THE LIBERALIZATION OF TEMPORARY MIGRATION: INDIA'S STORY

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ABSTRACT

We examine the potential gains for India from increased temporary migration of skilled worker between India and its major labor importing partners, in light of potential productivity gains from return migration. The paper uses the GMig2 Global Bilateral Labor Migration Model and its supporting database. The paper explores the impact of liberalizing the temporary movement of skilled workers on the Indian economy; and compares the welfare effects of this liberalization to those from domestic services sector liberalization in India. The results show that the welfare of Indian workers remaining behind in India improves as a result of temporary skilled labor migration. Although there is a welfare loss from the loss of labor, this is outweighed by the substantial increase in remittances. There is also a clear improvement in total real income – brain gain – from the increased productivity brought back to India by the returning workers.

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1.   INTRODUCTION

Since the creation of the GATT at the conclusion of the Second World War, the Uruguay Round of trade negotiations has brought in some of the greatest changes to the global trading system. It took almost a decade to complete, but at its conclusion it boasted more than 120 participating countries. Sweeping trade reforms were its hallmark; from multilateral tariff cuts to the establishment of a revised set of rules to settle disputes and increased global transparency. Aside from these changes, the Uruguay Round also started the first multilateral negotiations in trade in services. The direct result of these pioneering negotiations was the establishment of the General Agreement of Trade in Services (GATS).

The GATS identifies four specific ways or modes that services can be delivered, and hence traded: Mode 1 – cross-border supply, Mode 2 – consumption abroad, Mode 3 – commercial presence, and Mode 4[3] – the temporary movement of natural persons (TMNP). The GATS negotiations have often focused on Mode 1 liberalization of professional (skilled) services – an area where most developing countries do not have a comparative advantage. However, there is room for many developing and developed countries to reap benefits from both Mode 1 and Mode 4 liberalization. India, for example, boasts the ability to supply skilled labor services through both cross-border supply (Mode 1) and through temporary movement of professionals (Mode 4).

Due to the politically sensitive nature of any migration policy, Mode 4 has seen the least action in terms of trade flows, has often been given lower priority over the other modes, and thus has relatively limited commitments and scheduled concessions (Winters et al, 2003). However, as pointed out by van der Mensbrugghe (2005), the declining labor forces and increasing dependency rates of developed countries has led to growing global demand for skilled workers. Given this increasing demand and the decreasing financial and social costs of labor mobility, Mode 4 now appears to have gained the attention of policy makers as a viable alternative to permanent migration.

Despite politics and the lack of attention, Mode 4 is economically very significant given the large and untapped comparative advantage that many developing countries have in labor intensive services. Among the developing countries, India is a particularly interesting case not only because of its large labor force, but also because of the volume of skilled and unskilled workers that it sends overseas every year. While empirical studies have shown that

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[3] Defined in the General Agreement of Trade in Services (GATS Article I.2 (d) and Article XXVIII (b) as "the production, distribution, marketing, sale, and delivery of a service by a service supplier of one Member through the presence of a natural person of a Member in the territory of another Member" (GATS, 2007).

labor importers often enjoy welfare improvements as a result of TMNP liberalization, the effect on the labor exporting country is often unclear. Despite this it is the labor exporting economies, such as India, which have put forward proposals on Mode 4.

Advocates of Mode 4 liberalization argue that liberalization of the temporary movement of workers would bring more benefits than drawbacks. They argue that most of the criticisms over migration are based on the assumption that the migration is permanent and hence leads to the usual concerns associated with permanent migration, such as social integration and brain drain. Mode 4 liberalization on the other hand is temporary and therefore the effects of brain drain on the labor exporting economy are expected to be mitigated by the return of the temporary migrant workers. In fact, it has been argued that TMNP liberalization may actually lead to brain gain, with return migrant workers bringing home new techniques and skills.

Moreover the labor exporting economies are also expected to gain from the substantial investments made by former expatriates and remittance flows. There are significant remittance flows from migrant Indian workers abroad to the home country; according to the GMig2 Data Base as much as 60% of income earned by Indian migrant workers is sent back home. These savings and remittances often translate into domestic investment opportunities. There is a large body of anecdotal evidence of rural infrastructure, healthcare, and housing development being funded by expatriate remittances (The Guardian, 2004). Hence investments and remittances from migrant workers can have a tremendous influence on the lives of the Indians left behind.

Increased TMNP liberalization between India and its major labor importing partners could therefore lead to potentially large benefits for India, especially if return migration can be increased. The booming IT sector – responsible for the largest percentage of India's trade in services – is an example of a services industry providing attractive career opportunities for many skilled Indian personnel, serving both to dissuade them from going overseas and to lure back return migrant workers.

Further liberalization of the burgeoning domestic IT and software sectors under Mode 1, could also create significant gains for India and provide further disincentives for migration. India has been particularly active in the export of services under Mode 1, with rapid and high profile growth in outsourcing of technical support and business processing. Moreover, Indian IT lobbies have been instrumental in pressing for commitments related to software and IT

personnel; commitments from which both the US (as a major importer of Indian IT and IT enabled services) and India have benefited.

In this paper we are primarily interested in what role temporary migration can play in the development strategy of India. The questions to be examined include:

1. Does the liberalization of the temporary movement of natural persons (Mode 4) result in gains to the India economy? How do these gains compare to those from the liberalization of services under Mode 1?

2. What are the sources of the welfare gains and losses from liberalization of the temporary movement of natural persons? How extensive are the effects of brain drain and do remittances offer a means of offsetting these detrimental effects?

3. What is the potential impact of return migration on the Indian economy? Is it sufficient to offset the losses from the initial brain drain?

Computable general equilibrium modeling (CGE) is used to investigate these issues. The CGE model used is the GMig2 bilateral labor migration model, developed by Walmsley et al (forthcoming), and based on the GTAP model (Hertel, 1997). Using this framework, a number of simulations are undertaken exploring the impact of services trade liberalization and Mode 4 liberalization. The study compares the welfare implications of brain drain, capital gains, and potential brain gain from returning migrant workers under Mode 4. The potential gains to be made from a reduction in the restrictions to service provision in India – a liberalization of the services sector – are examined and compared to the gains made from the continuation of TMNP liberalization. It is found that the gains from liberalization are generally much larger than the gains from the liberalization of temporary migration in terms of real GDP. When liberalization of temporary migration is considered on its own, it is found that the net effect is positive, with the magnitude of the net effect depending on the increase in remittances, the brain drain, and the brain gain.

One of the most visible effects of brain drain is found to be the large loss in real income for the Indians remaining behind due to the skilled labor shortage. This loss to the Indian remaining behind however is countered by the gains to their real income from the direct and indirect effects of the increase in remittances. The magnitude of the gain in real incomes from the remittance effect is calculated to be about ten times larger than the magnitude of the real income losses due to brain drain. The impact of return migration on the

home economy and on the real incomes of Indians is also found to be positive; and, given our assumptions, sufficient to offset the real income effects of brain drain.

