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CIRCULAR LABOUR MIGRATION AND OFFSHORING OF IT SERVICES: WHAT CAN BE DONE TO REMOVE UNNECESSARY TRADE BARRIERS?

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Abstract:

India has since the early 1990s moved from being an inward-looking economy with import-substitution policies to become one of the world's leading IT services exporters. This paper examines the global delivery model (GDM)—based on electronic supply and circular labour migration—that India's IT services sector has developed to expertly produce and deliver IT services to international markets. It analyses U.S. and UK work permit data and shows how these countries' temporary migration schemes for highly skilled workers have been leveraged by the Indian IT services sector to build a multibillion dollar export industry. This paper develops a taxonomy for the restrictions that impede circular labour migration between India and its major trading partners—the United States and the UK—and examines their impact on trade and investment. Based on the regulatory review and interviews with senior managers in the Indian IT services sector, this paper concludes that the UK work permit system is more conducive to trade than the U.S. work permit system and that work permit processing services are more transparent, predictable and expedient in UK consulates than U.S. consulates. It concludes with suggestions how current impediments to circular labour migration can be overcome in an economically compelling way.

Keywords:

Trade in services, information technology, global delivery model, India, GATS Mode 4, labour migration, offshoring, outsourcing, auctions

TABLE OF CONTENTS

1 INTRODUCTION

The Indian IT services sector is today helping to transform the way companies produce and deliver IT services just like Japanese companies helped revolutionise the manufacturing industry a generation ago. Ever since Western multinationals first turned to India for technical talent in the 1980s, the local software industry that caters to foreign demand has expanded at breakneck pace. The large technical talent pool and frantic innovation in India's technology centres have helped attract business and foreign direct investment (FDI) from across the world. In the year ending March 2008, the National Association of Software and Services Companies (Nasscom) estimates that Indian exports of IT services were worth US$ 23.1 billion (see Annex A for more details of the Indian IT services sector). These exports made up 2.0 percent of India's gross domestic product and provided direct employment to 740,000 highly-skilled workers (Nasscom, 2009).

The success of India's IT services sector is largely attributed to the global delivery model (GDM) that was pioneered by Indian companies to deliver IT services overseas. Initially, the GDM was almost entirely reliant on temporary movement of natural persons—or international transfers of Indian software engineers—to perform rudimentary software coding work at client premises (Heeks, 1996). Over the years, the GDM has been meticulously refined and has evolved in line with technology and business process innovation. It now allows software professionals to collaborate and concurrently execute IT projects from multiple locations. Yet despite the growing amount of work that can be delivered through cross-border supply, the GDM remains firmly dependent on international transfers of IT professionals and will remain so in the foreseeable future. In fact, the Indian IT services sector's demand for foreign work permits is growing rapidly in absolute terms because the positive effect on demand from rising exports is more pronounced than the negative effect on demand from an increasing share of work that can be supplied electronically.

IT services companies and Indian government officials are concerned that the future development of the IT services sector is dependent on trade, labour and immigration policies in a handful of countries. United States and UK absorb four-fifths of India's IT services exports and their combined market share has not changed noticeably over time. The willingness and expediency of client country governments to issue business visas and work permits to foreign IT professionals are therefore paramount to India's IT services sector. And a complex web of special interests—covering IT professionals, labour unions, tech companies and industry associations—is striving to influence their readiness to accept foreign IT professionals. The economic and financial downturn has raised the tone of those in the protectionist camp even further.

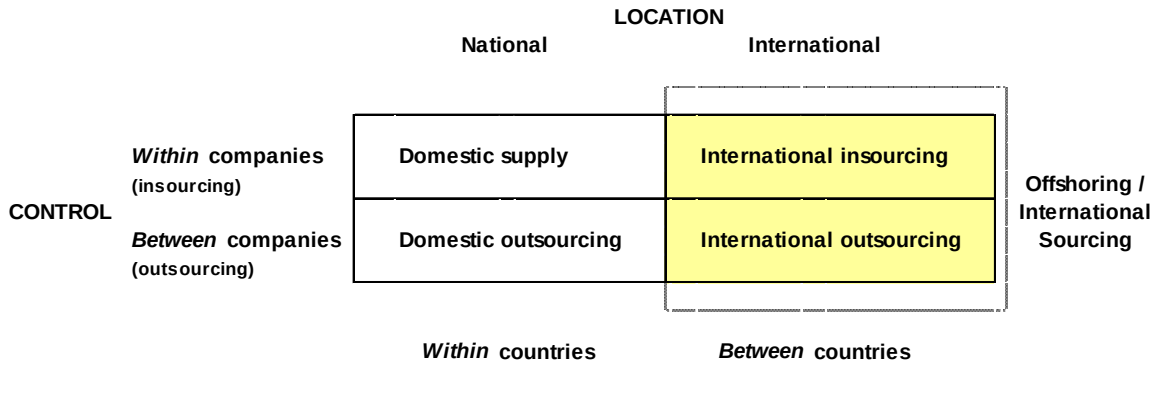
1.1 Objective

The objective of the paper is threefold. The first objective is to examine the GDM that the IT services sector employs to export IT services to clients around the world. For this purpose, the paper presents the case of India, which is the leading emerging market provider of IT services. The second objective is to identify the various government policies that affect North-South trade in IT services. Government-induced impediments to trade in IT services mainly concern temporary movement of natural persons and this paper analyses their impact on trade and investment, in particular in the United States and UK. The final objective is to present policy initiatives that could help overcome bottlenecks in the labour movement process and thereby facilitate international trade in IT services.

1.2 Scope and definitions

Some confusion lingers in the public debate with regards to what trade in IT services covers and the type of services that are traded. It is therefore essential to start by identifying the scope of this analysis. It is limited to *international* supply of IT services, frequently referred to as "offshoring" (see Figure 1). Offshoring covers both international *in*sourcing and international *out*sourcing. The distinction between the two relates to whether a company sources the service within its own boundaries (*i.e.* from a foreign subsidiary) or from an external sub-contractor.[1] A German insurance company can for example choose to supply its Frankfurt headquarter with software application services from its back-office in Bangalore (*in*source) or engage an external IT services company that delivers the services from its base in Chennai (*out*source).

Figure 1. An illustration of sourcing



Source: Engman (2007)

[1] Bhagwati et al. (2004) provides a discussion regarding the definition of 'outsourcing'. GAO (2006) and OECD (2007) review multiple forms of definitions and present suggestions.

Furthermore, the scope of this paper is limited to trade in *IT services*. Horizontal integration may be the norm as many of India's leading IT services companies have expanded into new areas such as business process outsourcing (BPO), engineering services and knowledge process outsourcing (KPO). However, only the IT services sector is strongly dependent on the traditional Indian GDM, involving a significant component of *temporary*[2] labour migration, which is the focal point of the analysis. In addition, the sections that analyse the Indian use of foreign work permits and the restrictions to temporary movement of natural persons focus on the UK and U.S. markets since they absorb roughly 80 percent of Indian IT services exports.

The terminology of the World Trade Organisation (WTO) and its General Agreement on Trade in Services (GATS) states that a service can be traded in four distinctive ways.[3] Indian exports of IT services mainly covers two of them: cross-border supply[4] (Mode 1) and temporary movement of natural persons (Mode 4); and there are significant linkages between these modes of supply (see Chanda, 2006)[5]. If the German insurance company in the previous example instructs its Indian subsidiary to electronically deliver IT services to its headquarters or to another of its non-Indian subsidiaries, it is, in WTO terminology, engaged in Mode 1 trade. The same holds if the services are electronically delivered from an Indian-based IT services company. Any IT professionals sent from India to one of the company's non-Indian premises to deliver services are in WTO terminology engaged in Mode 4 trade.[6]

The GATS Services Sectoral Classification List (MTN.GNS/W/120) includes 'computer services' as a sub-sector (designated 1B) of business and professional services. It covers five sub-categories. These are: consultancy services related to the installation of computer hardware;

[2]: Indian migration of IT professionals tend to a very large extent be time limited, in particular migration of IT professionals from Indian outsourcing companies. In 2006, while Microsoft applied for a green card for every four H-1B work permits, leading Indian outsourcing companies applied for a green card for less than every one hundred H-1B work permits (Lohr, 2007).

[3] The WTO General Agreement on Trade in Services recognises four modes of services delivery: Mode 1 refers to cross-border supply; Mode 2 to consumption abroad; Mode 3 to commercial presence; and Mode 4 to temporary movement of natural persons.

[4] Although there is no agreement among WTO members about whether electronic supply falls under GATS Mode 1 or Mode 2, the paper will refer to electronic supply as Mode 1. See Panagariya (2000) for a discussion regarding this issue. Wunsch-Vincent (2006) concludes from the WTO US-Gambling case that GATS Mode 1 and not Mode 2 commitments are applicable to cross-border electronic service delivery.

[5] A few of the largest Indian companies have established supply capacity directly in their client countries and hence deliver some IT services through commercial presence (Mode 3). This practice is still at a relatively early stage in high-income countries and will largely be left out from the following analysis.

[6] Kirkegaard (2008) has estimated U.S. Mode 4 imports of Computer and Information Services to US$ 20-23 billion annually between 2003 and 2005. The author also concludes that Mode 4 trade (Mode 1 trade) is much more (relatively less) important for computer and information services trade than for services trade in general.

software implementation services; data processing services; data base services; and 'other'.[7] The sub-categories are further defined in greater detail in the corresponding items of the Provisional UN Central Product Classification (UNCPC) (WTO, 1998). According to this classification, the item 'software implementation services' includes 'systems and software consulting services', 'systems analysis services', 'systems design services', 'programming services', and 'systems maintenance services' (see Annex B).

Most of India's IT services exports fall under the 'software implementation services' item and the breakdown illustrates the formal classification system employed by the WTO and UN systems. [8] Unfortunately, India and most other countries' data for IT services exports are not presented in such a disaggregated form in the data records of the IMF Balance of Payment system.[9] The detailed breakdown of the classifications is therefore of limited practical use in most cases. Current efforts to improve data collection may hopefully help address this issue in the future (GAO, 2005).

1.3 Methodology and data

The analysis is based on information obtained from interviews with senior managers in the Indian IT services sector and data provided by the U.S. and UK governments. The sections of the paper that focus on the GDM and trade restrictions draw on input from some thirty in-depth interviews that were conducted with industry analysts and senior managers in the Indian IT services sector between September 2005 and June 2006. The interviewees included representatives from both Indian and non-Indian multinationals and small and medium-sized enterprises (SMEs).

The section analysing work permit data is based on information provided by: a) the U.S. Department of Homeland Security (previously the U.S. Department of Justice) in its Yearbook of Immigration Statistics; b) U.S. Senator Grassley on U.S. L-1 visas; c) InformationWeek on U.S. H-1B visas; and d) the Freedom of Information Team of the UK Border Agency.[10] The UK data

[7] Chadha (2003) argues that it is unclear where to draw the line between computer 'software' and 'services' and concludes that software does not appears to be covered under the existing GATS classification. For example, packaged or standardised software may be treated as a good whereas consultants hired to produce packaged software may be covered by Mode 4 commitments.

[8] A generic definition of "IT services" is provided by Gartner (2004): *"IT services refer to the application of business and technical expertise to enable organizations in the creation, management, optimization of or access to information and business processes."*

[9] See discussion in OECD (2004) and GAO (2005).

[10] H-1B and L-1 are 'work permits'—different from 'business visas'—but they are usually referred to as "H-1B visas" or "L-1 visas" in the literature.

was provided to the author upon special request. The trade data are estimates provided by the WTO and by India's industry association Nasscom.

The paper is structured as follows: the next section examines the GDM and analyses U.S. and UK work permit data for IT professionals. The following section presents a taxonomy of the various policies and regulations that negatively affect India's exports of IT services. The inventory is then used to examine the potential impact on trade and investment that these restrictions may have, including on the GDM and investment decisions. The final concluding section explores government policy and potential initiatives that could help facilitate North-South trade in IT services.

2 THE GLOBAL DELIVERY MODEL OF IT SERVICES

The global delivery model (GDM) that is employed by most Indian IT services companies, and increasingly by their foreign competitors, is based on a combination of cross-border supply and temporary movement of natural persons.[11] It was pioneered by Indian companies in the 1980s and the 1990s.[12] During the early years, before the availability of Internet and international fibre networks, documents and audiotapes were flown to India for digitisation and transcription. Basic programming work was also conducted for foreign multinationals in India. With time, more and more Indian companies started sending computer engineers to their clients' premises to perform software coding work. This practice reached a peak in the lead up to year 2000 when demand for IT professionals exceeded supply in many OECD countries.

Over time, rapidly improving global ICT networks have brought down communication costs and innovation in technology and virtual work environments have allowed an increasing number of IT professionals to stay in India (*offshore*) and collaborate with their colleagues at foreign client sites (*onsite*). The Indian professionals at the client site define project requirements, transfer knowledge and information, coordinate and monitor work, implement new software and solutions, train client staff and provide rapid-reaction maintenance services. Their colleagues in India provide technical and database design, software programming, testing, documentation and long-term maintenance services. It is a complex process and the level of sophistication required to

[11] This section draws on Heeks (1996), Engman (2001), Kumra and Sinha (2003), Nasscom (2006) and www.infy.com.

[12] Tata Consultancy Services (TCS) started providing "offshore" IT services in 1974.

effectively manage and execute these projects has acted as a significant entry barrier to prospective competitors in other emerging markets.

The GDM is getting increasingly refined. Large Indian companies now break pieces of work into logical components and distribute them to the locations where they are most cost-effectively produced. For example, an investment bank in the City of London that hires an Indian IT services company may first interact with the Indian company's sales team, which is permanently based in London. After concluded negotiations, the bank may host a team of Indian IT specialists that coordinate and implement different IT components provided from Bangalore and Budapest. The Indian company may then provide maintenance services from its development centre in Pune and technical telephone support from its call centre in Belfast.

The cost and productivity gains associated with the Indian GDM has compelled several OECD-based IT services companies to adopt a delivery model with a sizeable offshore component. The likes of Accenture, CapGemini, Hewlett Packard, IBM and LogicaCMG have been recruiting aggressively in India (and several other emerging markets) to complement their staff in OECD markets. The transformation of IBM, which is the world's largest IT services company, provides an insight into of what may lie ahead.[13] IBM expanded its Indian manpower from 3,000 to 74,000 employees in the five years ending 2007.[14] Consequently, and as will be shown later in this section, the increased demand for labour mobility will not only come from Indian IT services companies. OECD-based IT services companies have much interest in facilitated mobility on a temporary basis.

2.1 The economic value proposition

Indian companies that master the GDM can offer a compelling value proposition due to the significant labour cost arbitrage between India and their client countries. Table 1 reveals that Indian labour costs indeed are lower in India than in most IT services exporting nations. In neoIT's 2005 review of average salaries for entry level programmers, team leaders and project managers in the IT outsourcing sector, Indian remuneration levels were several times lower than those in the United States (neoIT, 2006). However, in purchasing power parity (PPP) terms,

[13] If the 1990s is associated with IBM's great transformation from being mainly an IT products company to an IT services company; then the first decade of the 21st century may well be associated with its transformation from being an IT services company with a presence in OECD markets to being a company with a truly global presence.

[14] According to IBM's Annual Report for 2007 and as argued by Douglas Gregory from IBM at the OECD Policy Forum on International Sourcing of Business Process and IT Services in Paris, 16 October 2007. IBM generated approximately US$ 1 billion in revenue in India in 2007 (Ribeiro, 2008).

Indian professionals enjoy higher average salaries than their colleagues in wealthy countries like Canada, Ireland and Singapore. There are therefore limited or no financial incentives for Indian IT professionals to migrate on a permanent basis to most countries. In the three years that have passed since the survey was conducted, Indian salaries for IT professionals have grown faster than salaries for IT services professionals in major client markets and in the competing Chinese market. JPMorgan (2007) estimates that the annual Indian salary inflation is approximately 15 percent and pay packages for senior managers have grown fast.[15] neoIT (2008) estimates that the average entry level salary in the IT outsourcing sector in India increased by 14 percent per year between 2005 and 2007. The equivalent rise in China was 4 percent.

Next to labour cost arbitrage, another key aspect of the GDM and its underlying business model is the inherent economies of scale in service delivery. Leading multinationals like IBM, Accenture, TCS, Wipro and Infosys generally do better than their medium-sized competitors. A large talent pool allows leading companies to keep sufficient reserves of manpower that can quickly be mobilised following requests by foreign clients. It also allows the company to offer a more diverse service portfolio, provides a stronger recruiting brand, and reduces the overhead cost per employee—in particular in relation to training and recruiting. India is currently the only emerging market to provide this sort of cost-effective talent pool with all necessary attributes.

Table 1: Average annual IT outsourcing salaries in 2005

	Entry level		Team lead		Project Manager	
	Current US$	PPP US$	Current US$	PPP US$	Current US$	PPP US$
United States	46,194	46,194	75,166	75,166	115,962	115,962
Ireland	32,130	25,496	53,002	42,058	86,085	68,311
Canada	25,845	25,014	41,894	40,547	63,785	61,734
Singapore	24,003	26,475	38,873	42,877	61,660	68,011
Israel	23,038	33,422	38,294	55,555	58,307	84,589
Russia	12,131	24,655	19,690	40,018	31,235	63,483
Brazil	7,810	15,364	12,808	25,196	19,827	39,004
Philippines	7,277	31,361	11,887	51,228	18,402	79,305
China	5,678	22,397	9,609	37,903	14,997	59,156
India	5,715	26,805	9,374	43,966	14,597	68,463

Source: neoIT (2006), World Development Indicators, author's calculations.

[15] Mann (2006, p.33) argues that overall labour costs in foreign IT services subsidiaries, most of which are located in other OECD countries, are about the same as in the United States. The author concludes that employment abroad appears to be driven not by differentials but by the need to be in the market where the services are delivered.

2.1.1 Home-grown Indian IT services companies

Since the dawn of the Internet, the onsite-to-offshore *work* ratio (*i.e.* the share of operational manpower located overseas at client premises compared to at home in India) has dropped markedly. The industry average was nearly 90:10 in 1988 (Aneesh, 2006, p.65). It had dropped to 67:33 by 2000 and to 42:58 by 2005 (Nasscom, 2007). Today, the onsite-to-offshore work ratio is approximately 33:67 in large Indian IT services companies. For example Infosys and Wipro had onsite-to-offshore work ratios between 29:71 and 33:67 in 2005-2008.

Another key benchmark is the onsite-to-offshore *revenue* ratio (*i.e.* the share of revenue generated by operational manpower located overseas at client premises compared to at home in India). Table 2 presents the onsite revenue components for India's four largest home-grown IT services companies and the table indicates a trend of slow but sustained decline. In 2008, the average onsite-to-offshore revenue ratio was 53:47 and the difference between the four companies was rather modest. The spread between the lowest and the highest onsite revenue component in 2008 was 9.9 percent, down from 11.1 percent in 2005. Satyam managed to lower its onsite-to-offshore revenue ratio by 9.3 percentage points over the three-year period while Infosys' and Wipro's onsite-to-offshore revenue ratios were more or less stable.[16]

Table 2: Onsite revenue (percent of total), year ending 31 March

	2005	2006	2007	2008
TCS	61.3	62.6	59.5	58.1
Infosys	50.2	49.8	51.7	50.9
Wipro	56.0	53.7	54.7	54.4
Satyam	57.5	55.7	51.3	48.2
Average	***56.3***	***55.4***	***54.3***	***52.9***

Source: Annual Reports: TCS, Infosys, Wipro and Satyam.

