

# **ADJUSTMENT TO INTERNATIONAL MIGRATION**

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## **1 INTRODUCTION**

In this note, I discuss recent empirical work on the consequences of global labor mobility. I examine how international migration affects the incomes of individuals in sending and receiving countries and of migrants themselves. In considering the effects of labor mobility, I give equal weight to sending and receiving economies, meaning neither receives in depth treatment. For more detailed discussions of literature on how immigration affects receiving countries, see Borjas (1999a) and Card (2005), and on research into how emigration affects sending countries, see Docquier and Rapoport (2008) and Hanson (2007).

In section II, I summarize facts about international migration that emerge from recently available data. In section III, I discuss empirical research on the consequences of labor flows for incomes in sending and receiving countries and for migrants and their family members. And in section IV, I offer concluding remarks.

## **2 DATA ON INTERNATIONAL MIGRATION**

Despite large differences in income between countries, international migration is uncommon. Figure 1, using UN data, shows that in 2005 individuals residing outside of their country of birth comprised just 3.0% of the world's population. During the last two decades, the stock of international migrants has grown modestly, from 2.2% of the world population in 1980 to 2.9% in 1990 and marginally after that.

Table 1 shows the share of the population that is foreign born in select OECD countries. The countries with the largest immigrant presence in 2005 are Australia (24%), Switzerland (24%), New Zealand (19%), and Canada (19%). Australia, New Zealand, and Canada use a point system to govern applications for admission, in which

individuals with higher levels of skill are favored for entry. Next in line are the large economies of Germany (13%), the US (13%), France (10%), and the UK (10%). The US alone hosts 40% of immigrants living in OECD countries, making it the world's largest receiving country. The US uses a quota system to govern legal immigration, with two thirds of visas reserved for family members of US citizens or residents. European countries tend to place more emphasis on an individual's refugee or asylee status in making immigrant admission decisions (Hatton and Williamson, 2004).

Inflows of illegal immigrants account a substantial share of total immigration. In the US, Passel and Cohn (2009) estimates that in 2008 there were 12 million illegal immigrants, which accounted for 35% of the US foreign-born population, up from 28% in 2000 and 19% in 1996. In Europe, Jandl (2003) estimates that in 2003 there were 4 million illegal immigrants in the EU 15 countries, with the largest stocks in Germany, the UK, Italy and France. Greece, Italy, Portugal and Spain have engaged in repeated recent legalizations of illegal immigrants, meaning that the current stock of illegal immigrants in these countries understates the number of immigrants who first entered the country illegally.

Table 2, based on data from Beine, Docquier and Marfouk (2007), shows the share of the immigrant population in OECD countries by sending-country region. In 2000, 67% of immigrants in the OECD were from a developing country, up from 54% in 1990. Among developing sending regions, Mexico, Central America, and the Caribbean are the most important, accounting for 20% of OECD immigrants in 2000, up from 15% in 1990. Half of this region's migrants come from Mexico, which in 2000 was the source of 11% of OECD immigrants, making it the world's largest supplier of international

migrants. The next most important developing source countries for OECD immigrants are Turkey (3.5% of OECD immigrants); China, India, and the Philippines (each with 3%); Vietnam, Korea, Poland, Morocco, and Cuba (each with 2%); and Ukraine, Serbia, Jamaica and El Salvador (each with 1%).

Within sending countries, emigrants tend *not* to be drawn randomly from the population. Figure 2, taken from Grogger and Hanson (2008), plots the log odds of emigration for individuals with tertiary education (13 or more years) against the log odds of emigration for individuals with primary education (0 to 8 years). Nearly all points lie above the 45 degree line, indicating that in most countries more educated individuals are much more likely to leave. Migrants thus appear to be strongly positively selected in terms of schooling. It is high emigration rates for the more educated that have raised concerns about brain drain from developing countries.

Table 3 compares education levels for adult immigrants and adult residents in Europe, North America, and Australia-New Zealand. In Europe and North America, immigrants are much more likely than residents to have less than a secondary education. In Australia and New Zealand, immigrants and residents have more similar education levels. These patterns matter for gauging the labor market impacts of immigration, for they mean that foreign labor inflows tend to increase the relative supply of low skilled labor in receiving countries.

### **3 EMPIRICAL RESEARCH ON INTERNATIONAL MIGRATION**

What does empirical research have to say about how international migration affects the incomes of individuals in sending and receiving countries? I begin the discussion by considering the gain in income to migrants and evidence on the extent to

which migrants share these gains with family members in the sending country. I then consider the impact of global labor flows on labor market earnings, net tax burdens, and skill acquisition in sending and receiving countries.

#### **A. INCOME GAINS TO MIGRANTS**

Combining household survey data in developing countries with data from the US Census, Clemons, Montenegro, and Pritchett (2008) estimate the gains to international migration for individuals from a sample of 42 developing countries. For a young male with some secondary education, they find that the median annual gain from migrating to the US to be \$11,200 (after applying a correction for the self-selection of individuals into migration). Rosenzweig (2006) uses data from the New Immigrant Survey to examine the change in income for a random sample of new US permanent legal immigrants in 2003. He estimates that the annual gain to legal migration to the US is \$10,600.

