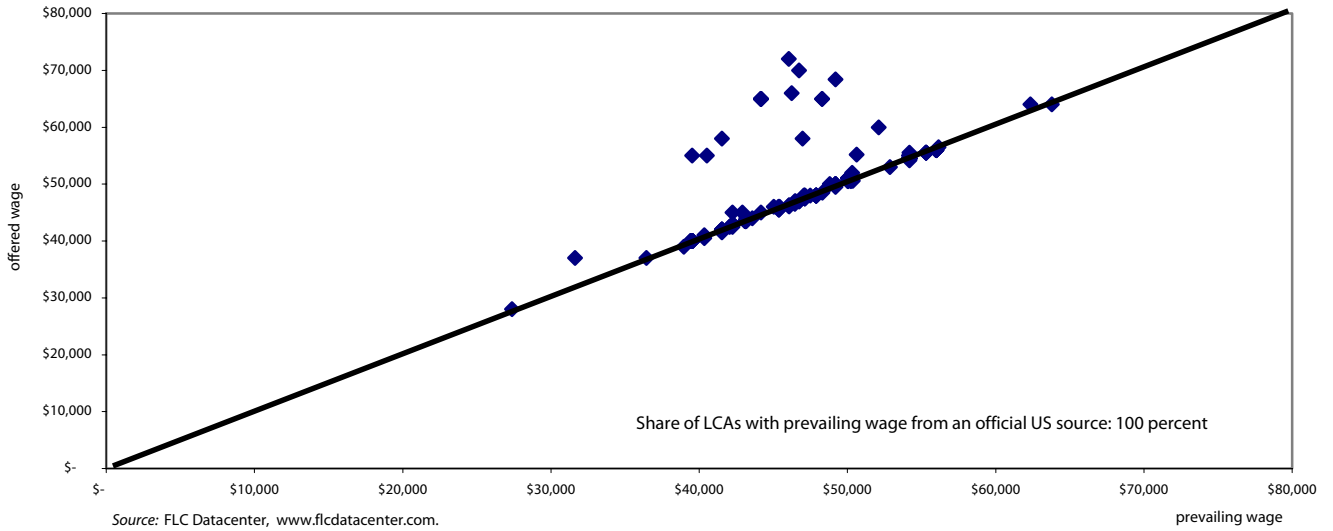


Figure 7 Ramssoft LCAs, fiscal 2004

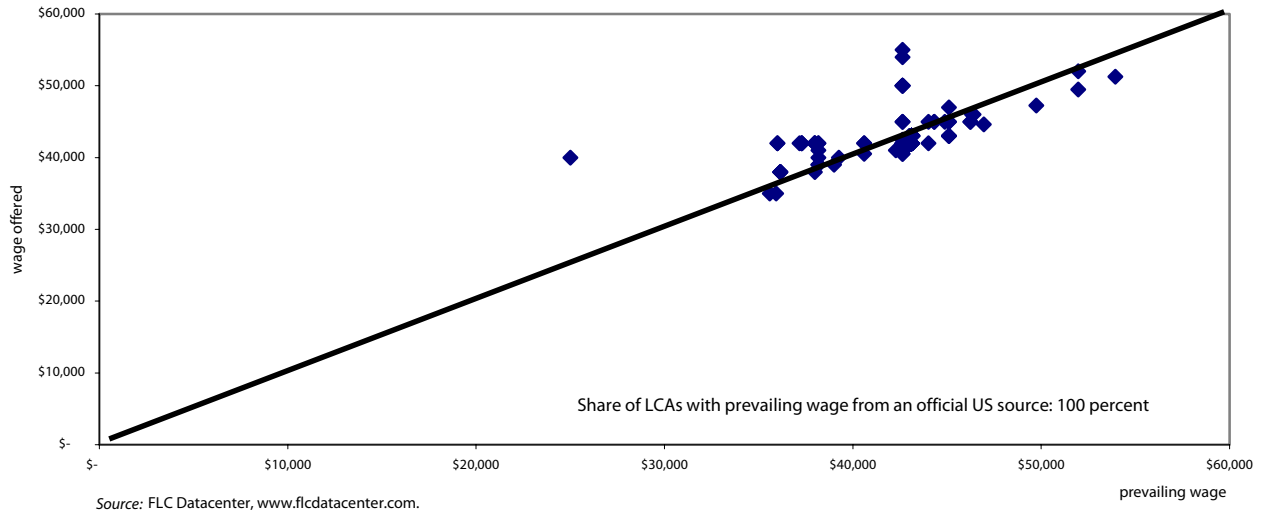


Figure 8 IBM LCAs, fiscal 2004

