International Migration, Population Age Structure and Economic Growth in Asia

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From receiving countries' point of view, immigration may be an attractive policy option because it may attenuate the pace of aging in countries further along in their demographic transitions. Immigration policy potentially has important economic implications for several reasons. First, solely due to the compositional effects associated with immigration, a larger share of the population could be concentrated in the working ages. Second, immigration, particularly in the form of permanent immigration, may affect transfers and the accumulation of assets. Immigrants pay taxes that support children and the elderly, they have children who are supported by native taxpayers, and they grow old and rely on future generations of taxpayers. In this study, we assess whether cross-border immigration is likely to be an important policy option in response to population aging in Asia. The analysis presented here suggests, however, that realistic immigration policy is not likely to have a substantial influence on population age structure and its economic consequences on both receiving and sending countries are likely to be modest.

The countries of Asia are experiencing fundamental changes in their populations that will influence standards of living and regional economic forces. First, population growth is slowing, but more rapidly in some countries than in others. Second, populations are experiencing important changes in their age structures, that is to say, in all economies, the percentage of children in the population is declining or has already reached low levels, and the share of the working-age population is increasing or has reached very high levels. Population aging is coming very rapidly to some regions of Asia.

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Since national borders do not confine economic effects, divergent demographic trends in the region are likely to generate a cross-border flow of immigrants and capital. Immigrants are likely to move from economies experiencing rapid increase in labor forces to economies in which the population aging is rapid. Yet, the direction of capital flow is opposite. Capital is more likely to flow from economies experiencing the most rapid increase in saving rates to economies in which the population is aging more slowly.

A policy that facilitates the flows of immigrants and capital between countries with young and growing populations and countries that have old and declining populations is particularly needed. An important point of the analysis presented here is to assess whether cross-border immigration is likely to be an important response to population aging. From the receiving countries' point of view, immigration can be an attractive policy option because it may attenuate the pace of aging in countries further along in their demographic transitions. Of course, the age structure of sending countries will also be affected.

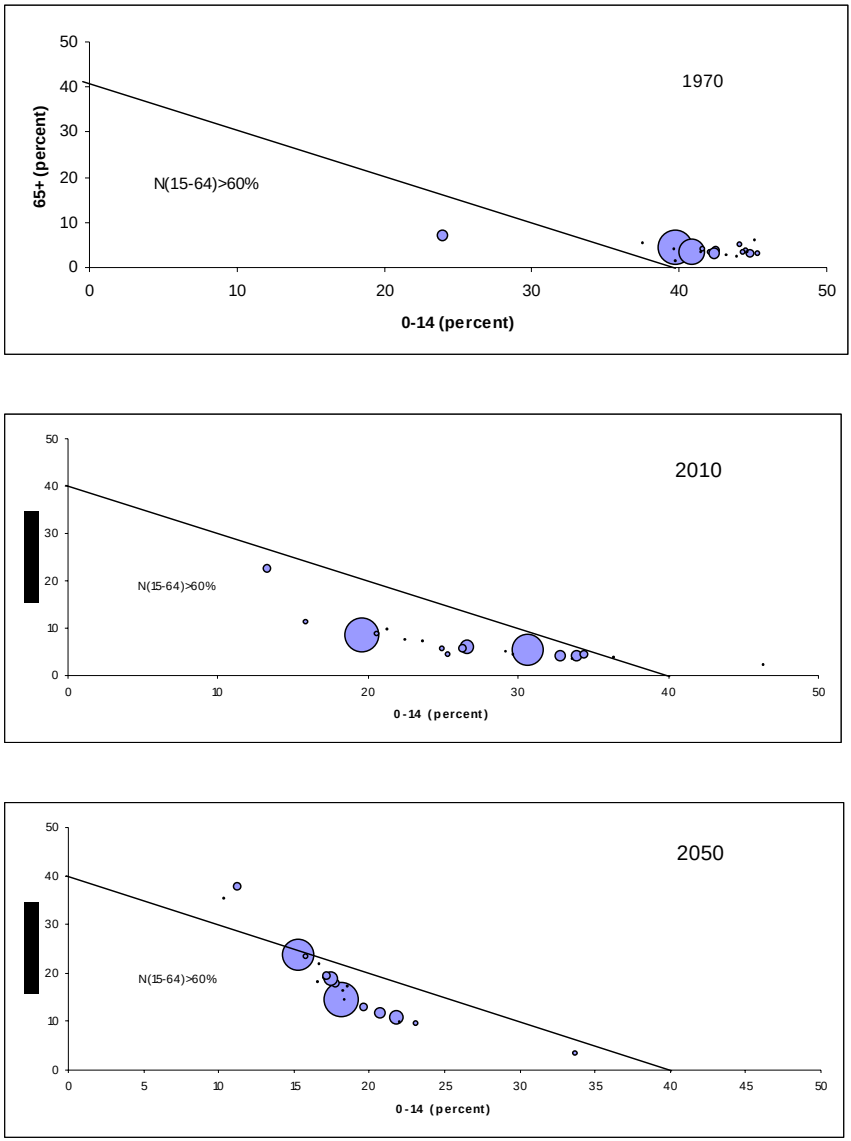
This paper explores two major questions: (1) can aging countries substantially increase the working age share of their population through immigration? and (2) what are the economic implications of immigration policy? The rest of this paper discusses some of these issues in more detail. The next section describes the current population age structure in Asia and cross-border migration in the region. The following section discusses research conducted on the relationship between population age structure and economies. We then present an analysis of how immigration will influence key macroeconomic variables for both receiving and sending countries. The final section discusses the implications of this analysis for policy.