The income gain from migration captures the gross return from moving to another country. If migration costs are large, the net gain may be smaller. While there is research on migration networks (see Hanson, 2007), there is little work that estimates the actual cost of migration. These costs include transport expenses in moving abroad, time lost in changing labor markets, administrative fees for legal migration, border crossing costs in illegal migration, the psychic costs of leaving home, and any perceived increase in uncertainty from living and working in another country.

Who benefits from the increase in income that migrants enjoy? Through remittances, migrants share a portion of their extra income with family members at home. Table 4 shows workers' remittances received from abroad as a share of GDP by geographic region. Remittances have increased markedly in East Asia and the Pacific,

Latin America and the Caribbean, South Asia, and Sub-Saharan Africa. As of 2005, remittances exceeded official development assistance in all regions except Sub-Saharan Africa and were greater than 65% of foreign direct investment inflows in all regions except Europe and Central Asia. Among the smaller countries of Central America, the Caribbean, and the South Pacific, remittances account for a large share of national income, ranging from 10% to 17% of GDP in the Dominican Republic, Guatemala, El Salvador, Honduras, Jamaica, and Nicaragua, and representing an astounding 53% of GDP in Haiti (Acosta, Fajnzylber, and Lopez, 2007). Remittances appeared to have fallen sharply with the recent global economic downturn.

Having migrants abroad provides insurance to households, helping them smooth consumption in response to income shocks. Yang (2007) examines changes in remittances to households in the Philippines before and after the Asian financial crisis. As of 1997, 6% of Philippine households had a member that had migrated abroad. Some had gone to countries in the Middle East, whose currencies appreciated sharply against the Philippine peso in 1997-1998, while others had gone to East Asia, where currencies appreciated less sharply or even depreciated. Consistent with consumption smoothing, remittances increased more for households whose migrants resided in countries that experienced stronger currency appreciation against the peso. Since income shocks associated with movements in exchange rates are largely transitory in nature, the response of remittances reveals the extent to which migrants share transitory income gains with family members at home. A 10% depreciation of the Philippine peso is associated with a 6% increase in remittances.

There is some evidence that increases in remittances are associated with increased

expenditure on education and health. Yang (2007) also examines changes in household expenditure and labor supply in the Philippines. Households with migrants in countries experiencing stronger currency appreciation vis-à-vis the peso had larger increases in spending on child education, spending on durable goods (televisions and motor vehicles), children's school attendance, and entrepreneurial investments. In these households, the labor supply of 10-17 year old children fell by more, particularly for boys. Using cross-section data on Mexican states, Woodruff and Zenteno (2007) find a positive correlation between emigration and business formation. These results suggest migration may help household overcome credit constraints imposed by sending country financial markets.

## **B. LABOR MARKET CONSEQUENCES**

The labor-market consequences of international migration have inspired intense debate among scholars. Most research focuses on the impact of labor inflows on the US wage structure. Only recently has the literature begun to examine other receiving countries or effects on sending economies. The US literature has been extensively reviewed elsewhere (e.g., Borjas, 1999a; Card, 2005). I summarize the current state of the debate and identify questions that are central to resolving it.

Research using data on the national US labor market suggests that immigration depresses wages for US workers. Borjas (2003) defines labor markets at the national level according to a worker's education and labor-market experience. Over the period 1960 to 2000, education-experience cells in which immigrant labor supply growth has been larger – such as for young high school dropouts – have had slower wage growth, even after controlling for education or experience specific wage shocks. The evidence is consistent with immigration having depressed wages for low-skilled US workers (as well

as for some high-skilled workers). The concern about this approach is that it might confound immigration with other labor-market shocks that have hurt low-skilled workers, such as skill-biased technological change. Absent controls for these other shocks, one cannot be sure the attributed wage changes are really due to immigration.

Applying a similar national-level approach to Canada, Aydemir and Borjas (1997) find comparable evidence of the wage effects of migration. In Canada, where immigration is dominated by workers at the top end of the skill distribution, immigration is negatively correlated with wages across education-experience cells, with more-educated workers being the ones who have suffered the largest wage effects. Since Canada is presumably subject to many of the same technology shocks as the US, it would not appear that unobserved technology shocks could explain away the wage effects of immigration in both countries. Moreover, the national-level approach yields comparable results of the wage effects of migration in sending countries. Mishra (2005) finds a positive correlation between emigration and wages across education-experience cells in Mexico. In Mexico, emigrants come disproportionately from the middle of the skill distribution, meaning workers with close to average levels of education are those that have had the largest wage gains from labor outflows. Aydemir and Borjas (1997) obtain similar results and also find that the elasticity of wages with respect to labor supply is roughly similar in Canada, Mexico, and the US. In all three countries, a 10% change in labor supply due to migration is associated with a 4% to 6% change in wages.