The allocation of personnel varies from company to company, project to project, and throughout the project life cycle. Some large Indian companies have permanent staff employed in client country subsidiaries. These professionals manage client interaction, in particular related to sales and marketing activities, but some of the Indian multinationals, like TCS and Infosys, maintain a small but growing number of operational staff as well.[17] Improvements in technology and ICT

[16] Satyam is majority (51 percent) owned by Tech Mahindra since 13 April , 2009, following an accounting scandal that was shaking the company in early 2009.

[17] For example in the United States, of Wipro's 4,000 employees, around 2,500 were external transferees (Indian H-1B holders) while the rest were a combination of Indian intra-corporate transferees and U.S.

infrastructure, maturing GDMs and long-term client engagements will over time help reduce the need for large-scale transfers of Indian IT professionals. But the onsite component is not expected to drop drastically in the future for most types of IT services. The reason is simple: the economics of international sourcing will not allow it to do so.

As a general rule, the offshore work component is directly proportional to the cost savings: *i.e.* when fewer consultants are based *e.g.* in Boston or Bonn, less resources are spent on intercontinental air travel, accommodation and remuneration hikes related to higher living expenses or wage parity requirements. JPMorgan (2007) estimates that gross margins for *onsite* work are approximately 20-25 percent. The margins for *offshore* work are around 50-65 percent among the most productive companies. However, a smaller onsite component also increases the complexity of managing and executing the IT services project. Hence the optimal combination of onsite and offshore work depends on the character and requirements for each project. The Indian IT services companies have with time learnt to master the process of allocating work to where it is most cost-effectively performed.

Annex C illustrates how Infosys' onsite-to-offshore work ratio and onsite-to-offshore revenue ratio have remained stable since 1999. Infosys is recognised for its effective management and admired for its pioneering development of the GDM to export IT services. It is thus striking how the company's reliance on circular labour migration is as firm today as it was at the turn of the century. It also seems to indicate that there may be a glass ceiling to the amount of work that can be provided from overseas vis-à-vis at client site. Only a great breakthrough in technology or business process innovation may help the Indian IT services sector to significantly reduce its onsite-to-offshore work component in the future.

2.1.2 Indian subsidiaries of foreign multinationals

Indian subsidiaries of foreign IT companies have a much lower onsite-to-offshore work ratio than their Indian competitors. Most of these subsidiaries provide IT services through cross-border supply to the mother company on a cost recovery basis. Their need to transfer Indian IT professionals abroad has traditionally been limited since they have most of their manpower located near their clients. But several foreign IT services multinationals are in the process of adopting more of an Indian-style GDM for the type of IT services that face fierce competition

nationals (Elstrom, 2007). However, by the end of 2010, the company's chairman has indicated that the proportion of local employees as opposed to visiting Indians in the company's overseas locations will rise from 10 percent to one-third (The Economist, 2007).

from emerging markets. This will help them reduce costs and compete on more similar terms to Indian multinationals. It will also increase their need for increased mobility of their Indian staff.

2.2 Indian demand for temporary work permits

The previous section demonstrated that the GDM is based on circulation of project staff between India and its client countries. India's home-grown IT services sector is a multi-billion-dollar industry so it may come as little surprise that Indian IT professionals apply for many work permits in core client countries. While the onsite-to-offshore work ratio has dropped over time, Indian IT services exports have expanded—and are expected to continue to expand—rapidly. And given that four-fifths of Indian exports are absorbed by United States and UK, these two countries' governments are the main providers of work permit documentation to Indian IT professionals. The following section takes a closer look at the supply and demand of U.S. and UK work permits to Indian citizens.

2.2.1 Demand and supply of U.S. work permits

The U.S. immigration system distinguishes between temporary and permanent high-skilled migration. For *temporary* high-skilled migration in the IT services sector, the United States offers two main types of work permits: the H-1B for 'specialty occupation' workers; and the L-1 for intra-company transferees. The Indian IT sector makes use of both these types of temporary work permits to deliver services at U.S. clients' premises. Given that United States imported around US$ 14 billion worth of IT services from India in the year ending March 2008 (Nasscom, 2009), Indian IT services professionals are well represented in U.S. work permit statistics.

- The ***H-1B*** is a non-immigrant, employer-sponsored work permit offered to foreign guest workers employed in specialty occupations.[18] There is a quantitative limit to the number of H-1B work permits that can be issued each year and a minimum salary for H-1B holders. Applicants must possess a bachelor's degree or its equivalent as a minimum and the work permit is valid for an initial three years. It can then be extended for another three years. H-1B petitioning employers must a) prove that they do not lay off U.S. workers for foreign workers; b) post a notice to hire H-1Bs for at least ten days in the workplace; c) place a job order with the local employment office; and d) advertise in a publication for at least three days (Ganguly, 2005). The H-1B is the most common type of work permit obtained by

[18] See the Immigration & Nationality Act, section 101(a)(15)(H). A "specialty occupation" requires theoretical and practical application of a body of highly specialized knowledge in a field of human endeavor including, but not limited to, architecture, engineering, mathematics, physical sciences, social sciences, medicine and health, education, law, accounting, business specialties, theology, and the arts.

Indian companies to export IT services to U.S. clients. For Indian SMEs it is often the only available documentation to circulate professionals between their Indian software development centres and U.S. clients.

- The ***L-1*** is another non-immigrant work permit and it is offered to intra-company transferees. Individuals who have been employed outside the United States as executives and managers or in positions that require specialised knowledge for at least one year can apply for the L-1 work permit. It is valid for up to five years for workers with specialised knowledge (L-1B) and for up to seven years for executives and managers (L-1A). There is no quantitative limitation to the number of L-1 work permits that can be issued each year and there is no wage parity requirement.[19] The L-1 is an attractive option for companies that need to circulate staff from their foreign subsidiaries to their U.S. offices. But it is only an option for large Indian companies with a real presence in United States.[20] Since 6 June 2005, L-1B temporary workers are not allowed to work primarily at a worksite other than that of their petitioning employer if the work is controlled and supervised by a different employer or the offsite arrangement is essentially one to provide a non-petitioning party with local labour for hire, rather than a service related to the specialised knowledge of the petitioning employer.[21]

H-1B: External transferees

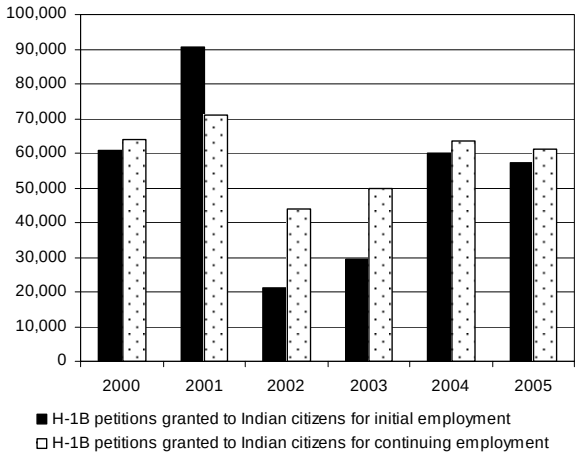
Table 3 presents data on the number of H-1B petitions granted between 2000 and 2005 (the U.S. Department of Homeland Security has not published such detailed data since 2005). The first row reveals how the U.S. Congress can adjust the H-1B quota on an annual basis. The quota was increased twice (from 115,000 to 195,000 and from 65,000 to 85,000) and reduced once (from 195,000 to 65,000) in the five year period of 2000-05. The H-1B quota concerns petitions for initial employment and some occupational categories and types of employers are exempted from the quantitative limit. These exemptions cover petitions filed by certain institutions of higher education, non-profit organisations, and non-profit research organisations or government research organisations. Table 3 shows that the U.S. Citizenship and Immigration Service (USCIS) granted

[19] Although on 10 July 2003, Congresswoman Rosa L. DeLauro introduced Bill H.R. 2702 L-1 Nonimmigrant Reform Act, which sought, among other things, to introduce an annual L-1 quota of 35,000.
[20] There are two types of application routes for L-1Bs. First, for a specific individual, an application for intra-company transfer must be filed with the USCIS along with the applicant's documents. Upon approval by USCIS, the individual may apply for an L-1 visa stamp at a U.S. consulate. Second, a company can apply for a 'blanket' L visa petition approval, which greatly facilitates the process for those companies that qualify. Individuals working for a company that has obtained blanket L visa petition approval do not need to get USCIS approval for a particular individual. Thus, individuals may apply directly for L visa stamps at a U.S. consulate abroad by presenting a signed I-129S petition and proof of qualifying employment.
[21] See "Press Release: USCIS Implements L-1 Visa Reform Act of 2004" from 23 June, 2005.

large numbers of H-1B work permits to these favoured groups in the 2000-05 period. For example in 2004, USCIS granted 130,497 H-1B work permits although the quota was 65,000. More than half the number of H-1B petitions granted was thus awarded to these favoured groups.

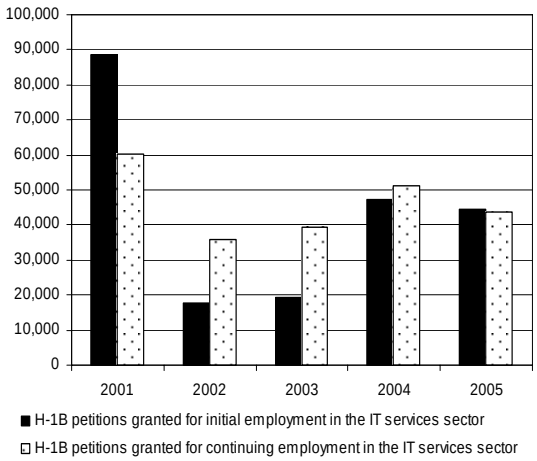
Chart 1 illustrates the fluctuations in the petitions granted to Indian citizens. Between 2000 and 2005, an average of 53,195 and 58,887 H-1B petitions were granted to Indian citizens for initial and continuing employment respectively. From a peak in 2001, H-1B work permits granted to Indians for initial employment dropped by 77 percent on an annual basis. The number of work permits granted in 2003 increased somewhat and stabilised in 2004-05 at a similar level to the number granted in 2000. The number of H-1B granted for continuing employment fluctuated less as clients reduced spending on new projects rather than ongoing projects following the downturn in the tech sector in 2002-03.

Chart 1: H-1B petitions granted to Indians, 2000-05



Source: USCIS Bureau of Statistics.

Chart 2: H-1B petitions granted to employees in the IT services sector, 2001-05



Source: USCIS Bureau of Statistics.

The shifts in demand and supply for H-1B work permits which is indicated in Table 3 reveals the challenge that the U.S. Congress faces in predicting demand and administering the quota. The discrepancy between the H-1B quota and the number of H-1B petitions granted for initial employment also reveals the inertia in this political process. For example when the U.S. Congress after much debate increased the H-1B quota for the 2002-04 period, demand for foreign talent quickly plummeted. It was particularly low during the economic slowdown in 2002-03 when the number of H-1B petitions granted for initial employment was far from the quota ceiling.[22]

[22] Some of the drop may have been a reflection of the added scrutiny following the September 11 attacks. The H-1B data represent the supply and there is no information available on the demand. However, it is fair to assume that supply equaled demand for those years when the quota ceiling was not reached.

Table 3: H-1B petitions granted by the USCIS, initial and continuing employment, by selected characteristics, FY2000-FY2005

Characteristic	2000	2001	2002	2003	2004	2005
H-1B quota legislated by Congress for initial employment	**115,000**	**195,000**	**195,000**	**195,000**	**65,000**	**85000***
Total number of H-1B petitions granted by USCIS	**257,640**	**331,206**	**197,537**	**217,340**	**287,418**	**267,131**
Of which: number of H-1B petitions granted, for initial employment	136,787	201,787	103,584	105,314	130,497	116,927
Of which: aliens were outside the U.S. at the time of employer petition	75,785	115,759	36,494	41,895	60,271	54,635
Of which: aliens were inside the U.S. at the time of employer petition	61,002	85,320	67,090	63,419	70,226	62,292
Of which: were from India	60,757	90,668	21,066	29,269	60,062	57,349
Of which: were not from India*	76,030	111,119	82,518	76,045	70,435	59,578
Of which: started working in the computer-related occupations	74,551	110,713	25,637	28,879	56,559	52,353
Of which: did not start working in the computer-related occupations*	62,236	91,074	77,947	76,435	73,938	64,574
Of which: started working in the IT services industry	n.a.	88,613	17,803	19,347	47,362	44,644
Of which: did not start working in the IT services industry*	n.a.	113,174	85,781	85,967	83,135	72,283
Of which: number of H-1B petitions granted, for continuing employment	120,853	130,127	93,953	112,026	156,921	149,932
Of which: were from India	63,940	70,893	43,914	49,897	63,505	61,171
Of which: were not from India	56,913	59,234	50,039	62,129	93,416	88,761
Of which: continued employment in computer-related occupations	73,875	80,684	49,477	54,235	70,720	61,515
Of which: continued employment in IT services industry	n.a.	60,071	35,814	39,323	51,182	43,550

* Includes 20,000 H-1Bs for foreign graduates from U.S. universities.

n.a. = not available; USCIS = U.S. Citizenship and Immigration Service

Source: U.S. Department of State, Bureau of Consular Affairs and U.S. Department of Homeland Security (as reported in Kirkegaard (2007) pp.95-99).

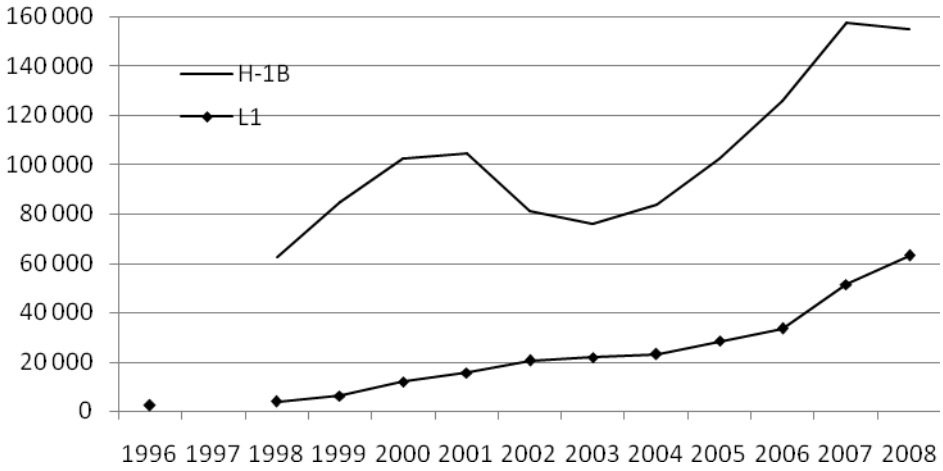
Chart 2 presents the numbers of H-1B petitions granted to employees in the IT services sector in the period 2001-05. The number dropped by 80 percent for foreign IT services professionals between 2001 and 2002 while the number for non-IT sector professionals dropped by a more modest 24 percent. This 80 percent drop of H-1B petitions granted to IT services professionals is well reflected in the 77 percent drop of H-1B petitions granted to Indian citizens. It is thus fair to conclude that the lion's share of H-1B holders in the IT services sector were Indian citizens. The increased tradability of IT services and the rise of India as a leading IT services exporter are mirrored in the data. The share of H-1B petitions granted to Indian citizens was 7 percent in 1992, 16 percent in 1994, 20 percent in 1996, 26 percent in 1998, 48 percent in 2000, 49 percent in 2005 and 54 percent in 2008 (Parthasarathy, 2004; NSB, 2008). This dominant position triggered Indian Minister of Commerce, Mr Kamal Nath, to admit that the H-1B work permit had become the "outsourcing visa" (Lohr (2007).

L-1: Intra-company transferees

The number of Indian intra-company transferees holding L-1 work permits has increased steadily since the mid-1990s (see Chart 3). In the ten-year period ending 2008, the number of L-1 petitions granted to Indians increased sixteen-fold to 63,156. This trend reflects the expanding international footprint of Indian companies in general and Indian IT services companies in particular. Kirkegaard (2008) has noted that L-1 work permits granted to Indian nationals account for essentially the entire overall rise in the number of L-1 granted since 2000 (see Annex D). Chart 3 illustrates the consistent rise in the supply of L-1 work permits compared to the more volatile supply of H-1B work permits to Indian professionals. The number of L-1 petitions granted to Indians rose every year from 1996 to 2008 while the number of H-1B petitions granted to Indians increased rather rapidly in the 1996-00 and 2004-07 periods while contracting strongly in 2001-02 and somewhat modestly in 2002-03 and 2007-08.

Annex C shows the growth in H-1B and L-1 work permit holders at Infosys Technologies. As one of India's most successful companies Infosys is often used as a benchmark for the industry at large. The lower chart in the annex reveals that the company employed 8,400 H-1B work permit holders on 31 March 2008, up from 300 on 31 March 1999. The number of employees with L-1 work permits increased from 125 to 1,300 over the same time period. While the number of H-1B holders has grown rather sustainably over the last decade, the number of L-1 holders has increased with occasional jumps, as in 2003 and in 2008.

Chart 3. H-1B and L-1 petitions granted to Indians, 1996-08



Source: U.S. Homeland Security: Office of Immigration Statistics, 2002-08; and
U.S. Department of Justice: Immigration and Naturalization Service 1996-01.

Firm level data

Table 4 presents firm level data that was published for the first time in 2007. The top list of H-1B and L-1 employers for 2006 is strikingly similar to the list of India's top IT services exporters. Six of the ten largest home-grown Indian IT services companies are found on the top-10 list of H-1B and L-1 employers. India's largest IT services company, Tata Consultancy Services (TCS), acquired more H-1B and L-1 work permits than Microsoft, IBM, Deloitte and Oracle combined. And those four companies were the non-Indian companies that made it to the top-10 list.

Only two non-Indian or non-U.S. companies made it to the top-50 list of H-1B and L-1 employers. Nokia from Finland ranked 36th and Cap Gemini from France ranked 49th. Eleven Indian IT services companies were among the top-20 H-1B and L-1 employers and thirteen Indian IT Services companies were among the top-50 H-1B and L-1 employers. In addition, several of the U.S. IT services companies on the list – including Syntel, Lancesoft and Covansys – have American HQs and front offices while most of their employees are based in India. Their business models are similar to traditional Indian IT services companies.

Many other U.S. companies among the top H-1B and L-1 employers have significant operations in India. IBM, which is number seven on the list, had 74,000 Indian employees (roughly one-fifth of total employees) in December 2007. Almost one-third of Hewlett Packard Services' workforce is based on the Indian sub-continent and 14,000 of its 20,000 Indian employees are involved in application development and support services (InformationAge, 2007). The large number of U.S. IT services companies that sponsor temporary work permits for Indian citizens indicates two

things: first, several U.S.-based companies have adopted a GDM for IT services; and second, India has become a premier human capital base for multinationals.