This paper is divided into five sections. This first introductory section has provided some initial motivation for this study. The second section will describe the current perspectives on temporary movement and Mode 4, including an explicit look at the impact of Mode 4 on the labor exporting country and more specifically on India. Section 3 describes the model, the data used and the experiments undertaken; while section 4 examines the results from the model. Section 5 will summarize the results and provide some concluding remarks for further study.

2.   GATS AND MODE 4

In the context of trade in services, the temporary movement of labor is often identified with Mode 4 of the GATS. Unlike the GATT, under the GATS developing countries are not given more favorable treatment than developed countries; although developing economies do have some limited flexibility to offer less liberalization of services than the developed countries. Despite the fact that fewer favors are bestowed upon developing countries in the GATS than under the GATT, the positive list approach[4] towards commitments has allowed developing countries to make the most liberal and significant concessions across all modes, and in Mode 4 in particular, often at the behest of the more developed WTO members (Chadha, 2000 and Grynberg, 2002).

Grynberg (2002) notes that Mode 4 is one of the few areas where the agendas of the developing world and the developed world intersect, although there has been a notable absence of Least Developed Countries in the negotiations, especially as potential labor importers. As Chaudhuri et al (2004) and Self and Zutshi (2003) point out, the rhetoric of GATS negotiations is often framed in a manner that highlights the differences between the North and the South, leading to defensive posturing by both sides. One example of North-South differences is the fact that developed countries have been negotiating for greater liberalization of skilled service sectors, while less developed countries would prefer low and medium skilled services to be liberalized as well. Given that Mode 4 commitments are most

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[4] A positive list approach, as described in Grynberg (2002), is "one whereby commitments are made to a particular sector or, the case of goods a particular line or heading, where parties to an agreement feel an ability to make such commitments." This should be considered in contrast to the negative list approach that is associated with a lower level of market opening since it requires the parties to a list of exceptions to a general rule.

likely to be geared towards the movement of skilled workers, the focus of this paper is on skilled labor.

Also, the GATS negotiations have mostly focused on Mode 1 liberalization of professional (skilled) services – an area where most developing countries do not have a comparative advantage. However, there is much room for both developing and developed countries to reap the benefits of not just Mode 1, but also Mode 4 liberalization. The case in point is that of India which boasts the ability to supply skilled labor services through both cross-border supply (Mode 1) and through temporary movement of professionals (Mode 4). India has been particularly active in its Mode 1 services export with the rapid and high profile growth of outsourcing of technical support and business processing. The export-oriented segments of Indian service sectors have been growing faster than the domestically oriented sections. According to India's National Association of Software and Services Companies (NASSCOM), IT and IT-enabled service (ITES) exports from India grew from $13.3 billion to $18.2 billion between FY 2003-2004 and FY 2004-2005, with export earnings in 2005 representing 64% of the IT/ITES sector's aggregate earnings ((NASSCOM, 2006).

Mode 4 negotiations are often viewed in a North-South context, with the countries of the developed North being the principle labor importers and the developing countries of the South being the main suppliers of temporary workers. Indeed, the empiral work examining Mode 4 has focussed on examining the effects of liberalization between developed and developing countries, with the labor moving from the South to the North. For example, Winters (2001) provides a back-of-the-envelope estimate (BOTE) for the welfare gains from labor movement liberalization. He estimated that, given a wage gap of US$ 24,000 p.a., the welfare gains from moving 50 million workers would amount to approximately US$300 billion per year[5]. Using a similar back-of-the-envelope analysis, Rodrik (2004) estimates a $200 billion dollar welfare gain for developing countries, from a 3% increase in developed countries' labour forces supplied by developing countries on a temporary basis. The findings of these studies are further supported by simulation analyses conducted in Walmsley and Winters (2005), Walmsley et al (forthcoming) and van der Mensbrugghe (2006) – large global gains and gains for the labor importing regions. In Walmsley and Winters (2005) and Walmsley et al (forthcoming) the welfare effects differed across labor exporting regions

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[5] Winter's conjectured that three quarters of the difference in wages between the labor exporting (low income) country and the labor importing (high income) country are due to differences in individual characteristics; and therefore most of the differences in wages and productivities (75%) would remain even after the worker moved to the high income country.

depending on the relative effects of brain drain and remittances; while van der Mensbrugghe (2006) found positive effects for all of the labor exporting economies.

The apparent consensus is that greater labor movements positively change global welfare and the welfare of the host countries. However, the effect of the resulting skilled labor shortage on the labor exporters is often ambiguous, as the relative size of the losses from brain drain and the potential gains from remittances depend largely on the characteristics of the countries involved. Moreover, a drawback of these models is that they do not consider the potentail effects of "brain circulation"[6], or the fact that any returning service providers might be bringing back greater levels of eductaion and improved productivity and hence are likely to underestimate the gains from TMNP.

Among the many concerns of labor exporting developing countries, brain drain is most prevalent. Brain drain is the emigration of a significant proportion of a country's highly skilled, highly educated professional population to another country. While skilled workers often flow both in and out of a country, it is the net outflow of skilled workers which gives rise to the concept of net brain drain. In the context of a developing country, the effects of brain drain can be particularly devastating, as further decreases in already scarce skilled personnel can create critical bottlenecks, reduce total output, and shrink the tax base.

Given the sheer number of educated workers leaving India it is not surprising to hear labels such as "brain drain" also being used to describe this overseas movement of its workers. The brain drain argument gains relevance when considering the recent growth of the domestic service sectors – the most high profile being the software and IT sectors. These two sectors have experienced phenomenal growth rates in the past few years; the software sector alone is expected to account for 7.5% of the GDP growth in India in 2008, grossing $ 87 billion, $50 billion of which is expected to come from exports. A 1999 McKinsey and Co. study, commissioned by NASSCOM, claims that this industry is expected to employ 2.2 million more knowledge workers in 2007 (Business Week, 2000). With such massive growth prospects within India, there are concerns that the significant outward flow of skilled personnel could result in insufficient skilled workers to meet the demands of the domestic service sector. These fears of a shortage of workers represent the crux of the arguments of

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[6] Walmsley et al (2005c) incorporated a simple method for taking account of return migrants in their paper on the movement of labor within the Pacific. This method used a productivity shock to simulate the productivity gains of returning migrants. In this case the authors found that even with significant return migration the higher productivity of returning migrants (brain gain) and remittances could not outweigh the loss of skilled labor (brain drain).

critics of labor movement liberalization – "brain drain" as manifested in the form of labor market shortages (Khadria, 2002).