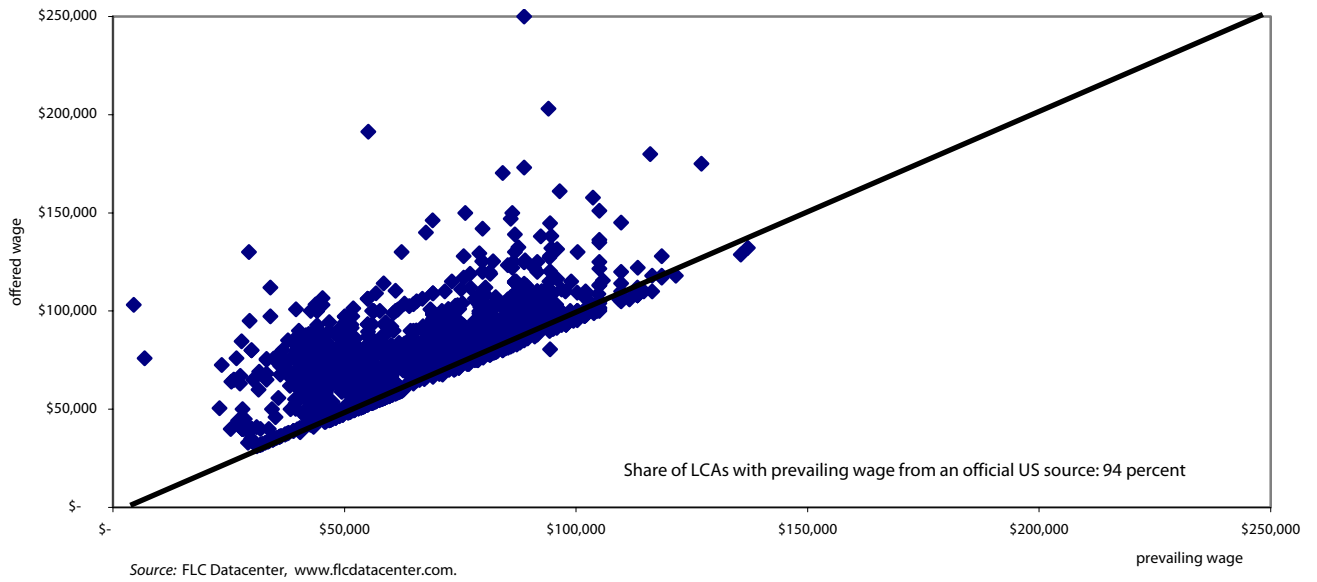
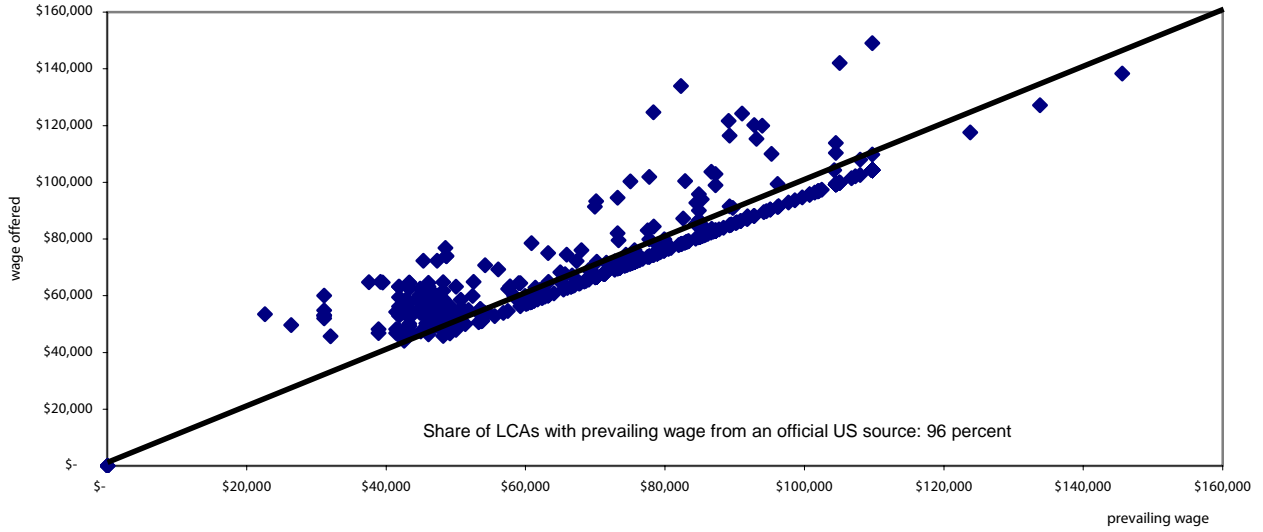
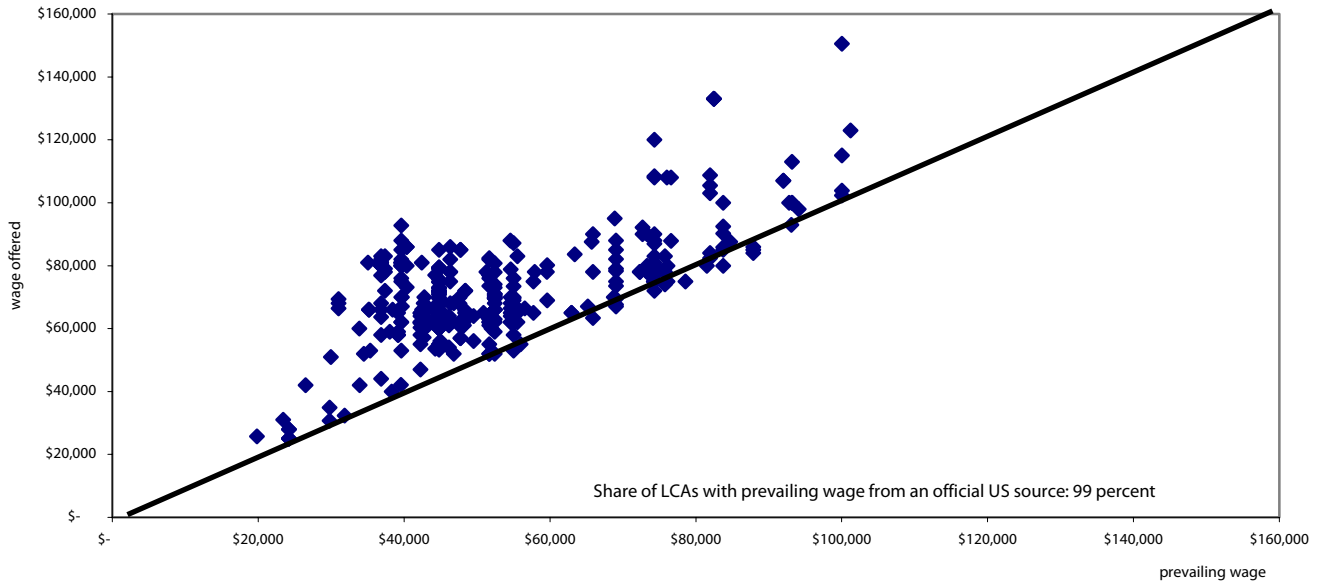


