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ABSTRACT

The process of globalization seems to have created two opposing forces, outsourcing and international migration, which are likely to have a balancing impact on the global economy. While the developing countries are losing skilled labor through 'brain drain' to their developed counterparts, they are gaining remittance earnings from developed countries. At the same time, offshore outsourcing from the developed countries has created new employment and other opportunities in developing countries. Although the final impact of outsourcing is somewhat controversial, it is very likely that companies will intensify offshoring in future due to substantial cost advantages. The outflow of skilled manpower from developing countries is also likely to increase due to growing demand for 'replacement migration' from developed countries. Increasing job gains from outsourcing and the associated benefits on the economies of developing countries are likely to cancel out the perceived negative impact of brain drain, argued in this paper.

1. INTRODUCTION

Although globalization is a historical process, it gained new momentum in the past three decades. The end of the Cold War, the development needs of the transitional economies, financial and trade reforms in the developing countries, revolution in information and communication technology, and rapid productivity growth in the global economy played a key role in accelerating the pace of internationalization.

Productivity growth has been considered as a major driver of unprecedented economic growth in the 1990's and 2000's. A drastic fall in unit labor cost played a major role in increasing productivity growth in these two decades. Table 1 compares the average quarterly- productivity growth and unit labor cost since 1950 and economists agree that there is absolutely no doubt that unit labor cost experience is a huge driver of the total productivity equation. Basu, Fernald and Shapiro (2001), for example, claim that information technology equipment – computers plus telecommunications equipment – has been a major part of the story behind boom in business investment in 1990s. Its share in total fixed business investment increased

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noticeably in this decade. During the 1990s, the share of information technology investment in GDP rose from three percent to almost six percent.

Table 1: Productivity Growth and Unit Labor Costs Since 1950

Decade	Average Quarterly Productivity Growth (%)	Average Quarterly Unit Labor Cost Growth (%)
1950's	2.6	2.4
1960's	2.6	2.2
1970's	1.9	6.1
1980's	1.5	3.6
1990's	2.0	2.1
2000's	3.5	0.8

Source: Contrary Investor (2004). "The Moment of Truth for Productivity?" <http://www.safehaven.com/article-2154.htm>

Information and Communication Technology (ICT) revolution has dramatically changed traditional business and working patterns in the 1990s. Taking the advantages of ICT, companies are redistributing their businesses and jobs around the world. 'Offshore outsourcing' is one of the most significant forces shaping business and economics today. It is now easier for companies to break up their service functions, and outsource some of these functions to low-cost locations overseas on the basis of geographical diversification either by contracting the job to a third party (offshore outsourcing) or by setting up a subsidiary in the overseas location to undertake the same task (which is generally known as 'production fragmentation' but can also be termed as 'offshoring').

Another important outcome of globalization is the tremendous rise in the international movement of labor. Though the process of migration is as old as civilization itself, the demographic transition in the developed countries and the consequent demands for 'replacement migration' has renewed the importance of migration. Projections by the United Nations (UN) indicate that over the next 50 years, the populations of virtually all countries of Europe and rapidly-growing East Asian economies will face population ageing and decline. This will create acute shortage of manpower in these economies and will raise the demand for immigrants from labor-surplus economies, a phenomenon known as "replacement migration" (UN population projection cited in Singh, 2003).

The process of international migration has a significant link with the 1990's ICT revolution. Since the early 1990s, some 900000 highly skilled professionals, mainly IT workers, from India, China, Russia and the OECD countries have migrated to the US under the H1B temporary visa program. Foreign students coming to the US for higher studies create another important avenue for local firms to recruit highly skilled migrants. Statistics show that some 25 percent of H1B visa holders in 1999 were previously students enrolled at US universities (Cervantes and Guellec, 2002). The migration of highly-skilled workers from developing countries to the developed countries like US has traditionally been considered as "brain drain" and the impact of such labor movement has been hotly debated in the literature (Salt, 1997, Carrington and Detragiache, 1999, Krugman, 1991).

This paper argues that international migration and offshore outsourcing will continue to dominate the dynamics of globalization and increasing job gains from outsourcing and the associated economic benefits are likely to cancel out the perceived negative impacts of brain drain on the developing countries. The paper is organized as follows. Section II analyses the current trends and future prospects of offshoring. The dynamics of international migration and brain drain and the associated costs and benefits are discussed in Section III. Conclusions that include the main policy implications are stated in section IV.