While the migration of skilled workers such as healthcare professionals is one stark example of how labor movement can be detrimental to the labor exporter, there have been studies of labor migration yielding positive changes to the home regions. van der Mensbrugghe's (2006) study found that increased international labor movement gave the developing world a real income gain of US$ 143 billion, with US$ 21 billion of that gain going to South Asia. In Walmsley et al (2007), only four out of the thirteen labor exporting regions under consideration experienced real income losses. Three of these regions – Mexico, Eastern Europe[7], and the Rest of East Asia[8] also experienced the greatest losses in their skilled labor force, as a share of total skilled labor, and the largest losses to returns to capital. In several other labor exporting regions (including India), changes to remittances were found to be large enough to offset any losses in returns to factors.

Remittances can have important positive effects on the developing labor exporting country. As Khadria (2002) notes, since the 1970s there has been a rapid increase in remittances coming from the US, Canada, the UK, Australia, and the EU 15 nations of Western Europe into India. The commonly accepted view is that remittances have generally contributed positively to the Indian economy through investment in housing, healthcare development, education, and direct consumption – the popular media often relating stories highlighting the role of the remittances and the return migrant workers in social development.

Total remittances received by India from expatriate Indians amount to US$ 17.41 billion or about 3.65% of India's GDP[9] according to the GMig2 Data Base. 92.81% of the total remittances come from the top ten remittance sources, listed in Table 2.1[10]. Indian expatriates in the United States alone send more than half of the total remittances that India received – a level which is equivalent to almost two percent of India's GDP. These bilateral remittances are the result of the assumptions made to obtain a bilateral matrix of remittances, namely that remittances as a share of income are constant. Hence total remittances are likely

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[7] Eastern Europe comprises Albania, Bulgaria, Croatia, Cyprus, Czech Republic, Hungary, Malta, Poland, Romania, Slovakia, Slovenia, Estonia, Latvia, and Lithuania.
[8] Rest of East Asia comprises Republic of Korea, Taipei, Macau, Mongolia, and the Democratic People's Republic of Korea.
[9] GDP is assumed to be US$ 477.3421 billion (2001), as used in GTAP Database construction.
[10] Note that the bilateral remittance data is estimated by assuming that the proportion of remittances to incomes is constant across all host countries. Hence bilateral remittances depend on number of migrants and incomes in the host regions.

to be greatest from those economies which employ skilled migrant workers and have higher wages, such as the USA[11].

Table 2-1 Top Ten Regions Sources of Remittances to India (2001)

Region	Remittances (Millions of US$)	% of Total Remittances
United States of America	9,090.44	52.23%
Gulf Cooperation Council[12]	2,161.63	12.42%
United Kingdom	2,082.69	11.97%
Canada	1,052.34	6.05%
Germany	494.34	2.84%
Australia	331.23	1.90%
Hong Kong	273.98	1.57%
Bangladesh	245.64	1.41%
Jordan	226.41	1.30%
Singapore	196.39	1.13%
Total	16,155.10	92.81%

Source: Walmsley et al (2005a)

Return migration has also been hailed as the cure for brain drain woes, by leading to a brain circulation scenario, whereby the initial loss of skilled workers is mirrored by an influx of returning skilled migrant workers. It has been argued that the returning migrant workers bring back higher productivities, experience, and financial support which benefit India – transforming the brain drain into a gain. The mechanism by which the initial outflow of workers – the brain drain – becomes a brain gain is illustrated in Figure 2.1.
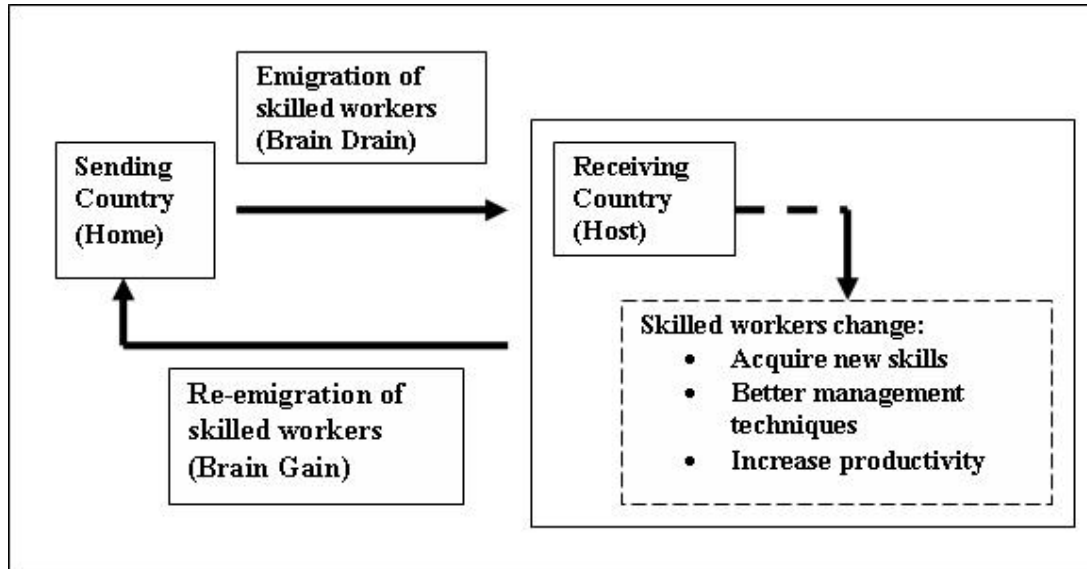
Balasubramanyam and Balasubramanyam (1997) argue that migrants, who originally left in the 1960s and 1970s, played an important role in the establishment of the Indian software sector upon their return. As evidence they point to a number of software companies founded in Bangalore – including three of the most prominent firms, Wipro Limited, Infomart, and BPL Systems – which were established by return migrant workers; concluding that it was this return migration, and the subsequent brain gain, which provided much of the impetus for the rapid growth in India's software sector.

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[11] Anecdotal evidence suggests that remittances from the US into India in the GMig2 Data Base are too high, since the lions' shares of remittances that go to South Asia are believed to come from unskilled workers in the Middle East. However, according to figures from the Reserve Bank of India (2006), remittances from USA based Indian expatriates account for 44% of the total remittances received. The estimates calculated from the GMig2 Database are thus in the ballpark. Sensitivity analyses will examine alternative remittance distributions by source country.

[12] The Gulf Cooperation Council comprises the Kingdom of Saudi Arabia, Bahrain, Qatar, Kuwait, the United Arab Emirates, and Oman.

Figure 2-1 Brain Circulation

As a result of these potential benefits from return migration, the Indian Government has developed programs aimed at Non-Resident Indians[13] (NRI) and Persons of Indian Origin[14] (PIO). These programs include granting visa waivers and the facilitation of financial services, normally reserved for Indian citizens. Overall engagement with potential return migrant workers and appeals to the permanent migrants to participate in the development of India has become an integral part of government policy in India.