Figure 9 Hewlett Packard LCAs, fiscal 2004



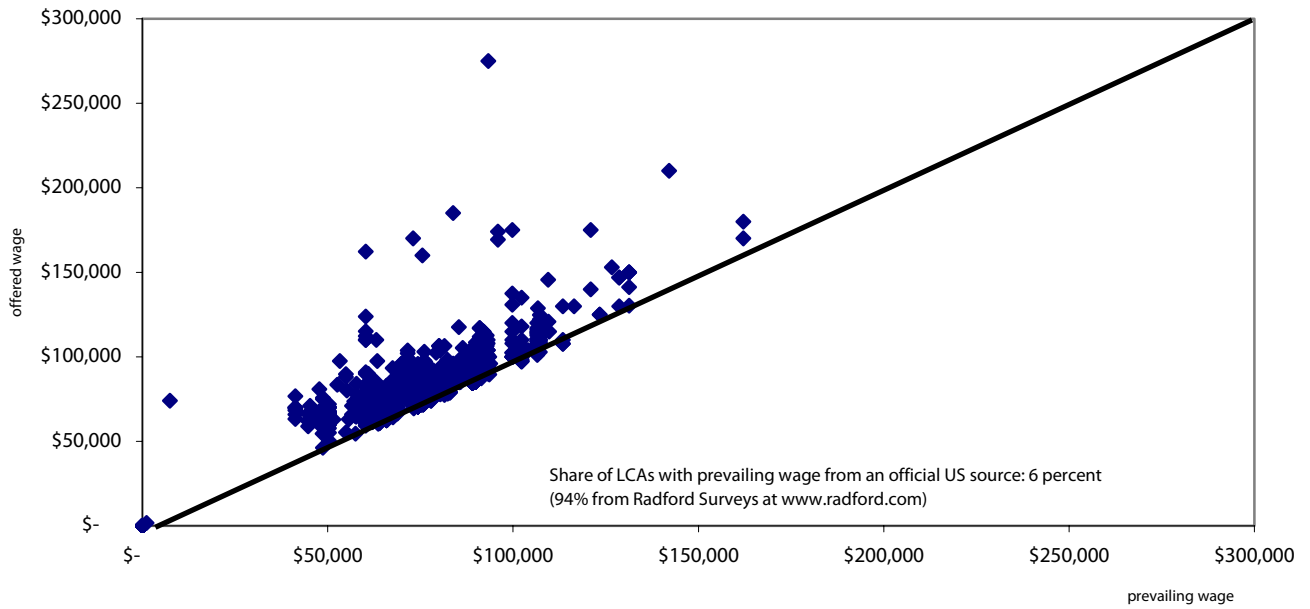
Source: FLC Datacenter, www.flcdatacenter.com.

