IMPACT OF OFFSHORE OUTSOURCING OF IT SERVICES ON THE US ECONOMY

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ABSTRACT

Recent rapid increases in offshore outsourcing of IT software and services has raised a nationwide debate as to whether the offshore movement of high-tech jobs is good or bad for the economy. Researchers have found outsourcing and global integration of IT production has reduced the price of IT hardware, raised workers productivity, and GDP substantially. However some studies have raised the fear that a significant number of jobs will be lost to overseas. Bhagwati et al. (Journal of Economic Perspective, 2004) argues that outsourcing is fundamentally a trade phenomenon not different from conventional trade in goods that results in gains for both countries, but Samuelson (Journal of Economic Perspective, 2004) expressed an opposing view. This study uses the most recent published data on employment, job losses, changes in occupational employment and wage, and operations of the U.S. multinational companies associated with offshore outsourcing to demonstrate the impact of offshore outsourcing of IT services on the U.S. economy.

INTRODUCTION

Over the past year the debate on offshore outsourcing of information technology (IT) services jobs to low-wage countries has gained considerable momentum. There is a growing fear among ordinary Americans that what we are witnessing might be the largest offshore outsourcing of white color jobs in the U.S. economic history. Offshore outsourcing is not a new phenomenon in the U.S. Over the last two decades outsourcing in manufacturing industry displaced 2 million blue color jobs in the U.S. but created 43 million white color jobs in other service areas. This has raised the output in manufacturing by raising the labor productivity by 3.5 percent annually and has increased the standard of living of the American people [3]. The current problem is that those white color jobs (high tech IT jobs) once insulated from foreign competition are now vulnerable to offshore outsourcing because these jobs can be performed at a fraction of the cost in low wage countries such as India and China. Due to a revolution in digital technology and reduction in telecommunication costs, jobs related to functions such as software programming and design, call center operations, accounting and payroll operations, medical record transcription, paralegal services, and software research and testing etc., can be performed at a foreign location and transferred through the internet.

The cost saving from outsourcing services jobs abroad can be used to lower software and services prices, raise productivity, and enable companies to invest in the next generation technology and business ideas to create new jobs and increase

exports. For example, McKinsey Consulting [25] estimates for every dollar of corporate spending outsourced to India, U.S. gains $1.14 and India captures 0.33 cents. Mann [24] estimated that U.S. GDP growth between 1995 and 2002 would have been 0.3 percent lower per year without offshore outsourcing of jobs in information technology.

The objective of the current study is to clear the myth surrounding offshore outsourcing of business services, which has been characterized as "bad" for the U.S. economy by several independent researchers and consultants. The current study presents various sources of indirect evidence on the relative importance of offshoring and its influence on the labor market and overall economic conditions. The myth in offshore outsourcing relates to several questions that have come up over the recent years but have remained unanswered such as: which service jobs will be affected by import competition? What are the most likely impacts of offshore outsourcing of service-sector jobs on U.S. output, employment, and standard of living in the long-run? In this study we have explained the impact of offshore outsourcing from the theoretical perspective and from indirect empirical evidences using published data. We have presented some of the latest available government information and data on the relative importance of various components contributing to the overall employment conditions and trade in IT services. The paper admits that with globalization strong import pressure in low wage service jobs is inevitable, resulting in temporary job losses and deterioration of economic status for displaced workers in the short run. But in the long run offshoring should not lower the employment and income for the U.S. economy permanently. In the long run, the living standard of the nation would increase provided the government adopts policies to retrain the displaced workers, who will be absorbed in the expanding industry. Instead of protectionist policy, we propose U.S. government should address this dislocation issue through insurance, trade adjustment assistance, and training.

The structure of the paper is as follows: The next section provides the definition, background, and the nature of recent offshore outsourcing. The third section provides a brief theoretical explanation on the "gains from trade." The fourth section provides some indirect evidences for impact of offshoring on output, employment, and trade. Comments and conclusions are in the last section.

BACKGROUND AND NATURE OF 'OFFSHORE OUTSOURCING' OF IT SERVICES

There is no official definition of 'offshoring' and the term has been used to include several other types of business activities including foreign investment activities. According to U.S. Government Accountability Office [30] 'offshoring' generally refers to an organization replacing services produced domestically with imported services. To the public, offshoring means American firms relocating part of their domestic operations to a foreign country [27]. In some cases offshoring firms import intermediate goods and services from its foreign affiliates and sell the finished product to the domestic market in the U.S. Although this type of transaction is a form of internal transaction between the U.S. parent company and its affiliates, it is counted as imports by Bureau of Economic Analysis (BEA) in national income accounting [27]. Hira [14] used three different terms associated with the nature of offshore activities provided by the supplier of the services. He defines 'offshore outsourcing' as work done by the outsourcing companies that service their clients from offshore

locations (such as Cognizant, Infosys, and IGate) as opposed to 'offshoring' when a single multinational firm moving work from its domestic sites to overseas affiliate (such as IBM). And then there are companies engaged in 'on-site offshore outsourcing' when companies bring in lower cost foreign labors on guest-worker visas such as H-1B and L-1 to do the work on buyer's site in the U.S. (such as Wipro, Infosys, and Satyam).

Using definitions provided by the World Trade Organization (WTO) in its General Agreement on Trade in Services, Bhagwati et al [2] explains four different ways in which services can be traded. In Mode-1 suppliers and buyers remain in their respective locations. For example, this could include all services provided through electronic commerce. Mode-2 services refer to moving the service recipient to the location of the service provider, for example medical care rendered to foreign patients and education provided to foreign students. Mode-3 refers to commercial presence of service provider in a foreign country, for example banking and insurance services. Mode-4 services refer to a situation where a seller moves to the location of the service buyer, causing temporary migration, for example, construction and consulting services. According to Bhagwati et al. [2], when evaluating the economic impact of outsourcing most of the economists refer to Mode-1 services.

Most of the economists believe that offshore outsourcing of business services is not significantly different from international 'trade in services' leading to gains from trade for both countries. According to Gregory Mankiw, "We are very used to goods being produced abroad and being shipped here on ships and planes. What we are not used to is services being produced abroad and being sent here over the internet or telephone wires. But does it matter from an economic stand point whether values of items produced abroad come on planes and ships or over fiber-optic cables? Well, no, the economics is basically same."[1] His above comment on outsourcing created a nationwide debate among his opponents, especially in an election year. The media fuelled the debate with economic news highlights from studies done by independent researchers and consultants evidencing U.S. business laying off U.S. workers and outsourcing works to foreign countries and projecting millions of job losses in the future. The public sentiment is evidenced from a survey conducted by Associated Press-Ipsos poll in May 2004 which found 69 percent of the Americans believe outsourcing hurts U.S. economy and 17 percent believe it helps (reported at http://www.pollingreport.com/trade.htm).