Currently there is very little return migration occurring, and it would be very easy to overestimate the actual return migration rate to India. As Saxenian (2000) has noted, very few Indian expatriates come back to India permanently as return migrant workers. Cervantes and Guellec (2002) support this by saying that in 2000 there were only 1500 return migrant workers while about thirty times that number, leave every year. If government policies for temporary skilled migration, under any conceptual framework, are to be successful the rate of return migration needs to be increased. A key assumption of Mode 4 liberalization is that return migration will occur at a specific rate, since it is a temporary movement by design. Guest worker schemes or mechanisms, such as the United States' H1B system, would be most conducive to increasing return migration.

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[13] Former citizens of India who have acquired foreign residency.
[14] Anyone whose ancestors emigrated from India.

3. METHODOLOGY

The purpose of this section is to outline the model, data and experiments undertaken in this paper. This section is divided into three sub-sections: the first, describes the model and database used to examine the impact of TMNP liberalization on India; the second subsection, describes the three experiments undertaken to examine the impact of liberalization of the TMNP on India are described; and the third sub-section, briefly describes how the results can be decomposed to isolate the gains or losses from liberalization of temporary migration into the remittances, brain drain and brain gain effects.

3.1. The GMig2 Model and Data

The Bilateral Labor Migration Model – also known as GMig2 – developed by Walmsley et al (2005), is used to facilitate the analysis in this paper. It is based on a standard global computable general equilibrium (CGE) model – the GTAP model (Hertel et al, 1997) – with adjustments made to take bilateral migration flows into account. The GTAP model was designed for use with the GTAP Data Base (Dimaranan, 2006) and then augmented with bilateral migration data from Parsons et al (2005) and remittance data from the World Bank (Ratha, 2003). The resulting GMig2 database is documented in Walmsley et al (2005a).

The GMig2 model was further modified for this paper to incorporate the potential for productivity gains made by return migration. A number of assumptions were made regarding the return migrant workers:

1. The number of return migrants from a host country was assumed to be a fixed proportion of all new migrants.

2. All return migrants were assumed to re-enter the labor force and find employment.

3. The wages (nominal) of return migrant workers are higher when they return, than they would have been if they had stayed in India; although not as high as the wages they earned abroad. The extent to which the wages of return migrant workers increase over their counterparts who remained in India is due to productivity gains[15]. This productivity gain represents the new techniques and skills that return migrant workers learn in their host countries and bring back and apply at home.

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[15] Sine the wages of return migrants are equal to or higher than the incumbent wages, the productivity gain must be greater than or equal to zero.

In the GMig2 database, there are approximately 9.05 million Indians living abroad, 1.5% of whom are accounted for by India's top ten migration destinations, as seen Table 3-1.

Table 3-1 Top Ten Regions Destimations for Indian Migrants (2001)

Region	% of Total Remittances
Middle East[16]	44.97%
USA	11.45%
Bangladesh	10.58%
Pakistan	6.69%
United Kingdom	5.18%
Sri Lanka	4.34%
Canada	3.57%
Germany	2.01%
Malaysia	1.21%
Australia	1.05%
Total	91.05%

Source: Walmsley et al (2005a)

About 45.8% of the migrants – predominantly unskilled labor – are located in the Middle East with about 11% located in Bangladesh and the USA respectively.

Based on the pre-existing migrations patterns and remittance flows, the eighty-seven regions in the GTAP Database were aggregated to sixteen regions[17] for the purposes of the simulation analysis. Of these sixteen regions, Australia, the UK, USA, Canada, Germany, the EU 15 and Switzerland, and Japan were designated labor importing regions. The fifty-seven sectors of the disaggregated GTAP Data Base were aggregated to twenty-two sectors[18], where Business Services, Financial Services, Insurance, and Communications are taken to be representative of the skilled service sectors in India.

The standard GTAP comparative static short run closure, with fixed endowments, was used throughout this paper, unless otherwise stated. Hence both capital and unemployment were exogenous and do not respond to changes in rates of return or real wages. The aim was to have a timeframe that roughly matched the "lifetime" of a United States H1B work visa – 6 years. After this time visa holders are expected to return to the country of origin, although this is not always the case with many H1B visa holders obtaining "greencards' in the interim.

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[16] Bahrain, Iran, Iraq, Israel, Jordan, Kuwait, Lebanon, the Occupied Palestinian Territories, Oman, Qatar, Saudi Arabia, Syrian Arab Republic, United Arab Emirates, and Yemen.

[17] Australia, United Kingdom, Germany, China and Hong Kong, Rest of South Asia, United States of America, Canada, Rest of the EU 15 and Switzerland, ASEAN 5, Rest of Asia, Middle East and North Africa, Eastern Europe, Rest of the World, India, Russian Federation and Rest of Former Soviet Union, and Japan.

[18] Crops; Textiles and Wearing Apparel; Cattle, sheep, goats, horses; Raw milk; wood and paper; Miscellaneous Food; Energy and Minerals; Meat; Other Primary; Metals; Manufactures; Electronics; Autos; Other services; Household utilities; Construction; Trade; Transport; Communication; Financial services; Insurance; and Business services.

The movement of labor across countries is the result of exogenous shocks, rather than any endogenous response to wage differentials or other economic factors in the exporting or importing regions.

3.2. Experiments

Three scenarios are considered, each building on the previous scenario:

1. Mode 1 Services Liberalization
2. Mode 4 Labor Migration Liberalization with No Productivity gains from Return Migration
3. Mode 4 Labor Migration Liberalization with Positive Productivity gains from Return Migration

The difference between each scenario and the previous one shows the impact of the additional feature. The three scenarios are discussed in greater detail in the following three sub-sections.

3.2.1. *Mode 1 Services Liberalization*

The export of services by India has increased rapidly with the expansion of India's software industry by more than 40% in the last decade. A large proportion of the increased exports have come from the liberalization of cross-border supply (Mode 1). In this scenario, we explore what would happen to the Indian economy if restrictions to domestic service provision were further reduced. With no corresponding liberalization of Mode 4, skilled Indian workers would be available for the further expansion of India's skill-intensive services sectors, expected as a result of the liberalization. The results from this scenario provide a baseline from which comparison with the other scenarios can then be made.

The liberalization of the skill-intensive services sectors in India is incorporated through the removal of domestic restrictions on domestic and foreign provision of services in the Communications, Financial Services, Insurance, and Business Services sectors. These services sector barriers affect domestic production of services and hence service sector barriers are incorporated into the model using output taxes (or productivity shocks) on production[19]. Liberalization is then achieved through reductions in the output tax rate (or

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[19] See Dee (2001) and Kharitonov and Walmsley (2004). The choice between using an output tax or technology depends on whether the barrier generates a rent. If a rent is generated then a tax is used, if not then a technology parameter is used. According to the Price and Cost Effect Measures database, Productivity Commission (2006) these restrictions are all rent creating, and thus are incorporated using output taxes.

productivity shock). Rates of restriction for the banking and telecommunications sectors were obtained from the Price and Cost Effect Measures database produced by the Australian Productivity Commission (2006) and shown in Table 3-2. The barriers for the telecommunications sector are very high, while the barriers in the banking sector are much smaller; the high barriers in telecommunications come from high barriers in market access, rather than restrictions in national treatment[20]. Due to the large size of the tax on Telecommunications and the large effect such a shock would have on telecommunications sector, we choose to reduce the output tax equivalent by approximately half of this estimate (77.625%).