Figure 10 Dell LCAs, fiscal 2004



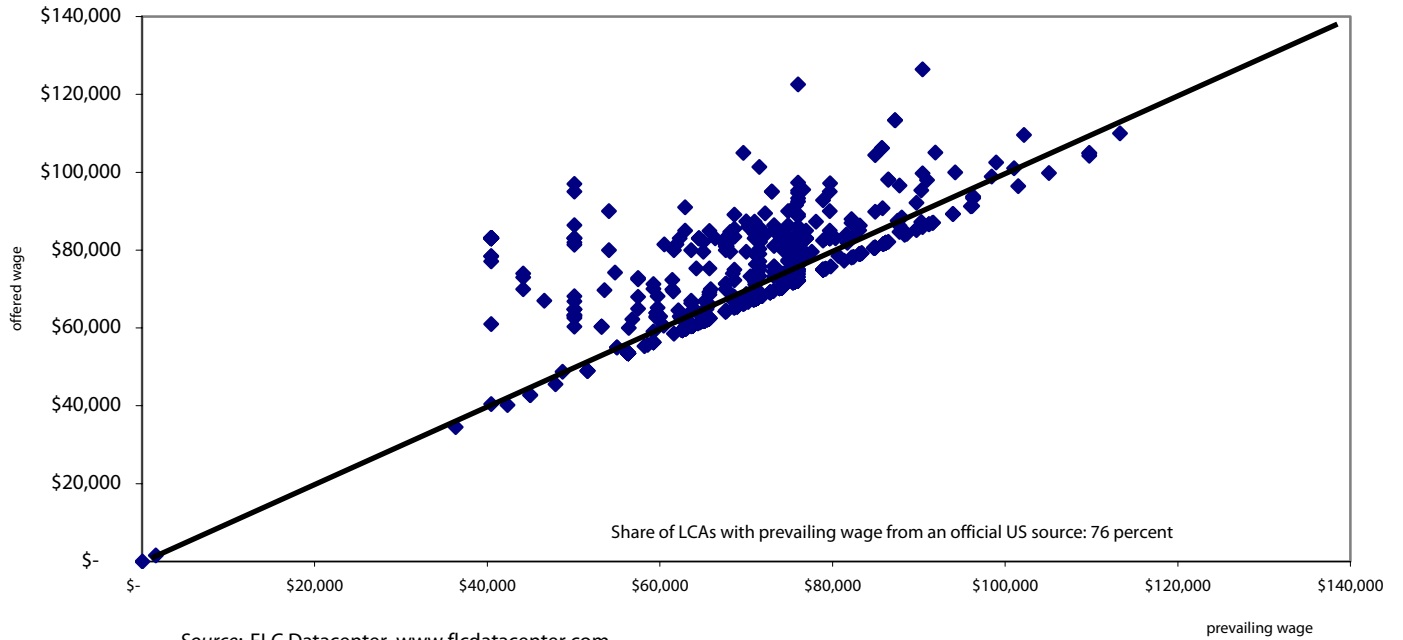
Source: FLC Datacenter, www.flcdatacenter.com.