Table 4: Top 50 organisations obtaining H-1B and L-1 work permits in 2006

Rank	Company	Sector	Home	# H-1B	# L-1	# H-1B & L-1
1	Tata Consultancy Services Ltd.	IT services/software	India	3046	5409	8455
2	Wipro Ltd.	IT services/software	India	4002	1187	5189
3	Infosys Technologies Ltd.	IT services/software	India	4908	235	5143
4	Cognizant Tech Solutions U.S. Corp.	IT services/software	India	2226	1888	4114
5	Microsoft Corp.	IT services/software	USA	3117	133	3250
6	Satyam Computer Services Ltd.	IT services/software	India	2880	352	3232
7	IBM Corp.	IT services/software	USA	1130	614	1744
8	Deloitte**	Accounting/Consulting	USA	1555	184	1739
9	Patni Computer Systems Inc.	IT services/software	India	1391	221	1612
10	Oracle USA Inc.	IT services/software	USA	1022	148	1170
11	HCL America Inc.	IT services/software	India	910	244	1154
12	Intel Corp.	Semiconductors	USA	828	314	1142
13	Ernst & Young LLP	Accounting	USA	774	249	1023
14	Larsen & Toubro Infotech Ltd.	IT services/software	India	947	47	994
15	Cisco Systems Inc.	ICT Hardware	USA	828	82	910
16	I-Flex Solutions Inc.	IT services/software	India	817	84	901
17	Syntel***	IT services/software	USA*	666	197	863
18	Motorola Inc.	ICT Hardware	USA	760	84	844
19	Mphasis Corp.	IT services/software	India	751	53	804
20	Tech Mahindra Americas Inc.	IT services/software	India	770	n.a.	770
21	Hewlett Packard Co.	IT hardware	USA	333	417	750
22	PricewaterhouseCoopers LLP	Accounting	USA	591	152	743
23	Accenture LLP	Consulting	USA	637	75	712
24	Polaris Software Lab India Ltd.	IT services/software	India	611	90	701
25	JPMorgan Chase & Co.	Financial services	USA	632	21	653
26	Lancesoft Inc.	IT services/software	USA*	645	0	645
27	New York City Public Schools	Education	USA	642	0	642
28	Covansys Corp.	IT services/software	USA*	611	25	636
29	Goldman Sachs & Co.	Financial services	USA	529	49	578
30	KPMG LLP	Accounting	USA	476	83	559
31	Qualcomm Inc.	Telecommunications	USA	533	19	552
32	General Electric Co.	Manufacturing	USA	292	228	520
33	Marlabs Inc.	IT services/software	USA	475	0	475
34	Keane Inc.	Consulting	USA	386	81	467
35	Citigroup Global Markets Inc.	Financial services	USA	413	53	466
36	Nokia Inc.	Telecommunications	Finland	314	141	455
37	University of Michigan	Education	USA	437	0	437
38	University of Illinois at Chicago	Education	USA	434	0	434
39	University of Pennsylvania	Education	USA	432	0	432
40	Johns Hopkins Univ. Med. Insts.	Education	USA	432	0	432
41	Bearingpoint Inc.	Consulting	USA	413	14	427
42	Kanbay Inc.	IT services/software	India	246	178	424
43	Citibank N.A.	Financial services	USA	322	88	410
44	Igate Mastech Inc.	IT services/software	USA*	378	26	404
45	University of Maryland	Education	USA	404	0	404
46	US Technology Resources LLC	IT services/software	USA*	339	48	387
47	HTC Global Services Inc.	IT services/software	USA*	382	1	383
48	Hexaware Technologies Inc.	IT services/software	India	362	21	383
49	Capgemini U.S. LLC	Consulting	France	309	69	378
50	Yahoo Inc.	IT services/software	USA	347	27	374

* U.S.-based company centred on Indian offshore delivery capability.

** Includes Deloitte Consulting LLP and Deloitte & Touche LLP; *** Includes Syntel Consulting and Syntel Inc.

Source: Kolbasuk McGee (2007), Grassley (2007), Kirkegaard (2007), corporate websites, author's calculations

In its annual list of 'Top 20 IT software & service exporters from India'[23] for the year ending March 2007, Nasscom (2007) notes that "at least" five of the ten largest exporters have HQs outside India. The companies included Accenture, Cognizant, HP, IBM and Perot Systems. Their rankings were not provided upon the companies' own request. In the year ending March 2006, Nasscom also notes that U.S.-based Kanbay, Syntel and Intelligroup would be ranked in the group of India's 11-20 top IT software and service exporters.[24]

The U.S. government does not publish annual firm level data on petitions granted for H-1B and L-1 visas. But a list of leading employers of H-1B workers—covering the number of H-1B petitions approved between 1 October 1999 and 29 February 2000—reveals that the IT hardware and IT services sectors have remained the main beneficiaries over time (USINS, 2000). Top-10 beneficiaries in this period included U.S.-based Cisco Systems, Intel, Microsoft, Motorola and Oracle but no Indian companies. It is thus striking how fast the Indian IT services companies have risen to the top over the last six years.

2.2.2 Demand and supply of UK work permits

The UK work permit arrangement is designed to help employers who need to recruit personnel from outside the European Economic Area (EEA) where no suitable resident worker is available. EEA nationals, except those from Bulgaria and Romania who are subject to employment restrictions, are allowed to move and work freely within the EEA, and do not require permits. Non-EEA nationals are covered by the rules established by the UK Home Office. According to legislation introduced on 27 November 2008, applicants may be awarded work permits if their application profiles reach certain points thresholds. The points are allocated according to pre-defined criteria based on the perceived value of the applicant's social and economic status (as outlined below). While the following analysis covers data for a period preceding the introduction of the new work permit system, the analysis of mobility barriers concerns the new regulations.

As in the case of the United States, the UK allows Indian IT professionals to move and work temporarily in the UK as either external transferees or as intra-company transferees. The ***skilled worker category (Tier 2 General)*** work permit is for external transferees entering the UK with a

[23] This list excludes revenue from IT-enabled services/business process outsourcing services.

[24] The top five home-grown Indian IT services companies had a combined market capitalisation of US$ 66 billion on 22 January 2008 (JPMorgan, 2008). Among the home-grown companies, TCS, Infosys Technologies, Wipro Technologies, Satyam Computer Services, HCL Technologies, Tech Mahindra, Patni Computer Systems, I-flex Solutions, L&T InfoTech and Polaris Software Lab were the biggest exporters (in ascending order) in 2007.

skilled job offer to *"fill a gap in the workforce that cannot be filled by a settled worker"*.[25] The employer who sponsors the skilled worker must have advertised the job and failed to find a suitable settled worker before giving a foreign professional a certificate of sponsorship. This process is referred to as a resident labour market test. Next to the job offer from a sponsoring employer, applicants are assessed by the UK authorities and awarded "points". These points are based on their qualifications, future expected earnings, sponsorship, English language skills (unless stay is for three years or less) and available maintenance (funds). External transferees are allowed to work in the UK for a maximum time of three years plus one month (extendable up to two years).

The ***intra-company transfer (Tier 2)*** work permit allows employees of multinationals to transfer from the foreign office to a skilled job in a UK based branch of the company.[26] The UK-based office can assign a foreign employee a certificate of sponsorship if the person has been working for the company, either inside or outside the UK, for at least six months directly before the transfer. The company does not need to carry out a resident labour market test before sponsoring an intra-company transfer. However, the person must be paid the appropriate salary rate for the job, which must be at or above S/NVQ level 3.[27] Applicants are awarded "points" on similar grounds as the Tier 2 General category. To assess whether the salary passes the 'appropriate rate' test, the UK authorities calculate the person's total salary by considering the basic pay (excluding overtime) and allowances (*e.g.* for accommodation). Intra-company transferees are allowed to work in the UK for a maximum time of three years plus one month (extendable up to two years).

Tier 2 General: external transferees

Chart 4 depicts how the total number and relative share of Indian external transferees in UK's IT sector changed in the 2000-07 period (see Table 5a and Annex E for more detailed data).[28] The number of Indians was almost the same in 2000 and 2003, following an increase in 2000-01 and a decrease in 2002-03, that reflected the global boom and bust of the ICT bubble during the early years of the decade. According to Millar and Salt (2007), the UK Government removed all IT

[25] http://ukba.homeoffice.gov.uk/workingintheuk/tier2/general/

[26] http://ukba.homeoffice.gov.uk/employers/points/sponsoringmigrants/sponsorshipduties/tierspecificduties/tier2intracompanytransfer/.

[27] S/NVQ level 3 refers to either the Scottish Vocational Qualification or the National (British) Vocational Qualification at level 3, which shows competence involving "the application of knowledge in a broad range of varied work activities performed in a wide variety of contexts, most of which are complex and non-routine".

[28] Work Permits are issued to people who enter the country to take work, whereas "First Permission" refers to those who are already in the country but do not hold a Work Permit when their application to work is approved.

skills and occupations from their Shortage Occupation list in September 2002 and it contributed to the contraction in demand for foreign IT professionals.[29]

However, from 2003 to 2007, the number increased from 8,435 to 24,515, or the equivalence of a CAGR of 31 percent. The share of Indian nationals to the total number of external transferees in UK's IT sector increased rather steadily from 60 percent in 2000 to 84 percent in 2007. For some occupation categories, such as software engineers (95 percent), system analysts (95 percent) and computer programmers (97 percent), almost all external transferees in 2007 were Indian nationals. Thus, the drastic increase in external transferees in UK's IT sector in 2000-07 was due entirely to the rise in imports from India since the number of non-Indian external transferees dropped over the same time by 14 percent.

Tier 2: intra-company transferees

Chart 5 reveals an almost identical pattern for intra-company transferees (see Table 5b and Annex F for more detailed data). The number of transferred Indian IT professionals rose from 4,305 in 2000 to 21,420 in 2007. This represented a CAGR of 26 percent, with a marked acceleration taking place from 2003 onwards. Furthermore, the number of non-Indian intra-company transferees did not change in 2000-07. Consequently, the Indian share of total intra-company transferees in the IT sector rose from 66 percent in 2000 to 91 percent in 2007. For several of the occupation categories, Indian professionals made up more or less the entire share of transferees.

In summary, U.S. and UK work permit data reveal that the number of Indian nationals employed temporarily in the U.S. and UK IT services sectors has increased rapidly since the start of this decade. The increase has been particularly distinct for intra-company transferees. The increase in the number of external transferees has been more pronounced in the UK than the United States. Following the fall in demand during the technology downturn in 2001-02, the number of Indian external transfers has risen quickly again in both countries. Overall, the data indicate that India's IT services sector to some extent has captured the H-1B work permit for external transferees in the United States and its share of Tier 2 General work permits is increasing in the UK as well. The data also provide strong evidence of both the success of the global delivery model that is expertly mastered by the Indian IT services sector and the lack of competition that Indian companies face in this field from other emerging markets.[30]

[29] The work permit application procedure is facilitated for both external transferees and intra-company transferees if they belong to any skill or occupation that is on the Shortage Occupation list.
[30] Some of the UK and U.S. work permits awarded to non-Indian nationals go to employees in foreign subsidiaries of Indian IT services companies.

Table 5a. Cleared, approved and successful on review work permit and first permission applications for Indians, 2000-2007*

	2000		2001		2002		2003		2004		2005		2006		2007		TOTAL	
IT SECTOR OCCUPATIONS	**India**	**Share**	**India**	**Share**	**India**	**Share**	**India**	**Share**	**India**	**Share**	**India**	**Share**	**India**	**Share**	**India**	**Share**	**India**	**Share**
Analyst programmer	-	-	1,890	78%	2,120	80%	645	66%	1,075	73%	1,100	72%	1,795	79%	2,635	87%	11,255	79%
Business Analyst	-	-	120	20%	180	24%	85	25%	120	39%	180	44%	280	48%	640	60%	1,605	39%
Computer engineer	170	53%	305	64%	165	69%	195	83%	365	90%	370	88%	170	87%	50	59%	1,795	75%
Computer programmer	585	74%	475	66%	210	71%	145	74%	675	94%	690	97%	715	96%	615	97%	4,110	85%
Database specialist	-	-	55	33%	85	43%	25	42%	25	45%	40	89%	40	67%	105	88%	380	53%
IT architect (senior)	-	-	-	-	10	67%	5	20%	5	100%	20	100%	5	50%	5	50%	50	59%
IT manager	-	-	100	35%	80	33%	85	40%	90	49%	110	67%	70	56%	90	69%	620	46%
Network specialist	-	-	85	26%	130	29%	30	29%	35	39%	30	43%	40	40%	50	56%	400	33%
Other IT related occupation	3,425	46%	2,625	43%	1,950	47%	2,520	57%	4,150	65%	5,240	68%	8,260	71%	9,915	77%	38,085	63%
Project manager	75	21%	185	24%	165	28%	175	39%	315	48%	440	53%	635	58%	835	68%	2,830	48%
Software engineer	1,910	79%	3,080	75%	3,610	83%	2,605	89%	3,910	93%	4,755	94%	7,055	94%	7,990	95%	34,920	90%
System analyst	1,960	85%	2,030	80%	2,050	90%	1,920	93%	1,215	94%	1,295	96%	1,110	91%	1,585	95%	13,170	89%
Total	8,125	60%	10,950	59%	10,755	66%	8,435	70%	11,980	76%	14,270	78%	20,175	79%	24,515	84%	109,220	73%

Table 5b. Cleared, approved and successful on review work permit and first permission intra-company transfer applications for Indians, 2000-2007*

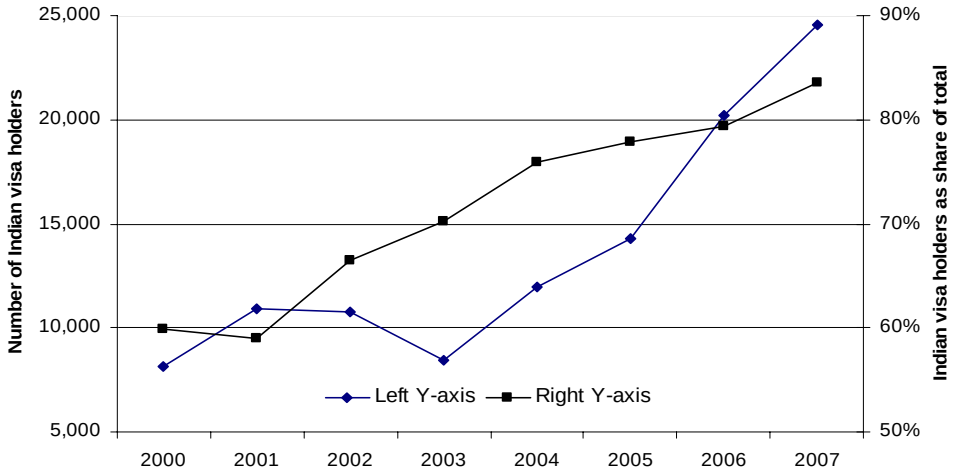
	2000		2001		2002		2003		2004		2005		2006		2007		TOTAL	
IT SECTOR OCCUPATIONS	**India**	**Share**	**India**	**Share**	**India**	**Share**	**India**	**Share**	**India**	**Share**	**India**	**Share**	**India**	**Share**	**India**	**Share**	**India**	**Share**
Analyst programmer	-	-	380	78%	375	75%	345	70%	795	80%	870	84%	1,445	88%	2,345	95%	6,555	86%
Business Analyst	-	-	45	21%	80	32%	60	31%	85	46%	130	53%	215	59%	520	70%	1,135	52%
Computer engineer	80	55%	175	76%	105	78%	180	90%	355	93%	350	93%	155	94%	45	82%	1,445	86%
Computer programmer	170	72%	135	71%	105	81%	115	85%	655	98%	665	99%	680	99%	595	99%	3,115	94%
Database specialist	-	-	10	33%	15	50%	10	67%	5	33%	25	83%	30	86%	100	95%	195	75%
IT architect (senior)	-	-	-	-	5	50%	5	33%	5	100%	15	100%	5	50%	†	30%	35	58%
IT manager	-	-	45	38%	60	41%	70	48%	70	56%	70	74%	60	67%	85	74%	460	55%
Network specialist	-	-	20	33%	25	45%	10	40%	5	33%	10	50%	10	50%	35	78%	115	48%
Other IT related occupation	1,525	48%	1,210	49%	1,085	54%	2,015	71%	3,290	75%	4,175	79%	6,800	83%	8,365	87%	28,460	75%
Project manager	50	23%	125	28%	125	32%	145	49%	275	61%	365	61%	540	68%	660	75%	2,285	56%
Software engineer	965	88%	1,285	83%	1,660	87%	2,285	94%	3,435	96%	4,300	97%	6,420	97%	7,200	97%	27,545	95%
System analyst	1,515	90%	1,515	89%	1,755	95%	1,815	96%	1,145	96%	1,190	98%	980	96%	1,470	97%	11,385	94%
Total	4,305	66%	4,945	66%	5,395	73%	7,055	81%	10,120	84%	12,165	87%	17,340	89%	21,420	91%	82,730	83%

* 'Share' is "percentage of visas awarded to Indians as compared to total visas awarded to all nationalities."

Figures are rounded to nearest 5. Because of rounding, figures may not add up to totals shown. † Indicates 1 or 2. - Indicates Nil.

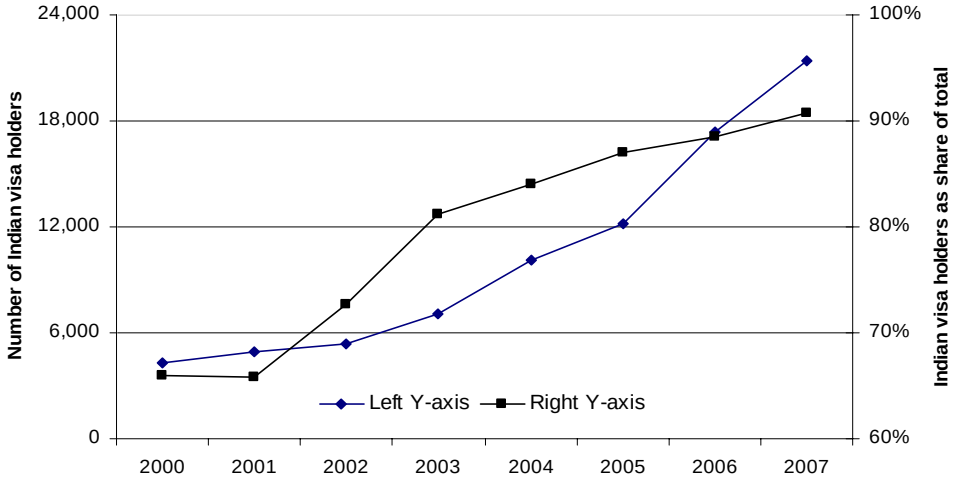
Source: UK Border Agency (2008), author's calculations.