Table 3-2 Output Tax Equivalent Barriers to India's Communications and Banking Sectors

Sector	Weighted Average Output Tax (%)
Banking (financial services and Insurance)	5.24
Telecommunications	155.25

Data on services restriction are unavailable for Business Services, and so a different approach was taken. The skill-intensive services sector has reportedly grown at a rate of 6.5% in the past year (India Directory, 2006) and is expected to continue to grow further over the next 5 to 6 years. A technological change shock of 4% per year in the Business Services sector was introduced to ensure this continued high growth in the sector[21].

3.2.2. *Mode 4 Labor Migration Liberalization with No Productivity gains from Return Migration*

Under the second scenario, in addition to the Mode 1 liberalization described above, the developed labor-importing countries increase the number of visas offered to skilled workers from India by 0.75% of their labor force. The increased demand for skilled workers by the developed labor importing economies is supplied by skilled workers from India only. The net change in the number of Indian migrants in each destination country can be seen in column II of Table 3-3.

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[20] Prior to the experiment being undertaken, the tax rates on output for the services sectors need to be updated to the levels of restriction described in Table 3.1. This update to the database is achieved using the Altertax tool in the RunGTAP utility using a method developed by Malcolm (1998) to retain the internal consistency of the database.

[21] The technological change shock was obtained from a calibration simulation, where technological change was swapped with business services output. Output of business services was assumed to grow by approximately 6.5% per year (or 45% over 6 years).

Return migration may occur, but there are no productivity gains and hence the return migrant workers are simply replaced by new migrants with no impact on the Indian economy.

Table 3-3 Change in Skilled Indian Workers by Destination

Labor-Importing Region	Millions of Return Migrants (at 10% rate of return)	Millions of Net Migrants
	I	II
Australia	0.0027	0.027
UK	0.0086	0.086
Germany	0.0112	0.112
USA	0.0384	0.384
Canada	0.004	0.04
Rest of the EU 15 and Switzerland	0.0265	0.265
Japan	0.0154	0.154
Total	0.1068	1.068

Since the additional workers are all assumed to come from India, there is a decrease in the skilled labor force of India of 3.27%.

Using the methodology of Winters (2001), we can use a simple back-of the-envelope calculation to determine the potential global gains from such a scenario. As described above the skilled labor force of the labor importing countries is increased by 0.75 % of their total labor forces, which means an additional 0.9 million workers coming from India. It is also assumed that seventy-five percent of the differenential between the labor importing country and India is gained by the migrant worker. Using wage rates from the GMig2 Data Base this means that the expected gains of almost US$24 billion[22].

3.2.3. *Mode 4 Labor Migration Liberalization with Positive Productivity gains from Return Migration*

This final simulation repeats the shocks conducted above (Mode 1 and Mode 4 liberalization), but return migrant workers now return with higher productivities than incumbent Indian workers. This results in further gains to the Indian economy, through brain gain. Even as the number of skilled Indian workers in the labor importing countries' increases, a percentage of the new Indian migrants in those countries are assumed to return to India taking with them additional skills learnt abroad, which increases their productivity at

home. The skilled labor forces of the labor importing regions once again changes by 0.75% of their total labor force. In the previous simulation the rate of return migration was irrelevant, since net migration did not change and the return migrants were no different from incumbent Indian workers. However, with return migrant workers assumed to be more productive, the extent to which workers return and the additional productivity they gain from their experience abroad can have a profound impact on the resulting brain gain obtained.

Rates of return migration are typically difficult to calculate in the absence of accurate records. Some estimates include those of Borjas and Bratsberg (1994) who found that about 20% of immigrants re-emigrated out of the United States, and of Glavac (1995) who found that in the period between 1981 and 1990 about 7% of migrants in Australia left the country. Kapur and McHale (2005) discuss a survey of Indians in the USA where the question "How likely is it that you will ever move back to India permanently?" was asked. 21% responded "very likely", 20% "somewhat likely", 40% "somewhat unlikely", and 26% "very unlikely". Despite these positive responses to the survey National Science Foundation longitudinal data on Ph.D. students show that the actual rate of return migration is closer to 5% (Kapur and McHale, 2005). Assuming the 5% rate to be a lower bound and considering that 46% of the survey takers considered returning to India, we assume a rate of return migration of 10%[23]. The number of skilled Indian migrants returning to their home country by host country can be seen in column I of Table 3-3.

In this experiment returning migrants are 6 to 15 times more productive than the residents remaining in India, depending on the country in which they temporarily resided. These figures are based on the assumption that returning residents retain 50% of the wage differential gained when the first migrated[24].

3.3   Decomposition of Real Income Effects

In addition to examining the overall impact of Mode 4 liberalization on India, we are also interested in decomposing this overall effect into a number of components: brain drain, remittances and brain gain. This can be done by focusing on the changes in real incomes

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[23] Note that this is 10% of the new migrants introduced in the simulation. We do not consider the impact on the Indian economy of 10% of all current Indian workers living abroad returning home – since Mode 4 liberalization is not expected to affect current migrant workers abroad.

[24] Note that new migrants gain 75% of the wage differential between the home and host region. Hence when they return they retain 50% of that 75% gain, i.e., 37.5% of the wage differential between the home and host economies. This results in returning migrants being 6 to 15 times more productive than the incumbent Indian workers.

earned in India (by the non-moving Indian population, the new migrants and return migrants). The second scenario, *Mode 4 Labor Migration Liberalization with No Productivity gains from Return Migration* contains both the brain drain and remittances effects from Mode 4, while the brain gain effect can be derived from the third scenario, *Mode 4 Labor Migration Liberalization with Positive Productivity gains from Return Migration*.

In order to separate the brain drain and remittance effects within the second scenario we redo the second simulation using an alternative closure, where remittances are held exogenous and are not permitted to change with the increase in migration. The two effects can then be calculated in the following way:

1. The *brain drain effect* is calculated by taking the total real income change in India in second scenario, under the alternative closure, where the remittances from the new migrants are assumed to be zero.

2. The *remittance effect* can then be found by subtracting the change in real income in India under the scenario with fixed remittances from the change in real income in India with remittances endogenous.

3. The *brain gain effect* is then equal to real incomes earned in India once the return migrants have returned with greater productivity.