Why Companies Outsource IT Services?

The information technology industry has a tradition of multiple sources. Most of the big main-frames were leased rather than being purchased. The lease price included maintenance and access to substantial help in software development. Smaller firms had all of their work completed at computer service bureaus. Some larger firms would engage an outside firm for "facilities management" [5, 23]. During the 60's and 70's, IBM was developing software in Western Europe, particularly in Germany. There are four major factors why companies outsource: (1) core competency; (2) economic factors; (3) technological factors; and (4) regulatory factors.

Outsourcing decisions about information technology, like outsourcing decisions in many other areas are tied to the concept of "core competency" [22, 29]. All other things being equal, a firm should concentrate on business activities where they possess superior talent and knowledge. All other activities are candidates for

outsourcing, presumably to sources with competency in those areas. In fact, access to unavailable domestic IS talent is frequently a motive in seeking an outsourcing partner [7, 22]. Outsourcing may be motivated by the potential for "business impact." This includes the access to scarce talent and also the potential for creating marketable IT products [7]. Often businesses find that information technology is not among their core competencies. But another consideration is the relationship to business strategy. At one time it was assumed that strategic systems would be developed in-house. As customers become more comfortable with the outsourcing vendor, strategic systems are developed by the outsourcing firms [26].

The primary reason for companies to engage in offshore outsourcing is to reduce costs [9] while other reasons include need for extensive product and service localization, the ability to use time zone differences for working hour shifts 24/7, and as a means of opening markets in foreign countries [17]. Most of the early outsourcing decisions focused on the high cost of the hardware involved. As hardware price/performance has declined the focus has shifted to the cost of software development [24]. One of the major considerations for offshore outsourcing of services jobs to developing countries is low labor costs. For example, the average salary of a computer programmer in India is between $6,000 and $11,000 and in Philippines is $6,564 but in U.S. it is $60,000 to $80,000 [4]. True difference in wages might not be so high when evaluated against higher productivity for U.S. workers which emanates from higher use of human and physical capital per worker. However, recent development of human capital in some of the developing countries such as India, reflects growing numbers of highly skilled and educated computer programmers there who can perform the job at a fraction of the cost in U.S. For example, according to a study (NASSCOM, 2004) approximately, 140,000 students graduated in an IT-related engineering field from degree and diploma colleges and universities in India during 2003-04 academic year. The offshore sources promise great cost savings. In a study of 62 outsourcing case, researchers found that failure of internal information technology services was a serious consideration. In some of the cases reevaluation of internal sourcing led to a decision to retain a project in house [15, 22].

Investigating the causes of outsourcing IT services by companies, Slaughter and Aug [29] found that due to rapid technological evolutions, IT work is characterized by skill deterioration and specific skill shortage. To survive the competitive pressure, the firms need to find and acquire necessary skill which can be achieved by retraining its permanent workforce and/or updating the new product/technology. However, the problem with retraining is that by the time the firm invests in and trains its IT staff, that new technology may become obsolete. Outsourcing provides a flexible labor market. As a result the firms focus on their core business to gain comparative advantage. Unprecedented advancement in telecommunications industry, expanded bandwidth, decreasing data transmission costs, and adoption of universal computing standards and protocols abroad has prompted U.S. multinational companies (MNC's) to outsource business services to low wage countries in Eastern Europe, Africa, and Asia.

As the world production of goods has become more and more vertically integrated, countries specializing in different stages of production process ship intermediate goods to other countries for further processing. Similar vertical specialization is occurring rapidly in service industries [11]. Increased use of fiber optic cable, personal computers, and the internet has lowered communication costs and increased

vertical specialization. Labor intensive service production can be performed from any foreign location with lower cost.

During the last decade, globalization and deregulation of service industries in both developed and developing countries contributed to the increase trade in services. Deregulation in the developing countries in service sectors such as transportation, telecommunication, and financial services has increased access to foreign service providers. By doing this, developing countries have adopted new technologies at a faster rate and become the destination for most of the outsourcing of jobs for the U.S. and other developed countries.

TRADE THEORY FOR "GAINS FROM TRADE"

Outsourcing of IT services is fundamentally the same as international trade in services based on the economic principle of comparative advantage. With its usual theoretical caveats and other limitations, the impact of outsourcing of services on the output, employment and wages are same as trade in goods. In a recently published article Bhagwati et al [2] explained that free trade in services (offshoring IT services) would increase aggregate welfare in terms of real wages and employment in the long run. Assuming a hypothetical trade scenario between India and U.S., using a two-good and two-factor model, Bhagwati et al. [2] argues that free trade between India (relatively abundant in unskilled labor) and U.S. (relatively abundant in skilled labor) would increase the relative real income of the skilled labor and decrease the relative real income of the unskilled labor in the U.S. The author then introduced a third commodity (IT services) into the two-commodity two-factor model where a non-traded service became tradable due to innovations in information technology and decrease in telecommunication costs. Reallocation of resources due to offshoring would cause a temporary loss of employment in the import competing sector and the displaced workers might end up in jobs that pay much less than the jobs they had before but in the long run the country would increase income and living standard.

The authors conclude whether it is a trade in goods or services, the impact of outsourcing on the economy depends on the structure of the economy. If outsourcing primarily involves intermediate inputs (such as low level IT services) for the production of high value final goods or services, its effect would be similar to input saving technology enhancing productivity. On the other hand, if outsourcing primarily involves a new product or an old product supplied at a lower price to the consumers, then it will add to the real income.

The benefit of free trade and offshoring stems from the economic law of comparative advantage, where the gains of the winners from trade must exceed the losses of the losers in the long run. In a recently published article Samuelson [28] has questioned the efficacy of Ricardo-Mill arithmetic on the long-run impact of outsourcing on the U.S. economy. The author has analytically demonstrated that globalization and free trade can sometimes convert a technical change abroad into a benefit for both countries. But sometimes the gain in productivity can benefit only that country, while permanently hurting the other country reducing the gains from trade possible between the two countries. Using a hypothetical example where U.S. firms outsourcing high tech IT services from China the author theoretically proves that U.S. may suffer permanent measurable loss in per capita income when China will achieve exogenous productivity gain from innovations in the IT sector large enough to cut some U.S. production of it. The author contends, " … the innovations abroad

that gives China some of the comparative advantage that had belonged to the United States can induce for the U.S. permanent loss of per capita real income."