Population Age Structure and International Migration in Asia

Population age structure changes in very predictable ways during a demographic transition. Early in the transition, the percentage of the population who are children increases due to declines in infant and child mortality rates. In almost every Asian country, 40 percent or more of the population was under the age of 15 in 1970 (Figure 1). Later, as birth rates decline, the child share declines and the percentage of the working-age population increases. By comparing the rates from 1970 to 2010, this change can be clearly seen in Asia (Figure 1). In the final stages, the share of the working-age population declines while that of the elderly group increases. The share of the elderly will reach the highest values in countries with high life expectancy and especially low fertility. Japan stands out in this regard but between 2010 and 2050 many Asian countries will experience an increase in the elderly population's share and a decline in the share of the working-age population.

A rise in the child share of the population occurred in China, India, and other Asian countries between 1950 and 1970. The decline in the population under age 15 has been extraordinarily rapid in some Asian populations—

FIGURE 1
POPULATION AGE STRUCTURE, ASIAN COUNTRIES, 1970, 2010 AND 2050



SOURCE: United Nations, 2006.
NOTE: Area of bubble is proportional to population of country.

notably, China, Hong Kong, Taiwan, and Korea. In 1970, over 40 percent of Korea's population consisted of children under the age of 15, and the projected value for 2050 is 10.3 percent. This low projected level reflects the fact that Korea has one of the world's lowest total fertility rates. Other economies in which the child share is expected to drop to, or remain at, very low levels over the coming decades are China, Hong Kong, Japan, Singapore, and Taiwan.

The proportion of the population that was of working age (defined here as people aged 15 to 64) increased between 1970 and 2010 in almost every Asian country. The proportion reached 60-70 percent or more in China, Hong Kong, Japan, Korea, Singapore, Taiwan, and Thailand. The largest decreases in the working-age populations are expected to occur in East and some Southeast Asian countries between 2010 and 2040. China, Hong Kong, Taiwan, Singapore, Japan, Thailand, and Korea will all experience declines of ten percentage points or more in their working-age populations.

These same countries are also experiencing very rapid population aging. Japan, with the 65 and older portion of the population increasing from 22.5 percent in 2010 to 37.7 percent in 2050, is projected to maintain its position as one of the oldest populations in the world. Other East Asian countries are also experiencing rapid aging. Particularly striking is the case of Korea for which the percentage of the 65 and older population is projected to increase from 11.3 percent in 2010 to 35.1 percent in 2050. Rapid population aging is occurring somewhat later in many Southeast and South Asian countries. By 2050, however, India's old-age share is expected to reach 14.5 percent. At first glance, demographic characteristics in 2050 may appear to be remote to the economic concerns of today. However, nothing could be further from the truth; the elderly population of 2050 is the working population of today. The prospect of old age and retirement will influence current behavior—for example, rates of saving. Thus, policies implemented by governments today will determine the success with which today's working populations can adequately prepare for an extended old age.

Asia's largest economies are net sending economies. Net migration from China, India, Indonesia, and the Philippines has consistently been negative (outward).[1] However, the rate of net migration is quite small in China and India and, thus, has little effect on the size of their national populations. In 2000–2005, for example, China lost 0.03 percent of its population yearly due to immigration, and India lost 0.02 percent (Table 1). The rate of out-migration from Indonesia and the Philippines is relatively higher than most other economies—0.09 percent per year in Indonesia and 0.23 percent in the Philippines. But even in these two economies, the impact on the growth of the population in any year is modest.

[1] Estimates in this paper are drawn from two sources: UN (2006 and 2007).

These four countries contribute relatively large shares to global migration flows because their populations are so large. For 2000–2005, the annual net numbers of immigrants were 390,000 from China, 280,000 from India, 200,000 from Indonesia, and 180,000 from the Philippines. Combined, they contributed just over one million immigrants a year to the global flow. This compares with a total outflow of 2.6 million per year from the less developed regions to the more developed regions of the world during the same period.

Most of the immigrants were not moving to other Asian countries. Total net inflows, including from outside Asia, were approximately 100,000 per year to the net receiving countries of the Association of Southeast Asian Nations (ASEAN)—60,000 per year for Hong Kong, and only 54,000 per year for Japan.