4.   RESULTS

This section will focus on the results of the three scenarios for Indian economy. The first and second sub-sections will examine and compare the three scenarios. The first section will focus on the macro impact, including changes in Real GDP, terms of trade, investment, imports, exports, and factor returns in India. This first sub-section will also include a discussion of the impact on the current and trade account balances. The second sub-section will examine the sectoral impact. In the third sub-section, the decomposition outlined in section 3.3 will be used to analyze the extent to which brain drain, remittances and brain gain result from the liberalization of Mode 4. The fourth sub-section considers how sensitivity the results are to alternative assumptions about the distribution of remittance flows (across sources) in the underlying data base. Finally, the results are compared with the simple BOTE estimate obtained in section 3.2.2.

4.1 Macroeconomic Effects

The macro impact on India under the three main scenarios is provided Table 4.1. Real GDP rises by 1.16% due to reduction of restrictions on the services sector (column I), reflecting the fact that Mode 1 services liberalization has a positive effect on the services sectors and the rest of the economy.

Real returns to skilled and unskilled labor, and capital all rise significantly as the liberalization of services increases demand for services and hence endowments, particularly capital which is used intensely in the communications, financial services and insurance sectors (where most of the liberalization occurred). As a result of this additional demand for capital, the rental price of capital and hence rates of return rise leading to a substantial increase in investment of more than 3.8%. The increase in factor prices causes the prices of all commodities, except services, to rise. The terms of trade falls due to the decline in the price of services, resulting from the liberalization.

Imports increase by 3.7%, while exports drop slightly (0.3%) as most commodity prices in India increase due to the higher factor costs (only the market prices of Communications, Financial Services, Insurance, and Electronics have fallen). In the first three cases this is due to the liberalization of these sectors, in the later case it is due to the fact that the communications sector experiences a substantial decrease in price due to the very high level of protection which feeds through to the electronics sector[25].

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[25] In the input-output table for India, communications accounts for 3% of the electronics sector's costs.

Table 4-1 Macro Results for India (%)

	Mode 1 Services Liberalization[a]	Mode 4[b]	Productivity Gains from Return Migrants[c]
	I	**II**	**III**
Real GDP	1.16	-0.30	0.41
Terms of Trade	-1.27	1.95	-0.09
Imports	3.66	3.15	0.33
Exports	-0.26	-10.43	0.36
Investment	3.85	0.10	0.28
Real Returns to Unskilled Workers	2.36	-0.01	0.13
Real Returns to Skilled Worker	3.12	3.49	-3.18
Returns to Capital	3.16	-0.40	0.17
Real Income of Indian residents ($US millions)[d]	76,875.27	111,339.55	-961.16

a. Scenario 1: Mode 1 Services Liberalization.

b. Based on scenario 2: Mode 4 Labor Migration Liberalization with No Productivity gains from Return Migration. Gains from Mode 1 services liberalization are not included, providing only the additional gains from Mode 4.

c. Based on scenario 3: Mode 4 Labor Migration Liberalization with Positive Productivity gains from Return Migration. Gains from Mode 1 services liberalization and Mode 4 liberalization are not included, providing only the additional gains from the positive productivities brought home by returning migrant workers.

d. The change in real income of the Indian residents depends on the income of these residents before and after the Mode 4 liberalization. This does not include the real income lost by the new migrants (column II) or the real incomes of the return migrants (column III).

The rise in investment, relative to saving caused by the high rates of return leads to a net capital inflow (NCI) and a decline in the trade balance. The trade balance falls by approximately US$ 3 billion (Table 4-2). The current account can also be seen to fall by a similar amount.

Table 4-2 Changes to Trade Balance and Current Account due to Migration and Return Migration (US$ Millions)

	Mode 1 Services Liberalization[a]	Mode 4[b]	Productivity Gains from Return Migrants[c]
	I	**II**	**III**
Trade Balance	-3,244.72	-7,366.60	-31.00
Current Account	-3,334.32	2,472.33	1.60

a. Scenario 1: Mode 1 Services Liberalization.
b. Based on scenario 2: Mode 4 Labor Migration Liberalization with No Productivity gains from Return Migration. Gains from Mode 1 services liberalization are not included, providing only the additional gains from Mode 4.
c. Based on scenario 3: Mode 4 Labor Migration Liberalization with Positive Productivity gains from Return Migration. Gains from Mode 1 services liberalization and Mode 4 liberalization are not included, providing only the additional gains from the positive productivities brought home by returning migrant workers.

Mode 4 liberalization results in a significant decline in Real GDP (0.3%, Table 4-1); this is indicative of the brain drain concern raised by policy makers. As expected the real wages of skilled labor in India rise significantly (3.5%) as the outflow of workers causes scarcity, while the wages of unskilled workers and the rental price of capital fall. Despite the fall in the rental price of capital, investment increases slightly (0.1%). The return of highly productive migrants mitigates a substantial proportion of the changes in the real wages of skilled workers; and the rental price of capital and the real wages of unskilled rise slightly.

In order to fully understand the impact of Mode 4 liberalization on trade and the terms of trade we first turn to one of the accounting relationships in the model upon which remittances has a significant affect: the balance of payments. In the standard GTAP model, each region must be balanced and hence net exports (X-M) must equal savings (S) minus investments (I)[26]:

$$X - M = S - I \qquad\qquad\qquad \text{Eq. 4.1}$$

However, when remittances (REMIT) are introduced, the relationship becomes[27]:

$$X - M + REMIT = S - I \qquad\qquad\qquad \text{Eq. 4.2}$$

As the number of migrant workers increases, remittances also increase. Furthermore, increased remittances, increases income which leads to an increase in saving; and as we saw above investment also increases slightly. The overall impact on S-I (NCI) is a small increase (current account balance, Table 4-2). In order to restore the balance of payments, exports

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[26] This identity is the balance of payments constraint in the model and is the result of income earned equaling income spent.
[27] Savings are adjusted in the GMig2 Database during construction to ensure that this relation holds in the GMig2 model.

and/or imports must respond (i.e., the trade balance must fall, Table 4-2). This is achieved through a real appreciation which reduces demand for India's exports significantly and raises India's demand for imports (Table 4-1). The terms of trade therefore increases with the real appreciation.

Alternatively one may believe that remittances augment savings. In which case the trade balance will not deteriorate and savings will increase to restore balance of payments equilibrium. Under this scenario the impact of Mode 4 is reduced, as remittances augment savings. Real GDP decreases slightly more (0.38% compared to 0.3%, Table 4-1), while the real wages of skilled rise less (2.6%). The smaller response of Mode 4 on the real wages of skilled workers and on the terms of trade (-0.69) is due to the fact that no real appreciation of the currency is required to raise exports and restore balance of payments. Exports actually rise by 4.3%, while the trade balances rises slightly with the rise in income, and the current account balance rises substantially due to the remittances flow[28]. The smaller response of real wages to Mode 4, however, also reduces the real income gains to Indian residents. Overall, the impact of Mode 4 on India is reduced as remittances are not spent, and the multiplier effects are dampened.