2. OUTSOURCING

"Outsourcing" became a buzz word in business and management in the 1990s and the phenomenon of global outsourcing of economic activity to the developing countries by businesses in the developed countries has acquired significant importance for both policymakers as well as for politicians. The disappearance of white-color jobs from the US has received worldwide attention. Its ardent supporters stress that outsourcing cut costs in the same way as technological progress improves productivity, thus increasing profits that must be good for the American economy in the long-run (Mankiw, Kristin and Harvey, 2004). On the contrary, opponents of outsourcing, especially in the US, argue that America's middle-class cannot survive with a Robinhood approach, as the jobs are migrating from Boston to Bangalore through the offshoring process.

With the rise of globalization, many companies are turning to offshore outsourcing and this has led to a massive redistribution of work around the globe. Rapid advances in communication and transport technologies have enabled production to be broken up into different stages and to be carried out on the basis of economies of geographical diversification. For example, German car manufacturers may produce vehicle engines and components in their home country, with assembly work being carried out in Malaysia. Technologies have enabled firms to diversify and relocate production facilities to other countries where costs are lower. Production is thus fragmented, with such firms likely to relocate or outsource lower-end production that requires lower or minimally skilled workers.

The globalization in manufacturing activities has virtually turned China into a global factory as more and more industrialized countries are shifting their production activities partly or fully to different parts of China to take advantage of China's low labor (as well as other business) costs. Besides China, dynamic East Asian economies (for example, Taiwan, South Korea, Singapore, Malaysia, Thailand) and some middle-income European countries have also become major global outsourcing players in the 1990's. This phenomenon is referred to in the literature as the "first wave of outsourcing" (Ashok and Cynthia, 2003). Similar developments are underway in the service sector, with thousands of jobs migrating to India, China, and other parts of the developing world. Outsourcing now involves a sizeable segment of the international trade in services and this is usually termed as "second wave of outsourcing" (Bhagwati, Panagariya, and Srinivasan, 2004).

Global service outsourcing has largely evolved into two forms (see Table 2). The first is 'Information Technology Outsourcing (ITO)' which involves the provision

of some or all information systems by one or more service providers, and the typical functions outsourced under an ITO includes data conversion, database administration, help desk, content development, application development, systems administration, mainframe, network management and website development functions. The second phenomenon is that of 'Business Process Outsourcing (BPO)' when an organization turns over the management and optimization of a business process to a third party that conducts the activity based on a set of predetermined performance standards. Typical examples of BPO include call centers, human resource administration, finance, and accounting functions (Sen and Islam, 2005).

Table 2: Information Technology and Business Process Outsourcing Services

Information Technology Services (ITO):	
Software Development and Implementation Services, Data processing and Database Services, IT Support Services, Application Development & Maintenance, Business Intelligence & Data Warehousing, Content Management, E-procurement and B2B Marketplaces, Enterprise Security, Package Implementation, System Integration, SCM, Enterprise Application Integration, Total Infrastructure Outsourcing, Web Services (Internet Content Preparation, etc.), Web-hosting and Application Service Providers (ASPs).	
Business Process Outsourcing (BPO):	
Customer Interaction Services	Sales Support, Membership Management, Claims, Reservations for Airlines and Hotels, Subscription Renewal, Customer Services Helpline, Handling Credit and Billing Problems, etc. Telemarketing and Marketing Research Services.
Back-Office Operation	Data entry and handling, Data processing and database Services, Medical Transcription, Payment Services, Financial Processing (financial information and data processing / handling), Human Resource Processing Services, Payroll Services, Warehousing, Logistics, Inventory, Supply Chain Services, Ticketing, Insurance Claims Adjudication, Mortgage Processing.
More Independent Professional or Business Services	Human Resource Services (Hiring, Benefit Planning and Payroll, etc.), Finance & Accounting Services (including Auditing, Bookkeeping, Taxation Services, etc.), Marketing Services, Product Design and Development.

Source: Mattoo, Aadita., and Wunsch, Sacha. (2004). "Preempting Protectionism in Services: The GATS and Outsourcing". *Journal of International Economic Law*, 2004, vol. 7, issue 4.