In the next section of the paper we made an effort to identify the impact of offshore outsourcing of IT services evaluating some of the indirect evidences from the U.S. economy. Published data on U.S. occupational employment and wages in IT sector and several aspects of the operations of multinational companies (MNC) abroad are examined to assess offshore outsourcing in the IT sector.

EVIDENCES FROM CURRENT U.S. ECONOMIC DATA

The short-run impact of offshore outsourcing is reduction of U.S. employment since firms close domestic operations or downsize. As a result workers who remain in their job feel pressure for wage reduction. Often firms also stop new hiring while meeting production needs by importing services from abroad. In the short run job losses due to offshoring are likely to be permanent in the sense that these workers will not be recalled by the same employer. The natural consequence of this will be labor movement from one occupation to another. Kletzer [19] found, on average, when reemployed, manufacturing workers lost 12 percent and non-manufacturing lost 4 percent of their previous earnings. Long term impact of offshore outsourcing is positive because it increases labor productivity, employment, real wages, GDP, lowers cost, and improves standard of living, but is less visible.

Currently no government data are available that relates directly to which companies are offshoring jobs to other countries. Growing number of private research firms are offering forecasts of IT job losses but these forecasts are not comparable and the methodologies used vary widely. We have tried to indirectly assess the impact of offshore outsourcing of IT jobs analyzing various sources of data and information under two categories: (1) in the first category we analyzed the data on GDP, labor productivity, employment and occupational wages, labor turnover, and extended mass layoffs in IT industry; and (2) in the second category we analyzed the data on international trade in services and foreign investment and employment data from the operations of the majority owned foreign affiliates (MOFA) of the U.S. multinational companies.

First Category

Evidences from GDP and Productivity Growth

Information technology related occupations are one component of the nonfarm business sector defined by the Bureau of Labor Statistics. Growth in employment in the nonfarm business sector slowed down from 1997. Between 2002 and 2003 it decreased by 2.2 percent. Due to increase in productivity at an annual rate of 3 percent between 1997 and 2003, hourly compensation in nonfarm business increased at an annual rate of 4.9 percent (Table-1). It is evident that increased productivity in the nonfarm business sector contributed to GDP growth and compensation per hour even though employment decreased in 2002-03. As labor productivity increases average hours needed to produce a given level of output in nonfarm business decreases. Schultze [27] found that higher productivity of nonfarm workers between 2000 and 2003 was the cause of at least 5 percent lower aggregate hours devoted to produce the GDP in 2003. However, it is also true that if there were

no job losses due to offshoring during 2000-2003, GDP and employment might have grown at a faster rate than what we experience now.

Table 1
Growth in Nonfarm Business Sector Productivity, Employment, Compensation, and Contribution of IT Industries to Real Economic Growth

Percent Change	1997	1998	1999	2000	2001	2002	2003	Average
Changes in RGDP	4.5	5.0	4.2	4.7	0.1	2.3	2.9	3.9
IT Contribution	1.5	1.6	1.5	1.1	0.1	0.1	0.8	0.9
All Other Industries Contribution	3.0	3.4	2.7	3.6	0.00	2.2	2.1	3.0
Labor Productivity	1.6	2.7	2.8	2.8	2.5	4.4	4.4	3.0
Nonfarm Business Employment (From Previous Year)	2.8	2.4	2.1	2.1	1.9	-0.6	-2.2	1.2
Nonfarm Hourly Compensation (From Previous Year)	3.1	5.9	4.6	7.1	4.0	3.3	4.1	4.6

Source: Digital Economy 2003 and Derived from BLS Productivity and Costs News Release, Nov 2004 and NIPA Table 1.1.1

Occupational Employment and Wages in ITS Sector

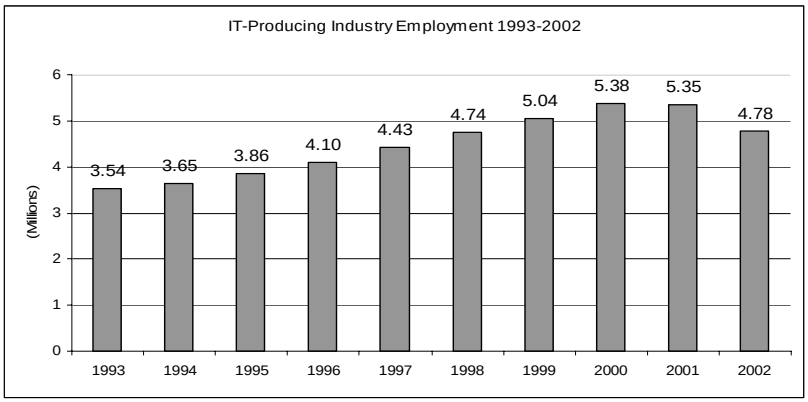
Employment level in major IT sectors as defined by U.S. Department of Commerce, Economics and Statistics Administration, Digital Economy [31] is presented in Figure 1. IT workers develop, design, manufacture, operate, repair, and maintain the IT infrastructure that supports e-commerce, the internet or network related activity, and IT enable processes throughout businesses and organizations. Four major IT producing industries are computer hardware, software and computer services, communications equipment, and communications services. Between 2000 and 2002 IT producing industries lost 600,000 jobs, about 25 percent of total private industry job losses over the same period (Table 2). Employment in IT producing industry increased from 3.5 million in 1993 to a peak of 5.4 million in 2000 and then fell to 4.8 million in 2002. In 2002 almost all IT producing industries lost jobs (Figure-1).

Table 2
IT-Producing Industry Employment by Major IT Sector

	Employment (in thousands)				Annual Rate of Change (%)		
IT Sectors	1993	2000	2001	2002	1993-00	2000-01	2001-02
Computer hardware	1,357.2	1,679.6	1,596.4	1,376.4	3.1	-5.0	-13.8
Software and computer services	951.9	2,127.5	2,160.8	1,961.0	12.2	1.6	-9.2
Communications equipment	283.3	322.0	301.5	248.4	1.8	-6.4	-17.6
Communications services	951.4	1,252.5	1,291.8	1,193.1	4.0	3.1	-7.6
All IT-Producing industries	3,543.8	5,381.6	5,350.4	4,779.0	6.2	-0.6	-10.7
All IT-Producing industries	91,855	110,996	110,707	108,886	2.7	-0.3	-1.6