Chart 4. Indian external transferees in UK's IT sector



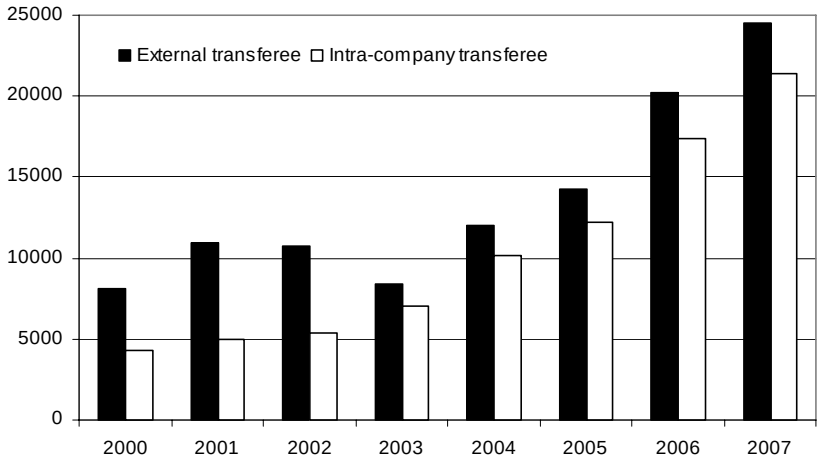
Source: UK Border Agency (2008)

Chart 5. Indian intra-company transferees in UK's IT sector



Source: UK Border Agency (2008)

Chart 6. Indian IT workers in UK



Source: UK Border Agency (2008)

3 RESTRICTIONS TO TRADE IN IT SERVICES

India's IT services sector faces both natural and man-made limits to trade. Some types of IT services cannot be cost-effectively delivered from a remote location because intense, face-to-face client interaction is necessary in the delivery process.[31] There is hence a natural limit to Mode 1 trade and this is perhaps the main reason why Indian exports of IT services mostly cover software application development and software application management (see Table 9 in Annex A). Policy-induced constraints are persistent in both India and foreign markets. In India, domestic constraints include infrastructural bottlenecks and labour supply shortages that leave companies struggling with staff attrition and salary inflation (see MGI 2005a-b). The rest of this paper, however, focuses on policy-induced constraints in India's main export markets.

Cross-border supply and the presence of natural persons are the delivery modes of services in which India has a comparative advantage (Mattoo, 2005). Yet while cross-border supply of IT services is blessed with the absence of (discriminatory) trade barriers[32], temporary movement of natural persons faces several restrictions, some of which give rise to unnecessary costs and delays (Engman, 2007).[33] At the heart of the problem is the fact that Mode 4 trade is affected more by immigration and labour market policies than trade policy (Mattoo et al. 2004; Chaudhuri et al. 2004). And as noted earlier, the linkage, or complementary relation, between Mode 1 and Mode 4 delivery is so significant for international delivery of IT services that the potential gains from Mode 1 liberalisation are likely limited unless undertaken in parallel with Mode 4 liberalisation (see Parikh, 2003; Chanda, 2006; Manning and Sidorenko, 2007).

This two-lane liberalisation process—a fast lane for Mode 1 (and Mode 2-3) and a slow lane for Mode 4—was documented by the WTO as early as in 1998. The WTO Secretariat conducted a

[31] Some studies have estimated the outer limits of total service jobs that could potentially face international competition. See Blinder (2005), van Welsum and Vickery (2005) and Bardhan and Kroll (2003).

[32] In its 'Negotiating Proposal on Computer and Related Services' in the WTO Council of Trade in Services (S/CSS/W/141), India states that it "*appreciates the fact that this sector* [computer and related services] *is comparatively less restricted than the other sectors. Yet, the presence of limitations scheduled in the horizontal section of the schedule of specific commitments drastically restrict the otherwise free flow of services.*" Mattoo and Wunsch (2004) argue that there are relatively few restrictions to Mode 1 trade in general and that those most prevalent include nationality, residency, commercial presence, authorisation, licensing and local authentication requirements.

[33] When GATS was negotiated during the Uruguay Round of multilateral trade negotiations, WTO members agreed to liberalise Mode 1 trade more ambitiously than Mode 3 and Mode 4 trade. In short, developing countries requested Mode 4 commitments from developed countries, who in return requested Mode 3 commitments from developing countries (see *e.g.* Hoekman and Kostecki, 2001). The outcome of the negotiations was an agreement that offered fairly modest market access commitments for Mode 3 and Mode 4 trade.

review of all Uruguay Round commitments in the Computer and Related Services sector. From a total of 62 GATS schedules, 57 included commitments on 'software implementation services'.[34] While 60-70 percent of those commitments offered full market access for cross border supply, consumption abroad and commercial presence, only 7 percent of the commitments offered full market access for temporary movement of natural persons (see Table 6).[35]

Table 6: Market access commitments on computer and related services[36]

(By mode of supply and as percentage of the number of schedules including each sub-sector) [37]

	# schedules	Mode 1			Mode 2			Mode 3			Mode 4		
		F	P	N	F	P	N	F	P	N	F	P	N
a. Consultancy; related to the installation of computer hardware	52	63	13	23	73	12	15	77	21	2	6	90	4
b. Software implementation services	**57**	**60**	**21**	**19**	**70**	**19**	**11**	**68**	**30**	**2**	**7**	**88**	**5**
c. Data processing services	55	60	20	20	71	18	11	69	29	2	5	89	5
d. Data base services	49	63	14	22	76	14	10	71	27	2	4	92	4
e. Other	30	53	40	7	57	37	7	53	47	0	0	97	3

F: Full commitment, P: Partial commitment, N: No commitment

Source: WTO (1998)

Despite the lack of commitments on Mode 4, Indian IT services companies have been successful at obtaining an increasingly large share of the work permits issued in UK and the United States. Yet corporate executives in the IT services sector uniformly argue that there is plenty of room for improvement with regards to Mode 4 regulations and their implementation.

3.1 Mode 4 related trade issues

Restrictive policies with regards to international movement of IT services professionals are seldom raised directly in corporate surveys of business issues. They act as a *cause* of other issues rather than the *effect* so Mode 4 trade issues are generally embedded in comments related to operational efficiency and service quality. However, these issues are among the more serious

[34] EU12 was counted as one.

[35] The significantly lower share of market access commitments for temporary movement of natural persons is even further reduced when horizontal limitations are factored in.

[36] See Mattoo and Wunch-Vincent (2004) for an updated overview of Mode 1 commitments.

[37] The figures in the table reflect only those entries inscribed under the computer services commitments in the schedules. Entries made in the horizontal section of the Schedule relate to commitments made in this and all other scheduled sectors.

concerns in corporate surveys (see *e.g.* BAH, 2006). Thus far, Indian IT professionals have been rather successful in obtaining the visa and work permit documents that they need but there is evidence that it is becoming increasingly difficult to do so in some countries. The Indian IT services sector is painfully aware of its dependency on the expediency and willingness of consulates and public authorities to issue an increasing amount of work-related documents.

In its 2006 annual report, India's third largest IT services company Wipro Technologies noted that *"if U.S. immigration laws change and make it more difficult for us to obtain H-1B and L-1 visas for our employees, our ability to compete for and provide services to clients in the United States could be impaired."* And in its 2007 annual report, Wipro Technologies ranked regulatory issues related to work permits and visas as one of the top 10 risks to its business. The probability of this risk hurting its business was considered to be "low-medium"—depending on the country in question—with a potential "medium" impact.

Infosys Technologies also stated in its 2006 annual report that "*immigration laws in the US and other countries are subject to legislative change, as well as to variations in standards of application and enforcement due to political forces and economic conditions…political and economic events* [can] *affect immigration laws, or the restrictive impact they…have on obtaining or monitoring work visas for our IT professionals. Our reliance on appropriate visas makes it sensitive to such changes and variations.*" The company went on to point out that they strive to diversify their operations across the world and try to ensure that they acquire and maintain sufficient numbers of work permits in order to limit risks from visa-related regulations. They also seek to recruit more local talent while simultaneously increase the amount of work that is provided from its offshore development centres.

Governments impose regulatory restrictions to international movement of natural persons due to various reasons of national security and public policy concerns. While these restrictions are politically justified as the sovereign decisions of governments, it is in each government's interest to ensure that legitimate public interests are adequately protected with economically effective and least trade-restrictive policies. The evidence from some OECD countries is that many of the policies implemented to regulate Mode 4 trade do not live up to the above criteria. As this section will show, many Mode 4 related policies are economically inefficient and more trade-restrictive than necessary.

3.2.1 Inventory of restrictions

Some previous studies have identified the various restrictions that affect Mode 4 trade in general. For example Chanda (2002) breaks Mode 4 barriers into four distinct categories: a) immigration-related regulations governing entry and stay of service providers; b) regulations concerning recognition of qualifications, work experience and training; c) differential treatment of domestic and foreign service personnel; and d) regulations on other modes of supply, particularly on cross-border supply. Chaudhuri, Mattoo and Self (2004) divide barriers to temporary labour migration into five main groups: visa formalities, prohibitions and quotas, wage-parity conditions, discriminatory treatment and non-recognition of qualifications.

Ganguly (2005) groups Mode 4 limitations in the U.S. to immigrations laws and visa regulations; numerical quotas; policies favouring domestic providers; and recognition related regulations. Nielson (2002) provides a review of the restrictions in the GATS schedules and notes the frequency of quantitative restrictions, pre-employment requirements, economic needs tests, technology transfer requirements, restrictions on geographic and sector mobility or mobility between companies, and restrictions on real estate. The author also notes a number of measures that affect Mode 4 commitments, including MFN exemptions, recognition of qualifications, licensing requirements and other domestic regulation.

These papers provide a useful starting point and overview of the scope of issues that affect international movement of service personnel. However, not all of these restrictions are relevant to the IT services sector. Parikh (2003) discusses Mode 4 related trade restrictions affecting Indian IT professionals. The author identifies three types of constraints that pose significant challenges. First, immigration-related matters that cover quantitative limits, economic needs tests, Economic needs test, wage-parity requirements, differentiation in processing visas, cumbersome and non-transparent immigration procedures, and limitations of flexibility and duration of stay. Second, inadequate recognition of qualifications, training and experience is another type of restriction while differential treatment of foreign service providers, as in double taxation and government procurement, is identified as a third broad issue that needs to be tackled.

Table 7a and Table 7b present a taxonomy of the various issues affecting Indian Mode 4 exports of IT services. Table 7a covers the U.S. administration and Table 7b covers the UK administration. The proposed taxonomy divides the regulatory restrictions and issues affecting Mode 4 trade in IT services into three distinctive groups.

1. ***Quantitative restrictions and prohibitions:*** include work permit quotas and economic needs test requirements.

2. ***Work permit/visa regulation:*** cover the criteria that a work permit applicant and the sending company must fulfil, and the rules and regulations they must conform to in the host country.

3. ***Consular and visa processing services:*** cover issues that a service provider faces at the consulate or public authority of the host country. The issues are mainly related to the capacity, transparency, professionalism and efficiency of the consulates or public authorities offering business and work visa services.

The taxonomy lists regulations and administrative procedures as stated in the legal frameworks of the United States and the UK. It also includes issues raised in the literature and during interviews with senior managers in India's IT services sector.[38] The categorisation differs from Parikh's categorisation in that it distinguishes between rules-type of barriers and implementation-type of barriers in addition to the more severe quantitative limitations and prohibitions. Tables 7a-b are divided into the following horizontal variables:

a. ***Type of movement:*** indicates whether the restriction affects external transferees (EXT), as in international outsourcing; and/or intra-company transferees (ICT)[39], as in international insourcing;
b. ***Restrictiveness:*** provides a measure of the degree of concern voiced by the interviewees as well as the author's interpretation of current legislation and its implementation. It includes minor (non-mission critical issues), moderate (potentially a mission critical issue) and major (frequently a mission critical issue); and
c. ***Effect:*** identifies the impact that the restriction has on the client company, the sending company and the transferee. The effects are divided into productivity implications (adversely affecting the allocation of human capital); cost implications (raising the costs of service delivery); risk implications (unpredictable business environment); remuneration implications (lowering the prospective income of the transferee); and career implications (reducing the transferee's ability to work abroad).[40]

[38] The issues are also common in continental Europe and East Asia.

[39] WTO doc. TN/S/W/31 define ICTs as "employees of a company/partnership/firm established in the territory of a WTO Member who are transferred temporarily for the supply of a service through commercial presence (either through a representative office, branch, subsidiary or affiliate) in the territory of another WTO Member.

[40] These effects are not necessarily mutually independent.

Table 7a reveals that two types of restrictions have particularly negative effects on Indian exports of IT services to the United States. The first type of restriction is an absolute barrier and regards the numerical limitation to work permits that can be issued each year. The second type of restriction regards opaque, time-consuming and cumbersome visa processing services.[41] In contrast, the UK government does not impose numerical quotas on work permits and is widely considered to have a more transparent, predictable and expedient application process (see Table 7b). In the UK, the main concern is the Economic needs test requirement imposed on companies that outsource IT services for Indian companies.

3.2.2 Major issue no.1: Quantitative restrictions

A work permit quota is applied to provide a ceiling to the number of external transferees that are allowed to deliver services in a country. This trade policy tool is a major barrier to Mode 4 trade if demand exceeds supply for work permits. It introduces complexity and risk in companies' decision making process with regards to human resource allocation. United States employs a quota system that covers external transferees. The random outcome of its quota allocation process—it currently organises a lottery when demand exceeds supply[42] —has serious productivity implications and impedes foreign IT services professional from delivering their services to clients based in the United States.[43] The U.S. government starts accepting applications in April every year and stop accepting applications after a week if demand exceeds supply. This system offers limited flexibility to an employer who realises for example in May that it needs to recruit some special expertise from abroad.

The lottery that the U.S. government uses to distribute the H-1B work permits may appear to be a fair system since anyone who fulfils the criteria is eligible to apply. However, in reality it is not a fair system and hardly an economically effective distribution system. It rewards the large, well-networked and forward-planning companies that are able to predict their needs well in advance. It also provides incentives for companies to apply for more H-1B visas than they actually need since the cost and effort to apply are small compared to the missed business opportunities that restricted mobility of key personnel give rise to. The quota induces some companies to look for ways to

[41] The issues related to work permit/visa processing services are particularly relevant in most EU member states as well as in the United States.

[42] The annual quota of 65,000 H-1B work permits has in recent years been filled as soon as the U.S. government has opened the application process. In 2008, the Citizenship and Immigration Services agency received 163,000 petitions in the first week (Preston, 2008a). In 2007, they received 133,000 applications during the first day and in 2006, the quota was filled after less than 60 days (Giridharandas, 2007a).

[43] Germany's experiment with a 'green card' work permit for IT professionals was also limited by a quota but the quota was never exhausted during the limited years that the visa was issued.

circumvent the barrier. This can for example be done by sending service providers on business visas, which are issued for short visits for business development purposes, or as intra-company transferees (Chanda, 2005b).[44]

3.2.3 Major issue no.2: Consular and visa processing services[45]

Slow, burdensome and opaque consular services are in most countries serious impediments to Indian Mode 4 exports. They are also a source of frustration and sense of injustice. SMEs without front end operations in their client countries are particularly vulnerable. Companies are unable to effectively allocate resources when manpower is stuck in lengthy application processes. Arbitrary rejections are common. These issues lower labour productivity. If an exporter operates on a fixed cost contract, the client may obtain a lower quality service. Another potential outcome is delays in service delivery. If the exporter operates on a variable (or "time and materials") contract, the client may need to carry additional expenses in addition to project delays. Slow and unpredictable visa processing services cause damage such as lost business opportunities and strained client relations when project contracts and schedules need to be renegotiated.

There is a marked difference in the expediency of visa processing services for intra-company transferees compared to external transferees. The former group benefits from a more streamlined visa processing service. L-1 application processing time is normally two to four months for regular applications and one to three weeks for companies that are qualified for L-1 blanket approval.[46] A premium processing service is offered for a fee and shortens the processing time to 15 calendar days.[47] However, external transferees face real challenges at U.S. consulates.[48] The application procedure for business visas and work permits leaves the decision to the discretion of the official handling the application. Depending on the type of work documentation, an applicant may need to submit copies (often original) of numerous documents, including bank statements, a birth certificate, education transcripts, reference letters from previous employers, written guarantees from the importing company and the exporting company, etc.

[44] For example, B1 business visa holders travel to the United States to engage in commercial transactions but are not employed in the U.S. labour market and are not allowed to receive payment from U.S. organizations (Ganguly, 2005).

[45] This paper studies Indian exports of IT services and does not assess the quality and expedience of Indian consular services.

[46] http://faq.visapro.com/L1-Visa-FAQ4.asp#Q6.

[47] See www.uscis.gov/premiumprocessing.

[48] The same holds for most continental EU member states.

Table 7a: Mode 4 restrictions to imports of IT services in the United States (H-1B and L-1 work permits)

TYPE OF RESTRICTION	TYPE OF MOVEMENT	RESTRICTIVENESS	EFFECT: ON CLIENT COMPANY	EFFECT: ON SUPPLYING COMPANY	EFFECT: ON TRANSFEREE
I. QUANTITATIVE RESTRICTIONS AND PROHIBITIONS					
- Work permit quota	EXT	Major	Productivity implications	Productivity & risk implications	Career implications
- Economic needs test	EXT	None / Moderate*	Productivity implications	Risk implications	..
II. WORK PERMIT/VISA REGULATION					
- Minimum wages / wage parity requirements	EXT	Moderate	Cost implications	Cost implications	Remuneration implications
- Transferability and mobility	EXT / ICT	Minor / Moderate	Productivity implications	Productivity implications	Remuneration implications
- Bias against lower/middle level professionals	EXT & ICT	Minor	..	Productivity implications	Career implications
- Minimum time of employment	ICT	Minor	..	Productivity implications	..
- Discriminatory tax treatment	EXT & ICT	Minor	..	..	Remuneration implications
- Limitation on duration of stay	EXT & ICT	Minor	Productivity implications	Productivity implications	..
- Education/experience requirements	EXT & ICT	Minor	..	Productivity implications	..
- Recognition of qualifications	EXT	Minor	..	Productivity implications	Career implications
III. CONSULAR AND VISA PROCESSING SERVICES					
- Documentation requirements	EXT / ICT	Moderate / Minor	..	Cost implications	..
- Processing time	EXT / ICT	Major / Moderate	Productivity implications	Productivity implications	..
- Transparency and predictability	EXT / ICT	Major / Moderate	Productivity implications	Productivity & risk implications	..
- Application and issuance fees	EXT	Minor	Cost implications	Cost implications	..

Note: EXT = external transferee; ICT = intra-corporate transferee; n.a. = not applicable; * = Economic needs test only holds for companies classified as H-1B dependent.

Source: USCIS OI 214.2(l), USCIS Sec. 214.2(h), input from managers in the IT services sector, author's assessment.

Table 7b: Mode 4 restrictions to imports of IT services in the UK (Skilled worker category: Tier 2 general & Tier 2 Intra-company transfer work permits)

TYPE OF RESTRICTION	TYPE OF MOVEMENT	RESTRICTIVENESS	EFFECT: ON CLIENT COMPANY	EFFECT: ON SUPPLYING COMPANY	EFFECT: ON TRANSFEREE
I. QUANTITATIVE RESTRICTIONS AND PROHIBITIONS					
PS: Sponsorship (*resident labour market test*)	EXT	Moderate	Productivity implications	Risk implications	..
II. WORK PERMIT/VISA REGULATION					
PS: Qualifications	EXT & ICT	Minor	..	Productivity implications	..
PS: Future expected earnings	EXT & ICT	Minor	..	Productivity implications	..
PS: English language skills	EXT	Minor	..	Productivity implications	Career implications
PS: Available maintenance	EXT & ICT	Minor	..	..	..
- Minimum wages / wage parity requirements	EXT & ICT	Moderate	Cost implications	Cost implications	Remuneration implications
- Transferability and mobility	EXT & ICT	Minor	Productivity implications	Productivity implications	Remuneration implications
- Minimum time of employment	ICT	Minor	..	Productivity implications	..
- Limitation on duration of stay	EXT & ICT	Minor	Productivity implications	Productivity implications	..
- Recognition of qualifications	EXT & ICT	Minor	Productivity implications	Productivity implications	Career implications
III. CONSULAR AND VISA PROCESSING SERVICES					
- Documentation requirements	EXT & ICT	Minor	..	Cost implications	..
- Processing time	EXT & ICT	Minor	Productivity implications	Productivity implications	..
- Transparency and predictability	EXT & ICT	Minor	Productivity implications	Productivity & risk implications	..
- Application and issuance fees	EXT & ICT	Minor	Cost implications	Cost implications	..