The ICT revolution has dramatically been changing the tradability of the information-centered services. The drastic fall in the cost of data transfer is considered a major catalyst towards offshoring. For instance, according to the McKinsey Global Institute, the cost of transferring or sending one trillion bits of data plummeted from $150,000 in 1970 to 12 cents by 1999. The entire contents of the US Library of Congress can now be transmitted across the US for $40, and soon it may be storable on one computer chip. In 1930, the cost of a minute's telephone call from New York to

London was $300 as today's prices; today it is a few cents (World Investment Report 2004, pp. 280). It also has been estimated that the cost of an international 2 Mbps fibre leased line in India dropped by up to 80% between 1997 and 2001 (McKinsey Global Institute, 2003, cited in the *World Investment Report* 2004, pp. 280, UNCTAD).

Besides the dramatic decline in the cost of ICT over the years, the huge gap in per unit labor cost across countries is another factor that contributed to offshoring. The evidence produced in Table 3 clearly shows that the salary of an IT programmer in the United States is roughly 10 times higher than those in countries such as India, China, Malaysia, and the Philippines. Table 4 presents comparative hourly wage rates in the US and India across different occupations and the significant gaps that existed in 2002-03 can be clearly gleaned from the data.

Table 3: Average Annual Salary of IT Programmers

Country	Salary Range (In US$)
Poland and Hungary	4800 to 8000
India	5880 to 11000
Philippines	6564
Malaysia	7200
Russian Federation	5000 to 7500
China	8952
Canada	28174
Ireland	23000 to 34000
Israel	15000 to 38000
USA	60000 to 80000

Source: CIO Magazine (2002). "Smart Access Survey", Merrill Lynch.

Table 4: Hourly Wage Rates for Selected Occupations, US and India, 2002-03

Occupation	Hourly Wage, US (In US$)	Hourly Wage, India (In US$)
Telephone Operator	12.57	Under 1.00
Health Record Technologist/ Medical Transcriptionist	13.17	1.50-2.00
Payroll Clerk	15.17	1.50-2.00
Legal Assistant	17.86	6.00-8.00
Accountant	23.35	6.00-15.00
Financial Researcher/ Analyst	33.00-35.00	6.00-15.00

Source: Bhardan, Ashok. Deo., and Kroll, Cynthia, A. (2003). "The New Wave of Outsourcing". Fisher Center for Real Estate and Urban Economics, University of California, Berkeley.

Estimates show that for every dollar of offshore spending, 58 cents are captured as the net cost reduction to businesses and more importantly, the standard of service remains the same (McKinsey Global Institute, 2003). It is therefore profitable for US firms to outsource at least some of their core functions to low-cost offshoring centers such as Bangalore, as the latter can provide virtually the same services at much cheaper costs.

Global outsourcing, which was largely initiated by the American multinationals and is increasingly being adopted by businesses in developed economies, has led to huge job opportunities in many developing countries. The developing countries in Asia have been an important beneficiary from this, emerging as a major outsourcing destination. Thus, in the services sector, thousands of jobs have been migrating from the US, Japan and some OECD countries to India, China, Singapore, Malaysia, the Philippines and other developing countries in Asia and the middle-income countries of Europe.

Table 5: Offshoring Environment Rankings 2005

Countries	Score	Rank
India	7.76	1
China	7.34	2
Czech Republic	7.26	3
Singapore	7.25	4
Poland	7.24	5
Canada	7.23	6
Hong Kong	7.19	7
Hungary	7.17	8
Philippines	7.17	9
Thailand	7.16	10
Malaysia	7.13	11
Slovakia	7.12	12
Bulgaria	7.09	13
Rumania	7.08	14
Chile	7.08	15
USA	6.91	20
UK	9.60	29

Source: Economist Intelligence Unit (2004). "CEO Briefing for Corporate Priorities", 2004. <http://forms.didata.com/na/documents/CEO_BRIEFING_FINAL.pdf>

Table 5 presents the relative positions of various destinations of outsourcing and it clearly indicates the overwhelming importance of Asian developing countries. India's IT- related services sector, for example, represents the prime market for U.S. offshore services, controlling roughly 85% of the entire U.S. offshore IT market. Indian IT exports to the US are projected to hit $18 billion by 2005 and $50 billion by 2008 (Milutis, 2004, pp.1).