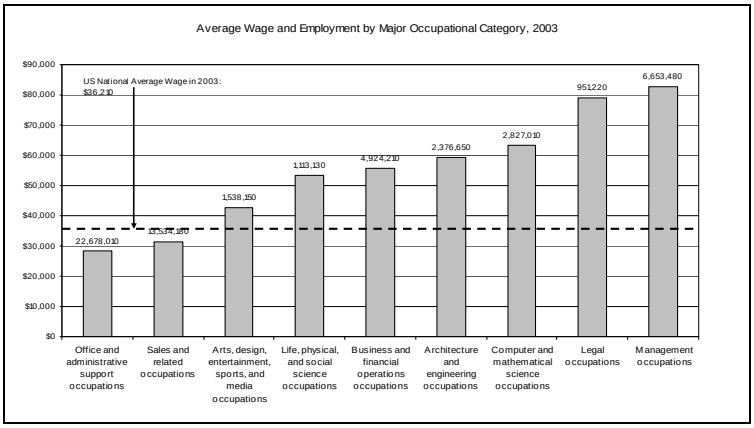
Source: Digital Economy 2003

Figure-1



Since the last recession of 2001 (March - November) employment in IT producing industries has declined and the unemployment rate remains higher than the national average. This indicates that the decline in computer-related occupations after the bursting of the dotcom bubble cannot be assigned to cyclical fluctuations in business activities alone, offshore outsourcing and growth in foreign workers in computer related occupations might have displaced some IT workers. Job losses in IT related occupations started in 2001, but slowed down in 2003. Although IT jobs are highly skilled needing formal education and training, many workers in the IT profession fall into the low skill category. For example, between 2001 and 2002 most (high/low/medium) skilled occupations lost jobs, but between 2002 and 2003 except for engineering managers, computer and information scientists, research, and computer programmers and database administrator, job losses are in low-skill categories (Figure 2).

Figure-2

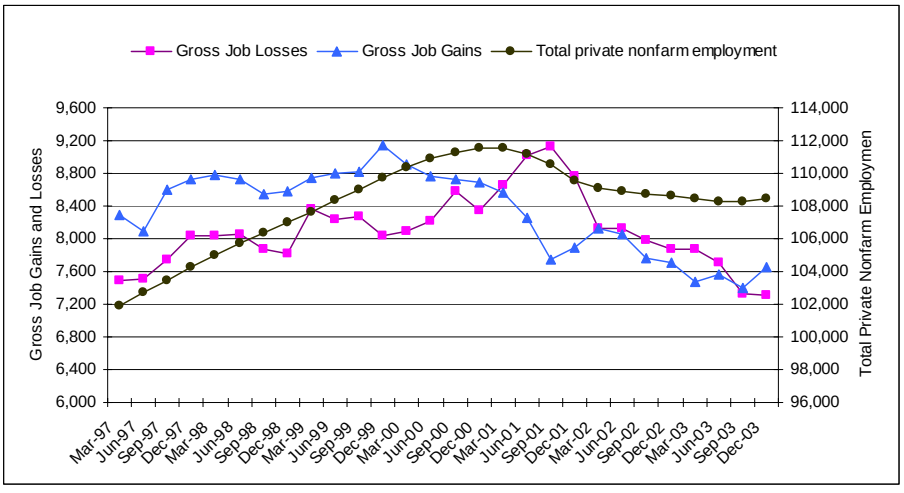


One of the most publicized studies, Forrester Research identified nine major occupational categories based on the Standard Occupational Classification (SOC) system of BLS that are "threatened by offshore outsourcing." Their study projected 3.4 million U.S. service industry jobs would move abroad by 2015 as a result of outsourcing. To the contrary, a study by Kirkegaard [18] found that between 2000 and 2002 more jobs in these categories were lost in manufacturing sector than were lost in the total economy. In our study we found no overall change in employment for those nine occupations as characterized by "categories threatened by offshore outsourcing." (Appendix-2, Table-A).

Evidences from Business Employment Dynamics Data

Although, the job losses numbers frequently quoted by private researchers are in millions, examination of constant job creation and job destruction (job turnover) in the U.S. economy would reveal that those numbers are quite normal for a dynamic and flexible labor market. Figure-3 shows gross jobs gained and jobs lost in the U.S. from 1997 through 2003 in private nonfarm sector. On average, 33.3 million jobs were created and 27.9 million jobs were lost per year between 1997 and 2003, which gives over 8 million jobs created and 7 million jobs losses per quarter with a net job gain of around one million jobs per quarter. Over the past three years the economy has a net loss of jobs but the pace has slowed down with 130,000 net losses of jobs in 2003. Faberman [8] identified 11 expanding and 16 declining industries. Expanding industries include among others, internet publishing and services, telecommunications, and professional and administrative and the declining industries primarily include manufacturing plants in the food, textile, apparel, paper, printing, chemicals, and primary metal industries.

Figure-3



Evidences from Extended Mass Layoffs Data

Bureau of Labor Statistics' "extended mass layoffs" quarterly data provide some information useful for understanding the underlying services offshoring. This data report job losses in major IT sectors associated with offshore outsourcing. However, due to limitation on the data coverage (small establishments or layoffs below 50 employees are not included) it is viewed as an imperfect indicator of job losses due to outsourcing. A small fraction of the workers laid off during 1997-03 period indicated "overseas relocation" as the cause of mass layoff for job loss. In 2003 out of 1.2 million private nonfarm layoffs, 6.6 percent occurred in IT producing industries associated with offshoring, and the rest are in manufacturing sector (Table 3). According to the report prepared by GAO [30], out of all layoffs in IT sector, only 0.9 percent was reportedly due to "overseas relocation." A study by Schultze [27] found that "import competition" and "relocation" played a relatively much smaller role than other reasons for job losses in "extended mass layoffs" data. In 2003 extended mass layoffs for all major IT producing industries was 81,000 jobs and the peak was in 2001 with 203,000 layoffs.

Table 3

Extended Mass Layoffs in IT Producing Industries Associated with Offshore Outsourcing, 1997-03

IT Sectors	1997	1998	1999	2000	2001	2002	2003
Computer Hardware	11,934	36,069	22,557	18,805	102,587	59,653	32,689
Software and Computer Services	3,206	4,056	5,194	16,774	36,016	22,382	16,230
Communications Equipment	2,515	6,971	4,344	4,618	34,874	23,236	10,408
Communications Services	3,237	4,150	3,930	4,048	30,084	32,134	21,710
All IT Producing Industries	18,592	51,246	36,025	44,245	203,561	137,405	81,037
All Private Nonfarm Sector	947,843	991,245	901,451	915,962	1,524,832	1,272,331	1,216,844
Share of IT in Total Private Nonfarm (%)	1.96	5.17	4.00	4.83	13.35	10.80	6.66

Source: Bureau of Labor Statistics, *Extended Mass Layoff*s, August 2004

During 1997-03 annual average extended mass layoffs for all private nonfarm industries are 1.11 million jobs. On average 7.36 percent of all private nonfarm industry mass layoffs occurred in four major IT industries. Two minor reasons such as, "import competition" and "relocation of work" are identified by the employees but currently it is not possible for BLS to separate those layoffs into domestic and overseas relocations. The positive sign of recent mass layoffs data is that during 2002-03 the extended mass layoffs in IT sector decreased by 41 percent and the share of IT sector in total mass layoffs in private nonfarm employment also decreased by 38 percent.