Figure 11 Microsoft LCAs, fiscal 2004



Source: FLC Datacenter, www.flcdatacenter.com

Figure 12 Intel LCAs, fiscal 2004



Source: FLC Datacenter, www.flcdatacenter.com

Figure 13 Motorola LCAs, fiscal 2004

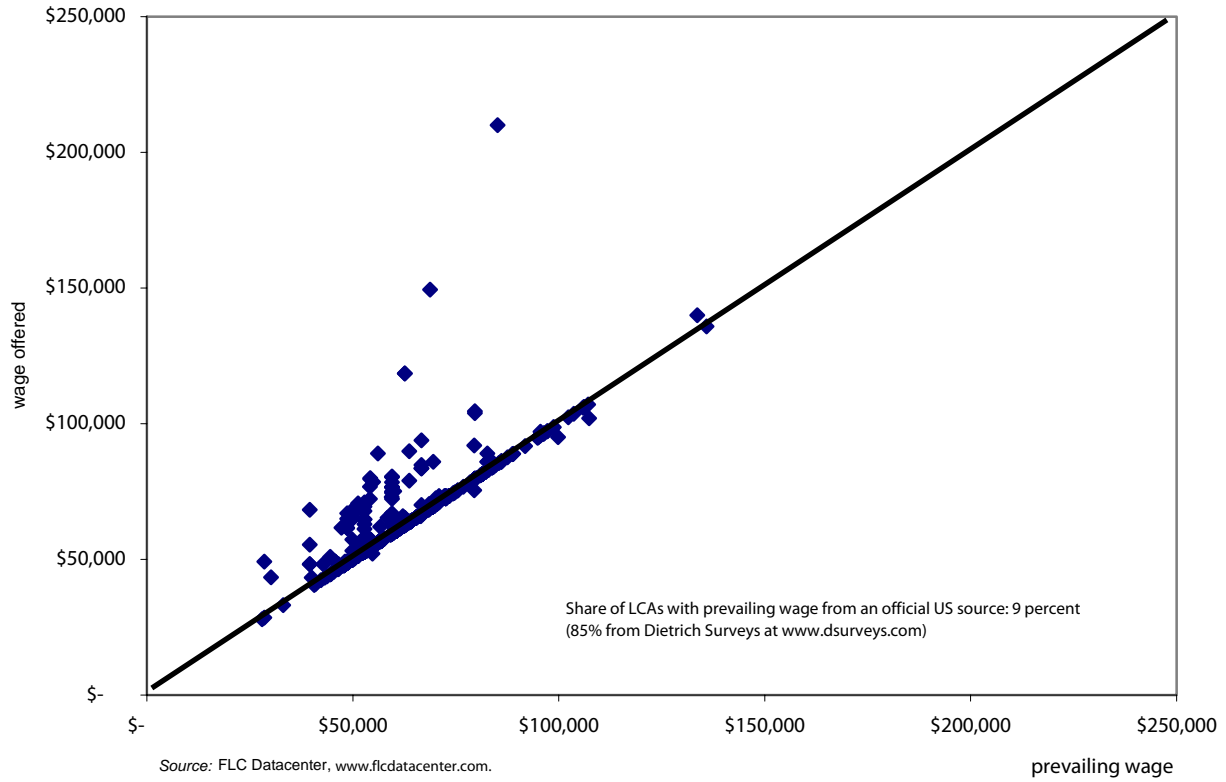