For a few countries in the region, migration is relatively high compared to their domestic populations. The Philippines has sustained immigrant outflows at a significant level for many years. As a consequence, remittances have been over 12 percent of the Philippines' gross domestic product (GDP). Brunei, Hong Kong, and Singapore have actively encouraged immigration to their countries. Over 40 percent of Hong Kong's and Singapore's populations and one-third of Brunei's population are immigrants.

With its relatively closed borders, Japan falls at the other end of the immigration spectrum. Given the high wages of its workers compared with those of its neighbors, coupled with a declining working-age population, one might well expect substantial immigration into Japan. Currently, about two million immigrants live in Japan—1.6 percent of its population. This compares with immigrant shares of 9.5 percent for the world's "more developed regions" and of 12.9 percent for the United States.

Economic Implications of International Migration

There are many studies suggesting potential gains from increased international migration. The fundamental point is that restrictions on immigration lead to an inefficient allocation of human resources that reduces standards of living for potential immigrants and their families and for consumers in receiving countries. The net gains from immigration are supported by many simulation models (e.g. World Bank, 2006).

However, factor equalization can be achieved by either labor flows or capital flows. In large part because simulation models are based on quite different assumptions about the social costs of immigration, import barriers, and the labor productivity of immigrants, it is hard to judge whether the elimination of barriers to trade and to international capital flows can realize the same gains that would be achieved by allowing the free flow of labor. In addition, even if all barriers to trade and capital mobility were eliminated, labor shortages still emerge in particular sectors. Many industries in ad-

TABLE 1
ANNUAL NET MIGRATION RATE (NET MIGRANTS PER THOUSAND POPULATION)

Economy	1950-1955	1955-1960	1960-1965	1965-1970	1970-1975	1975-1980	1980-1985	1985-1990	1990-1995	1995-2000	2000-2005
ASEAN											
Brunei	18.0	13.6	11.0	17.3	13.6	10.9	2.5	4.7	2.6	2.2	2.0
Cambodia	0.0	0.0	0.0	–0.1	–12.8	–3.6	—	3.4	2.8	1.3	0.2
Indonesia	0.0	0.0	–0.1	–0.1	0.0	–0.1	–0.1	–0.5	–0.8	–0.9	–0.9
Laos	0.0	0.0	0.0	0.0	0.0	–13.2	–2.1	0.0	–1.4	–3.5	–4.2
Malaysia	1.9	1.3	1.0	–1.5	–1.6	1.5	–0.3	1.8	3.0	4.5	1.2
Myanmar	—	—	—	—	—	—	–0.3	–0.7	–0.6	0.0	–0.4
Philippines	—	—	—	–0.7	–1.1	–1.6	–3.0	–2.7	–2.8	–2.5	–2.2
Singapore	15.0	11.6	1.1	0.4	1.3	0.9	11.7	9.7	15.4	19.6	9.6
Thailand	—	—	—	—	0.4	0.9	0.0	0.0	0.6	1.7	0.7
Viet Nam	—	—	—	—	—	–3.2	–0.9	–0.8	–0.7	–0.5	–0.5
China, Hong Kong, Taiwan											
China	–0.1	–0.1	–0.2	—	–0.2	–0.1	–0.0	–0.1	–0.2	–0.2	–0.3
Hong Kong	17.4	13.0	9.5	–5.0	7.3	15.1	5.1	0.9	10.1	9.3	8.7
Taiwan	—	—	0.1	0.0	–0.5	–0.4	–0.4	–0.3	–0.2	–0.2	–0.2
Other											
Japan	0.0	–0.1	0.0	–0.1	–0.1	0.0	0.0	0.3	0.4	0.4	0.4
Korea	5.4	0.0	–0.2	–0.2	–0.8	–1.0	–1.0	–0.9	–0.5	–0.3	–0.3
India	0.0	0.0	0.0	–0.1	–0.1	–0.1	–0.1	–0.1	–0.2	–0.3	–0.2

SOURCES: United Nations Population Division (2007), Ministry of the Interior, Taiwan. *Taiwan-Fuchien Demographic Fact Book* (various years).

vanced industrial countries face critical vacancies, especially for dirty, dangerous, and low-paid jobs and these industries can benefit from tapping into cheap labor from developing countries. A particularly important feature of aging is the increased demand for health care workers and caregivers.

There are a growing number of studies examining the economic impact of international migration for sending countries. A number of studies have addressed the role of remittances in poverty reduction (Adams and Page, 2005; IMF, 2005; Hugo, 2005; Yang and Martinez, 2005). Remittances from low income workers directly flow to poor families in sending countries and thus, they have an economic impact at the grassroots level. Remittances are important sources of funding for several Asian economies. According to the *Migration and Remittances Factbook 2011* (World Bank, 2011), India and China were the top two remittance-recipient countries in the world (over $50 billion). Other Asian countries, such as the Philippines ($21.3 billion), Vietnam ($7.2 billion), Pakistan ($9.4 billion), and Bangladesh, ($11.1 billion) are also among the top 20. Calculated as a share of GDP, remittances account for more than 12 percent of GDP for the Philippines and Bangladesh.

