

# Asian Migration Prospects: 2007-2012<sup>1</sup>

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<sup>1</sup> This paper has been prepared for the Asian Development Bank, however it does not reflect the views or policy of the Asian Development Bank or its employees. All errors and omissions are the responsibility of the authors.

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## Summary

This paper uses a global comparative static general equilibrium (GE) modeling approach to examine the impact of five alternative migration liberalization scenarios on the Asian economies over the period 2007 to 2012.

The migration policies of the Asian economies are as diverse as their cultures and economic structures. Since the current and past migration patterns within Asia are crucial to understanding the future prospects for liberalization of migration on the Asian economies, we initially spend some time examining the key aspects of Asian migration and the complex intra- and inter-regional migration patterns. Three of these key aspects are:

- a) In Asia it is not uncommon for a country to be both an important source and destination of foreign workers, with significant bilateral flows occurring in both directions (e.g., India and Bangladesh; and Malaysia and Singapore).
- b) While there is a strong global preference for skilled migrant workers, there is a tendency for the Asian economies to *demand* slightly more less-skilled (or unskilled) workers relative to other recipient countries, such as Europe, the USA and Oceania.
- c) Migration within Asia is also argued to be considerably more temporary in nature than migration elsewhere.

A baseline (or business-as-usual) scenario is then developed, under the assumption of no further migration liberalization, to move the global economy from 2001 to 2007 and then from 2007 to 2012. This baseline scenario also utilizes forecasts of population, capital stocks, real GDP and the labor force (skilled and unskilled) obtained from Walmsley, Dimaranan and McDougall (2000), and consistent with the World Bank GEP publication. The 2007-2012 baseline scenario is then used to compare the state of the Asian economies in 2012, without migration liberalization, to the state of the same economies under the five alternative scenarios of higher migrant populations. The five scenarios considered are:

- 1) Liberalization of migration by developed Asia on skilled and unskilled workers from the less developed economies of Asia.
- 2) Liberalization of migration by North America, Europe and Oceania on skilled and unskilled workers from the less developed economies of Asia.
- 3) Liberalization of migration by North America, Japan, Europe and Oceania on skilled and unskilled workers from the all less developed economies.
- 4) Liberalization of migration by the Middle East on skilled and unskilled workers from the all less developed economies.

5) Regional efforts to improve the working conditions/legalization of migrants among the ASEAN5

The model, termed GMig2, used to examine these five scenarios is based on the GTAP model (Hertel, 1997) adjusted to take into account bilateral labor, wages and remittance flows. Using the bilateral migration data base developed by Parsons, Skeldon, Walmsley and Winters (2007), the model tracks both the home and host countries of migrant labor. Changes in the number of migrants can occur in two ways in the GMig2 model. First, as an exogenous change in the supply and/or demand for migrant workers (e.g., a change in quotas) – this is the primary mechanism used in this paper; and second, as endogenous movements of migrant workers in response to wage differentials. Wages, remittances and hence real incomes of migrants by home and host region are also tracked. The analysis resulted in a number of key findings:

First, the *economic* benefits to the labor recipient economies, from liberalizing the movement of both skilled and unskilled workers, clearly outweigh the *economic* costs

Second, the *economic gains* to the labor sending economies however, are less than clear. If the aim is higher growth in real GDP, then gains are not guaranteed and, if they do occur, only do so in the long run once businesses have had a chance to respond by building more factories etc<sup>4</sup>. If, on the other hand, the aim is to obtain higher real incomes for their citizenry, then migration has positive gains. Furthermore, gains are greatest when more migrants are sent overseas and more remittances are received; for example, India, the rest of South Asia and the Philippines all gain significantly from migration.

Third, small changes in migration (3% of the population in this case) were unlikely to solve the problem of declining population rates in the developed Asian economies, or in the rest of the world.

Fourth, regional liberalization (i.e., within Asia) appeared to have more positive benefits (or less negative in the short run) for the East and South East Asian labor sending economies; while India, South Asia and the Philippines gained more from global liberalization.

Fifth, the paper also found some encouraging signs for improving regional migration within the ASEAN 5. Improvements in the working conditions/legalization of migrants within ASEAN had significant positive effects in terms of real GDP and income, particularly for Malaysia, and to a lesser extent the other economies of ASEAN, even in the short run.

The paper therefore concludes that intra-regional policies can offer an important alternative mechanism by which the Asian economies can reap some of the gains from liberalizing

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<sup>4</sup> Presentation by George Borjas at the International Agricultural Trade Research Consortium Meeting in Washington DC, January, 7-9, 2008 helped to clarify some of the conclusions obtained in this paper. (<http://aede.osu.edu/programs/Anderson/trade/WASHINGTONIATRC.htm>)

migration; particularly given the reluctance of the USA and Europe to open their borders, despite the overwhelming economic gains and the fact that many of them are increasingly faced with declining populations. Such regionally-based policies aimed at the liberalization of migration both within ASEAN and by the developed Asian economies offer potential gains in terms of real income and long run economic growth, particularly for those countries in East and South East Asia.

## 1. Introduction

While globalization has brought numerous benefits through increased trade and capital flows to the economies of East, South East, and most recently, South Asia, the potential gains from the movement of workers remain elusive and fraught with difficulties for both Asia and the rest of the world. As both important sources and destinations for migrant workers, the Asian economies have an opportunity to develop a workable framework that would liberalize the movement of labor promoting growth and alleviating labor supply constraints.

Numerous studies have predicted substantial gains from the liberalization of the movement of labor for participating countries. Back-of-the-envelope estimates from Rodrik (2004) and Winters (2001) indicate that even modest liberalization of temporary migration from the less developed South to the developed North can lead to global welfare gains of hundreds of billion dollars. Numerical analyses by the World Bank (2006) and Walmsley et al (2007) using bilateral migration models and data also predict that greater liberalization of labor movement from the South to the North would lead to global welfare increases, with the migrant sending less developed countries receiving a large share of these welfare gains.

In Asia, liberalization of the movement of labor, combined with the region's already significant growth, has the potential to alleviate excess demand for labor and facilitate further growth. Increased liberalization of migration can reduce wage and employment pressures and fill skill gaps in the fastest growing Asian economies, while providing further opportunities to those economies in the region with high population growth rates and slower economic growth. The result is an improvement in the welfare of both sending and recipient economies. Ahmed and Walmsley (2006) examined the impact of liberalizing Indian migration to developed economies and found that such liberalization has a positive effect on the real incomes of Indians remaining in India. Welfare increased due to the flow of remittances sent back from the new Indian expatriates, which counteracted and exceeded the initial welfare loss due to brain drain.

There are currently no comprehensive quantitative analyses that measure the potential gains from the liberalization of labor from and within Asia. One of the key challenges to conducting such an analysis is the fact that the migration policies of the countries of Asia are as diverse as their cultures and economic structures. Wongboonsin (2003) provides an exhaustive account of the various policies of the countries under the purview of the Economic and Social Commission for Asia and the Pacific (UNESCAP). The paper makes the point that migration policies in this region, in regard to both the sending and the receiving of migrants, are based on a series of bilateral agreements, with the openness of the migration policies often linked to the closeness of socio-political ties. In many cases, the policies reflect a trend towards restricting the in-migration of lower-cost low-skilled migrant workers and promoting the out-migration of higher skilled workers. Given the structural changes occurring in these economies and in the world as a whole, these policies may contradict what might be considered an optimal strategy – a more flexible

migrant worker policy. For example, several economies of South-East Asia (e.g., Malaysia and the Philippines) are faced with increasing demand for less-skilled workers. However, their migration policies with regard to less-skilled migrant workers are very restrictive (in terms of both the foreign worker's country of origin, and the region and sector, in which he/she is permitted to work). When these policies are combined with an increase in demand, for the same workers that these policies are meant to restrict, the results are hindered growth and increases in the demand and supply of undocumented workers – a pervasive problem within Asia. Migration policy reforms that are more liberal with regard to the flow of lower skilled migrants may thus have unexpected welfare benefits for the recipient country.

Manning and Sidorenko (2007) also point out that intra-region liberalization of skilled worker migration would address the growing phenomena of skill shortages and surpluses in the same occupations across Asian countries, such as seen among ASEAN member states. This situation has been exacerbated by the heterogeneity of member countries and the specialization of several countries in niche markets of the global economy. The example that Manning and Sidorenko (2007) use is Singapore. Singapore is experiencing a growing excess demand for healthcare professionals, managers, accountants and engineers while neighboring Philippines and Indonesia have surpluses in several of these professions. A policy framework that encourages intra-region migration could have tremendous potential welfare gains for all countries concerned.

Aside from the complexities introduced by the heterogeneity of the countries involved, the large number of possible sender-receiver country combinations makes it difficult for empirical methods to accurately assess the impact of liberalizing labor flows. To address this gap in the literature, this paper will use a global comparative static general equilibrium (GE) modeling approach to examine the impact of migration liberalization on the Asian economies, comparing the state of the Asian economies in 2012 without migration liberalization to the state of the same economies with higher migrant populations. The global GE approach is necessary for this type of counterfactual analysis due to the simultaneous impacts that bilateral migration has on multiple labor markets and economies.

The first migration liberalization scenario examined will be one where there is increased migration of skilled and less-skilled workers from less developed East, South and South East Asia to the more developed economies of the region, namely Japan, the Republic of Korea (ROK), Taipei (China), and Singapore (with the latter three countries considered to be both senders and recipients of migrant workers). The second scenario examined, is a situation where there is greater movement from less developed East, South, and South-East Asia to popular extra-regional destinations for Asian migrants, namely North America, Europe, and Oceania. In the third scenario we compare the first two scenarios with the case where North America, Japan, Europe and Oceania liberalize quotas on migrants and these are filled by all less developed economies. In the fourth scenario we consider the case where the Middle East increases quotas

and improves the working conditions of migrants; and finally in the fifth scenario we examine the impact of an ASEAN agreement.

The following section will describe the current state of Asian migration and the major regional migration trends. Section 3 then summarizes the model and data base used in this paper. Section 4 will discuss the business-as-usual or baseline scenario used in this analysis, outlining how the predicted changes in real GDP, skilled and less-skilled labor, expected over the period 2001-2012, will impact real wages and the Asian economies. Section 5 analyzes the effects on the Asian economies of five alternative migration policy scenarios aimed at liberalizing labor markets in Asia and the rest of the world. Section 6 will provide concluding remarks.

## **2. Migration Trends in the Asian Context**

An analysis of global migration patterns reveals several features of Asian migration, which distinguish it from migration among other parts of the world.

First, while all countries both send and receive foreign workers, most countries can be designated as a major ‘sender’ or ‘receiver’ of foreign workers. In Asia however, it is not uncommon for a country to be both an important source and destination of foreign workers, with significant bilateral flows occurring in both directions (e.g., India and Bangladesh; and Malaysia and Singapore). A closer examination of the bilateral migration data to be used in this study (Parsons et al, 2007) illustrates how several Asian countries are both important senders and recipients of migrants (Table 3), including Taipei (China), Singapore, Malaysia, the Philippines, India and the Rest of South Asia. We will investigate these relationships further below.

Second, analysis of the global migration data clearly indicates a strong preference for skilled workers, with all countries sending more skilled migrants than less-skilled, relative to their own skilled to less-skilled labor ratios (or the share of skilled verses less-skilled workers in the world as a whole). This is also true for Asian countries sending workers abroad. Unlike other countries however, there is a tendency for the Asian economies to *demand* slightly more less-skilled workers relative to skilled than other recipient countries. Hence Asian economies tend to send relatively more skilled workers to Europe, the USA and Oceania; and relatively more less-skilled workers to other Asian economies and the Middle East.