Note: PS = Points System; EXT = external transferee; ICT = intra-corporate transferee; n.a. = not applicable.

Source: UK Home Office (2008a-b), interviews with IT services managers, author's assessment.

In the U.S. case, an applicant needs to schedule an interview for which there may be 45-180 days of waiting time in India.[49] When the interview is due the applicant usually needs to convince the consulate official that his/her intention is not to migrate on a permanent basis.[50] The applicant may also be asked to later return with additional documentation to verify the mandatory documentation. This process may involve multiple rounds of translation and legalisation of documents. [51]

Indian professionals often go through an application process that takes four to six months. At some European consulates, it can take up to nine months. The process to obtain work permits in *e.g.* Austria, Benelux, France and Italy is particularly slow and cumbersome. Some of these countries require plenty of documents that must be translated and legalised. Requirements also tend to change frequently, which makes it more difficult to plan work. For example the Spanish consulate at one point demanded all documents to be legalised in Spanish and Indian visa applications to be submitted by a representative in Spain.

Some countries have managed to handle the applications well: the process to obtain a UK work permit is widely considered to be fast, transparent, fair and efficient. The temporary German green card system was also much appreciated while in place in 2000-04. The UK Border Agency reported in May 2008 that it aims to decide 70 percent of all work permit applications within five working days upon receipt of the payment handing service and 90 percent within 15 working days. Between 1 January 2008 and 14 May 2008, 65 percent of applications were decided within five days and 80 percent within fifteen days.[52] In May 2009, the UK Border Agency had a somewhat less ambitious target of processing applications for Tier 2 (General) and Tier 2 (ICT) work permits: to decide 75 percent of applications within 28 days and *"*...[it] *usually makes a decision on an application within 42 days"*.[53]

[49] The Economist reported on 6 May 2006 that the waiting time to get a visa interview at the American consulate in Chennai was more than 160 days.

[50] For leading Indian IT services companies, less than 1 percent of H-1B work permit holders apply for U.S. green cards. The ratio is much higher for U.S. multinationals (Lohr, 2007).

[51] Records such as birth certificates and educational diplomas may first need to be legalised by the local state government. The legalised documents are then translated to the language of the country for which the application is due before the translated version of the legalised document in turn may need to be legalised. For certain documents, the procedure can involve up to three rounds of legalisation and visits to the applicant's hometown, the local state authority and government ministry in New Delhi.

[52] www.ukba.homeoffice.gov.uk/workingintheuk/workpermits/waitingtimes/ (accessed 14/05/2008).

[53] www.ukba.homeoffice.gov.uk/workingintheuk/tier2/general/ (accessed 08/05/2009) and www.ukba.homeoffice.gov.uk/workingintheuk/tier2/ict/ (accessed 08/05/2009).

Aside from the application process for work permits, the consular process for business visas is relatively straightforward in most of India's export markets. However, the discrepancy between countries can be significant: the process of obtaining a business visa can take anything from one day to a month, but it often takes a week or less. Some companies report that certain consulates as a rule issue business visas for shorter duration than they apply for. It adds complexity and uncertainty since companies have to pay fees to cancel and rebook air tickets and accommodation, and reschedule project plans and client meetings. In the worst case, the visa holder needs to return to India only to go through the application process again before finalising negotiations with the client. This is particularly a challenge for small companies.

Consular services tend to improve with time as trust is built between the companies and the consulate or visa processing authority. Trust is established when business visa and work permit holders obey host country rules and return to India before the expiration of their visa documents. American and British consulates have long experience of handling Indian business visa and work permit applications. It is not yet the case in many other OECD countries. Some countries are reported to have cut time for visa processing and removed more strenuous document requirements, but there is still much scope for improvement.

3.2.4 Work permit regulations with cost or remuneration implications

In general, while there are direct costs associated with the work permit/visa application process, the concerns raised relate to the time and uncertainty involved. Processing fees and charges are perceived as a predictable additional layer of overhead costs. Time and uncertainty, however, lower productivity and can cause large, less-predictable indirect costs that sometimes break deals. This is why regulations that have relatively minor cost implications are considered as less serious impediments—in particular in markets where Indian companies have a considerable labour cost advantage and competitors are equally affected. Wage parity requirements, double taxation and visa processing fees have cost implications for all Indian companies.

Wage parity*:* work permits often come with rules stipulating a minimum wage or wage parity with local, equally qualified labour. In the United States, employers must pay H-1B workers either the same rate as other employees with similar skills and qualifications or the prevailing wage for that occupation and location, whichever is higher.[54] While these rules inflate the onsite billing rate, the effect is lower than may be expected since many professionals that are transferred

[54] Miano (2005) argues that these rules are poorly enforced and H-1B professionals in computer occupations earn less than stipulated in the United States.

to deliver services abroad have reached a seniority level and remuneration package that often fulfil these requirements. At least this holds for employees in large companies.

Table 8 shows that H-1B work permit holders that transfer to an American or other Western IT company earn more on average than H-1B holders from Indian IT companies. Yet the large Indian companies are paying relatively generous compensation packages—Wipro (US$ 73,662), Satyam (US$ 64,703) and Infosys (US$ 64,448)—in particular for Indian salary standards.[55] The difference in average salary levels is indicative of the companies' relative strengths: Indian companies gain overseas contracts because they are more cost effective and have a reputation of delivering services according to plan. Western companies, however, enjoy proximity to their clients, pay more for top talent but also charge their clients more for their services. In order for Indian IT services companies to increase profitability they will need to keep costs down and raise turnover or increase the value they offer. They generally seek to do both but have been more successful at doing more of the same.

In recent years, a company like Infosys Technologies has employed 30 percent of its active manpower at client site and 70 percent in India and other low-income countries (see Annex C). Furthermore, onsite manpower generated half or more of the company's revenues, which provides an indication of the cost implications involved. The wage parity requirement is generally more of an issue for Indian SMEs that pay lower salaries than large Indian companies and foreign subsidiaries. Therefore, this group of companies is more negatively affected as their cost advantage is diminished.

***Double taxation**:* due to the lack of a bilateral tax agreement between India and the United States, Indian IT professionals that are H-1B holders are according to Sure (2005) effectively providing an annual subsidy estimated at US$ 0.8 billion to the U.S. social security system.[56] However, while the size of the subsidy is impressive and it would be fair if the Indian professionals could

[55] There is a marked difference between the annual salary on the company level—in particular with regards to the highest paying companies reported in Table 8—and average annual salary data on industry level (as reported in Table 1 for somewhat older data). The difference is mainly due to the fact that the companies in Table 8 present the more successful, and highest paying companies, while the data in Table provide an average estimate for all companies, independently whether it is based in Bangalore or a small town or whether it targets the domestic or U.S. market. The difference in average salary between Indian and Western companies partly explains why India's brightest IT talent often prefer to work for Western hardware and software multinationals. Employment in these companies is associated with professional status, a salary premium, facilitated international mobility and use of latest technology.

[56] In terms of tax payments, Chaudhuri et al (2004) quotes a study by Desai et al. (2000) which estimates that the U.S. government collects as much as US$ 22.5 billion/year in the form of payroll taxes from H-1B visa holders of Indian origin.

claim some benefits from the system, this estimate is probably inflated.

Table 8: Average salary for H-1B workers in top 100 H-1B sponsoring IT companies in 2008 (US$)

Company	Salary	Company	Salary	Company	Salary	Company	Salary
Symantec	109,218	Alberg Software	68,118	NIIT Technologies	60,943	HCL Systems	55,566
Yahoo	107,227	Power Com Tech	66,473	Supreme Soft	60,796	Larsen Toubro Infotech	55,219
Sun Microsystems	106,478	Adaequare	65,913	Diaspark	60,524	Jsmn International	54,917
SAP America	104,041	Software Research	65,899	ObjectWin Technology	60,500	Business Integra	54,873
Keane	101,698	Mphasis	65,727	Svam International	60,210	American Solutions	54,388
VMWare	100,736	Cognizant Tech Sol.	65,340	Everest Consulting	60,091	USM Business Systems	54,314
Google	100,661	Saber Software	65,303	V Soft Consulting	59,994	Fortune Technologies	54,300
Oracle	97,609	RJT Compuquest	65,165	Globalcynex	59,549	Technology Consultants	54,188
IBM	96,332	Satyam Comp Services	64,703	West Coast Consulting	59,393	Delasoft	53,379
EMC	93,255	Infosys Technologies	64,448	Fourth Technologies	59,258	TECRA Systems	53,208
Capgemini	90,990	I Flex Solutions	64,419	Coolsoft	58,252	Maxisit	53,125
Microsoft	90,327	HTC Global Services	63,656	Ez Solutions	57,781	Infovision Technologies	52,932
Qualcomm	89,449	Smartsoft International	63,396	Mgl Americas	57,577	Advansoft International	52,617
T Mobile	81,292	Everest Business Sol.	63,247	Xceltech	57,453	DivIHN Integration	52,369
The MathWorks	79,877	iTech US	62,701	Reliance Global Services	57,296	Multivision	51,898
MicroStrategy	78,874	Intelliswift Software	62,449	HCL Tech America	57,213	Cyberthink	51,689
Fujitsu Consulting	77,742	eBUSINESS Appl. Sol.	62,393	Kpit Infosystems	57,211	Luceo	51,366
Ciber	76,982	Marlabs	62,051	Enterprise Business Sol.	57,201	Vision Systems Group	50,575
Capgemini Fin. Serv.	75,603	Polaris Software Lab	61,976	ProSoft Tech Group	57,019	Mindlance	50,545
Wipro	73,662	DGN Technologies	61,797	Apex Tech Systems	56,819	Terra Infotech	50,137
Numbers Only	72,695	Hexaware Tech	61,789	Verinon Tech Sol.	56,696	Radiant Softsol / Global	50,029
Perficient	71,825	ISR Info Way	61,759	Sirsai	56,118	Amsol	49,917
LanceSoft	70,439	Net Matrix Solutions	61,597	Sysnet Technology Sol.	56,059	Nexus Software Sol.	46,260
Sprint Nextel	70,037	Hallmark Globaltech.	61,224	Amtex Systems	56,017	Advent Global Sol.	45,708
Zylog Systems	69,853	Vedicsoft Solutions	61,165	Xpedite Technologies	55,831	Siritek	44,422

Source: MyVisaJobs (2009).

An Indian IT services professional who moves to the United States to work on an H-1B or L-1 work permit pays federal and state income taxes. In the United States, the worker will also contribute 7.65 percent of income in Social Security and Medicare taxes, which he/she will not be able to enjoy unless he/she stays for a minimum of ten years.[57] If the average salary of the 217,882 Indians in 2008 who held a H-1B or L-1 work permit was $60,000/year, their annual contribution to Social Security and Medicare would equal $1.00 billion/year. Provided that the maximum time of employment on an H-1B visa and L-1 visa are six and seven years respectively, the social insurance is in practise another layer of income tax. However, neither are all H-1B and L-1 holders actually working in the United States and nor are all of them employed in the IT services sector.

[57] The U.S. social security system requires H-1B workers to contribute to Social Security (6.2 percent on earnings up to $106,800 for each employee and employer, and 12.4 percent on earnings for self-employed) and Medicare (1.45 percent on earnings for each employee and employer, and 2.9 percent on earnings for self-employed). See www.ssa.gov/pubs/10003.html.

Application and issuance fees: there is a US$ 1,570 to US$ 3,320 filing fee for H-1B petitions, including a base filing fee ($320), a fraud fee ($500), an additional charge ($750-1,500) associated with the American Competitiveness and Workforce Improvement Act (ACWIA) of 1998, and voluntary premium processing fee ($1,000). The ACWIA charge is higher for companies with 26 or more employees (see USCIS website). In addition, there may be US$ 2,500 to US$ 4,000 in attorney's fees to enter the H-1B lottery (Andron, 2008). The application and issuance fee is lower for L-1 work permits, with $185 charged for the base filing fee and $500 for a fraud prevention and detection fee. In the UK, the application fee for a Tier 2 work permit is £400 (roughly $600).

If Satyam Computer Systems and Infosys Technologies are representative for the industry as a whole, then approximately 0.7-0.9 percent of export revenue is spent on obtaining business visas and work permits (Table 9). This translates into approximately 1 percent of operational costs.[58] Infosys spent some US$ 30 million in the year ending 31 March 2008.[59] If an average 0.8 percent of export revenue is spent on visa fees, then a back-of-the-envelope calculation suggests that the US$ 23 billion Indian IT services sector spent roughly US$ 180-190 million on visa fees in the year ending 2008. The estimate would be somewhat lower if the lower rate of labour circulation between foreign multinationals and their Indian subsidiaries were discounted. However, the 'visa

Table 9: Annual spending on visa fees at Saytam and Infosys

	2002	2003	2004	2005	2006	2007	2008
Satyam Computer Services							
Onsite revenue (percent of total)	46	53	57	58	56	51	48
Visa fees (INR million)	62	70	197	171	323	445	423
Visa fees (percent of revenue)	0.36	0.35	0.80	0.49	0.70	0.71	0.52
Infosys Technologies							
Onsite revenue (percent of total)	51	55	53	50	50	52	51
Visa fees (INR million)				380	770	1130	1370
Visa fees (percent of revenue)				0.55	0.85	0.86	0.88

Source: Annual Reports: Infosys and Satyam.

[58] According to Bernstein Research, as cited in Hamm (2007, p.9), the average net profit margin for the top six Indian IT services companies was 21.7 percent in 2005. The corresponding number was 4.3 percent for their top six Western competitors.

[59] Based on an average exchange rate of 45 INR/US$ (INR 1.37 billion).

fee' is only a narrow definition of the costs involved in the application and processing cycle: if all costs related to ***documentation***, delays and uncertainty were accounted for the total cost would be higher.[60]

3.2.5 Work permit regulations with productivity and/or risk implications

There are also work permit regulations that may impair a company's flexibility, and hence productivity. Most of the issues identified in Tables 7a-7b are generally perceived as minor since they do not have a make or break impact on work. Occasionally, however, they make life unnecessarily difficult for foreign providers. ***Transferability and mobility*** relates to rules governing the permit holder's right to keep the work permit while changing employer or moving between states/cantons in the host country. It also includes limitations to the tasks the permit holder is allowed to undertake. H-1B work authorisation, for example, is strictly limited to employment by a sponsoring employer. Consulates generally have a ***bias against lower and middle level professionals*** yet mission critical competence is not strictly correlated to seniority in a technology-intensive sector. Staff attrition may make it necessary to occasionally recruit and expeditiously transfer a new employee abroad.

Minimum time of employment refers to regulations that stipulate that a work permit applicant must have been employed for a minimum of 6-12 months with the company that seek the transfer. This type of requirement has the same effect as seniority bias: it reduces a company's flexibility in recruiting mission critical expertise for instant engagement at client site. Finally, the ***limitation on duration of stay***, which is used to ensure that transfers are temporary, can reduce the supplying company's productivity in long-term client relations. ***Recognition of qualifications***-related issues as identified by Parikh (2003) are relatively uncommon according to the managers interviewed for this study. Software programmers with degrees from colleges with vague academic credentials may experience difficulties in obtaining work permits and so may professionals with business or other non-technical degrees. This may particularly be the case in countries that have limited trade with India and the issue is more likely to be experienced by small companies.[61] Ganguly (2005) has pointed out that the IT services profession is different to many other professional services occupations in that it is a non-licensed sector.

[60] Hamm (2007, p.162) argues that Wipro Technologies in 2003 was paying U.S. and UK law companies as much as $500 to help process a work visa.

[61] India has presented a number of "proposed elements for disciplines on qualification requirements and procedures" in the WTO Working Party on Domestic Regulation (JOB(05)50). The proposal mentions 'professional services' in particular. JOB(03)192 gives an example of 'residency requirements' in the computer services field (among others) as a form of recognition related issue. However, the delivery of IT services is seemingly not much affected by recognition related issues judging from the communication (see also JOB(03)120).

Next to work permit quotas, ***economic needs test*** (ENT) type of requirements are the most stringent form of regulation affecting companies that seek to recruit foreign workers. The objective of an ENT is normally to restrict market access to foreign service suppliers based on an assessment of the necessity of allowing entry into the host market. It can be applied on an individual, case by case level or on a more aggregate sectoral or occupational level. There is no clear definition of an ENT and it may be referred to as 'prior adequate search', 'labour market tests', 'management needs test', 'manpower planning requirements', etc. (see UNCTAD, 1999; Chanda, 2005b). Common complaints are that they are opaque and discretionary in nature, which makes it difficult for foreign companies to plan the allocation of their manpower. ENTs are generally covering external transferees.

A 'resident labour market test' is required in the UK regardless of any differences in the quality of the foreign and national service providers. Employers must conduct a thorough job search domestically before availing themselves of the services of foreign employees or service providers. Thus, even if an Indian IT professional possesses better qualifications or work experience, if a local person can provide the services, that person must be given preference over the foreigner. There have been relatively few complaints about this potentially serious restriction in the IT services sector in the UK. One explanation is that the strong demand for internationally outsourced IT services so far have made ENTs a minor issue—there is ample evidence of tech companies with long lists of positions that they cannot fill. Another explanation is that the burden is on the client and that they already have conducted the search before they approach prospective foreign companies.

In the United States, ENTs do not apply to *"foreign workers admitted on H-1B visas, except with respect to job opportunities with H-1B dependent employers. H-1B nondependent employers are not subject to the conditions* [*i.e.* ENT]*, and their H-1B workers may be hired even when a qualified U.S. worker wants the job, and a U.S. worker can be displaced from the job in favor of the foreign worker."* (U.S. Department of Labor, 2006). A company with 50 employees or more is defined as "H-1B dependent" if more than 15 percent of its employees has H-1B status.

H-1B dependent employers must attest to: a) they will not displace any similarly employed U.S. worker within 90 days before or after applying for H-1B status; b) they will not place any H-1B worker at the worksite of another employer unless the employer first makes a bona fide inquiry as to whether the other employer has displaced or intends to displace a similarly employed U.S. worker within 90 days before or after the placement of the H-1B worker; and c) they took good faith steps to recruit U.S. workers for the job for which the foreign worker is sought, at wages at

least equal to those offered to the H-1B worker, before applying for H-1B status for the foreign worker. In addition, the employer will offer the job to any U.S. worker who applies and is at least equally qualified than the H-1B worker.[62]

These ENTs in the United States and UK do impede external transferees in the IT services sector but given how current rules are defined, Indian IT services companies can often fulfil the requirements without losing out on too much business. At least according to the best knowledge of the many senior managers interviewed for this study.