Bureau of Labor Statistics' employment projections (2002-2012) indicate IT related occupations are expected to grow faster than most occupations by 2012. Seven of the thirty fastest growing occupations are in IT sector. Among ten fastest wage and salary employment growth industries projection for 2012 three are in IT industries such as, software publishers, computer systems design and related services, and internet services, data processing and other information services. According to Horrigan [16], the current revised projections for 2002-12 reflect a lower level of

employment and slower rate of growth for many occupations, and a faster rate of decline for some other occupations than the previous projection. This report reflects the impact of offshoring.

Second Category

U.S. Trade in IT Services

If import competition and offshoring happen to be the two major causes for job losses in IT service sector, then this would be evident from the data on U.S. trade in IT services, especially the imports in services would increase. Further, if U.S. multinational companies (MNC's) are increasingly meeting domestic demand for IT services from expanding their operations abroad, especially in developing countries, then this would reflect higher direct foreign investment and expansion of employment abroad. Analysis of data for U.S. trade in IT services between 1997 and 2003 reveals consecutive seventh year of trade surplus in a row with $7.9 billion surplus in 2003 (Appendix-2, Table-B). Analysis of recent trade data on services trade between 2002 and 2003 reflects although there is an increase in import of telecommunication services (9.5 percent) export of value added telecommunication services also increased significantly (34 percent) and was a major factor for trade surplus in 2003. After a reduction of U.S. payments for foreign telecommunication services and increased earnings from software royalties and license fees until 2002, trade in both of these goods increased in 2003.

Trade in Other Private Services and BPT

U.S. government data on imports of services provide some insight into the trends and magnitude of relocation of services operations abroad. Bureau of Economic Analysis (BEA) collects and reports data on "total private services" trade (imports and exports) which includes five sub categories: travel, passenger fares, other transportations, royalties and license fees, and other private services. "Other private services" includes many of the services that are generally associated with offshoring. Table 4 shows imports in this category increased from $43.5 billion in 1997 to $85.8 billion in 2003 in absolute terms, which is about 38 percent of imports of total private services. Overall U.S. has a growing surplus in this category and even though both exports and imports grew during 2002-03, imports grew faster (14 percent) than exports. "Other private services" is further divided into six categories such as: education, financial services, telecommunications, business, professional, and technical (BPT) services, and other services. BPT services such as, bookkeeping and accounting and computer programming are generally associated with offshoring. In 2003, BPT services import was $40.8 billion about 48 percent of total imports in "other private services."

Table 4

U.S. Trade in "Other Private Services" and "Business Professional and Technical Services"

	1997	1998	1999	2000	2001	2002	2003
Other Private Services ($ Billions)							
Exports	84.1	92.1	104.5	108.3	115.6	124.1	133.8
Imports	43.5	48.1	56.0	61.7	67.7	75.2	85.8
Balance	40.6	44.0	48.5	46.6	47.9	48.9	48.0
Business Professional and Technical Services (BPT) Affiliated and Unaffiliated ($ Billions)							
Exports	43.9	45.6	54.1	55.1	61.3	64.9	69.7
Imports	21.2	22.6	28.2	30.6	32.4	36.1	40.8
Balance	22.7	23.0	25.9	24.5	28.9	28.7	28.9
Business Professional and Technical Services (BPT) Unaffiliated ($ Billions)							
Exports	21.5	22.7	27.7	25.3	28.4	28.5	29.1
Imports	6.4	7.4	8.4	8.9	9.3	9.6	11.0
Balance	15.1	15.3	19.3	16.4	19.1	18.9	18.1

Source: Data used from U.S. International Services: Cross-Border Trade in 2003 and Sales Through Affiliates in 2002, Maria Borga and Michael Mann, October 2004.

Imports in BPT services (affiliated and unaffiliated) continue to increase during 2000-03. Between 1997 and 2003, BPT services exports grew by 58 percent while imports grew 92 percent, which indicates that U.S. companies are purchasing these services offshore, but they do not provide sufficient indication whether these companies used to purchase these services previously from domestic sources. The data on "affiliated" trade reflects trade between foreign affiliates and their parent companies and the data on "unaffiliated" trade reflects trade with other countries. U.S. imports in unaffiliated category of BPT services grew from $6.4 billion in 1997 to $11.0 billion in 2003 an increase of 72 percent and the growth during 2002-03 is 14.6 percent. It is true that some category of BPT services imports such as, computer and data processing services from India has increased from $161 million (2002) to $330 million (2003). Data from Indian sources show a higher level and larger rate in computer related services export to U.S. than do U.S. import data from India. For example, according to Indian data (NASSCOM, 2003-04) total export of ITES-BPO services in 2002 and 2003 was $2.5 billion and $3.6 billion respectively. Since 70 percent of these exports were for U.S. the import data on U.S. side should be around $1.7 and $2.5 billions respectively. But in reality Indian export data do not match U.S. import data, similar findings were obtained by Schultze [27].

Foreign Direct Investment and Employment by MNC's

Much attention is focused on developing countries, especially India and Philippines, increasingly exporting IT services to U. S. Most of the jobs are moving into these two countries. The trade data shows together these two countries constitute 5 percent of total BPT services imports while the share of Canada and U.K is 67 percent. U.S. direct investments in developing countries are often blamed as one of the causes for offshore outsourcing and domestic job losses. Recently released data by BEA shows U.S. multinational companies' (MNC) direct investment in selected developing countries remained flat at less than 8 percent during 2002-03. About 62 percent of the U.S. direct investment abroad in 2002 and 2003 was accounted for in European Union, Canada, and Japan. India, Philippines, and Malaysia constitute less than one percent of total U.S. MNC's direct investment in 2003. U.S. government information on multinational companies' operations relating to production of goods

and services and employment of labor provide indirect information on offshoring. The share of these MNC's employment in the United States has declined between 2000 and 2002 (2002 is the latest year for this data) (see Appendix-2, Table-C). According to the latest information released by BEA, 73 percent of all MNC's employment in 2002 is still based in the United States, and only 6.5 percent of their employment is in the developing countries. Total MNC's employment in India, Philippines, and Malaysia decreased by 30,000 in absolute number and together these three countries constitute about 0.9 percent of total MNC's employment abroad in 2002. Again, these numbers do not match the Indian data on IT employment related to export of ITES-BPO services to the U.S.