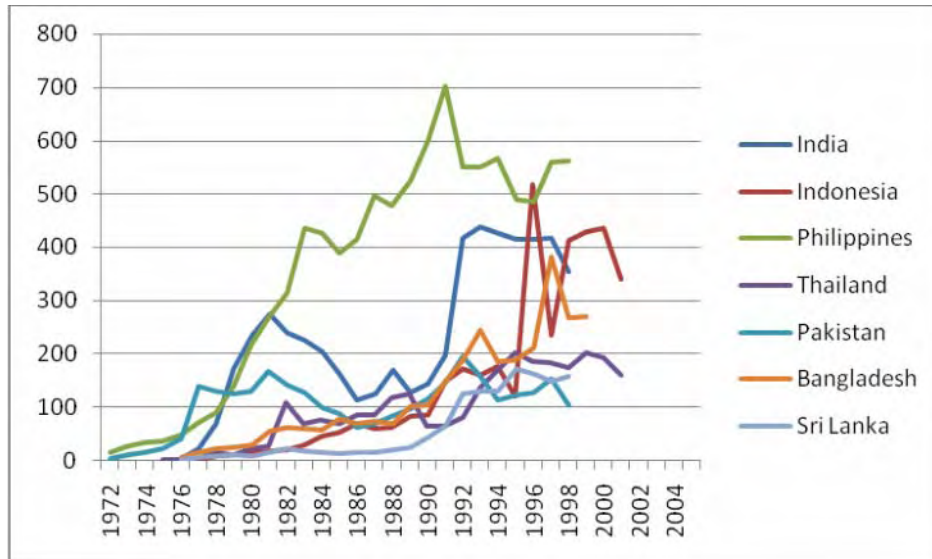
Third, migration within Asia is considerably more temporary in nature than migration elsewhere. There are several possible reasons for the temporary nature of migration in Asia, including the focus of migration within Asia on supplementing family income; policies and contracts that make it difficult for migrants to bring their families with them; the various challenges associated with long term integration (e.g. discriminatory government policies); and in some cases, the lack of legal protection for migrants in the host country. For these reasons, as growth in the region spreads to the migrants’ own economies, thereby alleviating unemployment

and raising real wages, migrants are likely to return home. The migration of skilled workers to Europe, the USA and Oceania, on the other hand, are less likely to be temporary in nature.

Moreover, for the reasons stated above, it is also argued that migration within Asia is closely linked to growth opportunities (Wickramasekera, 2002). Migration increases as growth increases and in some cases reverses when growth rates fall (e.g., the Asian crisis). Longer term migrants, who have made a commitment to move their families abroad, are less likely to return home when the host economy is thrown into recession.

Figure 1 depicts the outflows of migrants from selected Asian countries over the period 1972-2002. As can be seen from the figure migration has steadily increased since 1972, but with some sizable country-specific fluctuations. For instance, there was a decline in migrants from India and Pakistan from 1985 to 1989 reflecting the turmoil over Kashmir. In 1996 migration from Indonesia increased dramatically and then fell (equally dramatically) in 1997, before increasing again in 1998. One might argue that the sharp increase in 1996 may have been a forewarning of the Asian crisis and the decline in 1997 may have been due to the high cost of leaving. The changes in outflows from Thailand over the same period are less dramatic: outflows rose in 1993-1995 and then remained relatively stable from 1996-1998, increasing slightly in 1999.

**Figure 1: Outflow of Migrants over time**



Source: Wickramasekera (2002) and ILO Migration Data Base

### ***Asia as Migrant Recipient***

South Asia is easily the largest Asian destination for migrant workers, hosting almost 7% of all migrants in the world (Table 3); however, these migrants are only a small share of the labor force of South Asia. In India they account for only 0.7% of the labor force, and a slightly higher share (1.29%) in the Rest of South Asia<sup>5</sup>.

Malaysia is also a major recipient of migrant workers. Approximately 1.3% of the world's migrants reside in Malaysia where they comprise 9.4% of the country's labor force, or alternatively, 4.44% of the country's population. Aside from Malaysia and the countries of South Asia, there are several Asian countries where migrants are a larger share of the labor force, even though the country is not a major global destination for migrants. For example, 13.9% of Singapore's labor force and 8.7% of its population are comprised of migrants, despite attracting only 0.35% of the world's migrants. Similarly, migrants account for between 0.53% and 0.91% of the populations of Japan, the Philippines, and Taipei (China) but comprise 0.99% to 2.1% of their labor forces (Table 3).

### ***Asia as Migrant Sender***

While many Asian economies rely heavily on migrant workers to bolster their labor forces, they are simultaneously major sources of migrant workers. Table 3 shows that 4.63% of all migrant workers originate from China, 5.76% from India and 8.83% from the Rest of South Asia. Despite these large percentages of the global migrant stock, these migrants represent only 0.5% and 0.97% of China and India's own labor forces, but a larger 4.16% of the rest of South Asia's labor force.

In contrast to these three regions, there are several other countries that send a high proportion of their labor force as migrant workers – Republic of Korea, Taipei (China), Rest of East Asia, Malaysia, and the Philippines send between 2% and 4% of their labor forces overseas, with each country's migrants contributing less than one percent of the world's total migrant workforce. Most prominently, 9.67% of Singapore's workforce is overseas – contributing only 0.23% of the world's total migrants.

### ***Bilateral Relationships***

An examination of the bilateral migration data in Table 4 highlights several key relationships among countries within Asia. It can be seen that for eight out of the thirteen Asian countries and regions considered in this study North America is the most important destination for migrant workers. Between 40% and 50% of migrants from China, Republic of Korea, and the Philippines go to destinations in North America, while Taipei (China) sends a massive 77% of its migrants there. North America is also very important for migrants from Thailand, Rest of East Asia, and

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<sup>5</sup> See Table 1 for a list of countries in Rest of South Asia.

Rest of South East Asia. Given that North America is the destination for 17.44% of all migrant workers (Table 3), these high shares suggest that these countries send more migrants to North America than the average sending country, and hence North America is an important destination for East and some S.E Asian migrants.

Another popular destination for Asian migrants is the Middle East, particularly for India, the rest of South Asia, Indonesia and the Philippines. In fact, the Middle East is the primary destination for Indian migrants, attracting 48.3% of Indian migrant workers (Table 4). Policies in several of these sending countries encourage and facilitate the temporary movement of less-skilled workers to the countries in the Middle East, and hence the share of less-skilled migrants going to the Middle East is much higher than the global average of less-skilled migrants. Migrant workers in North America, on the other hand, are generally highly skilled.

Despite North America and the Middle East being important destinations for Asian migrants, there are several significant migrant sending and receiving relationships within Asia, especially within the nascent regional blocs (e.g., ASEAN and SAARC). In South Asia, there is significant movement among India and its South Asian neighbors, which together are the member nations of the South Asian Association for Regional Cooperation (SAARC). About 23% of Indian migrants move to other SAARC countries, while more than half of all migrants from Rest of South Asia move to India. Almost 95% of all migrants in India are from other South Asian countries, with about two-thirds of them coming from Bangladesh (Table 4). While SAARC countries have discussed economic integration, liberalization of labor movements within the region has not yet been considered; although with a combined population of 1.4 billion, even small liberalizations of migration policy in this bloc could yield massive changes in the structure of the labor market and potential gains.

In South East Asia, the ASEAN 5 member countries Indonesia, Malaysia, and Singapore have intersecting migration relationships. Malaysia is the primary destination for Indonesians and Singaporeans, receiving 44% and 37%, respectively, of those countries migrants. At the same time, 38% of Malaysian migrants are located in Singapore (Table 4). The ASEAN Vision 2020, laid out in Kuala Lumpur in 1997, describes an ambitious goal of having an integrated regional economy of half a billion people, with trade worth US\$ 600 billion (ASEAN 2020). This Vision recommends the acceleration of “the free flow of professional and other services in the region”. As signatories of the WTO’s General Agreement of the Trade in Services, where one of the four modes of service delivery (Mode 4) is the temporary movement of natural persons, the Vision cannot be reached without liberalization under Mode 4 – the movement of skilled professionals. Regional treaties like the Framework Agreement of Services and statements made in subsequent ASEAN summits echo the region’s commitment towards liberalization of GATS Mode 4 type movements.

Within East Asia, the largest movements are out of the Republic of Korea and the Rest of East Asia. Although China and Japan are not major migrant destinations, 22% and 25% of migrants from the Rest of East Asia work in China and Japan, respectively. China is able to attract 7.6% and 5.9% of migrants from Republic of Korea and Thailand, while Japan, is able to attract 22.4% of migrants from Republic of Korea (Table 4). Overall, the composition of Japan’s migrants reflects the regional focus of its migration policies, such as the Technical Internship Training Program, which has shown promise in obtaining workers from China, the Philippines, and Indonesia (Kashiwazaki, 2002). Among East Asian countries, Taipei (China) stands out for sending very few migrants to other Asian countries, as well as hosting few Asian migrants – the exception is a sizable contingent of Thai migrants.

### 3. The Model

In this paper we use a global applied general equilibrium model (GTAP, Hertel, 1997) that has been adjusted to take into account bilateral labor flows. The model, termed GMig2, takes advantage of the recent bilateral migration data base developed by Parsons, Skeldon, Walmsley and Winters (2007) to allow bilateral labor movements to be tracked. The global migration model (GMig2) is documented in Walmsley, Winters and Ahmed (2007); here we examine some of the GMig2 data used in this paper and concentrate on some of the salient features of the GMig2 model utilised in this paper.

The data base used with the Bilateral Labor Migration Model (GMig2) is based on the GTAP 6.2 Data Base (Dimaranan, 2006) and is augmented with the bilateral migration data base developed by Parsons et al (2007), skill data from Docquier et al. (2006) and remittance data from the World Bank (Ratha, 2003)<sup>6</sup>. For the purposes of this paper the GMig2 Data Base has been aggregated as shown below in Tables 1 and 2.

As in the GMig2 Data Base, the model tracks both the “home” and “host” region of each person and for each skilled and unskilled (or less-skilled) worker. The *home* region is defined as the country of origin of the person/worker; in the data base this is their place of birth. The *host* region is the region in which the person resides/works.

The labor force of skill  $i$ , located in region  $r$  ( $LF_{i,r}$ ), and available to firms for production, is therefore the sum across *home* regions ( $c$ ) of all workers located in the *host* region  $r$  (equation (1)), similarly for population (Equation (2)).

$$LF_{i,r} = \sum_c LF_{i,c,r} \quad (1)$$

$$POP_r = \sum_c POP_{c,r} \quad (2)$$

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<sup>6</sup> The GMig2 data base construction process is documented Walmsley, Ahmed and Parsons (2006).

An increase in the number of migrant workers from region  $c$  to region  $r$  would reduce the number of workers in the labor supplying region ( $LF_{i,c,c}$  would fall) and increases the labor force of the labor importing region ( $LF_{i,c,r}$  would rise). The populations would change in a similar way, although it is assumed that migrant workers move with their families.

Changes in the number of migrants can occur in two ways in the GMig2 model: a) as an exogenous change in the supply and/or demand for migrant workers (e.g., changes in quotas); b) or as endogenous movements of migrant workers in response to wage differentials. In this paper movements in migrant workers mostly occur exogenously through changes in quotas imposed by the host economies, and these migrant workers are supplied by designated home countries according to the share of migrant workers from the home country in the migrant pool of the host economy. Only in the final scenario do we examine some endogenous changes in migration in response to changes in real wages.

Migrant workers are assumed to gain a portion of the difference between their nominal wages at home and the nominal wages in the host region, reflecting the fact that their productivities have also changed as they move from the home to the host region and interact with the resources and technology of that host region. Changes in real wages and incomes are also considered, since different purchasing powers among regions are also an important factor in the migrant's decision on whether to migrate and on the impact of migration (Timmer and van der Mensbrugge, 2006).

Remittances are also an important feature in the model and for examining the impact of migration. Remittances are assumed to be a constant proportion of the income received by migrant workers and flow out of the host country back to the permanent residents of the home country. Hence as the number of new migrants or their real wages increase, total remittances increase. Remittances in turn reduce the income of the migrants and increase the incomes of permanent residents back home. These remittances can therefore have an important offsetting effect on the home economies (labor suppliers) through increases in the real incomes of permanent residents remaining at home and through a decline in the current account balance of the home country.

#### **4. 2001-2012 Baseline**

The initial database used represents the global economy in 2001. Using forecasts of population, capital stocks, real GDP and the labor force (skilled and unskilled/less-skilled) obtained from Walmsley, Dimaranan and McDougall (2000), and consistent with the World Bank GEP publication, we develop a baseline (or business-as-usual) scenario to move the global

economy from 2001 to 2007 and then from 2007 to 2012<sup>7</sup>. The underlying assumptions/forecasts in the baseline are presented in Table 5.