There is little study on how an immigration policy can influence population age structure and economy for receiving countries, which is of our particular interest. A brief look at the economic lifecycle model is necessary to understand these linkages. All populations include age groups with extended periods of dependency. Children consume more resources than they produce through their own labor and must rely heavily on intergenerational transfers from their parents (and grandparents) and from taxpayers. The elderly also consume more than they produce. They rely on intergenerational familial and public transfers as well as personal assets to fill the gap between what they consume and what they produce through their own labor.

In all economies, the percentage of children in the population is declining or has already reached low levels, while the share of the working-age population is increasing or has reached very high levels. Current thinking (Bloom and Canning, 2001; Bloom and Williamson, 1998; Kelley and Schmidt, 2001, 2007; Lee and Mason, 2007; Mason and Lee, 2006, 2007) is that the major effects of population on per capita income and consumption arise because of those changes in the age structure. Many economies in Asia have experienced an increase in the share of the working-age population with rather direct favorable effects on income per person. This compositional change, which has had a very direct and favorable impact on growth in per capita income, is called the "first demographic dividend." These effects depend entirely on changes in the size of the effective work force relative to the population.

However, the large share of the working population is a transitory phenomenon. Low birth rates and increasing life expectancy are leading to a larger older population. The share of the working-age population will decline and, as that happen, the first demographic dividend will turn negative.

Eventually, the share of the working-age population will be no greater than early in the demographic transition. The key difference will be populations with far more elderly and much fewer children. Although children and the elderly are both referred to as dependents, they differ in a very important way. Children rely almost exclusively on transfers to fill the large gap between what they consume and what they earn. The elderly, in contrast, rely on a combination of transfers and lifecycle saving to fill the gap. Thus, aging—and the anticipation of aging—will lead to an enormous increase in transfers and/or assets.

Whether countries will rely on transfers or assets to fund the needs of a growing elderly population will depend on policies, culture, and institutions. Compared with European and Latin American countries, Asia has relied less on public pay-as-you-go pension programs. But, health care for the elderly is a large and increasing cost that is often heavily subsidized by the public sector.

According to recent studies on support system for the elderly, familial transfers to the elderly are very important in many countries in Asia. Thus, aging in Asia may lead to large implicit debts that are shared by taxpayers and the adult children of the elderly. If the needs of a growing elderly population are met through greater reliance on lifecycle saving, population aging will lead to an increase in assets, with favorable implications for economic growth. Through this mechanism, changes in age structure can lead to "the second demographic dividend"—higher standards of living that persist long after the favorable effects of the first dividend have ended (Mason and Lee, 2007; Kinugasa and Mason, 2007).

Immigration policies have economic implications solely because of the compositional effects associated with immigration—the first demographic dividend—that a larger share of the population is concentrated in the working ages. The immigration policy has additional implications, particularly in the form of permanent immigration, because of the effects on transfers and accumulation of assets. Immigrants pay taxes that support children and the elderly, they have children who are supported by native taxpayers, and they grow old and rely on future generations of taxpayers. Some of these tax payers will be the children of immigrants and some will be the descendants of members of the native population. These effects are components of the second demographic dividend.

The effect of immigration on demographic dividends varies with the immigration policy. In the permanent immigration scenarios, the immigrant population severs all ties with the sending economy and fully integrates into the population and economy of the receiving one. Permanent immigrants earn wages, consume, and give and receive transfers in exactly the same way as the native population.[2] The most immediate and direct effect of permanent immigration on both the receiving and the sending economies is that immigration influences the first dividend, i.e., growth in the effective number of

producers relative to the effective number of consumers. The support ratio grows more rapidly to the extent that immigrants are concentrated in the working ages. However, they are also concentrated in the reproductive ages. Their rates of childbearing are also moderately higher than that of the native population. Since child dependency is higher in the immigrant than the native population, the difference between the economic support ratio for the native and the immigrant populations is smaller than would otherwise be the case.

Analysis of International Migration

Two issues are important to understanding the economic effects of international migration: The first issue is the potential for immigration policy to influence age structure for both sending and receiving countries. The analysis presented below distinguishes permanent immigration from guest worker programs. The second issue pertains to the economic effects of immigration. The analysis of this issue does not consider the guest worker programs because guest workers leave the receiving country and, hence, do not affect the lifecycle demand for wealth in it.

The age profile of labor income is fixed, i.e., relative productivity and labor force participation rates do not change over time, but the labor income profile shifts upward in response to technological growth that is exogenously determined. These aspects of the model are relatively conventional.

A distinctive feature of the model is the manner in which consumption is determined. The model used here implicitly assumes that intergenerational altruism is a pervasive feature of the society. The cross-sectional consumption profile incorporates those preferences for the well-being, for example, of children and the elderly.