Based on our analysis of BEA data on the operations of MNC's we conclude that the major objective of these companies is to expand their market overseas instead of supplying these services back to U.S. A report prepared by the U.S. General Accounting Office, also concludes that the U.S. MNC's operations do not show whether these companies are replacing their U.S. based operations or substituting for exports to foreign markets that would have otherwise been supplied by their U.S. based operations.

COMMENTS AND CONCLUSIONS

It is evident from the above analysis that the U.S. official estimates might be understating the relevant service imports, and have reflected lower impact on employment effect of offshoring. Current data and information do not reflect the true impact of offshoring. Both government agencies, BEA and BLS, should devote more resources to develop survey questions which would track the volume and nature of jobs moving offshore and the resultant changes in domestic employment and wages in related industries.

In this offshoring debate, the real question is not whether offshoring is good or bad for the economy because companies are increasingly shipping jobs abroad, but how to minimize the negative impact of offshoring by compensating those workers who lost jobs. It is true that globalization of software and IT services will send some low or medium wage jobs abroad but it will also lower the price for the overall IT package. This will increase U.S. economic growth by decreasing the input costs of services, and expanding markets abroad. However, we also need to recognize the fact that workers who lost their jobs due to offshore outsourcing will immediately fall down the economic ladder and most often will lose their health insurance plan. The real challenge for the government is how to compensate those workers adversely affected by trade. Some studies have proposed wage insurance, trade adjustment assistance (TAA), and retraining that are currently available to the manufacturing workers should be extended to the workers in the service sector. For example, Kletzer and Litan (2001) proposed wage insurance for all permanently displaced workers due to outsourcing regardless of age.

For any dynamic and flexible labor market like the U.S., the society has to deal with the displaced workers and to decide to what extent it will provide transitional support to all workers who are displaced, no matter whether the cause of displacement is poor management, change in demand, foreign competition, or outsourcing. As Samuelson comments, "Post-2000 outsourcing is just what ought to have been predictable as far back as 1950. And in accordance with basic economic law, this will only grow in the future 2004-2050."

ENDNOTES

1. Outsourcing of these services is also called Business Process Outsourcing (BPO) or IT enhancedServices (ITES) in India. Deloitte Research (2003) forecasted in financial sector 850,000 jobs may move offshore. Forrester Research (2002) projected that across all service occupations, 600,000 jobs by 2005, and 3.4 million jobs by 2015 would to move offshore. Bardhan and Kroll (2003) found 14 million jobs in 'at risk' occupations in the U.S. in 2001 which includes information technology and other occupations. Gartner, Inc. (2003) estimated by the end of 2004, 500,000 IT jobs may be displaced which is one out of every 10 jobs within U.S. based IT vendor and IT services. Goldman Sachs (2003) estimated that U.S. producers have moved around 200,000 jobs to its overseas affiliates and the number could be 6 million over the next decade. Global Insight Inc. (2004) estimated about 104,000 of 372,000 IT jobs lost between 2000 and 2003 was due to offshoring but predicts net employment would grow in IT and other sectors of the economy leading to an increase in real earnings, exports, and gross domestic product.

2. For detail see Bhagwati et al. (2004)

REFERENCES

Andrews, Edmund L, "Democrats Criticize Bush over Job Exports." New York Times. Feb-11. 2004.

Bhagwati, Jagdish., Arvind Panagaria, and T.N. Srinivasan, "The Muddles Over Outsourcing." Forthcoming, Journal of Economic Perspective. 2004

Baily, Martin N. and Diana Farrell, "Exploding the Myths of Offshoring." McKinsey Quarterly, July. 2004.

Bardhan, Ashok D. and Cynthia Kroll, "The New Wave of Outsourcing." Institute of Business and Economic Research, Fisher Center for Real Estate & Urban Economics, UC. Berkeley, Research Paper, 11-03, 2003.

Cardinali, Richard, "Viewpoint: Death of the Knowledge Worker," Logistics Information Management, V. 11, no. 3, 1998.

Deloitte Research, "The Cusp of a Revolution: How Offshoring will Transform the Financial Services Industry." 2003.

DiRomualdo, Anthony, and Vijay Gurbaxani, "Strategic Intent for IT Outsourcing," Sloan Management Review, v. 39, no. 4, Summer 1998.

Faberman, R. Jason, "Gross Job Flows Over the Past Two Business Cycles: Not all Recoveries are Created Equal." U.S. Department of Labor, BLS. Working Paper, No. 372. June. 2004.

Forrester Research, "3.3 Million U.S. Services Jobs to go Offshore" by John McCarthy, Nov 11, 2002.

Gartner, Inc., "U.S. Offshore Outsourcing: Structural Changes, Big Impact." By Diane Morello, July. 2003.

Garner, Alan C. "Offshoring in the Service Sector: Economic Impact and Policy Issues." Economic Review, Third Quarter, Federal Reserve Bank, Kansas City, 2004.

Global Insight Inc., "The Impact of Offshore IT Software and Services Outsourcing on the U.S. Economy and the IT Industry." March, 2004.

Goldman Sachs, "Offshoring: Where has all the Jobs Gone?" Sept. 2003.

Hira, Ron, "Implications of Offshore Outsourcing: Remarks." Rochester Institute of Technology, Rochester, NY. Jan. 2004.

Hirschhiem, Rudy, "The Myths and Realities of Information Technology Insourcing," Communications of the ACM, v. 43, no. 2, February 2000.

Horrigan, Michael W, "Employment Outlook 2002-12: Employment Projections to 2012, Concepts and Context." BLS, Monthly Labor Review. Feb. 2004.

Information Technology Associates of America (ITAA), "2003 Workforce Survey." Paper Presented at the National IT Workforce Convention. Arlington, VA. May. 2003.

Kirkegaard, Jacob F, "Outsourcing: Stains on the White Collar?" Institute for International Economics Study Paper, pp 1-19, 2003.

Kletzer, Lori G. "Measuring the Costs of Trade Related Job Losses." Testimony Prepared for the Committee on Finance, United States Senate, July 2001.

Kletzer, Lori G. And Robert Litan, "A Prescription to Relieve Worker Anxiety." Policy Brief, 01-2. 2001. Washington DC. Institute for International Economics.