Hence in terms of real GDP (or domestic production) Mode 1 liberalization appears to be better for the Indian economy than Mode 4 liberalization, even with the return of 10% of new migrants with higher productivities (-0.3%+0.41%=0.11%); although the results do indicate the potential for further large brain gain effects from the return of productive migrant workers (0.41%). Moreover, Mode 1 liberalization also leads to increases in real wages of both skilled and unskilled workers, while Mode 4 increases the already large differences in the real wages of skilled and unskilled workers. In terms of changes in the real incomes of the permanent residents of India, however, Mode 4 is superior (column 2, Table 4-1), due to the large increase in remittances flows.

4.2. Sectoral Results

The impact on production by sector in India is depicted in Table 4-3. Services liberalization (column I) has the greatest impact on the Communications sector where the estimated tax equivalent of restrictions on domestic and foreign market access were considerable, and on the business services sector where output was expected to grow

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[28] Trade balance is fixed relative to income.

considerably. The financial services and insurance sectors experience minor increases. The other sectors experience losses as demand for factors rises and hence factors move into the services sectors. Mode 4 (column 2) has a negative impact on most sectors. Those not adversely affected do not rely heavily on the lost skilled labor, or benefit from the increase in investment[29]. Finally, the productivity gains (column 3) are positive for all sectors, but most for those sectors which rely on the returning skilled labor.

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[29] When the trade balance is fixed, the sectoral losses are considerably less as increased exports prop up production.

Table 4-3 Percentage Changes in Sectoral Output in India due to Migration and Return Migration (US$ Millions)

	Mode 1 Services Liberalization[a]	Mode 4[b]	Productivity Gains from Return Migrants[c]
	I	**II**	**III**
Crops	-0.68	0.00	0.08
Textiles and Wearing Apparel	-6.98	-3.77	0.33
Livestock	-0.10	0.95	0.24
Dairy	0.65	2.30	0.33
Wood	-1.96	-1.30	0.38
Food	-1.09	0.02	0.15
Engineering and Minerals	-4.29	-2.31	0.31
Meat	-11.50	-6.40	0.14
Other Primary	-0.51	0.94	0.26
Metals	-2.59	-3.24	0.38
Manufactures	-2.76	-3.82	0.38
Electronics	3.94	-3.98	0.39
Autos	1.22	-1.05	0.36
Other Services	-0.94	0.85	1.07
Household and Utilities	-0.67	-0.54	0.35
Construction	2.48	0.74	0.31
Trade	-0.58	0.13	0.35
Transport	-0.65	-0.08	0.38
Communications	168.69	-7.40	1.19
Financial Services	0.57	-0.33	0.42
Insurance	0.59	-1.97	0.45
Business Services	45.00	-6.71	1.38

a. Scenario 1: Mode 1 Services Liberalization.

b. Based on scenario 2: Mode 4 Labor Migration Liberalization with No Productivity gains from Return Migration. Gains from Mode 1 services liberalization are not included, providing only the additional gains from Mode 4.

c. Based on scenario 3: Mode 4 Labor Migration Liberalization with Positive Productivity gains from Return Migration. Gains from Mode 1 services liberalization and Mode 4 liberalization are not included, providing only the additional gains from the positive productivities brought home by returning migrant workers.

4.3. Real Incomes

Using the decomposition described in sub-section 3.3, the changes in real incomes[30] can be used to determine the effects of Mode 4 liberalization on brain drain, remittances and brain gain. The results are shown in Table 4-4

Table 4-4 Changes to Total Real Income (US$ Millions) in India - Decomposed by Effect

	Change in Real Income earned in India
Brain Drain	-8,742.42
Remittances	115,281.67
Brain Gain	8,593.70

In the case of India the Remittance Effect was found to be huge, with a gain of more than US $ 115 billion. This is not surprising given that in the base data expatriate Indians remit 60% of their incomes. Remittances therefore play an integral role in improving the welfare of the residents of India. Unfortunately, as stated above, this remittance affect may be over estimated due to the lack of good bilateral data on actual remittance flows from major labor importing countries like the USA to India. Furthermore, it is not possible to determine the distribution impact of the gains from remittances without more detailed household survey data. Those individuals with the strongest transnational links to the expatriates sending the remittances are likely to reap most of the benefits from the remittances; although as mentioned in the introduction there is a large body of anecdotal evidence that remittances are going towards rural infrastructure, healthcare, and housing development (The Guardian, 2004).

The brain drain effect was found to be relatively small compared to the remittances effect (US$ 8.7 billion). Finally, when considering brain gain the Indian economy experiences a US $ 8.6 billion real income gain. The increased productivity of the return migrants increases the effective labor force in India – even though the number of people remained unchanged. These productivity gains were quite large, mitigating the original brain drain effects. Further analysis of the potential productivity gains from return migration is

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[30]Real incomes for migrants are determined by adjusting the changes in incomes by PPP. The change in real income of new migrants is the difference between the income they would have earned at home and what they earn in the new host country. For the return migrant, the change in real income is the difference between what their incomes were in the former host country and the incomes they receive after returning to their home country. The real income of the non-mover is determined by multiplying the total factor income of Indian non-movers with the difference between the household income and the price index for the disposition of income, adjusted by PPP.

required. Here we assumed that just 10% of migrants returned with 50% of the productivity (wage) gains earned abroad.

4.4. Sensitivity Analysis of Real Income

As mentioned in Section 2, the remittance data are bilateralized to obtain remittances by source and destination country. Anecdotal evidence suggests that the share of remittances into India attributable to Indian expatriates in North America is too high, while the share attributable to migrant Indians in other popular destinations such as the Middle East and North Africa is too low. To explore the robustness of our results to alternative assumptions about which regions are sending greater or smaller shares of total remittances, we examine two scenarios where total remittances into India are kept the same, but the share of those remittances attributable to Indians in the USA and Canada are reduced, and the shares attributable to other regions is increased.

In the first, the reduction is by 15%, while in the second, the reduction is by 25%. The difference is redistributed across the other remittances going to India from other regions, and represents the redistribution of US$ 1.5 to 2.5 billion from the USA and Canada to every other remittance sending region in the database. The alternative distributions can be seen in Table 4-5.