The shape of the age profile does not change over time but it shifts up or down depending on the accumulation of assets, technological progress, and changes in age structure. Consumption is determined only indirectly by the economic success of an individual. Likewise, total consumption by a cohort at each age is only indirectly influenced by the lifetime economic success of that cohort. This approach is far more consistent with the consumption patterns observed in Asia, which in each year are quite constant across all adult ages regardless of the income histories of each generation.[3]

[2] For simplicity's sake, the study assumes that immigrants arrive without wealth. Given the heavy concentration of immigrants at young ages and the relatively low wage levels in the sending countries, this assumption has little impact on the outcome.

[3] Models based on the standard lifecycle theory or the Ramsey approach produce broadly similar results.

Consumption at older ages is realized through a combination of intergenerational transfers and lifecycle saving. The importance of transfers relative to lifecycle saving is exogenously determined and treated in this model as a policy variable. The economy is subject to an aggregate budget constraint on flows that, along with other features of the model, determines the time path of assets, transfer wealth and implicit debt, and income.

The impact of demographic change on capital accumulation and economic growth depends on the extent to which the economy in question relies on pension transfer wealth versus capital accumulation to support consumption in old age. This is treated as an exogenous policy variable by specifying the relative shares of assets and pension transfer wealth. The model also assumes that fiscal policy is unaffected by immigration in the following sense.[4]

It is important to note that the model is not intended to be a complete and comprehensive model of the economy. The model's purpose is quite specific—to show how demographic changes are likely to influence wealth and assets, and with what implication for economic growth. Demographic change will influence wealth in three ways: First, changes in the support ratio influence consumption at each age. If the support ratio is high, perhaps due to low fertility, then a higher consumption ratio can be sustained. Higher consumption at old ages means that more wealth must be held at every age to finance that consumption. Second, people are living longer. To support consumption over an extended period of retirement, they must accumulate more wealth during their working years. Third, given the age profile of wealth, changes in age structure influence aggregate wealth. Up to a point, wealth increases with age and, hence, a population concentrated in the late working years and early retirement years has greater wealth.

The goal of the analysis presented here is to consider the implications of an Asian aging society increasing the inflow of immigrants from Asian countries with younger populations. Thus, the outcome presented below is based upon an increase of ASEAN immigrants into Korea. The analysis considers three scenarios that encompass different approaches to increasing immigration into Korea (Table 2). Two of the scenarios assume that immigration is permanent. The "guest worker" scenario assumes that immigrants remain only for five years and are then repatriated. Permanent family migration allows for immigration by family members. Immigrants tend to be concentrated in the working ages, but a portion of the immigrant stream

[4] First, the relative magnitudes of transfers to children by taxpayers and parents (1/3 versus 2/3) are held constant. Second, pension transfer wealth, the net present value of current and future transfers to living adults, is held constant relative to the values of assets held by living adults (1:1). In other words, half of the resources needed in old age are financed through saving and half through transfer programs.

TABLE 2
THREE IMMIGRATION SCENARIOS

	Age distribution of immigrants	Status in receiving country
Permanent family migration	Average of immigrants to Australia, Canada, and US (UN Population Division 2001)	Permanent residents
Permanent worker migration	Same as above, but restricted to 20–34 years of age	Permanent residents
Guest workers	Same as above but restricted to 20–34 years of age	Remain 5 years

SOURCE: UN Population Division 2001.
NOTE: Rate of immigration is 4.5 immigrants per 1,000 members of the indigenous population. Immigrant flow is reduced to zero if the number of immigrants and their descendants, assuming no inter-marriage between the indigenous and the immigrant populations, reaches 30 percent of the total population. Descendants of guest workers live in their home country.

consists of children and older adults. The distribution of immigrants is based on the UN Population Division (2001) study that uses the age and sex pattern of immigrants to Australia, Canada, and the US. Males were 47.4 percent and females 52.6 percent of the total. Of the total, four percent were aged 20–34, about one-third were under 20, and fewer than five percent were 60 or older.

The "permanent family migration" scenario uses the age and sex distribution from the UN study. The "permanent worker migration" and the "guest worker" scenarios restrict immigrants to young working ages (20–34) using the sex and age distribution for those age groups from the UN study.

Immigrants are subject to the same mortality rates as the country in which they reside. The total fertility rate of immigrants continues at the level of the sending country until 2045, thereafter converging to the level in the receiving country over a period of 30 years. The annual immigration rate is 4.5 immigrants per 1,000 members of the nonimmigrant population. This is the net rate of immigration to the US for 2000–2005, or approximately one-half of that present in Singapore, a high rate by international standards. Immigration is increased beginning in 2010 and continues until the immigrant population, including descendants, reaches 30 percent of the indigenous population (the surviving 2010 population and its descendants).