Lacity, Mary, Lesli P. Willcocks, and David F. Feeny, "The Value of Selective IT Sourcing," Sloan Management Review, v. 37, no. 3, Spring 1996.

Lacity, Mary, Rudy Hirschheim, and Leslie Wilcocks, "Realizing Outsourcing Expectations," Information Systems Management, V. 11, no. 4, Fall 1994.

Lee, Jae-Nam, and Young-Gil Kim, "Effect of Partnership Quality on IS Outsourcing: Conceptual Framework and Empirical Evaluation," Journal of Management Information Systems, v. 15, no. 4, Spring 1999.

Mann. Catherine L., "Globalization of IT Services and White Collar Jobs: The Next Wave of Productivity Growth," IIE Policy Brief PB03-11, Institute of International Economics, December 2003.

McKinsey Consulting, "Offshoring is a Win-Win Game?" Aug, 2003.

Rao, H. Negev, Kichan Nam, and A. Chaudhury, "Information Systems Outsourcing," Communications of the ACM, v. 39. No. 7, July 1996.

Schultze, Charles. "Offshoring, Import Competition, and the Jobless Recovery." Brookings Institution Paper. June. 2004.

Samuelson, Paul. A. "Where Ricardo and Mill Rebut and Confirm Arguments of Mainstream Economists Supporting Globalization." Journal of Economic Perspective, v 18, no. 3, pp 135-46, Sum. 2004.

Slaughter, Sandra, and Soon Ang, "Employment Outsourcing in Information Systems," Communications of the ACM, v. 39, no. 7, July 1996.

United States Government Accountability Office. Report to Congressional Requesters. "International Trade: Current Government Data Provide Limited insight into Offshoring Services." GAO-04-932. Sept. 2004.

United States Department of Commerce, Economics and Statistics Administration, Digital Economy 2003, Dec. 2003.

ACKNOWLEDGEMENT

The authors would like to thank Marta Cataldo, Graduate Research Assistant (ACIS) for her research assistance and the Department of Accounting and Computer Information System for funding support for presentation of this paper at the AIMS International Conference on Management, Kolkata, India Dec 28-3, 2004.

APPENDIX -1

Out of three models presented by Bhagwati et al. we briefly reproduced two of them, Model-2 and Model-3 henceforth will be called as Model-A and Model-B in this paper. Model-A uses two goods and three factors of production and Model-B uses three goods and two-factors of production. Initially, Model-A assumes conventional trade exists in goods at fixed world prices and then allows for outsourcing. For Model-B initially there were two traded goods but the third non-traded good becomes tradable online which, is now imported at a lower price.

Model-A

Assume that the major factor component in the import competing good is unskilled labor (produced in sector-1) and for exportable good is capital (produced in sector-2), but the common factor of production for both goods is skilled labor. Assume due to technological innovations it is now possible to outsource the skilled labor. Figure-4 shows the initial and final equilibrium in the absence of outsourcing. The distance O_1O_2 represents total endowed skilled labor in the economy. Skilled labor employed in sector-1 (import competing) is measured to the right of O_1 and for sector-2 (exportable) to the left of O_2. The value of the marginal product curves for skilled labor in sector-1 and 2 are represented by $VMPL_1$ and $VMPL_2$. The intersection point E_0 represents the equilibrium allocation of skilled labor L_0 between two sectors with skilled wage at W_0. The total GDP is the sum of the areas under both VMPL curves up to L_0. Assume due to technological innovation a country can purchase services of skilled labor from abroad at a lower wage W_1. This will lead to an excess demand for skilled labor by the amount CE_1 which will be satisfied by outsourcing hence, the supply of skilled labor will expand to O_2O_3 equivalent to the distance CE_1. The new equilibrium will be established at E_1 after the $VMPL_2$ has shifted to $VMPL_3$ and sector-1 will employ L_1L_2 part of the total O_2O_3 outsourced labor.

In order to determine if outsourcing has increased the national income we need to follow the procedure below. The total value of output before outsourcing in sector-1 is the area below the $VMPL_1$ curve up to the quantity of skilled labor O_1L_0. After outsourcing of skilled labor when equilibrium is established at E_1 the new value of output is expanded up to O_1L_1 but below $VMPL_1$. However, a part of the gain $L_0DE_1TL_2$ will be used to pay for the wages to the outsourced skilled workers and the gain in output value would be the area DE_0E_1. For sector-2, since additional outsourced labor has shifted the $VMPL_2$ to $VMPL_3$ and extended the O_2O_3 in the same proportion, the value of output before outsourcing (area under $VMPL_2$ curve up to L_0O_2) is exactly equal to the area after outsourcing (area below $VMPL_3$ curve and O_3L_2). But sector-2 can also increase output by using outsourced labor from L_2 to L_1,

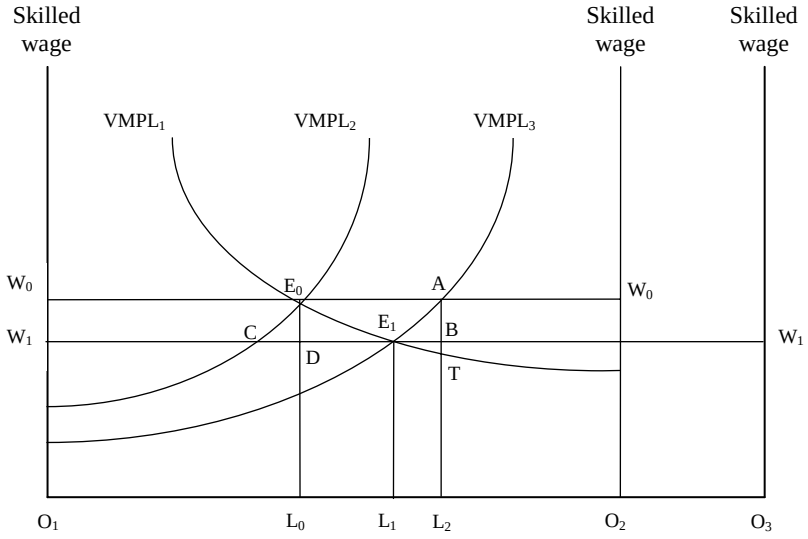
if it chooses to do so the area $L_1E_1BL_2$ would be used to pay for the outsourced workers and the gain would be the area AE_1B. Hence, the net gain arising out of increased value of output for the home country is the sum of two triangles DE_0E_1 and AE_1B.