In addition we assume that some migration occurs among all countries so as to keep the share of migrant workers (by home country) in the labor force constant<sup>8</sup>. The baseline therefore maintains the status quo, where migrant workers as a share of the host countries population do not rise or fall. The resulting changes in the inflow of migrant populations over the period 2001-2007 and 2007-2012 are shown in Table 5. With inflows determined by the growth of labor in each of the host regions, the outflow of migrants from each home region to each host region can be found by assuming that each home country supplies the host country according to the share of that home country's migrants in host regions migrant populations, hence keeping these shares constant as well. Total outflows of migrants by home (Table 5) are then the sum of these outflows across all host regions. Unfortunately data on the annual bilateral flow of migrants is difficult to obtain; however when we compare the total outflow of migrants from selected countries with those from Figure 1 we find that, with the exception of India where actual outflows roughly match the outflows estimated, our estimates are generally lower than actual migration. This is most likely due to the fact that the original migrant stocks collected by Parsons et al (2007) are obtained from census data of the host countries, and do not include undocumented workers<sup>9</sup>, while the data in figure 1 are collected from the home country and are more likely to include undocumented workers.

With the exception of Japan and the smaller countries in the region (Rest of East and South East Asia) forecasted growth rates in real GDP for the Asia region continue to be high and capital stocks are also growing considerably. Labor, on the other hand, does not keep up with growth in real GDP. In the developed economies of Asia (and in the other developed labor recipient economies) labor growth rates are unhealthily low. In Japan the skilled and unskilled labor forces are shrinking; in Singapore and Taipei (China) the growth rates of skilled and unskilled labor are low; and in Korea total labor force growth is low with reasonable growth of skilled labor and negative growth for unskilled. The story is similar for North America, Europe and Oceania, but not for the Middle East, the other important recipient of Asian migrants, where labor growth (and in particular the growth of skilled labor) is still relatively high.

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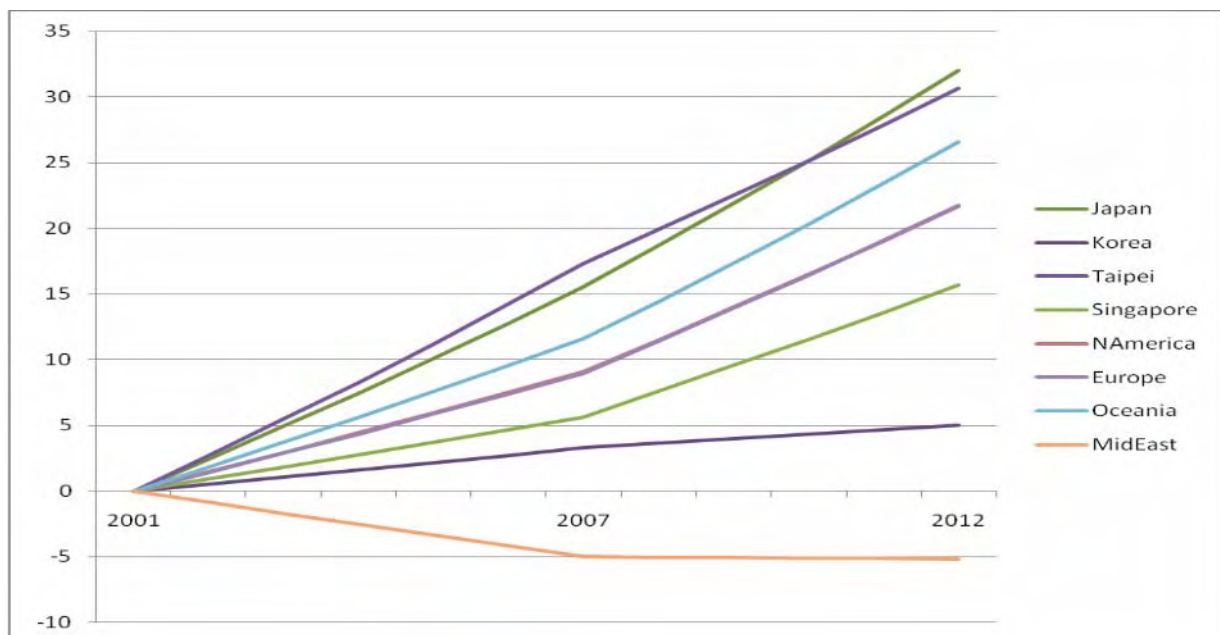
<sup>7</sup> Note the baseline is implemented in two steps: the first to move the global economy to the recent year, 2007 and the second moves the global economy from 2007 to 2012. The first step merely updates the data base to 2007 using information available to us. The second is a baseline upon which we will compare our liberalization scenarios in the next section.

<sup>8</sup> The exception to this is Japan (unskilled and skilled) and Korea (unskilled only), where rather than reduce the number of skilled and unskilled migrant workers in line with the forecasted decline in the labor force we have chosen the more realistic scenario of no changes in the number of migrant workers, hence the share of migrant workers in Japan and Korea rise as their own labor forces fall.

<sup>9</sup> Moreover they do not include the large proportion of Filipino's working onboard ships.

In the lesser developed economies within Asia, on the other hand, labor growth is much more robust. Moreover, there is clearly a shift towards further education and training in order to obtain skills, as the growth of skilled labor exceeds that of unskilled. Over time this will cause the ratio of skilled to unskilled in Asia to rise, as it did in the past in the developed economies. The interaction between the changes in the skilled and unskilled labor force and their real wages is one of the interesting features of this baseline and demonstrates why policies aimed at liberalizing the movement of labor could have a significant effect on the Asian economies. Figures 2-5 will help to illustrate the changes in real wages over time in the developed and less developed economies of Asia.

**Figure 2: Cumulative % changes (relative to 2001) in Real Wages of Skilled workers for the Developed Economies of Asia<sup>10</sup>**



First, the lackluster growth in skilled and unskilled labor in the developed economies of Asia combined with the steady growth rates in real GDP causes the real wages of both skilled and unskilled workers to rise significantly over time as demand for skilled and unskilled workers rise. This results in increases in real wages of skilled and unskilled workers (Figures 2 and 4) which are expected to continue over the period 2007-2012.

On the other hand, high growth of labor in the less developed countries of Asia offsets the increased demand. This shift towards the accumulation of skills results in a decline in the real wages of skilled workers (Figure 3), while unskilled workers experience increases in their real wages (figure 5) as demand for their services increases relative to supply. In the second half

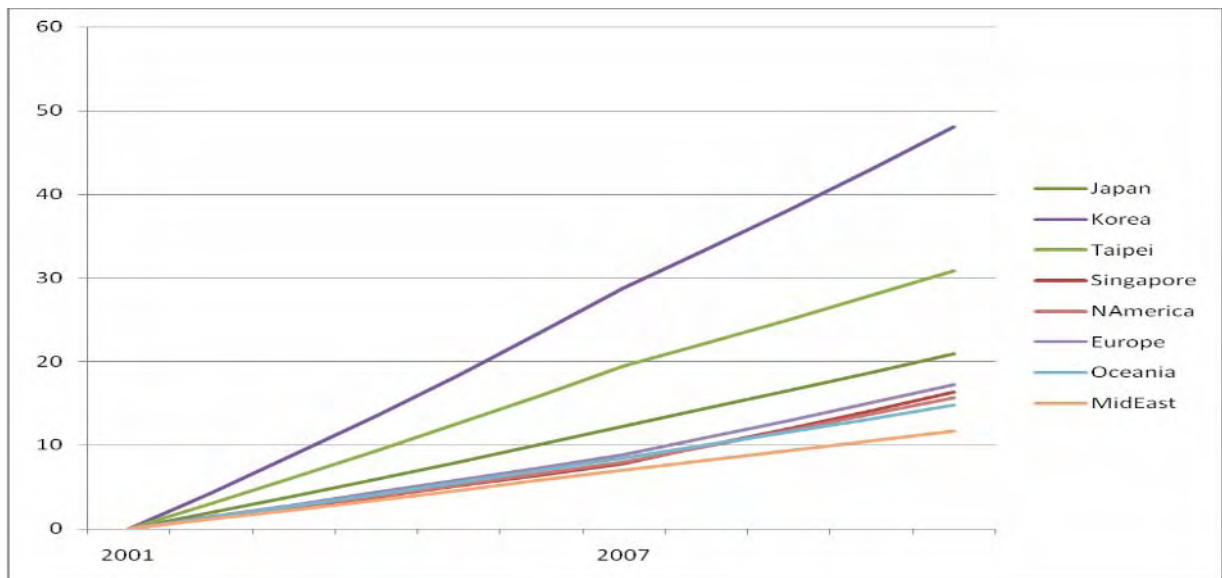
<sup>10</sup> Note that the graphs represent the % changes at two points only, 2007 and 2012.

(2007-2012) the increases in the real wages of unskilled workers plateau and in the case of the Philippines and the Rest of South Asia decline (Figure 5). These changes in relative real wages across the region alone indicate that there could be significant gains from allowing the movement of skilled labor (and to a lesser extent unskilled) towards the more developed economies in Asia (and the rest of the world). In the next section we will examine the impact of liberalizing the labor markets of these more developed Asian economies and of the other developed economies.

**Figure 3: Cumulative % changes (relative to 2001) in Real Wages of Skilled workers for the Less Developed Economies of Asia**



**Figure 4: Cumulative % changes (relative to 2001) in Real Wages of Unskilled workers for the Developed Economies of Asia**



**Figure 5: Cumulative % changes (relative to 2001) in Real Wages of Unskilled workers for the Less Developed Economies of Asia**

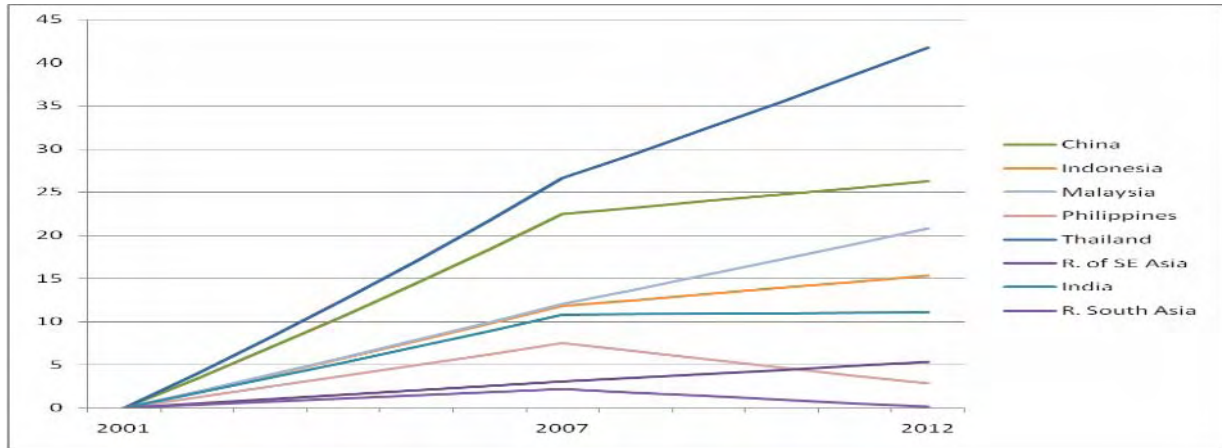
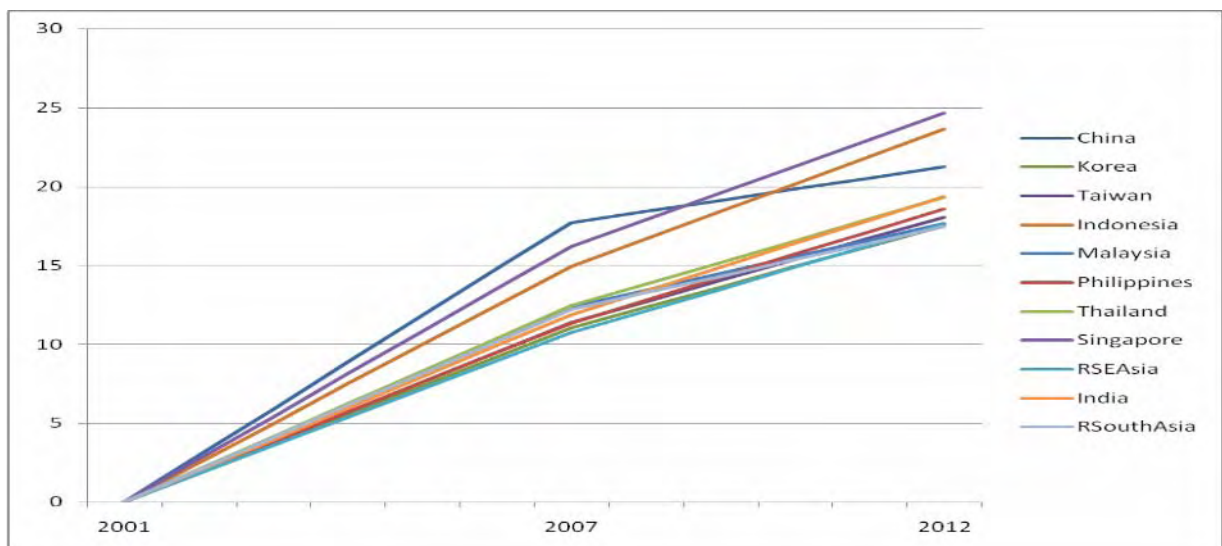


Figure 6 then illustrates the growth of remittances in the baseline. In all cases growth in remittances is positive, although the growth rate slows slightly after 2007. This is primarily due to the fact that labor growth rates are lower in the latter period than in the first period, which in turn reduces growth of migration. Other features of the baseline that may also contribute to this slow growth of remittances include: the slight decline in real GDP growth rates in a number of countries; and the fall in growth of skilled real wages experienced in most of the less developed economies of Asia and in the Middle East.