Figure 14 Cisco LCAs, fiscal 2004

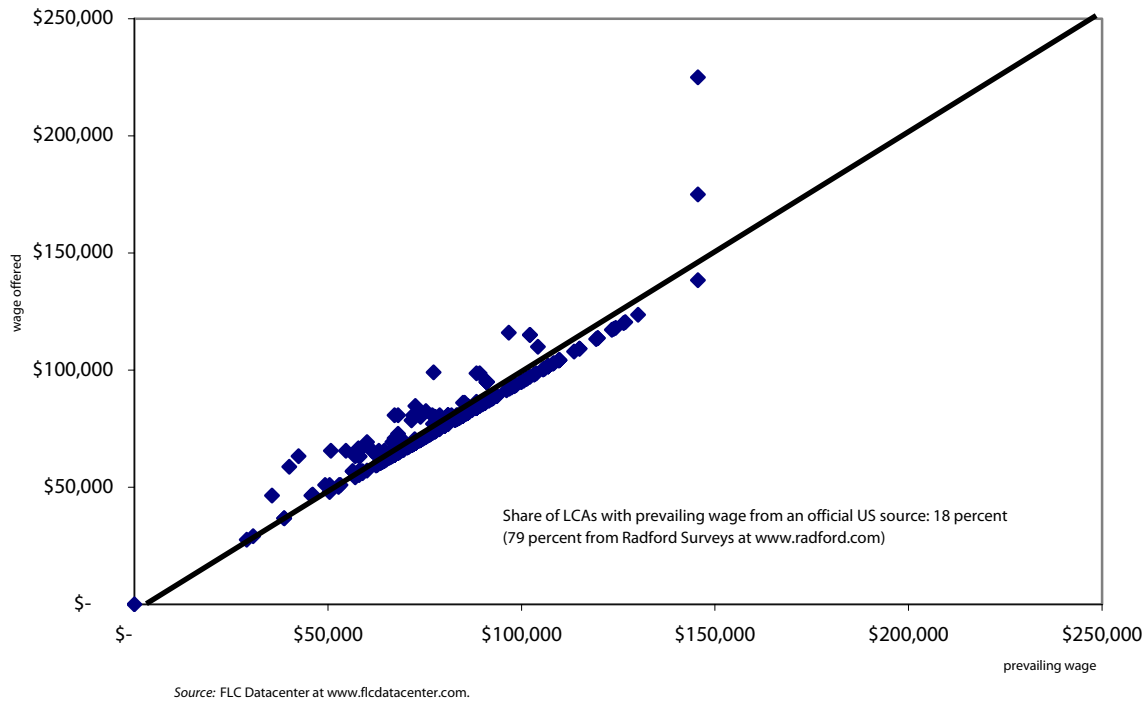


Figure 15 General Electric LCAs, fiscal 2004

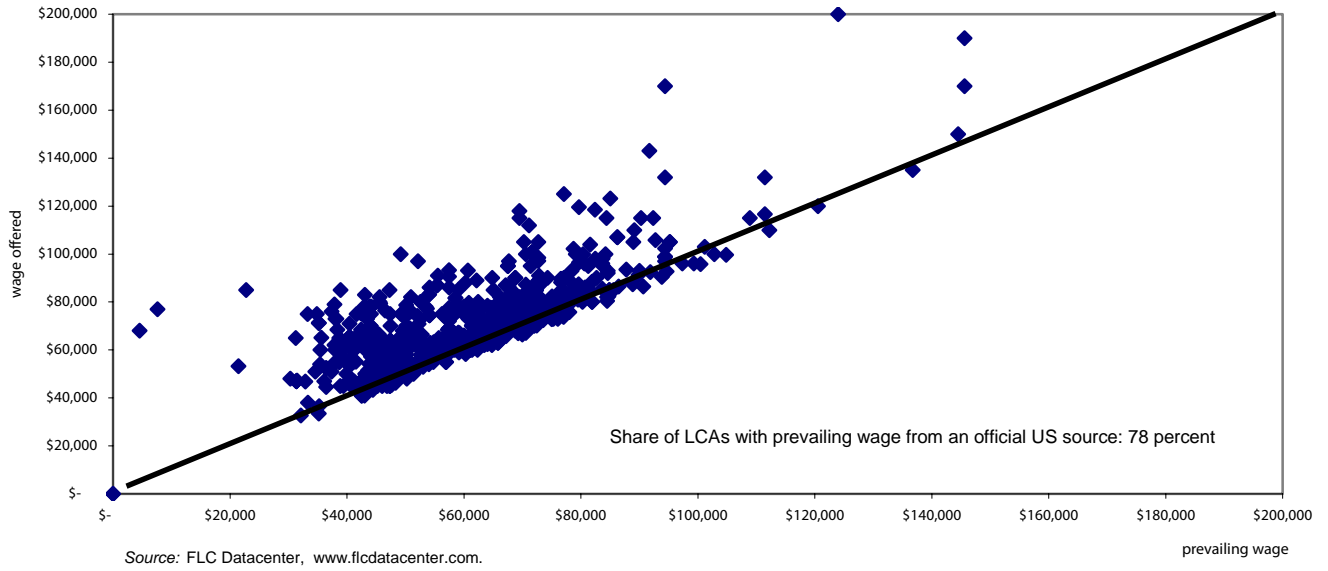


Figure 16 Goldman Sachs LCAs, fiscal 2004

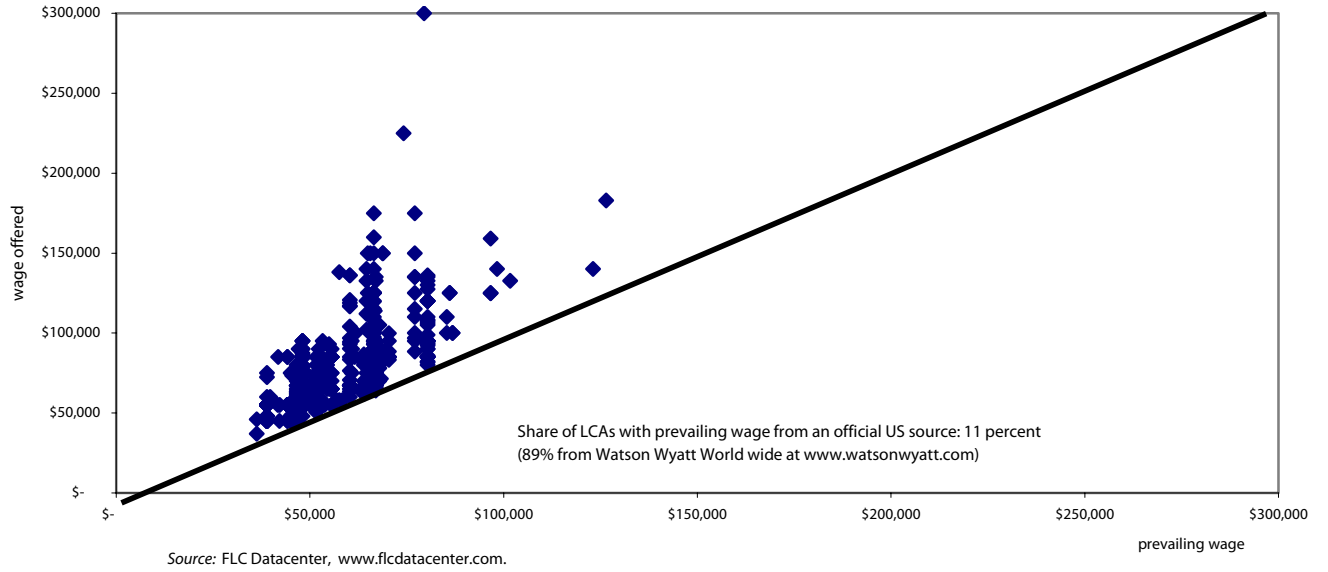