Immigration influences the sending countries as well as the receiving countries. The analysis presented here assumes that immigrants are drawn entirely from ASEAN countries. The distinction between permanent immigration and guest worker programs is critical. With a guest worker program targeted at immigrants of the preferred age, a receiving economy that is small relative to sending economies can achieve virtually any age distribution it so

chooses. Singapore, for example, could increase the share of its population in the 30–39-year-old age group by allowing 30-year-olds to immigrate from China and then sending them home when they reach age 40. Of course, the size of the guest worker program relative to the domestic population will increase to the extent that a country tries to exert more influence over the age structure of its population.

With permanent immigration programs, however, the situation is more complex. Permanent immigrants marry, have children, and grow old as residents of the receiving country. Over time, their vital rates—birth and death rates—converge with the rates that characterize the indigenous population. As a consequence, over the very long term, the immigrant population will develop the same age distribution as the indigenous population. In the shorter term, however, large-scale immigration programs can influence the age structure of the receiving country.

Working-Age Population

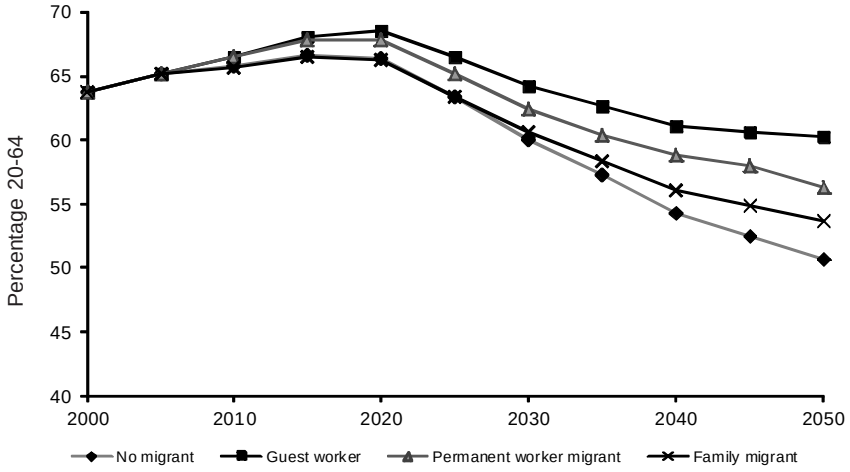
The share of the working-age population (20–64) is plotted for Korea in Figure 2, in the absence of any change in immigration rates and given a radical departure to a policy much more open to immigration.

In Korea, the share of the working-age population is still increasing until 2020, irrespective of the immigration policy, but in the absence of a more liberal immigration policy, the working-age share declines from over 65 percent in 2020 to about 50 percent in 2050. Immigration slows the decline. The impact of the guest worker program is the largest, which is followed by the permanent worker migration policy and the family migration policy.

What are the implications for the age structure of the ASEAN sending economies? The answer will depend on the population size of the receiving economies (or the immigrant stream) relative to that of the sending economies and on the extent to which the age distribution of the immigrant stream, eventually including their descendants, is different than the age distribution of the sending economy. For example, suppose Korea pursued liberal immigration policies. In 2010, when the immigration policies take effect, the ASEAN population is projected to be 589 million as compared with a Korean population of 48 million. Hence, a net in-migration rate of 4.5 per 1,000 for Korea translates into a net out-migration rate of 0.4 per 1,000 for ASEAN. Moreover, the ASEAN population is increasing relative to the population of Korea. By 2050, an out-migration rate for ASEAN of 0.3 per 1,000 would produce an in-migration rate for Korea of 4.5 per 1,000.

The extent to which the age distribution of the ASEAN migrant stream (and their descendants) differs from that of the ASEAN population depends very much on the particulars of the migration policy implemented (Figure 3). The permanent immigration policies have a very small effect on the share of