When Indian IT services companies venture into new markets, they face diverse and increasingly complex regulatory restrictions. As trade and investment expand to South America, Eastern Europe, Middle East, Africa and East Asia, the Indian companies have to overcome stringent restrictions to international transfers—occasionally based on old discriminatory laws—or astonishingly slow and cumbersome visa processing. As a general rule: the smaller the company, the more difficult these are to overcome. Annex G provides a brief overview of non-Mode 4 related trade restrictions affecting IT services exporters.

4 ECONOMIC IMPACT OF MODE 4 RESTRICTIONS

The paper has so far documented the Indian IT services sector's demand for work permits in the UK and the United States and identified the restrictions that impede the mobility of natural persons that is essential to the functioning of the GDM employed by that sector. Foreign IT professionals face quantitative barriers, tariff-like fees, and a time-consuming and unpredictable work permit application process. The regulatory restrictions and the administrative hurdles pose several challenges to an attempt to quantify the aggregate trade barrier. The arbitrary decision making process at work permit/visa processing units instil a great deal of uncertainty that needs to be quantified, if possible. And a country's willingness to issue work permits tend to fluctuate over time. This section will hence provide a qualitative analysis of the impact that Mode 4 restrictions have, and might have in the future, on corporate decision making.

4.1 The impact on trade and investment

The economic impact of a Mode 4 trade restriction depends largely on their nature and scope (see the box below for a discussion on Mode 4 trade restrictions compared to barriers to trade in

[62] This attestation does not apply if the H-1B worker is a "priority worker" within the meaning of Section 203(b)(1)(A), (B), or (C) of the INA (see www.dol.gov/compliance/guide/h1b.htm).

goods). A restriction to Mode 4 trade alters the modal incentive structure and can have several effects. A Mode 4 restriction can potentially lead to:

I. Trade reduction or trade diversion:

- Mode 4 trade declines; and in addition, Mode 1 trade declines given the complementary relation between Mode 1 and Mode 4 trade;
- Mode 4 trade migrates to another source country if the restriction is implemented in a discriminatory manner. This effect may have the added consequence that Mode 1 trade is diverted to the new source country.

For example, the challenges associated with transfers of Indian IT professionals to certain Western European countries have (among other reasons) induced Indian companies to establish software development centres in middle-income countries in Eastern Europe. These bases are used to deliver services to EU neighbours in the West and benefits from free labour circulation within the EU. In the United States, Microsoft has reported that it will open a software development centre in Canada in order to recruit and retain professionals without having to face the hassles associated with U.S. work permit procedures.[63]

II. Modal substitution effect:

- Mode 1 trade increases and Mode 4 trade declines; if it is technically and economically feasible to increase the component of cross-border supply;
- Mode 3 trade increases and Mode 4 trade declines; if commercial presence becomes economically feasible, which reduces the need to transfer staff;

Mode 4 restrictions affect both Indian and OECD-based companies. If local talent is available in the OECD-based company's domestic market, Mode 4 restrictions may result in increased hiring of local IT professionals. This is likely to have a positive effect on local salaries for IT professionals, which increases the incentives for a younger generation to invest in science education.[64] However, the domestic industry will be worse off if the local labour supply is less productive or if there are labour market shortages. Several American tech companies argue that Mode 4 trade restrictions are forcing them to invest in supply capacity abroad because of the

[63] www.globalservicesmedia.com/content/general200711233306.asp

[64] This is a common position among sceptics to the benefits of international outsourcing. Hira (2004) discusses strategies that Indian IT services companies adopt to overcome Mode 4 restrictions.

significant shortages in the U.S. labour market.[65] Mode 4 trade restrictions can thus help boost inflows of FDI in India and stimulate India's Mode 1 exports.

Restrictions that discriminate between temporary movement of external transferees and intra-company transferees alter the incentive structure for transfers using the two types of visas. For example a U.S. company that has problems bringing in an external transferee on an H-1B visa can potentially recruit the talent directly in the source country and after six months seek to transfer him or her to its U.S. office on an L-1 visa. The same goes for an Indian company that fails to secure the necessary number of H-1B visas for its non-American employees: a larger local presence in the United States will allow it to transfer more Indian professionals as intra-company transferees. If the incentives to transfer staff are strong enough, it may induce the Indian companies to invest in more front end capacity which it can refer to in its work permit applications for intra-company transferees.

4.1.1 Existing evidence

The question is then what evidence there is for these prospective developments. So far, Indian companies have sought to reduce their dependency on work permits in three principal ways. In each case, the reduction in work permit/visa issues was only one of several potential benefits. The first approach has been to maximise the amount of work that is carried out offshore. This development has been underway for a long time: Indian companies have strived to reduce the onsite-to-offshore work ratio ever since large amounts of information became transferable over ICT networks. As previously discussed, the main incentive for a large offshore work component may be economic but overcoming the work permit hassle certainly plays an important role in the cost-benefit equation. The onsite-to-offshore work ratio dropped, as mentioned in section 3.2.1.1, from nearly 90 percent in 1988 to 42 percent in 2005. So notwithstanding the complementary relation between Mode 1 and Mode 4, there is significant evidence that the IT services sector has made great strides in increasing the Mode 1 trade component and lowering the Mode 4 trade component.

The second approach has been to establish subsidiaries and software development centres in client countries, which reduces the need for international transfers of staff (see OECD, 2006). Equally important, international transfers have been facilitated since foreign staff members can move to the client country as intra-company transferees. Intra-company transferees do not face work permit quotas and consular services are generally more expedient. However, for smaller

[65] See www.microsoft.com/Presspass/exec/billg/speeches/2007/03-07Senate.mspx.

companies, green field investment is not an option for financial reasons. Many SMEs have chosen to partner with local companies in their client markets while others have brought their clients over to India for knowledge transfers.

India's multinationals are increasingly exploring opportunities to establish more front end operations in client countries. This trend is likely to accelerate among large companies as they mature and over time seek to move up the value chain by delivering more complete solutions to complement software application and application management services (see Table 10 in Annex A). Commercial presence is thus dampening the need for international transfers of IT professionals. Until date, however, such developments are just about discernible among the top Indian IT services companies. The sector is well aware that it involves significant risk as it may reduce some of their cost advantage and make them face their competitors head on.[66]

In its annual report for the year ending March 2008, TCS reported that its 108,000 employees included 62 nationalities, down from 67 nationalities in 2007 but up from 53 nationalities in 2006 and 35 nationalities in 2005. The share of non-Indian employees to total employees dropped from 9.6 percent (or 8,160 non-Indian employees) in March 2007 to 9.1 percent in March 2008. The share is still significantly higher than the 3.5 percent (or 1,448 non-Indian employees) employed in March 2005. Many of these non-Indian employees may have been BPO agents rather than IT services professionals but the company still stated that a *"heterogeneous base is central to sustaining the Company's competitive edge"*.[67]

At Infosys, the share of non-Indian employees to total employees was 4.0 percent (3,678 out of 91,187) in March 2008. It covered 70 nationalities in 26 countries, up from 65 nationalities in March 2007 and 53 nationalities in March 2005.[68] With U.S. Senators Grassley and Durbin seeking to restrict the issuance of temporary work permits in the United States, Infosys announced in May 2009 that it plans to hire an additional 1,000 American employees (Business Standard, 2009). The local recruitment would add to the 800 American employees and 9,700 H-1B and L-1 work permit holders the company hosted in the United States as of March 31, 2009. Many of the new staff members will be experienced consultants recruited from U.S. competitors

[66] So in theory, while inadequate liberalisation of Mode 4 trade may impede Mode 1 trade in IT services, Mode 3 trade could potentially help circumventing Mode 4 barriers. But this paper argues that commercial presence in high-income client countries is not yet an economically viable alternative for most Indian IT services companies. Thus in practice, and for the foreseeable future, the linkages between Mode 3 and Mode 4 remain rather modest.

[67] TCS Annual Reports for 2005-2008.

[68] Infosys Technologies Annual Reports for 2005-2008.

that the company needs to break into new business areas such as consulting. The ambition of India's largest IT services companies to move into new business segments and offer higher value services will result in an increased focus on hiring local professionals in client countries.

A third and increasingly common approach among medium and large Indian companies has been to establish software development centres in countries within close proximity to client countries. These countries offer a lower cost environment than client countries and thus allow an Indian company to safeguard some of its cost advantages. Indian companies are using Eastern European subsidiaries to service clients in Continental Europe; Mexico and Canada are used as centres to service the U.S. market, francophone African countries are used as bases to service the French market; and development centres in China provide services to Japan and South Korea (see more in Engman, 2007). These 'near-shoring' centres help to overcome language and cultural barriers as well as some of the restrictions to international movement of professionals, in particular in Europe.[69]

OECD-based companies, on the other hand, have moved more service production abroad as a result of Mode 4 trade restrictions than they otherwise would have done (Brooks Masters at al., 2000). A business survey by the National Venture Capital Association (2007) of privately held venture capital-backed U.S. companies revealed that Mode 4 restrictions to high-skilled migration have influenced the decisions of one-third of the surveyed companies to place more staff at foreign facilities. The study singled out the lack of H-1B visas as the major human resources bottleneck.

A business survey by the Santangelo Group (2004) also found that 73 percent of U.S. companies were experiencing, or had experienced in the recent past, problems such as unexpected delays and/or seemingly arbitrary denials in the processing of business visas. 60 percent reported that processing delays had resulted in negative cost implications, lost sales and the need to relocate people or functions offshore.[70] Visa applicants from China, India and Russia were having the greatest difficulties with time-consuming application procedures. The consulting company

[69] While near-shoring may facilitate the movement of professionals to client countries, there are often stringent restrictions to movement between India and the new proximate markets where they establish commercial presence. Indian IT companies are generally well received and supported in the new emerging markets in which they invest but it generally takes time to remove long-standing South-South restrictions which in many cases are more stringent that those for North-South trade.

[70] 70 percent of respondents had been unable to bring foreign employees to the U.S.; 67 percent had had to postpone projects; 51 percent had been unable to bring customers to the U.S. for product inspections or training; 50 percent had been unable to bring foreign business partners to the U.S.; and 43 percent had suffered reputation damages.

estimated that for the 21 month period ending March 2004, U.S. companies lost US$ 25.5 billion in revenue and US$ 5.2 billion in indirect costs as a result of visa processing delays and arbitrary denials.

In sum, there is ample evidence that Indian companies have adopted a number of approaches to minimise their onsite footprint and by extension their dependency on foreign work permits. They have sought to maximise the offshore work component by leveraging telecommunications and technology to the extent possible. Some of the large companies have also established front offices in their client countries and in low-cost countries near their client countries (yet these offices brought several other benefits than simply overcoming work permit issues). The relative importance of Mode 1 and Mode 3 trade has thus increased while Mode 4 trade has dropped in the GDM. Therefore, one could argue that Mode 4 restrictions have resulted in some mild degree of trade diversion.

However, given strong demand of Indian IT services in the U.S. and UK markets, the Indian sector's demand for foreign work permits have expanded over time. There is no indication that this should slow markedly in the near future. Perhaps more significantly, several U.S. and UK companies have established large offices for the provision of IT services in India. These companies pay higher salaries than Indian IT services companies do and some of their Indian staff would have been transferred to their U.S. and UK offices if temporary movement of natural persons was less restricted. Barriers to Mode 4 trade may hence have had more of a trade diversion effect—replacing Mode 4 with Mode 1—for Western companies than Indian companies.

4.2 Other means of tackling Mode 4 restrictions

India's IT services sector is well aware of its limited ability to impact immigration policy in various client countries. On a political level, they lobby the Indian government to seek Mode 4 liberalisation in foreign markets. The industry association Nasscom is also lobbying politicians and decision makers in political capitals (Giridharadas, 2007). On an individual level, companies network with consulates to stay updated on visa procedures and to build trust. Companies take precautionary internal measures to ensure that they abide to all foreign rules and regulations. They also seek to limit the risk that the transferee aspires to turn the visit into a permanent stay.

Furthermore, many companies have established units that focus on preparing the necessary documentation for work permit/visa applications. Some companies forecast their requirements up to two years in advance. Other companies employ external consultants to assist with translations,

legalisation of documents and other application issues. Ensuring long-term client relations is an approach which increases predictability and facilitates the planning process.
Indian companies have become experts at anticipating various Mode 4 hurdles. They budget for the cost implications and pass them on to their clients. The often time-consuming work permit application process and the risk of rejection are modelled for projects that require large international transfers of staff. In particular the U.S. quota on H-1B work permit is anticipated. Applications are prepared well in advance and submitted as soon as the U.S. government starts to accept new applications every spring. In recent years, demand has exceeded supply for H-1B work permits and the quota limitation and associated H-1B lottery process has arguably had some adverse effects.

Some companies have submitted multiple H-1B petitions for the same employee to improve the applicant's chance in the lottery process (Preston, 2008b). In 2007, more than 500 duplicate applications were submitted (Puzzanghera et al., 2008). However, this loophole was closed in 2008. Other companies have applied for more visas than they might need to ensure future mobility of their manpower. For example, during the analysts call following the publication of Infosys' FY2005Q2 results, a spokesman explained that the company had more than 10,000 H-1B and L-1 visa holders among its employees.

However, and partly due to the 3-5 year validity of the visas, the utilization rate—or the share of Indian visa holders currently working in the United States—was not higher than 52-53 percent (Infosys, 2004). If this were to hold for the sector at large then not more then half to two-thirds of the existing stock of Indian H-1B and L-1 visa holders may actually be working in the United States at any point of time. Wipro also admits that the company needs to improve its *"…supply chain management of* [H-1B] *visas…*[so that they] *are able to exploit them to the hilt"* since some of their H-1B holders never are sent to deliver services in the United States (Premji, 2007).

Border barriers: customs versus consular services

Many poor countries in Africa and Asia are accused of impeding foreign goods from entering their markets. Data show that their time-consuming and arbitrary customs operations leave goods stranded for weeks, spoiling perishable products and making life difficult for domestic producers reliant on foreign inputs. High tariffs are said to eat into prospective profits of local entrepreneurs. This reduces competition for domestic producers and by extension punishes consumers with less choice and higher prices. In addition, there are ample stories of long lists of seemingly irrelevant documents and official stamps that are required for goods to cross the border. Unfortunately, these accusations are correct and fair, and provide strong incentives for producers to seek ways to bypass border officials.

Equally regrettable is the fact that many rich country governments impede foreign service providers from entering their markets to deliver services. For the IT service sector, time-consuming and arbitrary consular services leave senior managers and software engineers stranded at home for several months. This leads to strained client relations, foregone business opportunities and lower productivity growth in importing countries. High visa processing fees eat into prospective profits of IT services companies and reduce their incentives to deliver services overseas. In addition, stories galore of long lists of seemingly irrelevant interview questions and documents required for IT professionals to be allowed to cross borders with their coveted skills.

5 REFORM PROPOSALS FOR A MORE EFFECTIVE MODE 4 TRADE POLICY

The taxonomy of Mode 4 restrictions presented in Tables 7a-b was not only intended to identify the various issues and present them in a logical structure, but also to provide a rough but objective measure of their restrictiveness and pinpoint their adverse economic effects. It revealed that the most severe issues are quantitative barriers and slow, burdensome and unpredictable consular services. Both issues have serious productivity implications for the client company and the supplying company alike—and by extension impede trade and investment. Both issues could also be addressed without large budget support; however, available solutions would require political leadership and reform commitment. In the comparison of Mode 4 regulations in the United States and UK, the former country faces a much steeper task of addressing shortcomings. UK provides positive lessons with its transparent and expedient work permit system.

If economic efficiency were the top priority of policy makers, the first objective would be to remove the sources of uncertainty in the application process for work permits. This would allow companies to plan ahead and allocate human capital to its most productive use. It would remove the distorting incentives that lead companies to seek ways to game the system, to invest large amounts in legal advice and services from immigration attorneys and consultants, and to hoard work permits to ensure future mobility (as the comments by Wipro illustrated), etc. The second objective would be to provide an expedient, fair and streamlined application process. This would speed up operations and hence increase the competitiveness of local companies. It would also create much goodwill by ensuring that foreign service suppliers are treated with dignity.

5.1 Improving the consular experience and easing the consular workload

The work permit processing issue is ostensibly the easier to tackle because it is seldom, if ever, the explicit objective of a government to limit international transfers by means of running an international chain of understaffed, incompetent and hostile consulates or visa processing

administrations. However, this is how consulates in some OECD countries are described by senior managers who have worked abroad and executed IT services projects in client countries. The lowest hanging fruit would thus be to streamline the application process and ensure transparent and fair rules which applicants must comply with.

A more expedient and predictable consular service would reduce information and transaction costs for the IT services sector. It would also allow the IT services sector to more effectively allocate human resources and remove a common source of frustration. The client would gain from a more productive and predictable relation with the supplier. According to managers in the Indian IT services sector, UK is widely acknowledged to operate an expedient, predictable, transparent and fair work permit scheme.[71] The U.S. work permit administration (as well as those in most EU member states) is much more burdensome than the British and there is significant work ahead if they want to equal British standards.

The application process and all associated work permit rules should be made available on the Internet in an international language and with explanations and timely updates. A streamlined process would cut out unproductive steps in the application process—while ensuring national security—and allow consular and visa processing staff to focus on where they add value. It would remove non-critical documentation requirements, including birth certificates (when these are uncommon and passports have the same function), years of payslips and legally certified translations of all but the most critical documents.

Consular offices could for example adopt risk management systems similar to those customs authorities in advanced economies use to facilitate trade in goods. Professionals who travel frequently would be screened in advance and their application process greatly facilitated upon a perfect record of compliance with the host country's rules and regulations—*e.g.* in the form of the U.S. blanket L-1 work permit system. Companies that seek to game the system should be punished with fines and more thorough background checks. This would facilitate trade while combating illegal immigration (Gootiiz and Mattoo, 2009).

The system should provide incentives to the sending companies to take full responsibility for thoroughly scanning their professionals. Consulates and visa processing authorities could then free up significant resources that could handle the backlog of applications that frequently choke

[71] It is still too early to evaluate the outcome of UK's recent work permit system that is points based but there are no indications that the new system has made the process any worse.

consulates in India and elsewhere and then focus on monitoring and exacting the process. This would improve productivity in the administrative process.

5.2 Addressing quantitative restrictions

The work permit quota is a government-mandated tool to limit temporary market access for foreign service suppliers. The quota gives governments a sense of control of foreign labour mobility since they can manipulate it over time. In practise, it is impossible to predict fluctuations in demand due to information asymmetries, as the history of the H-1B work permit in the United States illustrated earlier. By taking upon itself to endeavour to seek this information and manipulate the supply, the U.S. Congress falsely gives the impression that they protect local labour markets from foreign competition. Once introduced, quantitative restrictions, like most other forms of trade barriers, take considerable political capital to remove.

The first best solution from a welfare maximizing perspective would be to remove the work permit quota altogether. Economic theory shows that quantitative barriers are particularly costly forms of protection and that price instruments are less harmful from a welfare perspective. Free circulation of professionals would greatly benefit the U.S. economy since it would allow companies to recruit the most talented manpower available. However, due to potential income distribution effects from free labour circulation—in addition to social and other effects—there may not be political support for such a policy. Or as Kirkegaard (2008) puts it: *"any reform of US immigration laws is today more than ever "politics as the art of the possible" rather than the ideal"*.