Figure 17 Harvard University LCAs, fiscal 2004

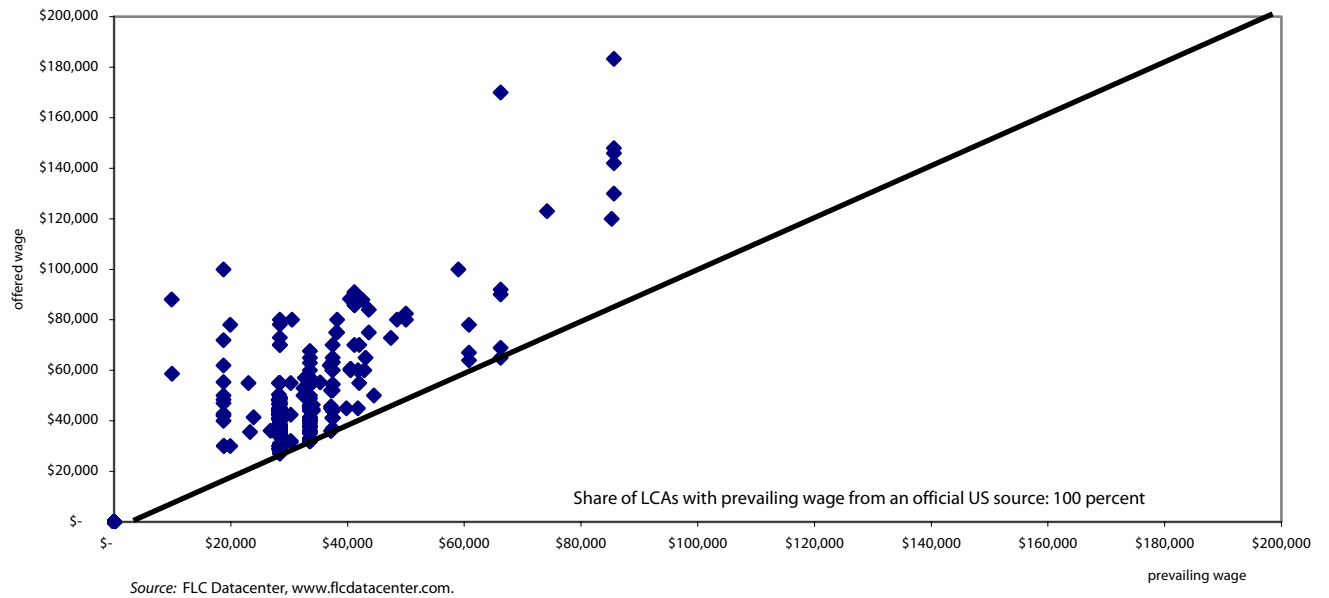


Figure 18 Massachusetts Institute of Technology LCAs, fiscal 2004

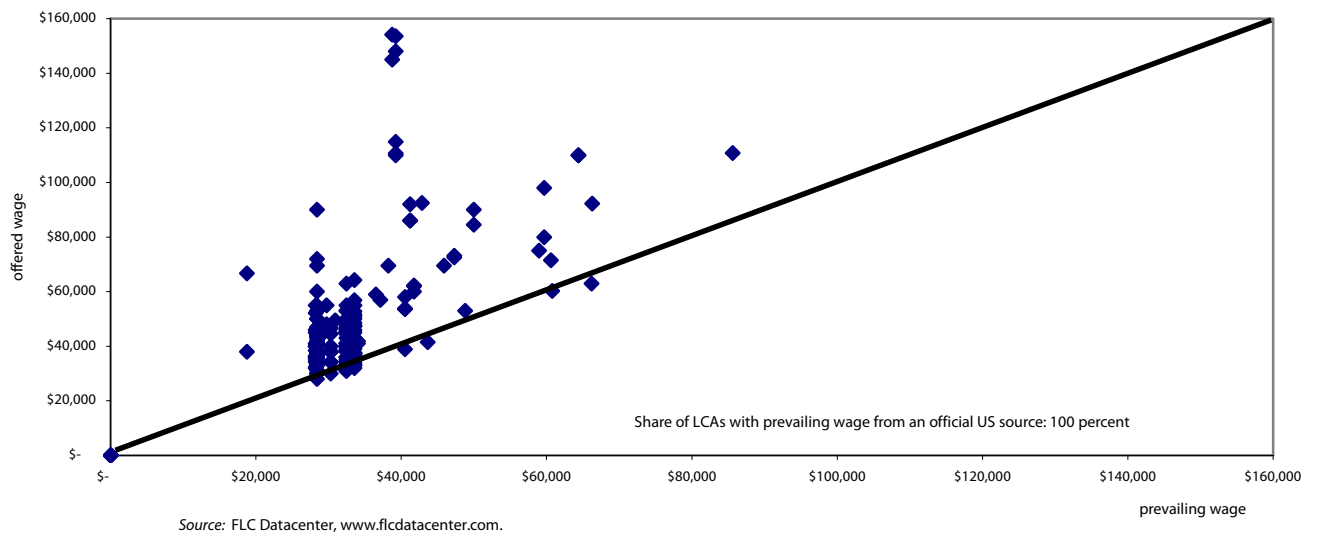
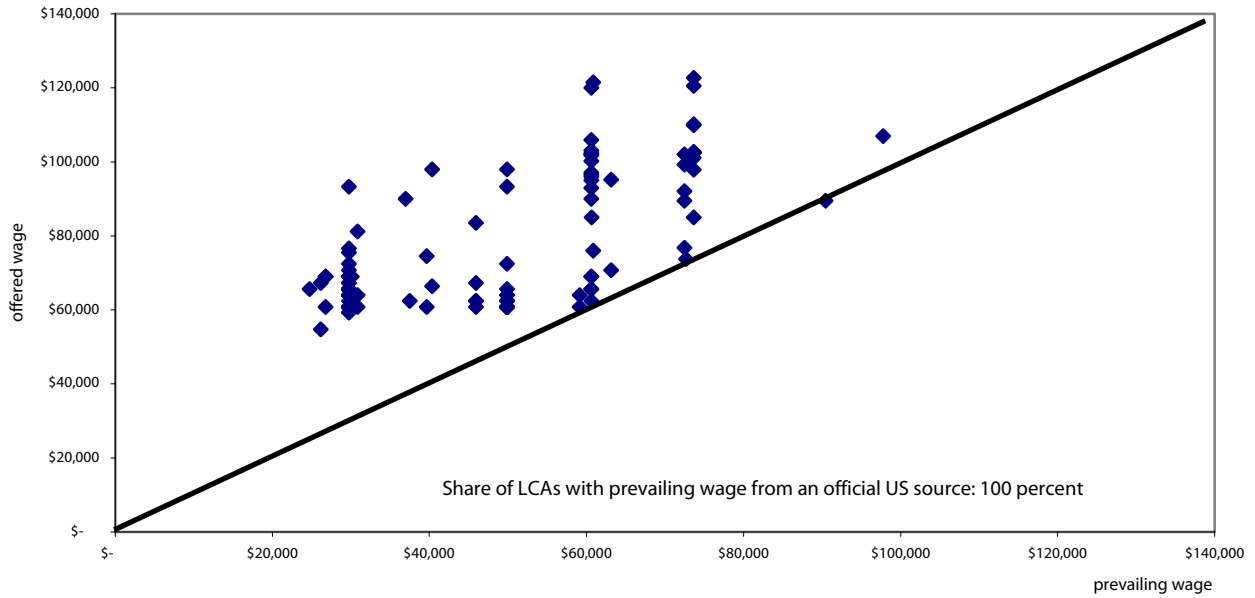
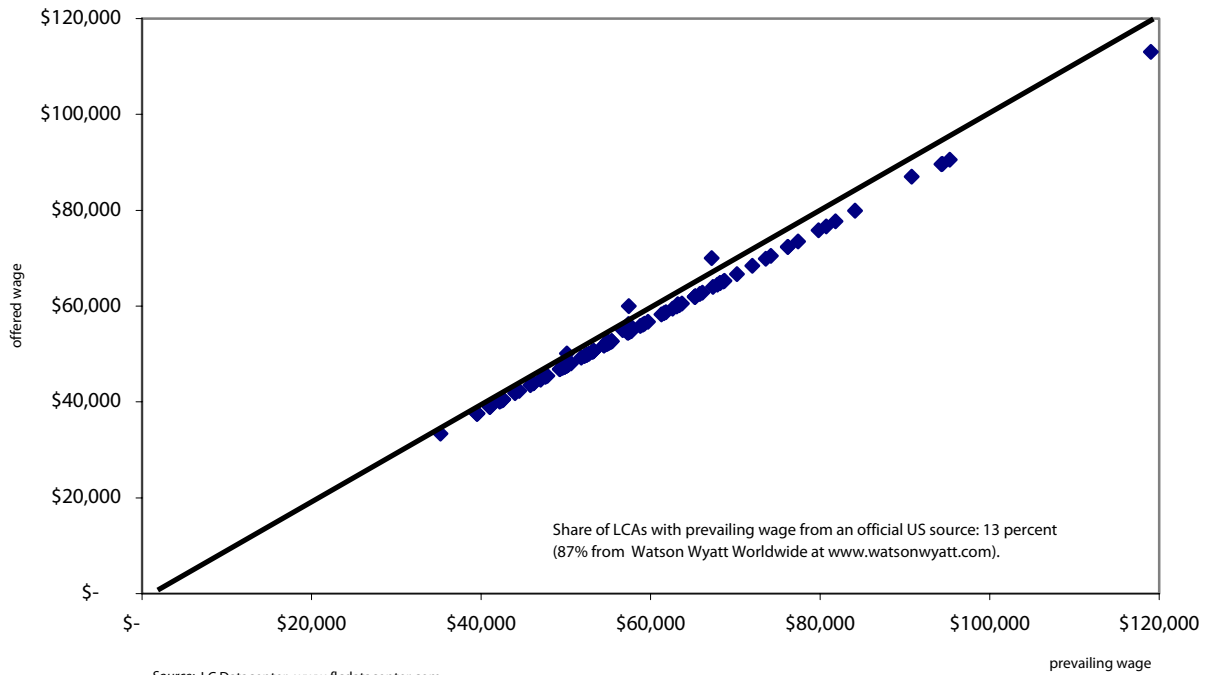