**Figure 6: Cumulative % changes (relative to 2001) in Remittances Received by selected Asian economies**



## 5. Alternative Migration Policies

In this section we examine the impact of a number of alternative policy scenarios on the Asian economies. The policies scenarios are assumed to be implemented between 2007 and 2012 and are compared to the baseline scenario over the same period.

*Scenario 1: Liberalization of Migration to Developed Asia:* The first scenario involves increasing the total stock of the migrant populations of Japan, Republic of Korea, Taipei (China), and Singapore by over and above what it would have been in 2012 if no changes in migration policy had occurred (i.e., relative to the baseline). The number of additional migrants is equivalent to 3% of the skilled and unskilled labor forces of the receiving countries and regions. These additional migrants are supplied by the less developed Asian economies<sup>11</sup> in proportion to their share of the host country's migrant population. This scenario is motivated by the declining labor forces and rising real wages (particularly of skilled workers) in these labor recipient countries relative to the less developed economies of South East and South Asia. It is assumed that, as significant suppliers of migrant labor, the Republic of Korea, Taipei (China) and Singapore are both demanders and potential suppliers of the additional migrant workers assumed under this scenario. Both skilled and unskilled migration is considered.

*Scenario 2: Liberalization of Migration to North America, Europe and Oceania:* The second scenario involves increasing the migrant populations of North America, Europe, and Oceania by an additional 3% of the skilled and unskilled labor forces of the receiving countries over and above what it would have been in 2012 if no changes in migration policy had occurred (i.e., relative to the baseline).. These additional migrants are again supplied by the less developed Asian economies<sup>12</sup> in proportion to their share of the host country's migrant population. Again both skilled and unskilled migration is considered.

*Scenario 3: Global Liberalization:* The third scenario involves examining the impact of liberalization by the developed economies of migration from all less developed economies. In this case the number of additional migrants is equivalent to 3% of the skilled and unskilled labor forces of the receiving countries (North America, Japan, Europe and Oceania). These additional migrants are again supplied by China, Korea, Taipei (China), Rest of East Asia, Indonesia, Malaysia, Philippines, Thailand, Singapore, Rest of South East Asia, India, Rest of South Asia, Latin America, Middle East, North Africa, Sub-Saharan Africa and Russia and the Former Soviet Union.

*Scenario 4: Liberalization of Migration to the Middle East:* The fourth scenario involves examining the impact of a unilateral policy to both increase the number of migrant workers and improve the working conditions/legalization of Asian migrant workers in the Middle East. The

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<sup>11</sup> See countries with an asterisk in Table 1.

<sup>12</sup> See countries with an asterisk in Table 1.

number of Asian migrant workers in the Middle East is increased by the equivalent to 3% of the Middle East's labor force. The improvement in the working conditions of Asian migrant workers in the Middle East is achieved by raising the wages (and productivities) of migrant workers closer to the wages of their domestic counterparts. The Middle East is considered separately from the other economies due to the fact that the Middle East does not experience the same supply-side constraints on skilled labor as the other labor recipient countries considered do in the baseline (Figure 2).

*Scenario 5: Regional Efforts to improve the working conditions of Migrants:* The fifth scenario involves examining the impact of a regionally-based policy designed to improve the working conditions of migrant workers. In this case the ASEAN 5<sup>13</sup> countries agree to improve the working conditions/legalization of migrant workers from fellow ASEAN 5 member countries. This is achieved by raising the wages (and productivities) of migrant workers closer to the wages of their domestic counterparts. Although the focus of the above analysis has been on the need to re-allocate skilled workers across the region towards the more developed Asian economies experiencing supply-side constraints, this scenario looks at the potential benefits to be gained from improving the conditions of the current stock of migrant workers. In addition to the changes in wages (and productivities) of migrant workers some migrant workers are allowed to respond endogenously to the changes in real wages<sup>14</sup> and hence there are some additional migration flows.

In all scenarios we make the following assumptions:

- a) Migrants are supplied by the sending economies according to the share of migrants from that country in the underlying data in all scenarios except the last one. Hence the underlying data are essential.
- b) There is no unemployment or pool of unemployed to replace lost migrant workers.
- c) Migrant workers are expected to gain 50% of the wage differential as a result of moving to the host economies. In scenarios 4 and 5 the ratio of migrant worker wages to permanent resident wages is raised by 25%.
- d) Given that the period examined is five years, we consider two cases: i) where capital stocks do not adjust in response to the liberalization (short run); and ii) where capital stocks can change in response to the liberalization policy (long run). Any changes in capital stocks will then affect the growth of real GDP. This also has implications for real

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<sup>13</sup> Although ASEAN has expanded to include more countries, the liberalization of labor is assumed to occur only amongst the original five countries.

<sup>14</sup> Note that there is no change in quotas. Migrant workers respond to any changes in the real wages they could earn in the home relative to the host economies. The extent of the movement depends on the elasticity which is set relatively low due to the barriers on migration (0.4). This is therefore not equivalent to completely opening up the borders.

wages. In the short run an increase in the labor force will reduce real wages; in the long run the change in capital stocks will alter the demand for (or marginal product of) labor, driving real wages back up. For completeness, we consider the effects under the two alternative closures/assumptions regarding capital accumulation. The short run closure for fixed capital stocks is achieved by allowing rates of return on capital to vary. The longer run closure assumes that capital stocks are endogenous and will grow (or shrink) until the current rates of return on capital change with the future expected rates of return, which are equal across regions.

- e) All labor (by skilled type), regardless of its origin, are assumed to be perfectly substitutable; albeit migrants are assumed to have different initial productivities and wages from domestic workers.
- f) New migrants are assumed to replace returning migrants, such that temporary migrants enter and return and the total number of migrants remains unchanged. This is referred to as the revolving door. The returning migrants do not bring back any additional productivity or brain gain upon their return.

The results of the policy scenarios are discussed in turn below.

#### **4.1 Scenario 1: Liberalization of Migration by Developed Asia**

In Scenario 1, we consider the global economy in 2012 if Japan, the Republic of Korea, Taipei (China), and Singapore (referred to as developed Asia) had more skilled and unskilled migrant workers in 2012 than under the baseline scenario, with the additional migrants coming from less developed Asian countries (Table 1) and representing 3% of the receiving countries' labor forces. Tables 6-9 show the results of this scenario relative to the baseline for the recipient and supplier countries of the migrant labor.

Prior to these policy changes the developed Asian economies obtain 68% of their migrants from other less developed Asian economies and 29% of their imported goods, although migrants in developed Asia represent only 1% of global migration. 29% of their exports are also sold to less developed Asian economies. Following the policy changes developed Asian economies obtain 74% of their migrants from other less developed Asian economies and migrants in developed Asia represents 3% of global migration.

The results in Table 6 show that the labor recipient countries gain in terms of real GDP as a result of the liberalizations, with the exception of Korea. For these developed countries their own liberalizations of unskilled and skilled migration workers is found to have greater positive effects on real GDP. While unskilled migration has the largest absolute effect, skilled labor has a larger impact on real GDP per skilled migrant admitted due to the fact that skilled migrants have higher productivities. The Republic of Korea, Taipei (China) and Singapore experience negative

pressures on real GDP due to the liberalization of migration by the other countries, i.e. due to the out-migration of their own workers to each other and to Japan. For Singapore and Taipei, these negative effects are very small, since the number of additional migrants sent overseas was only a fraction of the number of additional migrants received (Table 7) and hence the overall impact is positive. For the Republic of Korea however, the negative impact of the additional migrants sent overseas is large enough to offset the real GDP gains of 1.02% due to their own liberalization. Indeed, on the balance, the Republic of Korea receives 57,000 additional unskilled workers, but loses 23,000 skilled workers (Table 7).

The real wages of skilled and unskilled workers in Japan, Taipei (China) and Singapore fall in the short run as a result of the increase in supply of skilled and unskilled migrant labor, respectively; although real wages rise as a result of increases in the other type of labor (Table 6). The changes in real wages resulting from this opening up to migration are minimal when compared to the changes in real wages experienced in the baseline as a result of declining population rates in these countries. As others (Shi and Tyers, 2005) have concluded, it is unlikely that migration will be able to solve the problems associated with declining population growth rates in many of the developed economies, although it can be used to alleviate some of the pressures.

In Korea the real wages of both skilled and unskilled rise due to the fact that there are more unskilled migrant workers leaving than arriving, and in the case of skilled the workers leaving Korea are more productive than the new migrant workers arriving. The returns available to capital, on the other hand, rise in Japan, Taipei (China) and Singapore as a result of increased access to labor.

Real incomes rise for three of the four recipient economies. While own liberalization of unskilled migrants yield the greatest real income gains for Japan and Singapore, for the Republic of Korea real income increases due to remittances, . For Singapore real incomes fall due to the loss in skilled and unskilled wage income, relative to increasing income from capital (and minimal tax revenues).

The impact on the trade balances of the recipient economies is generally positive due to the outflow of remittances (Table 6). It is interesting to note that although Korea experiences a net outflow of labor, the outflow of remittances is greater than the inflow of remittances from its own emigrants and hence the trade balance improves. In the case of Japan, the outflow of remittances are limited and outweighed by the significant increase in investment, which drives the trade balance into deficit. As a result Japan's exports fall, while Taipei (China) and Singapore experience an increase in exports.

In the long run, the higher rates of return (caused by the higher rental price of capital) and investment result in the accumulation of additional capital. This accumulation of capital stocks in

Japan, Taipei (China) and Singapore causes higher growth in the economy (real GDP) and real wages tend to rise again as increased capital raises the marginal product of labor, thereby offsetting the initial decline in real wages due to the gain in the labor force. Hence increased incentives created by the new migrants, to build new factories and open up new businesses results in a rise in real GDP and real wages in the long run.

The indirect effects on the economies experiencing neither declines nor increases in their labor forces, depends on a number of things: including a) the extent to which trade is affected, either because it is diverted towards the labor receiving economies who now have an additional advantage over the other economies, or because the labor sending economies are now exporting less; and b) the impact of wage changes on the remittances of their own existing migrants, which affect the economy through the trade balance. Since most of these other economies send labor to the developed Asian economies remittances fall with the real wages of permanent residents there. This puts upward pressure on the trade balance (and exports) and downward pressure on real wages (terms of trade) and investment (which further increases the trade balance). Real GDP falls in these economies in the short run; although these indirect effects are usually quite small. In addition to these indirect effects there is also a global effect, which manifests itself as a global rise in saving (and hence investment) caused by the increase in real income/production resulting from the movement of migrants to the more developed Asian economies. As a result of this increased global saving/investment, investment augments the capital stocks and real GDP increases, although only slightly, in the long run.