How large is the global outsourcing market? Table 6 shows the growth in imports by the US of selected services within the category of business, professional and technical services. During 1992-2002, the US firms witnessed a massive growth in import services in the computer and data processing, accounting, auditing and bookkeeping, management, consulting, and research, development and testing services. The total market for all offshore services export was estimated at $32 billion in 2001 (McKinsey & Co. 2003, cited in World Investment Report 2004, pp.226). Analysts believe that this market will experience huge growth momentum in the coming years. Offshore outsourcing of business process is expected to grow from $1.3 billion in 2002 to $24 billion in 2007, raising the international share of the total market from 1 percent to 14 percent in five years (Scholl et al., 2003, cited in World Investment Report,

UNCTAD 2004, pp.183). McKinsey Global Institute projected that the offshoring will grow at the rate of 30 to 40 per cent a year for the next 5 years. As a matter of fact, the offshore market is still at an infant stage, as some 70% of world's 1000 largest companies have not yet outsourced any business process to lower cost countries (Forrester, 2004, http://www.forrester.com/ER/Press/Release/0,1769,867,00.html).

Table 6: Growth in Imports by the United States of Selected Services within the Category of Business, Professional and Technical Services, 1992-2002

Type of Services	Average Annual Growth Rate (Per cent)	Value 2002 (In millions of US$)
Computer and data processing services	31	1057
Accounting, auditing and bookkeeping services	21	716
Management, consulting and PR services	17	1188
Research, development and testing services	16	1040
Training services	14	361
Memorandum items		
Total business, professional and technical services	13	10732
Total other private services	11	69436
Total private services	7	205234

Source: United Nations Conference on Trade and Development. (2004). "The Shift Towards Services". *World Investment Report* 2004.

What will be the impact of offshoring on developed countries? The benefits are obvious in cost-saving terms but major concern is the loss of jobs in these countries. The World Bank estimates that 1 to 5 percent of the total employment in the G-7 countries could be affected (World Bank, 1995). According to a study by Cornell University and the University of Massachusetts for the US-China Economic and Security Review Commission, the US lost over 400,000 jobs in 2004 to Mexico, China, India and other Asian nations due to restructuring of operations and shifting of production abroad by multinationals (Press Trust of India, 2004). Another study predicted that the number of U.S. jobs offshored will grow from 400,000 jobs in 2003 to approximately 3.3 million jobs by 2015, accounting for some $136 billion in wages (Forrester cited in Hoffmann, 2003, http://www.staff.city.ac.uk/~ra828/assets/michael/michael2.html).

The loss of jobs in US due to offshoring often reported in the media might strengthen the voice of protectionism in the worlds' largest economy. Most of these reports however fail to capture the 'net' effect in US economy due to outsourcing and globalization. Mann (2003), for example, explained "that frequently cited projections indicate that millions of jobs will be lost to offshore workers. What this projection ignores is that the globalization of software and IT services, in conjunction with diffusion of IT to new sectors and businesses will yield even stronger job demand in the US for IT-proficient workers". Besides, 70 percent of the jobs in the US are in the

service industries such as retailing, catering, restaurant, and hotels, tourism and personal care where physical proximity between consumers and producers is a must and cannot therefore be outsourced (Agrawal and Farrell, 2003). Mann (2003) pointed out that globalized production and international trade made IT hardware some 10 to 30 percent cheaper than it otherwise would have been. These lower prices translated into higher productivity growth and real GDP growth might have averaged 0.3 percent less per year from 1995 to 2002, if globalized production of IT hardware had not been undertaken, argued the author. Though the job migration is often cited as a negative factor of offshoring, the US economy has created a total of 35 million new private sector jobs in last 10 years, or an average of 3.5 million new jobs per year. At this rate of job creation, the vast majority of displaced workers are likely to be reemployed within 6 months, argued in another study (McKinsey Global Institute, 2003).

Bhagwati et al (2004) argued that not all outsourcing results in direct displacement of the US workers. Instead it may create services not previously available. Applying the well-known 'Product Life Cycle' model (R Vernon, 1966), they explained that insourcing from the US -where others buy American-produced legal, medical, educational and other services online - leads clearly to higher-value jobs. The US loses call centers, which would have offered low wages, but it gains from offering medical, legal and other services that have high value-adding content. On balance, therefore, the outsourcing phenomenon, or the expansion of trade in services, seems likely to offer America a transition towards higher value-adding jobs (Bhagwati et al, 2004). The Economist (2004) rightly pointed out that "what the worriers always forget is that the same changes in production technology that destroy jobs also create new ones. Because machine and foreign workers can perform the same work more cheaply, the cost of production falls. That means higher profits and lower prices, lifting demand for new goods and services. Entrepreneurs set up new businesses to meet demand for these new necessities of life, creating new jobs."