Figure 19 Los Alamos National Laboratory LCAs, fiscal 2004



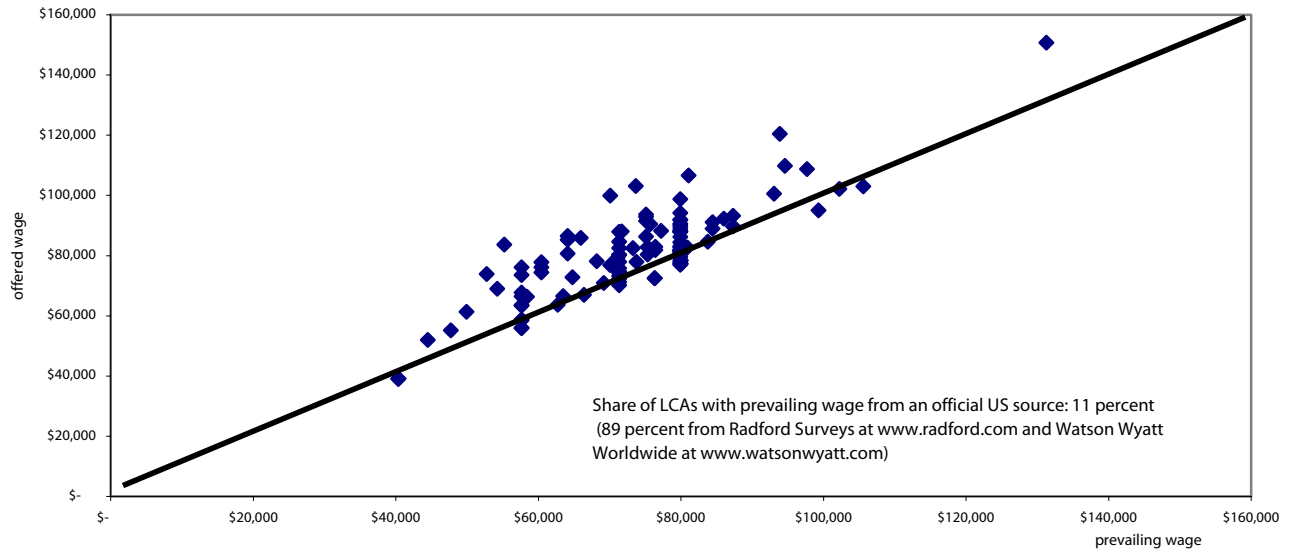
Source: FLC Datacenter, www.flcdatacenter.com.

Figure 20 Cognizant Technology Solutions LCAs, fiscal 2004



Source: LC Datacenter, www.flcdatacenter.com.

Figure 21 Kaiser Foundation Hospitals LCAs, fiscal 2004



Source: FLC Datacenter, www.flcdatacenter.com.