FIGURE 2
WORKING-AGE POPULATION, KOREA, 2000-2050

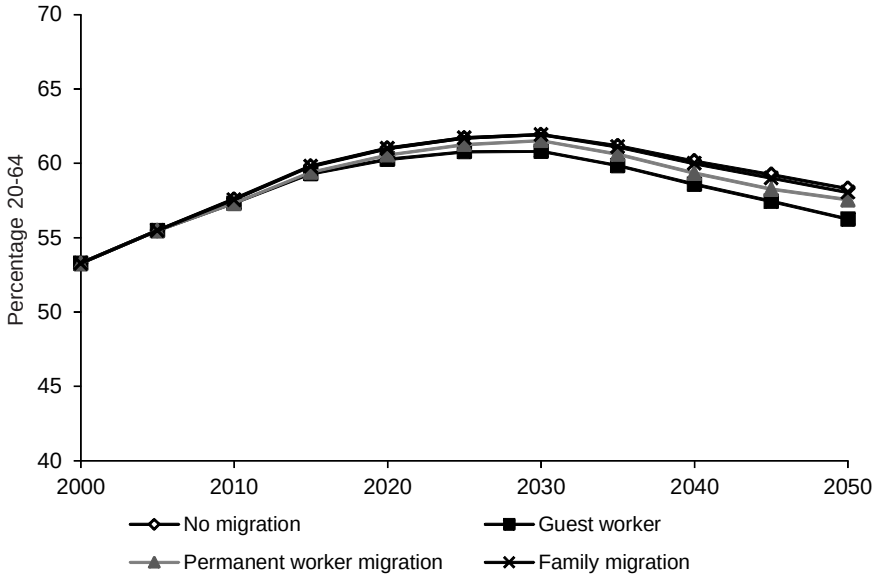


the working-age population. In 2050, the year for which the effect is largest, the permanent family migration policies of Korea would reduce the working-age population of ASEAN by 0.3 percentage points. The permanent worker migration policy has a larger impact, but the maximum loss in the working-age population is one percentage point in 2040. The guest worker program has the largest effect, as expected, but the working-age population is only lower by two percentage points by 2050, with smaller effects before then.

As with any simulation analysis, the results are based on a particular set of assumptions. Are there general lessons? First, the immigration policies analyzed are very substantial departures from current policy. That Korea will adopt an immigration policy as liberal as the US policy or keep such a policy in place until the immigrant population reaches 30 percent of the total, is a remote possibility. Any realistic immigration policy will have considerably smaller demographic effects than the ones shown in the simulations. If Korea chooses to accommodate a substantial increase in immigration, the share of the working-age population will decline somewhat more slowly. The effect is likely to be greater if Korea continues to favor guest worker programs.

Second, the impact of immigration policy on sending countries may be diluted compared with the analysis presented here. In Asia, in particular, the countries that are likely to import significant numbers of immigrants within the next few decades have small populations relative to the sending countries

FIGURE 3
WORKING-AGE POPULATION, ASEAN, 2000-2050



(most of ASEAN, China, and India). By importing workers, Korea will not have a substantial impact on the relative size of the labor forces of the rest of Asia. Of course, it is possible that highly-targeted policies—on particular economies or particular skill sets—could have a measurable effect.

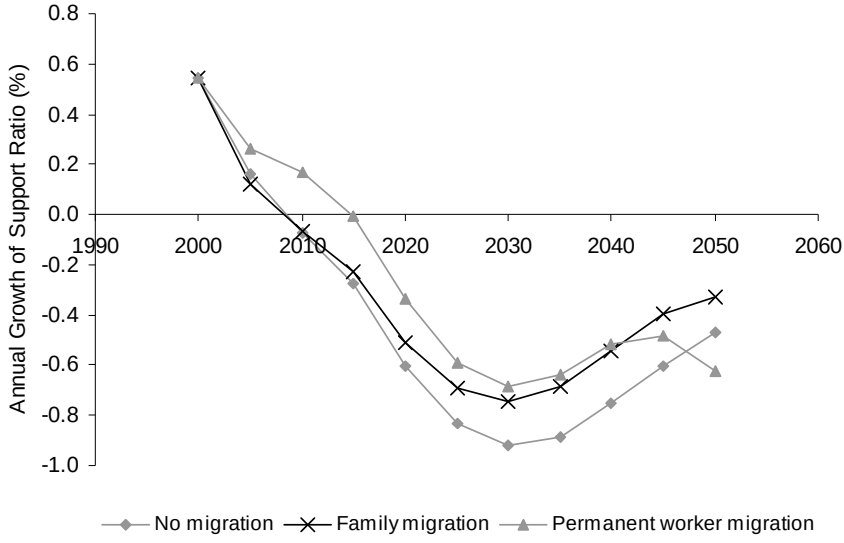
Demographic Dividends

In the following analysis, it is assumed that permanent immigrants sever all ties with the sending economy and fully integrate into the receiving economy. The effect of immigration on the first dividend is small in Korea (Figure 4). For some periods, the immigration policy produces additional economic growth of about 0.2 percent per year. The cumulative gain in the dividend by 2050 is only 10 percent from permanent worker immigration and five percent from permanent family migration.

The effect on ASEAN's first dividend is close to negligible. The cumulative impact by 2050 reduces the economic support ratio by 1.1 percent in the case of the permanent worker migration policy and by 0.5 percent in the case of the family migration policy.

The simulation captures a number of important effects associated with the immigration policies being considered. First, both immigration policies increase the number of children and hence, public spending on them. This

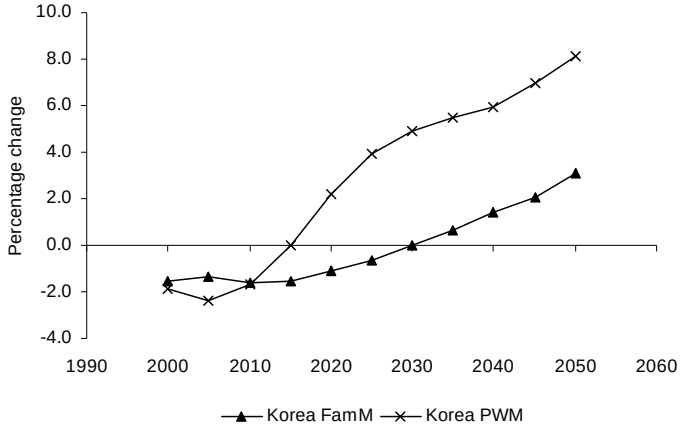
FIGURE 4
THE FIRST DIVIDEND AND IMMIGRATION, KOREA, 2000-2050