Table 7 shows that China, the Philippines, Thailand, and the Rest of East Asia are the primary suppliers of these additional migrants, with more modest contributions from the other less developed Asian migrant sending economies. India and South Asia, for instance, contribute very few of the new migrants. Table 8 examines the impact of the liberalization on the labor sending less developed economies. In terms of real incomes the less developed Asian economies do gain from the liberalization of labor movement into developed Asia. The real incomes of these less developed economies rise due to the increase in remittances sent home by new migrants and the rise in real wages of skilled and unskilled workers at home. The story is different for changes in real GDP with all the exclusively migrant sending economies experiencing negative changes in real GDP. The magnitude of the real GDP declines depends on the extent to which the fall in labor reduces the endowment of skilled and unskilled labor at home. Those countries with low new migration relative to their home populations (China, India and Indonesia) experience lower losses in real GDP, while those sending high proportions of their labor forces experience larger losses<sup>15</sup>.

The trade balance deteriorates as expected for 6 of the 9 countries considered in Table 8. The deterioration is due to the increase in inward remittances from the new migrants. In the Rest of

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<sup>15</sup> Note that doubling the number of migrants sent; roughly doubles the losses.

East Asia and the Philippines the deterioration of the terms of trade is further enhanced by an increase in investment; but in most countries investment falls, offsetting the effect of remittances on the trade balance and in some cases causing the trade balance to rise.

The real wages of both skilled and unskilled rise as expected in the short run (in most economies). The real wages of unskilled workers in India however, fall marginally. This is very surprising since declines in the labor force (all other things being equal) are expected to raise real wages. However, as mentioned above there are some indirect effects on the economies as a result of the large number of suppliers of new migrant labor, which affect the competitiveness of all of the other economies; in the case of India outward migration to developed Asia is very small and these indirect effects dominate. Moreover the fall in investment causes a decline in demand for unskilled labor intensive goods, such as heavy manufactures and construction.

In the long run, only China experiences a decline in capital stocks and real GDP, hence all other labor sending economies experience an increase in growth in capital and real GDP in the long run; in some cases, the Philippines, Indonesia and India the increase in real GDP offset the declines to give an overall positive gain. This is somewhat surprising since most<sup>16</sup> of these economies experienced declines in their capital rentals and rates of return. However, the increase in global saving causes rates of return to decline sufficiently to make investing in these economies also worthwhile. Real wages continue to rise in the long run, particularly in the Philippines, which experienced a large increase in capital accumulation as a result of the outward movement of individuals. Hence the long run effects of this policy look more positive.

Finally the real incomes of the new migrants are included in Table 9. The results show that (after remittances) most migrants gain from moving to the developed Asian economies. There are however a few notable exceptions. First, Indian migrants send home a very high share of remittances, which leads to a fall in real incomes<sup>17</sup>; second, Japan has very high prices relative to most of the destinations, which is why real incomes tend to decline for some migrants; third, Korea on the other hand has very low wages in the underlying data base, leading to much lower gains in terms of real incomes (while Taipei (China) on the other hand has very high wages, particularly for skilled workers).

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<sup>16</sup> Only Rest of East Asia and the Philippines experienced increases in the rental price of capital in the short run, due to a real exchange rate effect caused by the sharp decline in the trade balance.

<sup>17</sup> It could be argued that remittances should be included in the real income of the migrant worker. This leads to a dilemma since remittances are sent back home, where they affect the balance of payments and contribute significantly to household income there. We therefore chose to include them in the real incomes of the permanent residents in the home economy.

## **4.2 Scenario 2: Liberalization of Asian Migration to North America, Europe and Oceania**

The second scenario involves increasing the migrant populations of North America, Europe, and Oceania by 3% of the receiving regions' labor forces, over and above what it would have been in 2012 if no changes in migration policy had occurred (i.e., relative to the baseline). The resulting movement of labor in this scenario is substantially higher than in the previous scenario, due to the large populations of North America and Europe.

Prior to these policy changes the North America, Europe and Oceania were home to 47% of the world's migrants, 19% of these migrants were from Asia (developed and less developed). North America, Europe and Oceania are also an important source and destination for Asian commodities. Following the policy changes in North America, Europe and Oceania, 41% of their migrants come from Asian economies.

The results of this scenario are presented in Tables 10-12. The liberalization of Asian migration to North America, Europe and Oceania provides similar results to those in Scenario 1, although larger. North America, Europe and Oceania all gain in terms of real GDP and real income as a result of the new skilled and unskilled migrants. As expected real wages of skilled and unskilled fall as the quantity of skilled and unskilled workers increase, while the trade balances rise. The changes in the real wages however are relatively small compared to the increases in the baselines. The results are very similar for both North America and Europe, two similarly sized economies. The results for Oceania are similar in terms of percent changes, but much lower in absolute changes.

The gains to the migrant senders are less clear and more interesting. All of the sending regions experience declines in their real GDP as a result of both the loss of skilled and unskilled workers in the short run. Most of the economies lose more from the loss of unskilled workers than skilled due to the fact that they lose more unskilled workers; although again when the number of migrants (Table 11) is taken into consideration the losses per migrant are greatest from skilled migration. The real wages of skilled workers increase in all countries and the real wages of unskilled workers increase everywhere except India. Table 12 shows that the reason for this, is that the decrease in the real wages of unskilled from the loss of unskilled workers is outweighed by the increase in real wages of unskilled due to the loss of skilled workers; hence unskilled real wages fall overall. With the exception of Korea all of the countries gain in terms of real income due to the higher real wages and greater remittance flows. Korean migrants, on the other hand, remit very little given the loss of labor.

In the long run capital stocks increase in only a selected group of labor sending economies as savings are diverted to North America, Europe and Oceania and only the Philippines and India experience long run gains in real GDP.

Comparing real GDP in scenarios 1 and 2, the Philippines, India and to a lesser extent the Rest of East Asia would prefer to send more labor to North America, Europe and Oceania, than send less labor to Asia; while the other economies would gain more (in terms of real GDP) in the long run from sending fewer workers to the developed economies of Asia. However, if increasing real incomes or real wages of the residents remaining at home is the aim then more countries would opt to send more migrants to North America, Europe and Oceania so that higher remittances could be obtained. While global trade increases more in scenario 2 than in scenario 1, under both scenarios those gains are made primarily by the labor receiving countries, and to a lesser extent those not a party to the liberalization; under scenario 1 these receiving countries were the developed economies within Asia, and in scenario 2, North America, Europe and Oceania.

### **4.3 Scenario 3: Global Liberalization**

The motivation behind the third scenario was to examine the impact of liberalizing migrant flows from any region in the world into North America, Europe, Oceania and Japan. Since 34% of migrants in North America, Europe and Oceania originate in the rest of the world this is likely to crowd out the impacts on the Asian economies.

The results showed that for most of the labor sending economies the largest losses, in terms of real GDP, were obtained when the most migrants were sent and hence Asian economies lost less under this global liberalization scenario than under the previous scenario where migrant labor was only supplied by the Asian economies. When the number of migrants sent was taken into consideration, scenarios 2 and 3 were quite similar; although scenario 3, global liberalization, tended to produce the biggest losses in real GDP per migrant sent<sup>18</sup>. The Philippines and India continued to stand out in the long run as gaining significantly from the liberalization of labor markets, especially by North America, Europe and Oceania; the primary reason for this is the extent to which they send home remittances. Global trade again increases in scenario 3 relative to scenario 2; however to an even greater extent those gains are available only to the labor receiving countries.

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<sup>18</sup> Also note that these global results are also consistent with Walmsley, Winters and Ahmed (2007) despite the fact that Mexico is aggregated in with North America in this paper. The % changes in real GDP obtained in that paper were USA,1.46; Canada,1.42; Mexico,-1.05; UK,1.48; Germany,1.32; Rest of EU,1.22; Rest of Europe,1.72; Eastern Europe,-1.12; Former Soviet Union,-0.20; Australia New Zealand,1.4; China,-0.17; Japan,1.44; Rest of East Asia,-1.71; S.E.Asia,-0.23; India,-0.07; Rest of South Asia,-0.13; Brazil,-0.3; Rest of Latin America,-0.93; Middle East and North Africa,-0.56; South Africa,-0.30; and the Rest of World,-0.69.

#### **4.4 Scenario 4: Liberalization of Migration to the Middle East**

The fourth scenario involves examining the impact of a unilateral policy undertaken by the Middle East to both increase the number of migrant workers by 3% of its labor force and improve the working conditions/legalization of Asian migrant workers in the Middle East. Currently the Middle East is a large recipient of migrant labor and 50% of these migrants come from Asia. The results of this scenario are presented in Table 13 for selected countries.

The Middle East, like all previous recipients of migrant labor, gains considerably as a result of the increased migration and raising the wages and productivities of current migrants. Real GDP and real incomes of the permanent residents increase. The increase in the wages of current migrants has a similar effect to increasing the number of migrants as productivities are increased, but since the labor sending economies do not supply any additional labor there are only the gains from increased remittances.

The migrant sending economies on the other hand, experience declines in the real GDP, with India and the Rest of South Asia, bearing the sharpest declines. The Other Asian migrant senders experience smaller real GDP declines than in the previous policy scenarios considered, given the smaller number of migrants leaving their economies. In contrast, the Rest of South Asia is supplying almost as many additional migrants as it did in Scenario 2. South Asia (including India) accounts for 88% of the additional migrants that are sent to the Middle East in this policy scenario. It is thus not surprising that the greatest decline in real GDP occur in India and the Rest of South Asia. Indonesia and the Philippines are the next largest suppliers of labor to the Middle East.

The real incomes of residents in South Asia increase significantly due to the significant increases in remittances. The other migrant sending Asian countries also experience real income gains, but not to the same degree as India and the Rest of South Asia. Another contribution to these gains in real incomes is the higher real wages of skilled workers in the migrant sending countries. India and the Rest of South Asia once again experience the greatest increases in real wages of skilled workers.

#### **4.5 Scenario 5: Regional Efforts to improve the working conditions of Migrants**

The final scenario involves the implementation of a regionally-based policy by the ASEAN 5 countries designed to improve the working conditions/legalization of migrant workers from fellow ASEAN member countries. The improved working condition of current migrants is implemented through an increase in the ratio of migrant wages to permanent domestic workers of 25%. In addition as relative real wages change this induces an endogenous movement of labor within the ASEAN regions towards those with the highest wage growth. The results are shown in Tables 14 and 15.

The improved working conditions of current migrants therefore raise the wages of current migrants and hence more remittances are sent home. These remittances then provide further income to residents, which allow them to spend more (on both domestic and imported goods), and hence real wages and real GDP rise. The countries that benefit most from these gains are those that currently have the largest number of citizens resident in other countries – most notably Malaysia, which is the home of 67% of migrants in ASEAN. Hence Malaysia gains by far the most in terms of real GDP and income, followed by Singapore (14% of migrants), the Philippines (12% of migrants) and Indonesia (6%), and as a result there is a (net) influx of migrants from the other countries within ASEAN into Malaysia. Migrants move in and out of all ASEAN regions; however Malaysia has a large net inflow, while the other countries experience net outflows. This leads to further increases in the gains made by Malaysia, and dampens the gains made in the other economies. In the long run however, the additional investment augments capital and real GDP rises further in all of the ASEAN economies.

The resulting change in the trade balance depends on the extent to which the original migrants abroad send home more remittances as a result of their increased incomes, and the new migrants send home remittances. In the case of Malaysia these two work in opposite directions with the outflow of remittances exceeding inflow (hence the balance of payment surplus). In the other Asian economies, on the other hand, these two work in the same direction and remittances in are greater (and hence the trade balance declines). As a result, imports of the ASEAN5 increase, and in some case, most notably Malaysia, exports also rise.

Provided improved working conditions/legalization of migrants can lead to the increase in productivities and remittances of migrant workers these regional efforts could offer a beneficial alternative for the ASEAN economies. In this scenario we assumed that the wages of both skilled and unskilled were increased. Although it is likely that improving working conditions will raise the wages of unskilled migrant workers, it is less clear that skilled migrants would gain the same benefits since most skilled migrants are likely to be legally employed and have better negotiating power. Hence some of the results are separated into skilled and unskilled so that the reader can take this into account. Examining the impacts of skilled and unskilled separately shows that skilled has greater benefits in terms of real GDP, however in terms of real incomes improving the conditions of unskilled provides greater gains (Table 15). Furthermore improving unskilled worker conditions causes more (endogenous) migration of both skilled and unskilled worker, while improving the conditions of skilled only affects skilled migration (Table 14).