Yet the United States is not imposing any quantitative restrictions or burdensome regulations on intra-corporate transferees and the L-1 work permit has not been attacked by critics in the way the H-1B has been. There may hence be some hope for a removal of the quota at some point although the lack of any substantive debate about its removal may indicate that this is unlikely to happen in the foreseeable future. Consequently, the relevant question is then how the United States could design its quota system to minimise resource allocation losses if there is no support for its removal.

The lottery system that the U.S. government employs to allocate the quota of H-1B work permits is extraordinarily inefficient but easy to administer and, some may argue, a relatively fair process. While the quota gives rise to welfare losses, the random process of distributing the quota adds an additional level of inefficiency. Here is why: assume that there are two applicants for each work permit (as has approximately been the case in recent years). The expected value contributed by a

randomly selected candidate is in a lottery system not higher than the value generated by the median candidate. And the value offered by the median candidate is not higher than the lowest value that a candidate would contribute in a perfect distribution of the quota.

It would be literally impossible for a government to screen all candidates and allocate the quota to those candidates that would strictly provide most value to the local economy. The costs associated with information collection and assessment would be too high. One solution discussed by Kirkegaard (2007) would be to raise the H-1B quota to a de facto nonbinding cap (*e.g.* 500,000) that would never be approached under normal economic circumstances. Pro-business Congressmen have proposed somewhat less ambitious quota increases at various points in the past. This approach may seem attractive from a political perspective since it would entail minimum rework by lawmakers. However, it would not address the issue since the quota would remain subject to future efforts to manipulate the quota.

Arguably the best indication of a foreign professional's value contribution would be a market generated price signal. Some sort of auction could provide such a price signal and the price of work permits would be set according to demand and supply. If supply exceeded demand, the price would be virtually zero, unless there was a starting price for the work permit (the current starting price is US$ 2,320). Freeman (2006) has argued that pricing the market entry of foreign service providers through an auction would have two main effects. First, it would limit demand since companies would only sponsor workers up to the expected value of the worker's future contribution. The current hoarding of work permits by Indian IT services companies is a result of the scarcity of the resource and the lack of a market price. Companies obey the rules of the game but the rules of the games are so imperfect that other occupations to some extent are crowded out.

Second, it would increase the number of work permit that the receiving country would be willing to issue since the local society would enjoy an increased proportion of the foreign worker's value contribution. A higher cost for unrestricted mobility—which could be channelled back to finance unemployment insurance and training opportunities—would partly be carried by higher fees paid by American client companies and partly on the expense of the profitability of Indian IT services companies and the remuneration of Indian IT professionals. In addition, an auction system would reduce subjective value judgements by consular officials.

However, several arguments can be made as to why a straight auction for all skilled workers from the same pool of work permits may not necessarily generate a desirable outcome. Some of the main concerns of introducing a straight auction for the current quota of H-1Bs are that:

- SMEs would have difficulty competing with multinationals. A small IT services company may not have the same access to finance as a big company and less predictable income.
- Young professionals with great talent could be priced out by senior professionals.
- Talent cannot be tested without some prior employment. Companies may not be willing to pay a significant fee before a professional has shown the value he or she can contribute.
- There is significant variability in the productivity of different occupations. This is not necessarily a big issue but it could have negative effects on market access for certain occupations.
- Some highly skilled occupations that provide a lot of value to society are not well paid and may be priced out in an auction. This would for example include certain occupations often associated with the public sector, such as health and education services.

Auctions can be tailored to tackle many of these issues. For example, there is currently no flexibility with regards to the length of time a work permit is valid. A company that needs support for one year can only apply for a work permit that is valid for three years. An auction could address this issue by auctioning permits with varying validity, such as 6, 12, 18, 24, 36, 60 months. The price for a work permit with six-month validity would very likely be lower than one with 60 months.

Auctions could also be held more frequently than once-per-year that currently holds for H-1B work permits. Auctions could be held every month, second month or third month, which would improve timely access to top talent and raise market efficiencies of allocation of human capital. The results of the auction could also be announced within days, or even hours, of the closing of the auction. Work permits could then be issued straight away rather than according to the current practise where the window of application opens in April and work permits are issued for October onwards.

Smaller companies could be offered a premium price compared to large companies if the concern about size is valid. There could also be a certain number of work permits set aside for younger professionals. The concern that some highly qualified occupations in the public sector would be priced out in an auction could be addressed by creating an individual work permit for select occupations. The United States already operates a special work permit for nurses (H-1A). However, the shortage of nurses is to some extent a result of a relatively low education premium. If occupations like nursing were to face the same price competition as other occupations, their

salaries would probably rise over time since the access to foreign workers would be curtailed unless employers paid the market price.

How much would an auction fetch for a H-1B work permit? The fee that the U.S. government charges for a H-1B work permit is currently $64/month ($2,320 for 36 months) for a company with more than 50 employees and $11.3/month ($680 for 60 months) for a five-year L-1 work permit.[72] These fees do not reflect the underlying value of the work permits but that was never the objective. Freeman (2006) argues that the price would at a minimum be of the order of the magnitude of the remittances that immigrants send home. For professionals from low-income countries earning some 20 percent of U.S. salaries (in PPP), this would conservatively be around $5,000-10,000 per year for workers who earn around the U.S. median income.

However, Indian IT professionals earn more than the U.S. median income and Stuart Anderson argued in his testimony before the U.S. Congress in 2006 that a H-1B work permit costs up to US$ 5,000-6,000 depending on whether the company opts for the US$ 1,000 premium processing fee or not (Kirkegaard, 2007). The large Indian IT services companies that are the world's major consumers of H-1B and L-1 work permits are highly profitable. Profit margins around 30-40 percent have been standard among the leading companies such as Infosys, TCS and Wipro. Provided the fact that U.S. clients generate 60-70 percent of these companies' income, Indian IT services companies would be ready to bid for H-1B work permits as long as they made a profit and as long as they could not substitute the H-1B for L-1 work permits or it made financial sense to hire local IT professionals in the United States.

A final idea would be to link the work permit quota to the company supplying the service rather than the employee supplying the service. A quota that is transferable between a company's employees would avoid some of the perverse incentives that currently exist for exporters to "hoard" work permits. The earlier example of Wipro Technologies was telling: the company may not employ much more than half of its H-1B sponsored professionals at any one time in the U.S. market. A transferable quota would reduce the number of work permits the company applies for every year. Employees who were candidates for foreign service would be screened in advance and the transfer of the work permit from one person to the other could then become a mere formality.

[72] The equivalent fee that the UK government charges for a Tier 2 work permit valid for three years is £11/month (roughly $16.5/month).

ANNEX A: THE INDIAN IT SERVICES SECTOR

India was one of the first emerging economies to start supplying OECD-based multinationals with IT services in the 1980s. There were several reasons why Western companies decided to source IT services abroad and why they turned to India in particular in this process. First, international sourcing of IT services can offer significant labour-cost arbitrage and enable companies to offer their clients new, cheaper, more flexible and higher quality services. Effectively executed, it can offer companies reduced time-to-market, facilitate access to foreign markets and create business opportunities to develop new products for niche markets. The use of sub-contracting allows companies to focus on what they do best, freeing up capital to be re-invested in R&D and more productive activities. Innovations in business practices and low productivity growth have worked as drivers of international sourcing in other instances.

Second, reduced costs and increased quality and reliability of information communication and technology (ICT) networks have enabled emerging economies to compete for IT services business on global markets. Yet only India has been able to offer abundant human capital with the necessary set of attributes—including English proficiency and technical skills—that enable an export-oriented and labour-intensive tech sector to thrive. These factors, coupled with a first-mover advantage and significant economies of scale inherent in global delivery of IT services, have greatly benefited India's IT services sector. A strong reputation coupled with high share valuations have further made it possible for Indian companies to expand and complement their Indian operations with smaller foreign acquisitions. And global operational excellence associated with the Indian GDM has kept clients returning.

While the Indian business environment leaves much space for improvement (see *e.g.* World Bank, 2007), the IT services sector has developed in the relatively protected business environment of India's 'software technology parks'. Since 1991, these parks have offered streamlined, single-window administrative procedures, duty-free access to imports of capital goods and other inputs, 100% exemption from payment of income tax on export profits up to 2009/2010, and 100 percent exemption from excise tax on the purchase of domestic goods. The software technology parks have also provided access to indispensable communication, electricity and other utility services.[73] In the year ending March 2006, 98 percent of Indian exports of IT software and services went through the software technology parks and the sector accounted for 25.1 percent of India's total FDI (WTO, 2007a).

Yet many Indian high-tech centres suffer from an over-burdened city infrastructure with poor domestic transport facilities, inadequate air links to international business centres, and the country risk is perceived to be higher than in many other emerging markets (neoIT, 2006). India's tech centres are in many ways victims of their own success: fierce competition for talent has left companies struggling with high attrition rates and rapid salary inflation. Salaries for managers and experienced software programmers in India's premier tech centres are converging with Western salaries, reducing India' labour cost advantage vis-à-vis client countries and competitors in other emerging economies. However, there is currently no other emerging economy with a nearly as large and sophisticated IT services sector to supply foreign markets.

Export markets

The Indian IT services sector has enjoyed rapid and sustained growth for more than a decade. It is not only the IT services sector that has enjoyed this boom: the compound annual growth rate (CAGR) of Indian services exports was 43 percent between 1965 and 2000 (Mattoo et al., 2007); and 17 percent in the 1990s

[73] See Software Technology Parks of India (www.stpp.soft.net) & pp.125-127 in WTO (2007a) for details.

(World Bank, 2004). The growth rate for the 1990s was the highest among the world's fifteen largest services exporters. In 2005, Indian exports of computer services reached an estimated US$ 15.8 billion according to the WTO Secretariat (WTO, 2007b). In comparison, U.S. and Extra-EU(25) exports of like services were US$ 5.7 billion and US$ 17.8 billion respectively.[74] For the year ending March 2008, Indian exports of IT services reached US$ 23.1 billion (Nasscom, 2009).[75]

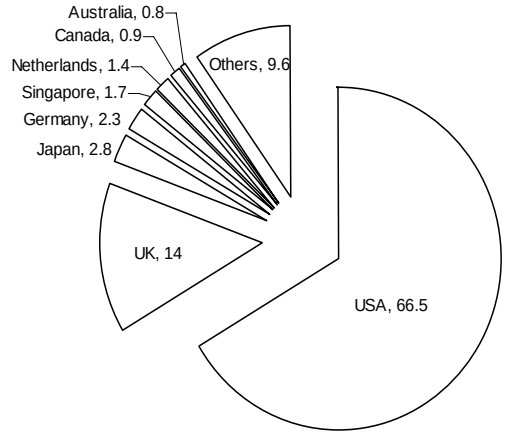
India's IT services sector has been dependent on foreign markets since its founding. In 2006, the domestic market for IT services was worth US$ 5.6 billion, or 24 percent of total supply (Nasscom, 2007). The leading Indian IT services companies are focusing almost exclusively on foreign clients (although this may change as the purchasing power and sophistication of India's private and public sector increase). Anglophone OECD-markets are becoming increasingly dependent on Indian IT services: the McKinsey Global Institute (2005) estimates that India accounts for 72 percent of emerging market exports of IT services. In the UK, India accounts for as much as 88 percent of IT services imports from emerging markets.

India's IT services exports are mainly confined to two markets: United States and UK capture 67 percent and 14 percent respectively (see Figure 2).[76] Their combined four-fifths market share of Indian exports has remained fairly stable over time. The potentially lucrative markets in Japan and Germany have largely overlooked India and both countries import less than US$ 0.5 billion worth of Indian IT services. It demonstrates the significance of matching language skills in IT services trade. In 2005, 84.3 percent of Indian exports of business process services and IT services were captured by Anglophone countries.[77] India's reliance on the U.S. market may be less startling in light of United States' near 50 percent share of global spending on IT services and software (Mann, 2006).

Table 10. Indian IT services exports (US$ bn)

SERVICE CATEGORIES	FY 2006E
Project-oriented engagements	**7.39**
Custom application development	6.60
IT consulting	0.33
Systems integration	0.26
Network consulting & integration	0.20
Outsourcing engagements	**4.36**
Application management	3.56
IS outsourcing	0.79
Support and training	**1.45**
TOTAL	**13.20**

Figure 2. Indian BPS & ITS exports by country of destination, FY2005



Source: NASSCOM (2006)

[74] In 2005, imports of computer services were valued at US$ 28.5 billion in EU(25), US$ 9.9 billion in Extra-EU(25), US$ 8.5 billion in United States and US$ 1.2 billion in India.

[75] An additional US$ 13.3 billion was generated by exports of business process services, software products, R&D and engineering services. Combined, technology-intensive services exports made up 3.4 percent of India's GDP (Nasscom, 2007).

[76] Nasscom does not provide a breakdown between business process services and IT services.

[77] That is Australia, Canada, Singapore, UK and the United States.

International sourcing strategies

Companies seeking to source IT services from abroad adopt sourcing strategies based on desired levels of control, risk, time, effort, cost savings, etc. (see e.g. BAH, 2006). First, a company that wants to keep full control of the work—for example to retain core competence in-house—can establish a fully-owned Indian subsidiary. This is a common strategy in particular among large companies and normally takes the form of a green field investment in an Indian software technology park. A quicker alternative is to acquire a local Indian IT services company through direct transfer of capital or equity to leverage productive capacity. Capgemini's acquisition of Kanbay and EDS's majority investment in MphasiS in 2006 are examples of Western multinationals acquiring companies with Indian operations (JPMorgan, 2007).

Second, a company can also engage an Indian IT services company through contractual agreement. This is the most common strategy and often the only cost-effective choice for an SME. It can for example be used to contract out non-mission critical work, to cover temporary fluctuations in demand or acquire adhoc specialist skills. Indian IT services companies provide everything from low-value, rudimentary software coding to high-value, IT consulting services. Tata Consultancy Services (TCS), Infosys Technologies, Wipro Technologies, Satyam Computer Services and HCL Technologies are the five largest Indian IT services companies and each company's foreign sales revenue exceeds US$ 1 billion. There are also an increasing number of Western companies that offer IT services from their Indian subsidiaries. Some of the companies, like Cognizant Tech Solutions and Syntel, are U.S. companies founded by Indo-Americans with business models similar to their Indian competitors. Other companies like IBM, Accenture and Deloitte Touche offer their clients IT services produced and delivered wherever they are willing to pay for them, including from India.

In addition, there are hybrid models of sourcing strategies for companies that are concerned about control and yet seek to leverage external expertise. Joint ventures with Indian partners can be attractive if the two partners have complementary attributes and a common long-term vision for the new entity. However, joint ventures are seldom used by companies that are only strictly interested in sourcing IT services from India. More common is the 'build, operate and transfer' (BOT) model. In such a model the client hires an Indian IT services company to establish a dedicated team/unit which it develops and operates according to pre-defined business metrics. The ownership of the team/unit can then be transferred to the client company if it decides to exercise the option to do so within a pre-negotiated timeframe.

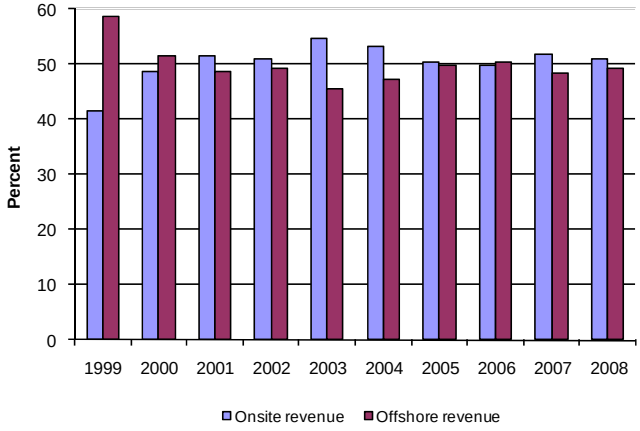
ANNEX B: COMPUTER & RELATED SERVICES: UNCPC DESCRIPTIONS OF THE GATS SECTORAL CLASSIFICATION LIST ENTRIES

W/120	UNCPC	UNCPC description
Ba	841	Consultancy services related to the installation of computer hardware: assistance services to the clients in the installation of computer hardware and computer networks.
Bb	842	Software implementation services: all services involving consultancy on, development and implementation of software, and defines "software" as the sets of instructions required to make computers work and communicate, which may include a number of different programmes developed for specific applications (application software) and situations in which the customer may have a choice of ready-made off-the-shelf programmes (packaged software), specifically developed programmes for its requirements (customized software) or a combination of the two. The sub-categories are:
	8421	Systems and software consulting services: services of a general nature prior to the development of data processing systems and applications. It might be management services, project planning services, etc,
	8422	Systems analysis services: include analysing the clients' needs, defining functional specification, and setting up the team, as well as project management, technical coordination and integration and definition of the systems architecture
	8423	Systems design services: include technical solutions, with respect to methodology, quality-assurance, choice of equipment software packages or new technologies, etc.
	8424	Programming services: the implementation phase, i.e. writing and debugging programmes, conducting tests, and editing documentation
	8425	Systems maintenance services: consulting and technical assistance services of software products in use, rewriting or changing existing programmes or systems, and maintaining up-to-date software documentation and manuals and specialist work, such as conversions
Bc	843/ 8431	Data processing services: or "input preparation services" include data recording services such as key punching, optical scanning or other methods for data entry
	8432	Data-processing and tabulation services consisting of services such as data processing and tabulation services, computer calculating services, and rental of computer time
	8433	Time-sharing services: UNCPC states that there is no clear distinction between 8432 and 8433, noting that computer time only is bought; if it is bought from the customer's premises, telecommunications services are also bought. Data processing or tabulation services may also be bought from a service bureau.
	8439	Other data processing services: consisting of services which manage the full operations of a customer's facilities under contract: computer-room environmental quality control services; management services of in-place computer equipment combinations; and management services of computer work flows and distributions
Bd	844	Data base services: all services provided from primarily structured databases through a communication network. The UNCPC specifically excludes "data and message transmission services" which it classifies under telecommunications services (as 7523) and excludes documentation retrieval services classified as library services (as 96311)
Be	849	Other computer services: services for which UNCPC lists two sub-categories
	8491	Data preparation services: services for clients not involving data processing services
	8499	Other computer services n.e.c.: training staff of clients and other professional services

Source: WTO Secretariat (1998)

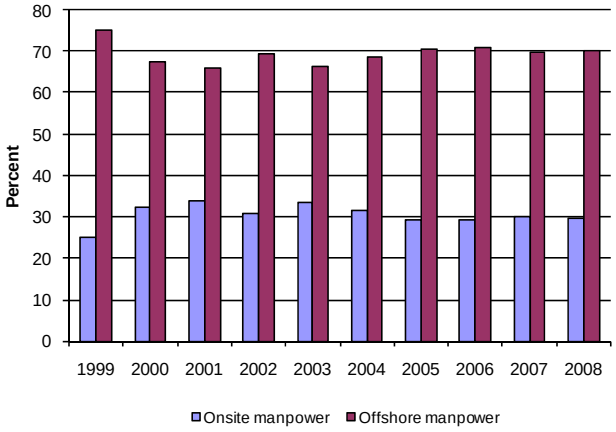
ANNEX C: INFOSYS TECHNOLOGIES – BENCHMARKS