One of the fundamental assumptions in this model is 'fixed terms of trade' and no other distortions such as, tariffs and taxes and the country is small. If the country is large (such as, U.S.) then outsourcing can shift the 'terms of trade' in the final goods, and in that case the outcome might not be a welfare gain. There are two possible ways to explain this result: (1) if outsourcing expands output proportionately more in the export-sector than the increase in demand then it will cost the nation more in terms of exports to buy fixed imports; and (2) if outsourcing expands output proportionately more in the import-competing sector then the demand for import will decline which lowers the price of imported goods and improves the terms of trade. In the first case distortions in terms of trade can offset the direct benefits from outsourcing while in the later case direct gains from outsourcing would add up to the improvements in terms of trade. However, the application of Model-B in this case would eliminate the possibility of adverse effect of outsourcing.

Model-B

In this model we assumed out of three goods, good-one and good-two were initially traded and the third is a non-traded service, and the country is small and produce both of the traded goods. Assuming perfect competition in the factor market (fixed average cost) and fixed prices for those two traded goods the average cost of the third good (which is service in this model) is also fixed and its supply curve is horizontal (for detail see Bhagwati et al. 2004). Now if the non-tradable services (good-three) become tradable and available at a lower price from abroad, then its domestic supply will completely disappear. The resources released from the production of good-three will be absorbed in the production of good-one and good-two. With the fall in the price of good-three (services) the relative buying power of 'two-factors' in terms of the third-good (services) will rise and outsourcing will make the owners of both the factors of production better off.

Figure-A-1


Skilled wage
Skilled wage
Skilled wage
VMPL1
VMPL2
VMPL3
W0
W1
E0
E1
A
B
C
D
T
W0
W1
O1
L0
L1
L2
O2
O3

APPENDIX -2

Table A
Employment and Hourly Wages for Occupational Categories Associated with Offshoring: 2001-03

Major Standard Occupational Categories	Employment (in thousands)			Percent Change		Average Hourly Wage	
	2001	2002	2003	2001-2002	2002-2003	2002	2003
Management	7,212	7,092	6,653	-1.7	-6.2	37.92	39.80
Business and financial operations	4,677	4,772	4,924	2.0	3.2	25.65	26.71
Computer and mathematical	2,826	2,773	2,827	-1.9	1.9	29.63	30.40
Architecture and engineering	2,489	2,411	2,376	-3.1	-1.5	27.89	28.48
Life, physical, and social science	1,068	1,079	1,113	1.0	3.2	25.19	25.58
Legal	909	935	951	2.8	1.7	37.18	37.94
Arts, design, entertainment, sports, and media	1,509	1,504	1,538	-0.3	2.3	20.03	20.49
Sales and related occupations	13,418	13,340	13,534	-0.6	1.5	14.72	15.02
Office and administrative support	22,799	22,755	22,678	-0.2	-0.3	13.42	13.59
All occupations	127,980	127,524	127,568	-0.4	0.0	17.10	$17.41

Source: General Accounting Office Report on International Trade (Table 5 and 6) and Bureau of Labor Statistics, OES data 2003.

Table B
US Trade in IT Services ($Billions)

Major IT Sectors	1997	1998	1999	2000	2001	2002	2003
Exports							
Telecommunications	3.9	5.6	4.5	3.9	4.5	4.1	5.5
Computer and data processing services	2.0	1.9	3.3	3.3	3.2	3.0	3.0
Database and other information services	1.5	1.8	2.1	2.4	2.2	2.4	2.4
Software royalties and license fees (unaffiliated)	2.7	3.2	3.7	4.8	5.0	4.8	4.1
IT Services Exports	10.1	12.5	13.7	14.4	14.9	14.3	15.0
Imports							
Telecommunications	8.3	7.7	6.6	5.4	4.8	4.2	4.8
Computer and data processing services	0.6	0.9	1.0	1.4	1.4	1.0	1.5
Database and other information services	0.1	0.2	0.2	0.2	0.2	0.2	0.3
Software royalties and license fees (unaffiliated)	0.5	0.5	0.5	0.5	0.4	0.5	0.5
IT Services Imports	9.6	9.2	8.3	7.5	6.8	5.9	7.1
IT Services Trade Balance (Export –Import)							
Telecommunications	-4.4	-2.1	-2.1	-0.9	-0.3	-0.1	0.7
Computer and data processing services	1.4	1.0	2.3	1.9	1.8	2.0	1.5
Database and other information services	1.4	1.6	2.0	2.2	2.0	2.2	2.1
Software royalties and license fees (unaffiliated)	2.2	2.7	3.2	4.3	4.6	4.3	3.6
IT Services Balance	0.5	3.2	5.4	6.9	8.1	8.4	7.9

Source: Digital Economy 2003 and Derived using data from "US International Services Cross-Border Trade in 2003" by Maria Borga and Michael Mann, Oct. 2004.

Table C
U.S. Foreign Direct Investment (FDI) and Employment by MNC's: Selected Countries

	U.S. FDI ($ Billions)			MNC's Employment Abroad (in thousands)		
	2002	2003	% change 2002-03	2001	2002	% Share of total 2002
Total MNC Employment (worldwide)				33,226	30,597	100.00
U.S. Parent companies				23,450	22,413	73.25
All countries	$1,601.0	$1,789.0	47.12	8,194	8,184	26.75
Developed countries						
European Union (15)	750.0	845.0	49.82	3,357	3,295	10.77
United Kingdom	239.2	272.6	25.85	1,197	1,122	3.67
Ireland	46.6	55.5	120.24	86	86	0.28
Canada	170.2	192.4	60.87	1,042	1,062	3.47
Japan	66.0	73.4	33.21	237	246	0.80
Singapore	52.4	57.6	178.26	112	111	0.36
Australia	34.4	41.0	15.82	269	255	0.83
Hong Kong	41.6	44.3	94.30	89	95	0.31
Developing countries						
Mexico	55.7	61.5	65.32	811	841	2.75
Brazil	27.6	29.9	-19.62	337	337	1.10
China	10.5	11.9	26.60	273	288	0.94
Malaysia	7.0	7.6	22.58	118	105	0.34
Poland	5.0	5.5	66.67	69	71	0.23
Philippines	4.6	4.7	34.29	72	81	0.26
India	3.3	3.6	50.00	93	94	0.31
South Africa	3.4	3.9	11.43	56	57	0.19
Hungary	2.5	2.8	16.67	51	47	0.15
Czech Republic	1.4	1.8	80.00	51	46	0.15
Russia	0.7	1.2	-29.41	30	36	0.12

Source: Bureau of Economic Analysis *U.S. Direct Investment Abroad: Country Detail for Selected Items*, October 2004. Bureau of Economic Analysis *Survey of Current Business*, US MNC Operations (Mataloni), July 2004.