These regional efforts could therefore offer a beneficial alternative for the ASEAN economies, when developed economies, in Asia and elsewhere, show a reluctance to open their borders to migrant workers. Moreover since migration within Asia is more temporary in nature these migrants are likely to return when real wages rise in their own economies.

## 6. Conclusions

As both an important source and destination for migrant workers, Asia has the unique vantage point from which to analyze both the costs and benefits of migration. This analysis has shown that while the *economic* benefits to the labor recipient economies, from liberalizing the movement of both skilled and unskilled workers, clearly outweigh the *economic* costs, the *economic gains* to the labor sending economies are less than clear. The first issue to consider is: what do the labor sending countries want – higher growth in real GDP or higher real incomes for their citizenry? If the former, then the gains are not guaranteed and, if they do occur, only do so in the long run once businesses have had a chance to respond by building more factories etc<sup>19</sup>. If the latter, then the gains are greatest when more migrants are sent overseas and more remittances are received (e.g., India, the rest of South Asia and the Philippines) – in this case the key is to provide incentives and facilities that make it easy for migrants to send back remittances.

As other studies (Shi and Tyers, 2005) have concluded, this analysis also demonstrated that small changes in migration (3% of the population in this case) were unlikely to solve the problem of declining population rates in the developed world. In scenario 3, increasing quotas by 3% of the labor force in Europe almost (but not quite) kept growth rates of skilled workers above zero, and in Japan growth rates continued to fall dramatically, albeit marginally more slowly than in the baseline.

When comparing liberalization by North America, Europe and Oceania (Scenario 2) with liberalization by developed Asia (Scenario 1), we found that regional liberalization appeared to have more positive effects (or less negative in the short run) on the East and South East Asian labor sending economies; while India, South Asia and the Philippines gained more from global liberalization. The reason for this is related to the underlying migration patterns. Similarly, India, South Asia and the Philippines gained most in terms of real income from liberalization by the Middle East, for the same reason.

There were some encouraging signs for improving regional migration with ASEAN. Improvements in the working conditions/legalization of migrants within ASEAN had significant positive effects in terms of real GDP and income, particularly for Malaysia, and to a lesser extent the other economies of ASEAN, even in the short run. Given the reluctance of the USA and Europe to open their borders, liberalization both within ASEAN and by the developed Asian economies offers a viable alternative, which could benefit most of East and S.E. Asia in the long run. Although we did not look at a similar proposal within South Asia (SAARC) there are similarities between such a proposal and the ASEAN proposal, in that there is a large undocumented, primarily South Asian, migrant population in India, which could offer potential

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<sup>19</sup> Presentation by George Borjas at the International Agricultural Trade Research Consortium Meeting in Washington DC, January, 7-9, 2008 helped to clarify some of the conclusions obtained in this paper. (<http://aede.osu.edu/programs/Anderson/trade/WASHINGTONIATRC.htm>)

gains. As stated above however, this assumes that improvements in the working conditions/legalization of these migrants can lead to an increase in productivities and remittances for these migrant workers.

The paper therefore concludes that intra-regional policies can offer an important alternative mechanism by which the Asian economies can reap some of the gains from liberalizing migration; particularly given the reluctance of the USA and Europe to open their borders, despite the overwhelming economic gains and the fact that many of them are increasingly faced with declining populations. Such regionally-based policies aimed at the liberalization of migration both within ASEAN and by the developed Asian economies offer potential gains in terms of real income and long run economic growth, particularly for those countries in East and South East Asia.

As the reader will have undoubtedly noticed repeatedly in the analysis undertaken in this paper '*the quality of the underlying data is essential*'. Considerable progress has been made in recent years documenting the number of migrants (Parsons et al, 2007), their skill levels (Docquier et al., 2006), and remittance rates (Ratha, 2003); but there is still a great deal left to accomplish.

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**Table 1: Regional Aggregation**

<b>Regions</b>	<b>Countries in GTAP 6.2 Data Base</b>
China*	China and Hong Kong (China)
Japan	Japan
Republic of Korea*	Republic of Korea
Taipei (China)*	Taipei (China)
Rest of East Asia*	Macau (China), Mongolia, Democratic Peoples' Republic of Korea
Indonesia*	Indonesia
Malaysia*	Malaysia
Philippines*	Philippines
Thailand*	Thailand
Singapore*	Singapore
Rest of South-East Asia*	Cambodia, Viet Nam, Brunei, Laos, Myanmar, East Timor
India*	India
Rest of South Asia*	Bangladesh, Pakistan, Sri Lanka, Afghanistan, Bhutan, Maldives, Nepal
North America	USA, Canada, Mexico
Latin America	Bolivia, Colombia, Ecuador, Perú, Venezuela, Argentina, Brazil, Chile, Paraguay, Uruguay, Rest of South America, Central America, Caribbean
Europe	Austria, Belgium, Denmark, Finland, France, Germany, United Kingdom, Greece, Ireland, Italy, Luxembourg, The Netherlands, Portugal, Spain, Sweden, Cyprus, Czech Rep, Hungary, Malta, Poland, Slovakia, Slovenia, Estonia, Latvia, Lithuania, Switzerland, Rest of EFTA, Rest of Europe, Albania, Bulgaria, Croatia, Romania
Oceania	Australia, New Zealand, Rest of Oceania
Middle East	Turkey, Iran, Rest of Middle East
North Africa	Egypt, Morocco, Tunisia, Rest of North Africa
Sub-Saharan Africa	Botswana, South Africa, Rest of Southern Africa, Malawi, Mauritius, Mozambique, Tanzania, Zambia, Zimbabwe, Rest of SADC, Madagascar, Nigeria, Senegal, Uganda, Rest of Sub-Saharan Africa
Russia and rest of FSU	Russia and Former Soviet Union

\* Labor sending economies in scenarios 1, 2 and 4.

**Table 2: Commodity Aggregation**

	<b>Commodities in GTAP 6.2 Data Base</b>
Grains Crops	Paddy rice, wheat, vegetables and fruit, oil seed, plant based fibers, other crops
Meat and Livestock	Cattle and other animals, raw milk, wool and meat
Forestry and Fishing	Forestry, fishing
Extraction	, gas, coal, oil, gas and other minerals
Processed Food	Vegetable oil, milk, sugar, processed rice, other food and beverages and tobacco
Textiles and Wearing Apparel	Textiles and wearing apparel
Light Manufactures	Leather, lumber, paper products, ferrous metals, motor vehicles, other manufactures
Heavy Manufactures	Petroleum and chemicals, chemicals, rubbers and plastics, non-metallic metals, iron and steel, electronic equipments and other machinery and equipment
Utility and Construction	Electricity, gas, water and construction
Transport and Communications	Trade, water, air and other transport and communications
Other Services	Financial, business, recreational, and government services and dwellings.

**Table 3: Regional Information on Migrant Stocks in 2007**

	By Host/Recipient Country		By Home/Sending country	
	Migrant workers as a share of host Labor Force	Migrant workers in host country as a share of total Migrant workers	Migrants workers sent abroad as a share of home labor force	Migrants workers sent abroad as a share of total migrant workers
China	0.07%	0.62%	0.50%	4.63%
Japan	0.99%	0.75%	0.78%	0.59%
Korea	0.35%	0.10%	3.32%	0.94%
Taipei (China)	1.60%	0.21%	2.48%	0.33%
Rest of East Asia	0.31%	0.05%	2.32%	0.38%
Indonesia	0.22%	0.33%	0.81%	1.21%
Malaysia	9.41%	1.30%	3.50%	0.45%
Philippines	2.10%	0.91%	4.22%	1.87%
Thailand	0.70%	0.30%	1.47%	0.63%
Singapore	13.90%	0.35%	9.67%	0.23%
Rest of South East Asia	0.23%	0.22%	2.02%	2.02%
India	0.70%	4.17%	0.97%	5.76%
Rest of South Asia	1.29%	2.67%	4.16%	8.83%
North America	6.88%	17.44%	3.06%	7.28%
Latin America	0.57%	1.32%	3.67%	8.75%
Europe	4.02%	11.38%	6.65%	18.75%
Oceania	13.18%	2.59%	5.35%	0.94%
Middles East	7.96%	10.06%	4.33%	5.17%
North Africa	0.69%	0.50%	4.77%	3.65%
Sub-Saharan Africa	0.39%	1.57%	2.33%	9.53%
Russia and Former Soviet Union	0.78%	1.31%	10.61%	18.07%
Total		100.00%		100.00%
Average	1.55%		2.66%	

Source: Authors simulations to update 2001 data from Walmsley, Ahmed and Parsons (2006)

**Table 4: Share (%) of Home Country's Migrant Workers in Each Region in 2007**

Host Economies	Home Economies												
	China	Japan	Republic of Korea	Taipei (China)	Rest of East Asia	Indonesia	Malaysia	Philippines	Thailand	Singapore	Rest of South East Asia	India	Rest of South Asia
China	0.0	1.6	7.6	0.9	22.7	1.5	0.9	2.3	5.9	0.8	1.3	0.7	0.8
Japan	5.3	0.0	22.4	0.0	25.4	0.7	0.6	2.4	2.5	0.4	0.6	0.1	0.1
Korea	1.4	1.4	0.0	0.0	0.1	0.5	0.0	0.3	0.5	0.0	0.3	0.0	0.1
Taipei (China)	0.0	1.2	0.0	0.0	0.0	1.7	0.0	2.1	15.4	0.0	0.8	0.0	0.0
Rest of E. Asia	1.1	0.0	0.2	0.0	0.0	0.0	0.0	0.1	0.2	0.0	0.0	0.0	0.0
Indonesia	2.9	0.7	0.1	0.3	0.0	0.0	7.6	1.4	3.6	5.4	1.7	0.4	0.1
Malaysia	7.4	0.1	0.1	0.1	0.1	44.3	0.0	11.1	12.3	37.2	0.1	1.3	0.3
Philippines	6.2	3.7	0.7	1.6	0.1	7.6	7.7	0.0	3.7	5.7	2.2	0.6	0.3
Thailand	3.4	1.2	0.1	0.1	0.0	0.0	0.2	0.0	0.0	0.3	5.8	0.1	0.2
Singapore	3.4	0.0	0.0	0.5	0.0	1.5	38.3	0.0	0.0	0.0	0.0	0.5	0.1
Rest of S.E. Asia	1.4	0.1	0.0	0.0	0.0	0.5	7.7	0.4	11.9	1.1	0.0	0.4	0.1
India	0.8	0.1	0.1	0.1	0.1	0.1	2.1	0.1	0.1	1.9	2.5	0.0	52.5
Rest of South Asia	2.6	1.6	1.5	1.6	1.4	1.3	2.2	1.5	1.4	2.1	2.6	23.1	0.0
North America	40.4	59.2	51.4	77.0	42.3	4.4	9.0	48.2	21.9	11.4	54.2	13.3	4.5
Latin America	1.3	8.9	1.6	3.0	0.8	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Europe	10.9	11.8	6.5	4.5	3.1	11.3	9.1	7.4	11.4	18.3	16.7	7.5	8.0
Oceania	6.2	4.2	4.2	6.6	0.4	2.7	11.0	4.7	3.3	12.3	7.6	1.2	0.7
Middle East	2.2	1.7	1.5	1.6	1.4	19.9	1.3	15.9	3.8	1.3	1.4	48.3	30.0
North Africa	0.3	0.5	0.2	0.2	0.2	0.3	0.7	0.2	0.4	0.2	0.2	0.2	0.2
Sub-Saharan Africa	1.5	0.9	0.8	0.9	0.8	0.7	0.7	0.8	0.7	0.7	0.8	1.5	0.9
Russia and FSU	1.3	0.9	0.9	0.9	0.8	0.7	0.7	0.8	0.8	0.7	0.9	0.7	0.8
	100	100	100	100	100	100	100	100	100	100	100	100	100

Source: Authors simulations to update 2001 data from Walmsley, Ahmed and Parsons (2006)