Table 4-5 Distribution of Remittances to India by Source

	Base	15% Reduction in North American Share	25% Reduction in North American Share
	I	II	II
USA	52.23%	44.39%	39.17%
Middle East and North Africa	14.67%	17.74%	19.79%
UK	11.97%	14.47%	16.14%
Canada	6.05%	5.14%	4.53%
Rest of South Asia	3.34%	4.04%	4.50%
Germany	2.84%	3.44%	3.83%
Rest of the EU 15 and Switzerland	2.25%	2.72%	3.04%
Australia	1.90%	2.30%	2.57%
ASEAN 5	1.89%	2.29%	2.55%
China	1.63%	1.97%	2.20%
Rest of the World	0.77%	0.93%	1.03%
Japan	0.19%	0.23%	0.26%
Rest of Asia	0.16%	0.19%	0.22%
Former Soviet Union	0.12%	0.14%	0.16%
Eastern Europe	0.01%	0.01%	0.02%

The alternative distribution of remittance flows does not significantly influence the real income effects: the Brain Drain and Brain Gain effects change by less than a billion dollars (Table 4-6). On the other hand, the alternative distribution of remittances does affect the magnitude of the Remittance Effects, as expected. India experiences a decline in gains due to the Remittance Effect of US$ 7 and US$ 12 billion in the 15% and 25% North American remittance share reduction scenarios, respectively. The greater the diversion of remittances originally attributed to be from North America in our base data, the smaller the Remittance Effect. This is due to the fact that: a) the massive remittances assumed to come from the USA and Canada have now been redistributed over the other countries; and b) those countries do not experience any changes in their skilled Indian migrant population.

Table 4-6 Real Income Effects under Alternative Distributions of Remittances

	15% Reduction in North American Share	25% Reduction in North American Share
Brain Drain	-8,704.48	-8,679.20
Remittances	108,046.70	103,221.28
Brain Gain	8,591.20	8,589.38

Also, the Mode 4 macroeconomic, trade balance, and current account changes are all dampened, although almost imperceptibly. The differences in the macroeconomic impacts across alternative remittance sourcing databases are less than a tenth of a percentage point.

4.5.   Comparison to the BOTE Results

In section 3.2.2, the global BOTE gains due to migration – calculated as the nominal income gain by Indian migrants moving overseas– was found to be US$ 23.8 billion. In this section we compare this aggregate global gain to the gains and losses made by the different parties.

The actual nominal income gain of new Indian migrants moving overseas was calculated from the simulation results to be about US$ 21.2 billion, very close to the BOTE estimate. This income gain is the change in the value of the output of the labor endowments that are relocating from one region to another, in this case from India to the labor importing countries. As we show below however, the global gains as represented by the new Indian migrants' gains in the value of their output are negated by the income losses of the non-movers in India and elsewhere.

There is a US $ 9.3 billion loss in the value of output of the labor that did not move from one country to another, i.e. the nominal income of global non-movers. In the labor importing countries there is a depression in the wage rates. So, skilled workers that do not move to or from those countries experience losses in their income to the tune of a global value of US$ 14 billion. In contrast, India experiences a rising wage rate for skilled workers, which in turn leads to a US$ 4.7 billion increase in the total nominal income of the Indian non-movers. Globally, there is thus a loss in the nominal income of non-movers, bringing the net global income change for labor to US 11.8 billion, almost US$ 12 billion less than the optimistic BOTE estimate.

However, our simple BOTE estimate cannot take into account the general equilibrium effects of migration on the returns to other factors of production. The movement of skilled workers changes the returns and usage of non-labor endowments. From our simulation results we can see that there are greater global gains from returns on land, capital, and natural resources. The returns on capital, land and natural resources increase by US$ 8, US$ 3 and US $ 0.4 billion, respectively. Considering the benefits to the owners of these factors, the nominal global income gains increase to US$ 22.8 billion from when we consider only labor income gains, bringing the new total very close to the original BOTE estimate of US$ 23.8 billion. The BOTE estimate and the nominal gains from the simulation are compared in Table 4.7.

Table 4-7 Comparison of BOTE Estimates with Nominal Gains from Migration

	Gain in US$ Millions
BOTE	**23,830.40**
Total Changes from Simulation (Labor Only)	**11,815.90**
Total Changes from Simulation (All Factors)	**22,787.34**
Δ Income of New Migrants	21,181.41
Δ Income of Non-Movers	-9,365.51
Δ Income from Capital	7,592.00
Δ Income from Land	2,980.03
Δ Income from Natural Resources	399.41

5. CONCLUSIONS

The liberalization of trade in services through the GATS, through both cross-border supply and temporary movement of skilled workers, is being aggressively pursued by many member states of the WTO. Although it may currently appear to favor the developed countries, developing countries can also gain. India with its large skilled workforce is

particularly well suited to gain through increased cross border service exports (Mode 1) and through increased temporary movement of its skilled labor (Mode 4).

By sending more skilled workers to developed labor importing countries, India decreased its own labor force. However, the expected losses from this migration were not realized. Increased remittances sent back by the Indian workers abroad more than made up for the losses due to a smaller skilled labor force. Increased temporary migration can thus be regarded as having provided positive welfare effects for those Indians who chose not to leave India. In the case of India, remittances far exceeded the brain drain effect which leads us to wonder if the brain drain effect is as big a problem as commentators have claimed; further investigation is required.

The removal of restrictions in the services sector also resulted in large positive gains to India, in terms of Real GDP, which exceeded those from increased temporary migration. Moreover, Mode 1 liberalization also leads to increases in the real wages of both skilled and unskilled workers, as well as exports; although real income gains are lower. Since this removal of restrictions can be considered a liberalization of non-movement based trade in skilled services, policies that would promote direct trade in services through delivery modes such as cross-border supply (Mode 1) should be considered. The growth in the domestic economy and the export oriented services sectors would in turn provide incentive for skilled expatriate Indians to return to India.

There were also quite large gains when return migration were assumed to bring back a portion of the additional productivity they gained while overseas, the return migrants were able to better mitigate the effects of the labor shortage created by the outward migration of workers. The additional productivity, presented in this paper in terms of changes to real income, can be regarded as a brain gain. While not considered here, return migration does not have to be limited to new temporary migrants. Indian policies that would make it easier for migrants that have been overseas for longer to reintegrate into the Indian society, economy, and labor force would further encourage return migration.

The liberalization of temporary movement of Indian labor through Mode 4 which encourages return movement may therefore offer a potential solution to the brain drain caused by the initial migration. Service sector liberalization via domestic policies promise welfare gains and benefits to the economy that rival the gains that may arise from migration and return migration. While policies related to service sector liberalization and the improvement of the return migration rate are important, a discussion of the policy options

related to harnessing the gains from migration would be incomplete without mentioning remittances. Remittances have been seen to be a significant component of the gains from migration to the Indians remaining behind in India. Although currently there is no tracking of these remittances to their destinations in the Indian economy, there could be policies facilitating remittance transfer – such as special bank accounts – that not only make remittances easier to transfer, but also direct them to or through specific investment opportunities.

The magnitudes of the welfare effects are contingent to a large part on the assumptions about the variables. Specifically, sensitivity analysis of the parameters that determine wages of new migrants and return migrants would provide a more nuanced view of the real income effects of migration and return migration. Moreover, better data on remittances (including bilateral data) would also significantly improve the analysis of the gains from Mode 4.

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