occurs because immigrants are heavily concentrated in the reproductive ages and have higher fertility rates than members of the native population. The effect is greatest for the family migration policy, but substantial for the worker migration policy. Second, both immigration policies lead to an increase in the value of unfunded pension benefits that must be paid by future generations. This is not necessarily a burden for the native population because the implicit debt in the pension system will be paid for by descendants of immigrants as well as descendants of the native population. Third, both immigration policies produce an increase in saving rates and assets because half of the retirement needs of the elderly are met through asset accumulation. Although the immediate effect of this is to increase per capita saving and reduce per capita consumption, the eventual effect is to raise per capita assets, asset income, and consumption.

The combined effect of immigration policies is evaluated using consumption per equivalent consumer. Figure 5 reports the percentage change in consumption per equivalent consumer relative to no change in immigration policy for Korea. In all cases, the impact of a relaxed immigration policy is to depress standards of living by a small amount because taxes for programs for children must rise and saving rates must increase. Over time, however, the favorable effects of a relaxed immigration policy emerge. This reflects the first dividend—that there are more workers relative to the number of children—and the effects on capital accumulation. The favorable effects emerge first and

FIGURE 5
EFFECT OF IMMIGRATION POLICY ON CONSUMPTION PER EQUIVALENT CONSUMER, KOREA, 2000-2050



FamM = family migration, PWM = permanent worker migration.

are strongest for the immigration policy that emphasizes young workers rather than family migration. By 2050, consumption is higher by eight percent in Korea.

These effects are not inconsequential and must not be mistaken for a "free lunch." They are realized, in part, by foregoing consumption in earlier periods. In the case of family migration to Korea, higher consumption is not realized until 20 years after the implementation of the immigration policy. Also note that this benefit is associated with an enormous increase in the number of immigrants. By 2050, 30 percent of the populations of Korea will consist of immigrants and their descendants.

The economic effects of immigration on the sending country are quite modest. The impact of immigration policy on per capita consumption varies between –1 percent and +2 percent between 2000 and 2050. Given the very small effects of the immigration policies on the age structure of ASEAN countries, this is not surprising.

Policy Implications and Conclusion

Economies in Asia exhibit considerable diversity in their demographic characteristics and, hence, in the demographic challenges that they confront in the immediate future. ASEAN and countries in South Asia will enjoy the first

demographic dividend until 2025, but, for East Asian and some Southeast Asian countries, rapid population aging and, in some cases, depopulation is a more immediate concern.

Low rates of fertility, particularly, play a critical role in China, Japan, Singapore, and Korea. If current low levels of fertility persist, substantial depopulation will occur. Thus, it is not surprising that Asian countries with low fertility rates are becoming more interested in pronatalist population policies. Japan heavily subsidizes childcare services and is trying to change the institutional environment to facilitate marriage and childbearing. Recently, the Japanese government implemented measures that require employers to provide very costly childcare leave benefits. The governments of Korea and Singapore offer financial and housing incentives to couples with more than two children.

However, the experiences with such policies are not entirely satisfactory. The total fertility rate in Japan remains at a very low level. While fertility may have declined even more without these measures, the incentives appear to be insufficient to change young couples' reproductive behavior. Furthermore, there are dangers that employers will respond to these policies by hiring fewer women of childbearing age, and firms could become less efficient and less competitive in the global economy.

Given the limitations of pronatal policies, immigration policy can be an alternative option. Within the region, countries with young populations are sufficiently large enough to supply a steady stream of migrant workers to countries with older populations. The analysis presented here suggests, however, that realistic immigration policy is not likely to have a substantial influence on population age structure and its economic consequences on both receiving and sending countries.

Although these results should be interpreted with care, at least in some Asian economies, immigration will continue to be an important economic and demographic phenomenon. Policies and attitudes toward immigration may change as populations age and labor force growth slows and, in some instances, turns negative. For them and the economies to which they are sending immigrants, immigration policy will continue to be important and potentially contentious. Especially for sending economies, remittances are of particular importance. Needless to say, facilitating international labor mobility is the most crucial means of increasing remittance flows to developing countries.

Perhaps, the most difficult legal and ethical question for policymakers is the equal treatment of migrants. The fundamental dilemma is that "differences prompt migration, but most international and many national standards call for equal treatment of migrants" (Martin, 2005: 23). Although increasingly large numbers of conventions and standards have been approved to protect migrants and their families, notably by the International Labour Organization, most of these are ratified only by sending countries and are widely

violated in practice. However, providing minimum social protection for nonpermanent workers may enhance the productivity of workers, especially for the longer term. It will also contribute to diminishing the severe inequality that characterizes the region.

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