**Table 5: Average Yearly Forecasts from the Baseline**

	Real GDP (%) (a)		Capital Stocks (%)(a)		Unskilled Labor (%)(a)		Skilled Labor (%)(a)		Migrant inflow (‘000’s) (a)		Migrant Outflow (‘000’s) (c)	
	2001- 2007	2007- 2012	2001- 2007	2007- 2012	2001- 2007	2007- 2012	2001- 2007	2007- 2012	2001- 2007	2007- 2012	2001- 2007	2007- 2012
China	7.61	6.44	10.31	8.61	1.12	0.87	3.79	4.12	26.81	32.85	89.32	79.85
Japan	2.07	1.68	2.91	2.63	-0.14	-0.48	-0.79	-1.55	0.00	0.00	16.14	12.34
Korea	4.94	4.76	5.10	4.99	-0.77	-0.72	4.18	3.48	2.48	2.55	18.69	13.90
Taipei (China)	4.44	4.05	5.59	5.11	0.56	0.72	1.03	0.94	2.75	2.98	8.71	5.66
Rest of E. Asia	3.02	3.09	3.40	3.32	1.51	1.30	1.98	1.52	1.28	1.13	8.43	7.79
Indonesia	4.76	5.22	4.25	4.60	1.15	1.31	6.74	6.03	18.59	23.30	76.70	87.59
Malaysia	5.73	5.73	5.86	5.88	2.05	1.70	9.25	7.70	122.80	153.59	19.51	16.38
Philippines	4.78	3.59	3.08	3.50	1.89	1.70	5.60	4.80	54.20	59.67	88.17	84.23
Thailand	5.83	4.64	3.08	3.81	0.52	0.08	4.96	3.79	12.70	11.36	19.17	19.66
Singapore	4.42	5.00	5.62	5.36	2.09	1.23	2.57	1.45	14.08	9.03	10.46	11.87
Rest of S.E. Asia	3.67	3.87	4.92	4.52	1.93	1.67	3.25	2.71	9.33	9.09	46.31	35.64
India	6.13	5.61	6.43	6.23	1.79	1.58	5.15	4.39	214.57	226.95	326.96	324.12
Rest of South Asia	5.19	5.10	5.06	5.11	2.66	2.20	5.10	4.07	176.10	176.21	391.41	398.34
North America	3.14	3.23	4.32	3.93	1.52	1.06	1.31	0.54	436.80	260.46	59.51	55.82
Latin America	2.77	3.47	3.19	3.26	1.45	1.18	5.31	4.19	66.82	65.31	176.30	118.71
Europe	2.02	2.36	2.75	2.63	0.25	0.04	0.24	-0.37	52.76	-15.15	315.71	259.79
Oceania	3.49	3.53	4.07	3.88	1.71	1.44	1.17	0.32	65.97	45.70	11.60	8.59
Middle East	4.25	4.13	4.33	4.30	2.23	1.89	5.22	4.24	657.56	672.30	59.26	41.72
North Africa	4.40	4.00	2.85	3.33	2.31	2.01	3.54	2.84	26.87	26.00	112.64	102.06
Sub-Saharan Africa	3.57	3.52	2.86	3.11	2.41	2.43	2.95	2.76	70.79	79.61	67.33	50.70
Russia and FSU	6.24	3.14	3.33	3.86	0.52	0.18	0.99	0.41	16.59	6.58	127.53	114.76

(a) Source: Walmsley, Dimaranan and McDougall (2000);

(b) Result from labor forecasts (a) and from assumption that migration inflows increase at same rate as domestic labor.

(b) Result from authors’ simulations and driven by migration inflows and the assumption that these inflows are supplied by the countries according to current shares in the migration data.

**Table 6: Impact of Liberalization of Migration by Developed Asia on Developed Asia 2002-2007 (Changes in Select Variables)**

		Japan	Republic of Korea	Taipei (China)	Singapore
Real GDP (%)	Unskilled (a)	0.63	-0.36	0.53	0.48
	Skilled (b)	0.39	-0.24	0.40	0.46
	Long Run (c)	0.58	-0.38	0.44	0.21
Trade balance (\$US Millions)	Liberalization (d)	-14,758	649	852	249
	Long Run (c)	19,590	-908	110	-76
Real Wages unskilled (%)	Unskilled (a)	-0.76	0.59	-0.89	-1.12
	Skilled (b)	0.27	-0.18	0.28	0.17
	Long Run (c)	0.34	-0.22	0.30	0.15
Real Wages skilled (%)	Unskilled (a)	0.45	-0.30	0.24	0.14
	Skilled (b)	-0.96	1.04	-1.02	-1.80
	Long Run (c)	0.32	-0.23	0.30	0.15
Real Income of permanent residents (\$US Millions)	Liberalization (d)	18,516	148	456	-248
	Long Run (c)	12,050	-1,113	1,129	149
Real Income of current migrants abroad (\$US per current migrant worker)	Liberalization (d)	-38.46	24.00	-63.58	-100.00
	Long Run (c)	29.46	-10.73	26.85	11.10
Inward Remittances (\$US Millions)	Liberalization (d)	1	788	3	21
	Long Run (c)	1	-1	3	1
Outward Remittances (\$US Millions)	Liberalization (d)	5,259	844	928	250
	Long Run (c)	-17	-1	5	2
Exports (%)	Liberalization (d)	-1.43	-0.19	1.38	1.14
	Long Run (c)	3.67	-0.70	0.52	0.14
Imports (%)	Liberalization (d)	1.73	-0.49	0.75	0.67
	Long Run (c)	-0.72	-0.19	0.51	0.18
Investment (%)	Liberalization (d)	2.14	-0.93	0.39	-0.04

Capital stocks (%)	Long Run (c)	1.51	-0.80	1.03	0.40
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- a) Resulting changes from liberalizing unskilled labor (includes own unskilled labor and others liberalization). To obtain the total change in the short run add (a) and (b).
- b) Additional changes from liberalizing skilled labor (includes own skilled labor and others liberalization).
- c) Additional changes from capital accumulation. To obtain total change in the long run you must add (a), (b) and (c).
- d) Liberalization of skilled and unskilled labor.

Source: Authors Simulations

**Table 7: Change in Migrants Resulting from Liberalization by Developed Asia**

	Number of additional Skilled Migrants received from abroad ('000's)	Number of additional Unskilled Migrants received from abroad ('000's)	Number of additional Skilled Migrants sent abroad ('000's)	Number of additional Unskilled Migrants sent abroad ('000's)
Japan	581	1,419	-	-
Republic of Korea	190	581	214	524
Taipei (China)	40	304	0.19	0.15
Singapore	25	40	0.90	2
China	-	-	297	797
R. of E. Asia	-	-	100	240
Indonesia	-	-	29	108
Malaysia	-	-	17	27
Philippines	-	-	73	205
Thailand	-	-	45	246
R. of S.E. Asia	-	-	29	106
India	-	-	8	18
R. of South Asia	-	-	24	70

Source: Authors Simulations

**Table 8: Impact of Liberalization of Migration by Developed Asia on Less developed Asia 2002-2007 (Changes in Select Variables)**

		China	R. of East Asia	Indonesia	Malaysia	Philippines	Thailand	Rest of S.E. Asia	India	Rest of South Asia
Real GDP (%)	Unskilled (a)	-0.04	-0.80	-0.03	-0.12	-0.26	-0.17	-0.03	0.00	-0.01
	Skilled (b)	-0.08	-0.87	-0.01	-0.09	-0.12	-0.05	-0.02	0.00	-0.02
	Long Run (c)	-0.02	0.09	0.05	0.05	1.12	0.19	0.05	0.01	0.03
Trade balance (\$US Millions)	Liberalization (d)	143	-1,259	-157	-18	-1,412	-542	-90	121	-328
	Long Run (c)	-1,228	0	-34	-22	192	-50	-95	-289	-80
Real Wages unskilled (%)	Unskilled (a)	0.06	1.66	0.09	0.20	0.87	0.64	0.10	-0.02	0.01
	Skilled (b)	-0.02	-0.06	0.00	-0.03	0.25	0.01	-0.01	-0.01	-0.01
	Long Run (c)	0.00	0.08	0.03	0.05	0.45	0.15	0.04	0.01	0.01
Real Wages skilled (%)	Unskilled (a)	-0.03	0.70	0.00	-0.07	0.67	0.04	0.00	-0.02	0.02
	Skilled (b)	0.55	5.86	0.15	0.49	0.68	0.49	0.20	0.01	0.13
	Long Run (c)	0.01	0.07	0.03	0.06	0.38	0.17	0.05	0.01	0.01
Real Income of permanent residents (\$US millions)	Liberalization (d)	1,218	1,418	366	210	1,343	902	220	148	540
	Long Run (c)	121	19	120	102	587	258	79	58	59
Remittances Inward (\$US Millions)	Liberalization (d)	1,340	1,353	354	179	1,425	859	203	224	522
	Long Run (c)	1	-3	1	2	7	3	3	21	11
Remittances Outward (\$US Millions)	Liberalization (d)	4.52	1.30	0.59	5.02	31.15	1.26	0.29	-0.27	8.30
	Long Run (c)	2.23	0.01	0.16	0.91	2.71	0.28	0.14	2.05	3.34
Exports (%)	Liberalization (d)	-0.10	-14.58	-0.20	-0.17	-3.77	-0.81	-0.21	0.08	-0.83
	Long Run (c)	-0.12	0.23	-0.01	0.02	2.01	0.13	-0.14	-0.24	-0.10
Imports (%)	Liberalization (d)	-0.12	4.83	0.09	-0.15	-0.21	-0.14	0.14	-0.06	0.14
	Long Run (c)	0.13	0.21	0.14	0.12	1.22	0.26	0.21	0.10	0.13
Investment (%)	Liberalization (d)	-0.26	0.08	-0.25	-0.64	1.58	-0.24	-0.23	-0.23	-0.23
Capital stocks (%)	Long Run (c)	-0.05	0.27	0.09	0.07	1.90	0.29	0.09	0.01	0.07

a) Resulting changes from liberalizing unskilled labor (includes own unskilled labor and others liberalization). To obtain the total change in the short run add (a) and (b).

b) Additional changes from liberalizing skilled labor (includes own skilled labor and others liberalization).

- c) Additional changes from capital accumulation. To obtain total change in the long run you must add (a), (b) and (c).
- d) Liberalization of skilled and unskilled labor.

Source: Authors Simulations

**Table 9: Impact of Liberalization of Migration by Developed Asia on the Real incomes (excluding remittances) of the New Migrants 2002-2007 (\$US per new migrant)**

Home country of new migrants	Host Country of new migrants			
	Japan	Korea	Taipei (China)	Singapore
China	667	90	1,863	514
Korea	-899	-	2,222	138
Rest of East Asia	3,549	2,288	3,633	3,621
Indonesia	1,183	653	1,279	1,201
Malaysia	-514	-988	679	-49
Philippines	940	504	1,426	1,033
Thailand	1,068	470	1,212	1,112
Singapore	-9,067	-1,005	311	-
Rest of S.E. Asia	1,177	585	1,133	1,233
India	-536	-543	-392	-742
Rest of South Asia	-8	-104	479	236

Source: Authors Simulations

**Table 10: Impact of Liberalization of Migration by North America, Europe and Oceania on Migrant Receivers 2002-2007**

		North America	Europe	Oceania
Real GDP (%)	Unskilled Liberalization (b)	0.87	0.82	0.90
	Skilled Liberalization (a)	0.58	0.47	0.63
	Long Run (c)	0.56	0.87	0.70
Trade balance (\$US Millions)	Liberalization (d)	13,871	12,970	649
	Long Run (c)	12,706	12,587	561
Real Wages unskilled (%)	Unskilled Liberalization (b)	-1.14	-1.35	-1.54
	Skilled Liberalization (a)	0.42	0.33	0.46
	Long Run (c)	0.37	0.59	0.43
Real Wages skilled (%)	Unskilled Liberalization (b)	0.59	0.56	0.60
	Skilled Liberalization (a)	-1.23	-1.37	-1.84
	Long Run (c)	0.36	0.57	0.41
Real Income of permanent residents (\$US Millions)	Liberalization (d)	64,311	56,451	2,988
	Long Run (c)	43,699	53,168	2,508
Real Income of current migrants abroad (\$US per current migrant worker)	Liberalization (d)	-1,887.97	-4,330.19	-1,621.29
	Long Run (c)	1,038.67	2,780.95	591.87
Inward Remittances (\$US Millions)	Liberalization (d)	-182	-419	-30
	Long Run (c)	61	214	14
Outward Remittances (\$US Millions)	Liberalization (d)	35,195	28,779	1,228
	Long Run (c)	346	373	26
Exports (%)	Liberalization (d)	2.30	1.83	1.63
	Long Run (c)	1.38	1.23	0.83
Imports (%)	Liberalization (d)	0.86	1.26	1.09
	Long Run (c)	0.28	0.71	0.44
Investment (%)	Liberalization (d)	1.28	1.21	1.15
Capital stocks (%)	Long Run (c)	1.79	1.99	1.75

- a) Resulting changes from liberalizing unskilled labor (includes own unskilled labor and others liberalization). To obtain the total change in the short run add (a) and (b).  
b) Resulting changes from liberalizing skilled labor (includes own skilled labor and others liberalization).  
c) Additional changes from capital accumulation. To obtain total change in the long run you must add (a), (b) and (c).  
d) Liberalization of skilled and unskilled labor.