Several studies have shown that service outsourcing has indeed a large positive significant effect on labor productivity (Amiti and Wei, 2004). McKinsey Global Institute (2003), for example, observed that "far from bad for the US, offshoring creates net additional value for the US economy that did not exits before, a full 12-14 percent on every dollar offshored. Indeed, of the full $1.45 to $1.47 value created globally from offshoring $1.00 of US labor cost, the US captures $1.12 to $ 1.14, while the receiving country captures, on average, just 33 cents."

3. MIGRATION AND BRAIN DRAIN

Though the international migration trend is nothing new, the demand for migrants has changed dramatically due to the demographic transition in the developed countries. Low fertility rates (significantly below replacement level) and rapidly ageing populations in OECD countries have created new demand for workers from the developing countries and the trend is likely to intensify in coming years. The United Nations' current and projected global distribution of population shows that in 2050 around 87 percent of the global population will live in either developing or least developed countries (see Table 7).

Table 7: Share of the World Population

Regions	*Share of World Population*		
	1950	**2005**	**2050**
More developed	32.3%	18.7%	13.6%
Less developed	67.7%	81.3%	86.4%
Least developed	8.0%	11.7%	19.1%

Source: United Nations, *World Population Prospects*: The 2004 Revision.

If such trends persist, the developing or least developed countries will enjoy a comparative advantage in the global labor market with their relatively young labor force. For instance, by 2020, India is expected to have an additional 47 million people in the working age group (15-59), while many OECD countries will face severe labor shortages. According to UN population projections, Japan and virtually all European countries are likely to experience population decline over the next 50 years. For example, the population of Italy, currently 57 million, is projected to decline to 41 million by 2050. The population of Japan, currently 127 million, is projected to decline to 105 million by 2050 (UN Population Division, 2000). And so on.

In addition to the decrease in population, Japan and the countries of Europe are undergoing a rapid ageing process. In Japan, for example, over the next half century the median age of the population is expected to increase by some eight years, i.e., from 41 to 49 years. And the proportion of the Japanese population 65 years or older is expected to increase from its current 17 per cent to 32 per cent. Similarly in Italy, the median age of the population increases from 41 years to 53 years and the proportion of the population 65 years or older goes from 18 per cent to 35 per cent (UN Population Division, 2000).

Although continuing scientific advancements and productivity-enhancing measures will partly ameliorate the shortage of labor, they still have to rely on migrant workers and offshore outsourcing to remain competitive in the global economy. For instance, even if Japan is to continue to rely on robots, productivity and outsourcing besides its existing workforce, it would require over 600,000 migrants every year to sustain the current “workforce to total population” ratio. Countries like the US, France and Italy would require even greater ‘‘replacement migrants’’ (Singh, 2003). The McKinsey Global Institute (2003) projected that a five percent additional labor force is needed by 2015 to maintain similar share of working population as in 2001, as the US population retires. The labor shortfall must be addressed through a combination of measures such as increased innovation, productivity, and replacement migration.

Structural changes in developed as well as some developing economies towards more knowledge intensive economy have raised the demand for skilled labour. In IT-related sectors, the increase has been particularly rapid and this has made it difficult for employers to find suitably qualified workers. The rapid growth of biotechnology and nanotechnology sectors will also create new demand for skilled workers. As a result, there will be fresh calls for increased immigration and liberalization of migration policies to attract skilled professionals from developing nations.

Although data deficiency prevents one from calculating net gain or loss of migration, many economists have analyzed the issue from different perspectives. Neoclassical economists argue that positive technological externalities of immigration arise because of the additional capital that is available to the hosting economy. New growth theory believes that the immigration of skilled migrants has been regarded as stimulating for the dynamics of economic growth (Paul Romer, 1986, 1987, 1990). International mobility of skilled workers can generate global benefits by improving knowledge flows and satisfying the demand for skills. The contribution of foreign skilled workers to economic growth and achievement in host countries, in particular to research, innovation and entrepreneurship, is increasingly recognized – witness the number of foreign-born US Nobel Prize winners or creators of global high tech companies, such as Intel or eBay, and other successful start-ups (Cervantes and Guellec, 2002).