Infosys Technologies: revenue by location



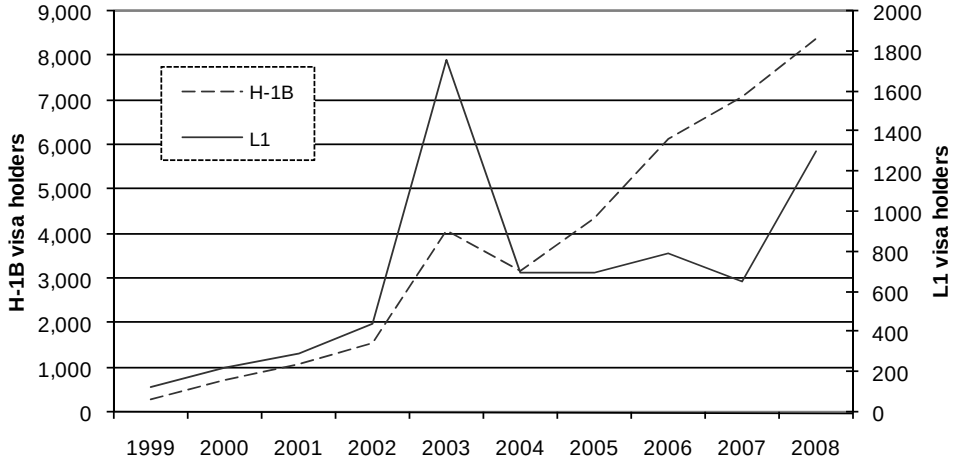
Source: Infosys Technologies, Annual Reports 1999-2008

Infosys Technologies: person months



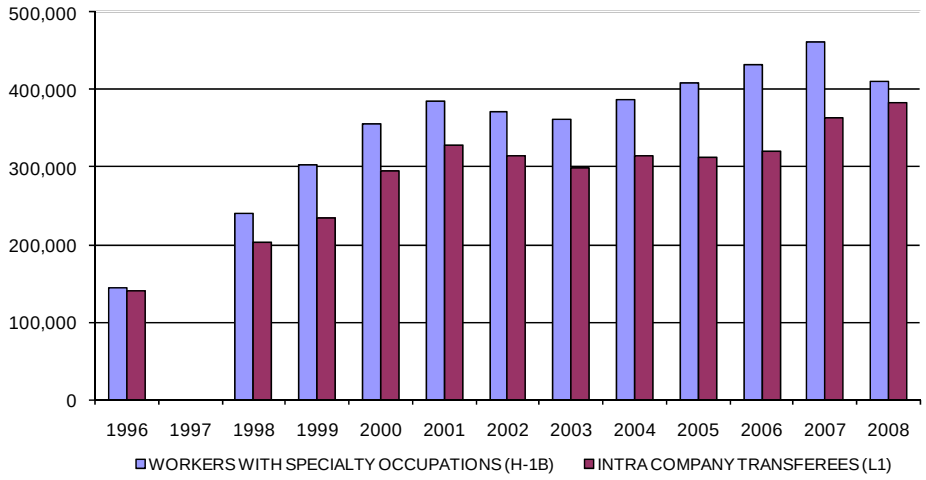
Source: Infosys Technologies, Annual Reports 1999-2008

Infosys Technologies: employees with H-1B and L-1 work permits



Source: SEC filings (20-F) at www.sec.gov/edgar.

ANNEX D: H-1B & L-1 WORK PERMITS AWARDED, 1996-2006



Source: U.S. Department of Homeland Security

The stock of awarded H-1B and L-1 work permits grew steadily and more than doubled between 1996 and 2001. Stricter migration policies following the 9/11 terrorist attacks coupled with an economic slowdown led to two successive years of reductions in issued H-1B and L-1 visas. Since 2003, the numbers of H-1B and L-1 visa holders have grown somewhat again.

ANNEX E: NUMBER OF CLEARED, APPROVED AND SUCCESSFUL ON REVIEW WORK PERMIT AND FIRST PERMISSION APPLICATIONS FOR THE TOP FIVE NATIONALITIES, 2000-2007*

IT SECTOR OCCUPATIONS	TOP 5 NATIONALITIES	2000	2001	2002	2003	2004	2005	2006	2007	Total
Analyst programmer	India	-	1,890	2,120	645	1,075	1,100	1,795	2,635	11,255
	United States	-	70	75	75	125	95	110	80	630
	Australia	-	90	105	45	55	30	30	20	370
	South Africa	-	70	55	20	15	30	25	10	220
	China	-	15	10	15	20	25	45	55	185
	Total	-	2,415	2,645	975	1,480	1,525	2,280	3,015	14,335
Business analyst	India	-	120	180	85	120	180	280	640	1,605
	United States	-	135	120	65	70	60	85	125	660
	Australia	-	85	120	45	30	30	45	40	390
	South Africa	-	50	50	20	10	10	20	20	180
	New Zealand	-	30	70	20	10	5	10	10	155
	Total	-	615	765	345	310	410	585	1,070	4,100
Computer engineer	India	170	305	165	195	365	370	170	50	1,795
	United States	35	50	15	5	15	10	5	10	145
	South Africa	15	10	5	5	†	5	†	5	50
	Australia	10	20	5	5	†	†	†	5	50
	Japan	5	5	†	†	10	10	†	†	40
	Total	320	480	240	235	405	420	195	85	2,380
Computer programmer	India	585	475	210	145	675	690	715	615	4,110
	United States	40	25	15	5	10	5	5	†	110
	South Africa	30	40	5	†	-	†	5	†	80
	Australia	15	35	5	10	5	5	-	†	70
	China	10	15	5	5	5	5	5	5	45
	Total	795	715	295	195	715	715	745	635	4,810
Database specialist	India	-	55	85	25	25	40	40	105	380
	Pakistan	-	15	20	5	5	†	5	†	55
	South Africa	-	25	10	-	†	†	†	†	45
	United States	-	10	10	5	5	†	5	†	40
	New Zealand	-	15	20	5	†	-	-	-	35
	Total	-	165	200	60	55	45	60	120	715
IT architect (senior)	India	-	-	10	5	5	20	5	5	50
	United States	-	-	†	10	†	-	†	5	20
	Australia	-	-	-	†	-	†	-	†	5
	New Zealand	-	-	†	-	-	-	†	-	5
	Thailand	-	-	-	†	-	-	-	-	†
	Total	-	-	15	25	5	20	10	10	85

Figures are rounded to nearest 5. Because of rounding, figures may not add up to totals shown.
† Indicates 1 or 2
- Indicates Nil

The figures quoted are not provided under National Statistics protocols and have been derived from local management information and are therefore provisional and subject to change.

* The top five nationalities breakdown was undertaken across the entire seven year period (not for each individual year).

Source: UK Border Agency (2008)

ANNEX E: NUMBER OF CLEARED, APPROVED AND SUCCESSFUL ON REVIEW WORK PERMIT AND FIRST PERMISSION APPLICATIONS FOR THE TOP FIVE NATIONALITIES, 2000-2007*, *CONT.*

IT SECTOR OCCUPATIONS	TOP 5 NATIONALITIES	2000	2001	2002	2003	2004	2005	2006	2007	Total
IT Manager	India	-	100	80	85	90	110	70	90	620
	United States	-	45	45	40	35	10	15	20	220
	South Africa	-	25	15	10	15	5	5	5	80
	Australia	-	20	15	20	5	5	5	5	75
	Pakistan	-	10	10	5	5	5	5	†	40
	Total	-	285	240	215	185	165	125	130	1,350
Network specialist	India	-	85	130	30	35	30	40	50	400
	South Africa	-	65	85	10	10	10	10	5	195
	Pakistan	-	20	65	10	10	5	10	5	125
	Australia	-	30	40	5	10	10	10	5	110
	United States	-	35	20	10	5	5	5	5	85
	Total	-	325	445	105	90	70	100	90	1,220
Other IT related occupation	India	3,425	2,625	1,950	2,520	4,150	5,240	8,260	9,915	38,085
	United States	1,270	940	555	490	695	555	750	720	5,975
	Australia	410	465	280	260	210	245	320	230	2,425
	South Africa	455	450	215	150	160	230	300	205	2,165
	Canada	240	160	125	90	105	110	140	120	1,090
	Total	7,370	6,165	4,135	4,425	6,340	7,705	11,555	12,865	60,565
Project manager	India	75	185	165	175	315	440	635	835	2,830
	United States	140	215	155	95	125	150	160	135	1,175
	Australia	35	95	50	30	45	60	55	50	415
	South Africa	20	35	35	25	30	25	40	25	235
	Canada	15	30	35	10	20	25	20	15	170
	Total	360	760	585	445	660	835	1,090	1,220	5,955
Software engineer	India	1,910	3,080	3,610	2,605	3,910	4,755	7,055	7,990	34,920
	United States	90	130	110	65	65	50	55	60	620
	China	40	95	80	25	35	30	50	60	410
	Australia	30	110	55	40	15	15	15	10	290
	Pakistan	25	75	100	25	15	15	15	25	290
	Total	2,420	4,095	4,330	2,930	4,220	5,055	7,470	8,400	38,920
System analyst	India	1,960	2,030	2,050	1,920	1,215	1,295	1,110	1,585	13,170
	United States	100	110	50	45	20	10	20	15	375
	Australia	60	60	35	15	5	5	10	10	200
	South Africa	40	75	15	10	10	†	10	10	170
	Japan	10	35	20	15	5	5	5	†	90
	Total	2,305	2,535	2,280	2,060	1,295	1,355	1,220	1,675	14,725
TOTAL		**13,565**	**18,550**	**16,180**	**12,005**	**15,765**	**18,325**	**25,435**	**29,325**	**149,155**

Figures are rounded to nearest 5. Because of rounding, figures may not add up to totals shown.
† Indicates 1 or 2
- Indicates Nil

The figures quoted are not provided under National Statistics protocols and have been derived from local management information and are therefore provisional and subject to change.

* The top five nationalities breakdown was undertaken across the entire seven year period (not for each individual year).

Source: UK Border Agency (2008)

ANNEX F: NUMBER OF CLEARED, APPROVED AND SUCCESSFUL ON REVIEW WORK PERMIT AND FIRST PERMISSION INTRA-COMPANY TRANSFER APPLICATIONS FOR THE TOP FIVE NATIONALITIES, 2000-2007*

IT SECTOR OCCUPATIONS	TOP 5 NATIONALITIES	2000	2001	2002	2003	2004	2005	2006	2007	Total
Analyst programmer	India	-	380	375	345	795	870	1,445	2,345	6,555
	United States	-	40	50	45	85	70	70	55	415
	Australia	-	10	15	25	40	15	15	15	130
	Thailand	-	†	5	5	10	10	20	10	60
	Canada	-	5	5	5	5	5	15	5	45
	Total	-	490	500	490	995	1,030	1,645	2,470	7,615
Business analyst	India	-	45	80	60	85	130	215	520	1,135
	United States	-	70	80	50	45	45	55	90	435
	Australia	-	20	20	15	15	15	25	15	125
	Canada	-	15	10	10	5	5	10	10	60
	South Africa	-	5	5	5	5	†	5	15	40
	Total	-	210	250	195	185	245	365	740	2,185
Computer engineer	India	80	175	105	180	355	350	155	45	1,445
	United States	25	25	10	5	10	10	5	5	95
	Japan	5	5	†	†	5	10	†	†	30
	Australia	5	†	†	†	†	†	-	†	10
	Croatia	10	-	-	-	-	-	-	-	10
	Total	145	230	135	200	380	375	165	55	1,685
Computer programmer	India	170	135	105	115	655	665	680	595	3,115
	United States	25	15	10	5	10	5	5	†	70
	Australia	5	5	†	5	†	†	-	-	20
	China	5	5	†	-	-	-	-	†	15
	South Africa	10	5	†	-	-	-	-	-	15
	Total	235	190	130	135	670	670	685	600	3,320
Database specialist	India	-	10	15	10	5	25	30	100	195
	United States	-	5	5	5	5	†	†	†	25
	Pakistan	-	5	5	†	-	-	-	-	10
	Canada	-	-	†	†	†	-	-	-	5
	South Korea	-	-	-	†	-	-	-	†	5
	Total	-	30	30	15	15	30	35	105	260
IT architect (senior)	India	-	-	5	5	5	15	5	†	35
	United States	-	-	-	5	†	-	†	5	15
	Australia	-	-	-	†	-	-	-	-	†
	New Zealand	-	-	†	-	-	-	†	-	†
	Thailand	-	-	-	†	-	-	-	-	†
	Total	-	-	10	15	5	15	10	5	60

Figures are rounded to nearest 5. Because of rounding, figures may not add up to totals shown.

† Indicates 1 or 2

- Indicates Nil

The figures quoted are not provided under National Statistics protocols and have been derived from local management information and are therefore provisional and subject to change.

* The top five nationalities breakdown was undertaken across the entire seven year period (not for each individual year).

Source: UK Border Agency (2008)

ANNEX F: NUMBER OF CLEARED, APPROVED AND SUCCESSFUL ON REVIEW WORK PERMIT AND FIRST PERMISSION INTRA-COMPANY TRANSFER APPLICATIONS FOR THE TOP FIVE NATIONALITIES, 2000-2007*, *CONT.*

IT SECTOR OCCUPATIONS	TOP 5 NATIONALITIES	2000	2001	2002	2003	2004	2005	2006	2007	Total
IT manager	India	-	45	60	70	70	70	60	85	460
	United States	-	35	35	35	30	10	15	20	185
	Australia	-	5	10	10	5	-	5	†	30
	Japan	-	10	10	5	†	-	†	†	30
	South Africa	-	5	5	†	5	†	†	†	20
	Total	-	120	145	145	125	95	90	115	840
Network specialist	India	-	20	25	10	5	10	10	35	115
	United States	-	25	15	5	5	5	5	5	55
	Japan	-	5	†	†	-	-	-	5	10
	Australia	-	†	†	-	†	5	-	†	10
	Canada	-	†	†	-	†	†	†	-	5
	Total	-	60	55	25	15	20	20	45	240
Other IT related occupation	India	1,525	1,210	1,085	2,015	3,290	4,175	6,800	8,365	28,460
	United States	865	630	425	365	540	420	565	560	4,360
	Australia	105	115	75	90	85	95	70	75	705
	Canada	110	70	70	55	60	70	75	65	575
	Japan	70	70	70	55	70	45	65	70	515
	Total	3,145	2,480	2,015	2,845	4,405	5,265	8,160	9,660	37,970
Project manager	India	50	125	125	145	275	365	540	660	2,285
	United States	100	175	130	75	100	115	125	105	920
	Australia	15	40	25	10	15	25	10	25	165
	Japan	5	15	25	10	15	15	15	10	110
	Canada	10	15	25	5	10	20	10	10	105
	Total	220	440	390	295	450	595	790	875	4,050
Software engineer	India	965	1,285	1,660	2,285	3,435	4,300	6,420	7,200	27,545
	United States	55	75	75	45	50	40	40	45	425
	Japan	5	35	55	40	20	10	35	5	200
	Philippines	-	5	†	†	15	15	35	50	120
	China	5	40	30	5	10	5	5	10	110
	Total	1,100	1,555	1,905	2,435	3,595	4,430	6,605	7,400	29,030
System analyst	India	1,515	1,515	1,755	1,815	1,145	1,190	980	1,470	11,385
	United States	80	75	35	35	20	10	15	15	285
	Japan	5	25	10	10	5	†	5	†	65
	Australia	15	15	10	5	5	†	†	5	55
	Canada	10	10	5	5	†	-	†	5	35
	Total	1,680	1,710	1,850	1,900	1,195	1,215	1,020	1,520	12,085
TOTAL		**6,520**	**7,515**	**7,415**	**8,695**	**12,035**	**13,980**	**19,585**	**23,595**	**99,345**

Figures are rounded to nearest 5. Because of rounding, figures may not add up to totals shown.

† Indicates 1 or 2

- Indicates Nil

The figures quoted are not provided under National Statistics protocols and have been derived from local management information and are therefore provisional and subject to change.

* The top five nationalities breakdown was undertaken across the entire seven year period (not for each individual year).

Source: UK Border Agency (2008)

ANNEX G: NON-MODE 4 RELATED TRADE RESTRICTIONS

The restrictions that affect cross-border supply of IT services are generally non-discriminatory in nature. Arguably the most prominent case of regulation that affects Mode 1 trade in IT services is government legislation on data privacy and security. This type of regulation could potentially have adverse effects on trade yet India's major trading partners do not have rules that differentiate on the country of origin. Furthermore, government regulation is generally less stringent than the guarantees that clients seek on minimum levels of data protection. So while data privacy and security requirements give rise to significant investment in data protection solutions, these investments are incurred by all service providers and are merely necessary to compete for business. IT services companies take pride in their data privacy and security solutions (e.g. elaborate disaster backup facilities) and use them as a sales argument.

Protectionism in government procurement has affected Indian IT services companies in the past. In August 2003, the U.S. subsidiary of Indian company TCS was awarded a US$ 15.2 million contract in the U.S. State of Indiana (Worthen, 2004). TCS was hired to upgrade computers used to process unemployment claims. The contract, which would have saved the State of Indiana US$ 8.1 million, was later cancelled upon the request of the local governor amidst calls for protectionism by parts of the general public. By disqualifying TCS, the tax payers in Indiana paid an additional US$ 162,000 per worker involved (Ganguly, 2005). This type of explicit discrimination in public procurement is relatively uncommon although several U.S. states have tried to implement legislation that favours local entrepreneurs. A less obvious case of discrimination involves public agencies that prepare contract specifications in ways that implicitly favour local providers. India is not a signatory to the plurilateral Agreement on Government Procurement (GPA) and legal recourse in the WTO is therefore not an option to dispute prospective national treatment violations in public contracts.

Public procurement makes up a modest share of India's total IT services exports. In 2004, revenue from public agencies made up less than two percent of India's second largest IT services company Infosys Technologies (Engman, 2005). Chanda (2005a) estimates that 2-3 percent of IT services exports are generated by public agencies. However, business from public agencies could potentially provide a substantial source of revenue if public procurement was more open to foreign contractors. In particular public procurement in the Gulf Cooperation Council (GCC) region is a promising growth market for Indian companies. Discrimination yields higher than necessary public expenditures as less competitive companies are rewarded public contracts. In particular for IT services, one common result of local favouritism is that public contracts end up being awarded to domestic multinationals. These companies then divide up the work and deliver fragments of the value chain in-house from any location that is most cost-effective. For example, a "buy-America" policy for IT services would be almost impossible to enforce since leading American IT services companies produce software across the globe and piece it together in tailored solutions. The software does not pass through customs and does not have an origin stamp.

Transfer of Undertakings (TUPE) regulations oblige a company that transfers a part of its business to another company to also transfer the contract of employment of any employee concerned. The regulations cover for example work hours, length of vacation, remuneration, etc. and they are implemented in several EU member states, including in UK. TUPE regulations can make it difficult for Indian IT services companies to deliver services with help of the GDM, in particular for large projects which involve transfers of personnel. TUPE regulations are not discriminatory in nature but do have an adverse effect on foreign IT services companies since they have corporate labour policies different from those of local competitors. Indian companies argue that specific rules in continental Europe that mandate unions the right to influence corporate decision making have rendered international outsourcing a less attractive proposition.

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