Source: Authors Simulations

**Table 11: Change in Migrants Resulting from Liberalization by Developed Asia**

	Number of additional Skilled Migrants received from abroad ('000's)	Number of additional Unskilled Migrants received from abroad ('000's)	Number of additional Skilled Migrants sent abroad ('000's)	Number of additional Unskilled Migrants sent abroad ('000's)
<b>North America</b>	2203.404	5300.767	-	-
<b>Europe</b>	2280.211	5278.01	-	-
<b>Oceania</b>	187.952	458.268	-	-
<b>China</b>	-	-	922.1	2308.9
<b>Republic of Korea</b>	-	-	314.5	541.6
<b>Taipei (China)</b>	-	-	163.6	149.7
<b>Singapore</b>	-	-	79.8	115.1
<b>R. of E. Asia</b>	-	-	53.7	270.2
<b>Indonesia</b>	-	-	173.3	373.4
<b>Malaysia</b>	-	-	89.4	137.5
<b>Philippines</b>	-	-	601.8	947.7
<b>Thailand</b>	-	-	120.6	334.6
<b>R. of S.E. Asia</b>	-	-	623.0	2460.3
<b>India</b>	-	-	876.9	1498.3
<b>R. of South Asia</b>	-	-	652.8	1899.7

Source: Authors Simulations

**Table 12: Impact of Liberalization of Migration by North America, Europe and Oceania on the Asian Economies 2002-2007**

		China	Korea	Rest of East Asia	Indonesia	Malaysia	Philippines	Thailand	Singapore	Rest of S.E. Asia	India	Rest of South Asia
Real GDP (%)	Unskilled (a)	-0.10	-0.97	-0.90	-0.08	-0.50	-1.38	-0.25	-2.36	-0.63	-0.05	-0.12
	Skilled (b)	-0.23	-0.79	-0.46	-0.06	-0.30	-0.85	-0.13	-1.67	-0.46	-0.14	-0.38
	Long Run (c)	-0.18	-1.12	0.14	-0.01	-0.54	6.11	-0.03	-0.78	0.44	0.66	0.43
Trade balance (\$US Millions)	Liberalization (d)	1,052	1,164	-1,255	-758	-205	-9,646	-1,152	-313	-	-	-12,225
	Long Run (c)	-3,898	-2,574	-26	-87	-556	1,527	-241	-417	-211	258	-6
Real Wages unskilled (%)	Unskilled (a)	0.12	1.58	2.05	0.26	0.54	4.49	0.87	5.33	2.72	0.06	0.44
	Skilled (b)	-0.10	-0.56	0.02	-0.03	-0.36	2.07	-0.03	-0.87	-0.15	-0.10	-0.19
	Long Run (c)	-0.11	-0.71	0.00	-0.09	-0.40	1.72	-0.07	-0.33	0.28	0.11	0.01
Real Wages skilled (%)	Unskilled (a)	-0.14	-0.65	1.08	-0.07	-0.52	3.84	0.14	-1.04	0.88	0.05	1.06
	Skilled (b)	1.65	3.51	3.11	0.78	1.59	5.48	1.16	6.65	4.62	1.75	3.81
	Long Run (c)	-0.11	-0.77	-0.05	-0.10	-0.39	1.05	-0.10	-0.38	0.24	-0.01	-0.05
Real Income of permanent residents (\$US millions)	Liberalization (d)	2,630	-1,043	1,458	1,483	503	8,399	1,980	1,411	6,307	22,919	16,015
	Long Run (c)	-1,586	-3,672	22	189	-240	3,073	-52	-266	513	2,351	481
Inward Remittances (\$US Millions)	Liberalization (d)	3,422	858	1,364	1,517	755	9,518	1,958	872	5,790	23,021	15,894
	Long Run (c)	20	5	8	8	4	47	8	4	25	137	96
Outward Remittances (\$US Millions)	Liberalization (d)	11.32	3.27	1.08	2.70	13.16	221.25	2.64	70.39	8.76	121.15	323.00
	Long Run (c)	4.60	-0.43	0.03	0.30	-1.98	-7.31	0.10	0.85	0.59	3.13	5.16
Exports (%)	Liberalization (d)	-0.31	-1.10	-13.64	-1.11	-1.00	-24.26	-2.03	-4.43	-	-16.97	-27.64
	Long Run (c)	-0.66	-1.98	-0.13	-0.34	-0.68	11.13	-0.17	-0.98	-0.07	1.23	0.67
Imports (%)	Liberalization (d)	-0.53	-1.62	5.57	0.03	-1.40	-0.89	-0.72	-3.23	5.49	4.01	6.84
	Long Run (c)	-0.08	-0.74	0.06	0.08	-0.24	5.66	0.07	-0.50	0.62	0.60	0.41
Investment (%)	Liberalization (d)	-0.80	-2.50	0.02	-0.68	-3.55	11.92	-0.70	-1.98	-0.16	0.76	0.54

Capital stocks (%)	Long Run	-0.43	-2.36	0.43	0.00	-1.23	10.80	-0.03	-1.64	0.90	1.59	1.19
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- a) Resulting changes from liberalizing unskilled labor (includes own unskilled labor and others liberalization). To obtain the total change in the short run add (a) and (b).
- b) Resulting changes from liberalizing skilled labor (includes own skilled labor and others liberalization).
- c) Additional changes from capital accumulation. To obtain total change in the long run you must add (a), (b) and (c).
- d) Liberalization of skilled and unskilled labor.

Source: Authors Simulations

**Table 13: Impact of Liberalization of Migration by Middle East on the Middle East and selected Labor sending economies 2002-2007**

	Middle East	Indonesia	Philippines	India	Rest of South Asia
Number of additional Skilled Migrants received from abroad ('000's)	2042	-	-	-	-
Number of additional Unskilled Migrants received from abroad ('000's)	2931	-	-	-	-
Number of additional Skilled Migrants sent abroad ('000's)	-	77	132	1125	658
Number of additional Unskilled Migrants sent abroad ('000's)	-	140	102	1161	1442
Real GDP (%) <sup>(a)</sup>	1.71	-0.06	-0.13	-0.31	-0.73
Real GDP (%) due to improved working conditions <sup>(b)</sup>	0.58	0.00	-0.01	0.01	0.01
Additional gain in Real GDP in the long run <sup>(c)</sup>	0.48	-0.02	0.09	0.03	-0.10
Trade balance (\$US Millions)	4874	-73	-192	-3230	-1389
Real Wages skilled (%)	-5.47	0.33	0.45	2.14	3.50
Real Wages unskilled (%)	-2.25	0.09	0.30	0.15	0.54
Real Income of permanent residents (\$US Millions)	5973	192	158	4473	1727
Real Income of current migrants abroad (\$US per current migrant worker)	1065	3	26	19	99
Inward Remittances (\$US Millions)	-1.09	9.77	2.25	20.91	16.04
Outward Remittances (\$US Millions)	47.86	0.31	0.60	2.30	2.36
Exports (%)	2.20	-0.18	-0.63	-3.53	-4.10
Imports (%)	0.43	0.00	-0.14	0.49	0.10
Investment (%)	0.79	-0.06	0.16	0.04	-0.29

a) Total % change in real GDP due to new migration and change in working conditions.

- b) % change in real GDP due to change in working conditions only.
  - c) In addition to (a) the following changes in real GDP would occur in the long run.
- Source: Authors Simulations

**Table 14: Change in Migrants Resulting from Liberalization of Migration within ASEAN 2002-2007**

		Indonesia	Malaysia	Philippines	Thailand	Singapore
Number of additional Unskilled Migrants received from abroad ('000's)	Unskilled (b)	4.29	59.33	12.21	0.08	11.51
	Skilled (a)	-0.02	0.42	0.00	0.00	-0.02
	Long Run (c)	-0.02	0.43	-0.01	0.00	-0.05
Number of additional Skilled Migrants received from abroad ('000's)	Unskilled (b)	17.62	236.35	22.43	0.32	10.22
	Skilled (a)	5.12	43.06	8.02	0.16	11.15
	Long Run (c)	-0.03	0.60	-0.02	0.00	-0.07
Number of additional Unskilled Migrants sent abroad ('000's)	Unskilled (b)	48.51	13.63	9.73	9.08	6.48
	Skilled (a)	0.32	-0.05	0.06	0.05	0.00
	Long Run (c)	0.32	-0.09	0.06	0.05	0.02
Number of additional Skilled Migrants sent abroad ('000's)	Unskilled (b)	139.86	22.03	71.85	24.75	28.44
	Skilled (a)	27.68	14.69	13.88	5.16	6.10
	Long Run (c)	0.36	-0.12	0.16	0.05	0.03

- a) Resulting changes from improving the working conditions of unskilled migrant workers. To obtain the total change in the short run add (a) and (b).  
b) Resulting changes from improving the working conditions of unskilled migrant workers.  
c) Additional changes from capital accumulation (from both skilled and unskilled). To obtain total change in the long run you must add (a), (b) and (c).

Source: Authors Simulations

**Table 15: Impact of Liberalization of Migration within ASEAN 2002-2007**

		Indonesia	Malaysia	Philippines	Thailand	Singapore
Real GDP (%)	Unskilled (b)	-0.01	1.04	0.12	-0.03	-0.20
	Skilled (a)	0.03	0.64	0.11	0.00	0.44
	Long Run (c)	0.06	0.63	0.15	0.05	0.24
Trade balance (\$US Millions)	Liberalization (d)	-157	586	-100	-37	-30
	Long Run (c)	32	618	28	7	12
Real Wages unskilled (%)	Unskilled (b)	-0.05	-0.42	-0.28	0.01	-0.73
	Skilled (a)	0.02	0.34	0.05	0.00	0.24
	Long Run (c)	0.03	0.34	0.06	0.03	0.14
Real Wages skilled (%)	Unskilled (b)	0.29	-3.17	-0.39	0.21	1.92
	Skilled (a)	-0.37	-3.43	-1.01	0.02	-1.62
	Long Run (c)	0.03	0.28	0.05	0.03	0.15
Real Income of permanent residents (\$US Millions)	Unskilled (b)	199	101	114	37	208
	Skilled (a)	116	177	97	26	90
	Long Run (c)	103	349	81	57	130
Real Income of current migrants abroad (\$US per current migrant worker)	Liberalization (d)	81.66	5,631.63	41.14	11.84	3,295.59
	Long Run (c)	0.46	101.03	18.49	0.63	29.14
Inward Remittances (\$US Millions)	Liberalization (d)	284	293	135	49	253
	Long Run (c)	2	0	2	1	2
Outward Remittances (\$US Millions)	Liberalization (d)	47	609	44	2	287
	Long Run (c)	0	6	0	0	1
Exports (%)	Liberalization (d)	-0.15	1.63	-0.04	-0.05	0.33
	Long Run (c)	0.07	0.75	0.29	0.06	0.32
Imports (%)	Liberalization (d)	0.12	1.64	0.16	0.02	0.34
	Long Run (c)	0.07	0.45	0.17	0.06	0.26
Investment (%)	Liberalization (d)	0.08	2.73	0.24	0.02	0.02
Capital stocks (%)	Long Run (c)	0.12	1.44	0.26	0.08	0.49

d) Resulting changes from improving the working conditions of unskilled migrant workers. To obtain the total change in the short run add (a) and (b).

e) Resulting changes from improving the working conditions of unskilled migrant workers.

f) Additional changes from capital accumulation (from both skilled and unskilled). To obtain total change in the long run you must add (a), (b) and (c).

g) Improved working conditions for both skilled and unskilled migrants.

Source: Authors Simulations