From the source country's perspective, the major benefit of the migration process is the inflow of remittances. Remittances from emigrants have become an important source of finance in the developing countries. Table 8 shows that remittances have indeed become a major source of external finance in the developing countries besides Foreign Direct Investment flows. Table 9 shows the distribution of remittance flows from various regions and it is clear that the developing countries from Latin America and Caribbean, Sub-Saharan Africa, and Middle East and North Africa, have benefited the most from remittance earnings. Table 10 presents data on individual country remittances and countries such as India, Mexico, Philippines, and China top the list in terms of remittance earnings in 2000. It is also argued that a sizeable fraction of migrants (25% from the US) eventually return home and contribute substantially to the economic development of their own countries by applying the knowledge and skills acquired from the developed countries.

Table 8: Key Sources of Global Finance in Developing Countries

Sources of External Finances	1997 (In US$ Billion)	2005 (In US$ Billion)
Net Debt Flow	107.2	120.1
Net FDI Flow	168.7	237.5
Workers' Remittances	71.2	166.8

Source: The World Bank, *Global Development Finance* 2006.

Table 9: Workers' Remittances to Developing Countries

Regions	1995 (In US$ Billion)	2004 (In US$ Billion)
Latin America and Caribbean	13.4	36.9
South Asia	10.0	32.7
East Asia and the Pacific	9.0	20.3
Middle east and North Africa	13.0	17.0
Europe and Central Asia	8.1	12.9
Sub-Saharan Africa	3.1	6.2

Source: The World Bank, *Global Development Finance* 2005.

Table 10: Remittances to Major Remittance Recipient Countries

Country in Origin	*Remittances in 2004 (In US$ Billions)*
India	23
Mexico	17
Philippines	8.1
China	4.6
Pakistan	4.1
Morocco	3.6
Bangladesh	3.4
Colombia	3.1
Egypt	3.0
Brazil	2.8
Lebanon	2.7
El Salvador	2.5
Dominican Republic	2.3

Source: The World Bank, *Global Development Finance 2005*

One major concern on the outcome of migration is that the source country will lose its most qualified workers which is usually referred to as "brain drain". The term is often used synonymously with the movement of human capital, where the net flow of expertise is heavily in one direction (Salt 1997). The British Royal Society first used the expression to describe the outflow of scientists and technologists to the US and Canada in the 1950s and early 1960s. Later, Brain Drain was characterized as a North-South, developing-developed country issue (Carrington and Detragiache1999). Using the 'Center-Periphery' model by Krugman (1991), mass emigration clearly benefits the immigration area (i.e. the center) but leaves the remaining immobile factors of production worse off (in the periphery) and thereby contributes to income divergence.

Modern theories of endogenous growth have analyzed the relationship between education, migration and growth. Since education has been pointed out as a major determinant of long-term growth, common wisdom suggests that the migration of people endowed with a high level of human capital (the so-called brain drain) is detrimental for the country of emigration. The brain drain can indeed be seen as a negative externality on the population left in the source country. The negative impact of the brain drain has also been stressed in the New Growth literature. Most studies underline the positive impact of migrations on human capital formation, but when turning to the issue of brain drain, conclude that there is a detrimental growth effect (Beine, Docquier, and Rapoport, 2001).

The data presented in Tables 11 and 12 would perhaps exacerbate the concern that extensive brain drain can stifle economic growth. Education attainment of the migration flows in the OECD countries from different developing countries (Table 11) shows that majority of the migrants possess tertiary qualifications. The ICT revolution has also led to an increase in demand for more highly skilled workers from the developing countries. Table 12 shows the total issuance of United Sates' H-1B visas and sending country shares during 1989 -1999. The share of IT skilled engineers from developing countries has increased noticeably (from 29.2 percent in 1989 to 58.2 percent in 1999). The U.S. Congress has recently announced its decision to raise the

annual cap on the number of visas granted to highly skilled professionals under its H1B visa program, from 115, 000 to 195,000 per year until 2003.

Table 11: Number of Immigrants (age 25 and older) to the OECD by Level of Educational Attainment, 2000

Country	Total Immigrants	*Educational Level*		
		Primary or less	Secondary	Tertiary
East Asia				
China, PR	722400	148029	185295	389076
Indonesia	142450	3910	32347	106283
Philippines	356134	27604	70079	258451
Eastern Europe, Central Asia				
Turkey	1913782	263078	534429	1116275
Latin America, Caribbean				
Brazil	176519	16026	64097	96396
Jamaica	117119	9483	54647	53069
Middle East, North Africa				
Morocco	560658	30706	168179	361773
Tunisia	142828	10027	41782	91019
Egypt	20373	733	3796	15844
South Asia				
Bangladesh	44417	3852	12902	27663
India	375283	18471	57199	299613
Pakistan	85668	6022	22458	57188
Sri Lanka	64143	1455	16741	45947
Total	4721944	539396	1263951	2918597

Source: Adams (2003). International Migration, Remittances and the Brain Drain: A Study of 24 Labor-Exporting Countries. *World Bank Policy Research Working Paper*, No. 3069.

Attempts have been made to estimate the fiscal impact of emigration. According to one estimate, the net fiscal loss to India from emigration to the US in 2001 was between 0.24 per cent and 0.58 per cent of Indian GDP. This is a significant loss arising largely from the fact that although Indian-born residents account for just 0.1 per cent of the US population, their aggregate income is 10 percent of India's national income (Desai, Kapur, and McHale cited in Ramesh, 2002, http://www.people.hbs.edu/mdesai/TaxingIdeaToI102002.pdf).

Table 12: Total Issue of USA H-1 Visas & Sending Country Shares 1989-1999

Country	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
India	4.4	4.6	6.9	10.7	18	22.9	26.3	32	39.3	44	47.2
China	1.7	1	1.9	1.7	2.4	2.5	3.2	3.9	4	4.2	5
Philippines	12.4	12.4	12.2	14.6	18	17.8	17	7.7	3.3	3	2.6
Mexico	6	6.4	5.4	4.8	3.1	2.3	2.5	3.2	3.5	2.5	2.1
Russia	4.6	6.3	6.6	3.2	4.5	2.5	2	2.1	1.7	1.5	1.4
Total LDCs	29.2	30.8	33.1	35.1	46	48.1	50.9	48.8	51.8	55.4	58.2
UK	13.6	12.2	14.8	13	9.5	8.6	8.1	9.3	8.6	6.9	5.7
Japan	7.5	6.5	8.7	5.4	5.1	4.5	3.5	4	3.6	3.1	2.9
France	4.7	3.9	4.1	3.3	2.1	2	2.1	2.4	2.3	2.3	2.3
Germany	3.7	2.8	3.2	2.9	2.4	2.2	2.5	2.5	2.6	2.5	2.1
Australia	1.8	1.4	1.9	1.9	2	2.1	1.8	1.9	1.8	1.8	1.4
Total Developed	31.4	26.8	32.6	26.5	21.1	19.5	17.9	20.2	19	16.7	14.3
Others	39.4	24.4	34.3	38.4	32.9	32.4	31.2	31.1	29.3	27.9	27.4
Total no. of Visas	48820	58673	59325	51667	42206	49284	59093	60072	86608	91378	116695

Source: Commander, Kangasniemi, and Winters (2003). The Brain Drain: Curse or Boon? *IZA Discussion Paper* No. 809.

4. CONCLUSION

Although economists tend to differ on the effects of globalization and outsourcing, it is very likely that companies from rich countries will intensify offshore outsourcing in future due mainly to cost advantages. This process is likely to benefit both developed countries (through productivity gains) and developing countries (through job gains). At the same time, the outflow of skilled manpower (brain drain) from developing countries is set to rise in future due to increasing demand for 'replacement migration' fueled by ageing and ICT revolution worldwide. Increasing job gains from outsourcing and the remittance earnings from abroad would perhaps cancel out the perceived negative impact of brain drain in third world countries.

While the counteracting effects of outsourcing and brain drain may create a win-win situation for both developed as well as developing countries in an aggregate sense, it must be remembered that employment benefits of outsourcing may not reach to all developing countries. Outsourcing has largely been directed to countries such as India, China, and some Southeast Asian countries and the majority of third world countries (particularly the least developed countries) are still deprived of the benefits of job creation, though these countries are losing their high-skilled manpower through brain drain as well. To spread the benefits from the global redistribution of jobs as well as to outweigh the negative impact of brain drain, developed countries should ideally target the relatively poorer countries in their plan for outsourcing. Such a plan could be seen as a part of poverty reduction strategies and if pursued properly should contribute substantially to the achievement of UN Millennium Development Goal of halving the global poverty by 2015. At the same time the poor countries should try to create conducive environment through human capital and infrastructure investments so as to attract non-core activities of outsourced firms from developed countries.

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