An older and larger literature has searched for immigration's impact by correlating the change in wages for low-skilled US natives with the change in the immigrant presence in local labor markets, typically at the level of US cities. These area

studies tend to find that immigration has little if any impact on US wages (Borjas, 1999a). Card (2005) argues that if immigration has affected the US wage structure one should see larger declines in the wages of native high school dropouts (relative to, say, native high school graduates) in US cities where the relative supply of high school dropouts has expanded by more. In fact, the correlation between the relative wage and the relative supply of US high school dropouts across US cities is close to zero.

One type of cross-sectional evidence is consistent with immigration having lowered wages. Cortes (2008) finds that in the 1980s and 1990s US cities with larger inflows of low-skilled immigrants experienced larger reductions in prices for housekeeping, gardening, child care, dry cleaning and other labor-intensive services. A 10% increase in the local immigrant population is associated with decreases in prices for labor-intensive services of 1.3% percent. A mechanism through which immigration could have lowered prices is through its effects on wages.

The area study approach also has problems. Immigrants may tend to settle in US regions in which job growth is stronger, causing one to underestimate the wage impact of immigration when using city or state-level data. As a correction, many studies instrument for growth in local immigrant labor supply using lagged immigrant settlement patterns. But this strategy requires rather strong identifying assumptions. It would be invalid, for instance, if the labor demand shocks that influence immigrant settlement patterns are persistent over time (Borjas, Freeman, and Katz, 1997).

Research on other receiving countries tends to report negligible estimated impacts of immigration on wages. After the fall of the Soviet Union, there was sizable migration of Russian Jews to Israel, which increased the Israeli population by 12%. Over the

course of the Russian influx, Friedberg (2001) finds that occupations that employed more immigrants had slower wage growth, but the correlation is zero once she instruments for immigrants' occupational choice.<sup>1</sup> In applications of the area studies approach outside of the US, findings of little or no impact of immigration on regional wages include Addison and Worswick (2002) for Australia; Pischke and Velling (1997) for Germany; Zorlu and Hartog (2005) for the Netherlands and Norway (2005); Carrasco, Jimeno, and Ortega (2008) for Spain; and Dustmann, Fabri, and Preston (2005) in the UK.<sup>2</sup>

The impact of immigration on the migration of native labor is another issue about which there is disagreement. Card (2001, 2005) finds that across US cities, higher presence of low-skilled immigrants is associated with higher levels of employment of low-skilled labor, with one new immigrant on net adding about one new net worker to a labor market, suggesting that native outmigration does not offset the labor supply effects of arriving immigrant workers. Pischke and Velling (1997) find a similar absence of native displacement effects in Germany. Borjas (2006), using the regional counterpart to the national-level education-experience cells in Borjas (2003), comes to the opposite conclusion. He finds that the growth in the native workforce is smaller in regional education-experience cells in which the growth in immigrant presence has been larger. Moreover, he shows that not accounting for the internal migration of natives causes area studies regressions to understate the wage effects of immigration by about half. Hatton and Taini (2005), using data on regional labor markets in the UK, also find evidence that the arrival of immigrant workers displaces local native workers. Again, we have an

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<sup>1</sup> Hunt (1992) and Carrington and de Lima (1996) find evidence of minimal labor-market effects from the forced return of expatriates in France and Portugal, following the end of colonialism.

<sup>2</sup> Negative wage effects of immigration have been found in Germany (De New and Zimmerman, 1994) and Austria (Hofer and Huber, 2003).

instance in which national level and regional level approaches yield different results.

Does immigration induces firms to raise investment and increase innovation, partially or fully offsetting the wage impacts of labor inflows? While the idea is plausible, there is relatively little empirical research on the impact of immigration on investment or innovation at the regional or national level. There is evidence that immigration is associated with changes in production techniques. Lewis (2005) finds that regions absorb immigrants through their industries becoming more intensive in the use of immigrant labor. Industries in US cities that have received larger inflows of low-skilled immigrant labor have increased their relative labor intensity by more. These industries have also been slower to adopt new technologies, suggesting changes in labor supply affect incentives for technology adoption, as in Acemoglu (1998). Lewis' (2005) results rule out changes in sectoral mix accounting for regional absorption of immigrant labor, as could occur in a simple Heckscher-Ohlin model. He finds little evidence that regions have absorbed incoming immigrants by shifting employment towards sectors that are more intensive in low-skilled labor.

In initial work, Ottaviano and Peri (2007) found evidence that immigrant and native labor were imperfect substitutes.<sup>3</sup> They estimated a negative and significant correlation between immigrant-native relative wages and immigrant-native relative employment, across Borjas' (2003) education-experience cells. However, their results are sensitive to how one defines skill groups. Dropping high school students from the sample, the finding of imperfect substitutability between immigrants and natives disappears. Borjas, Grogger, and Hanson (2008) show that for many specifications and

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<sup>3</sup> Galosto, Venturini, and Villosio (1999) find evidence of imperfect substitutability between immigrants and natives in Italy.

factor-supply definitions one cannot reject the hypothesis that comparably skilled immigrants and natives are perfect substitutes in employment, in line with Jaeger (1997). Whatever one thinks about the wage effects of immigration, low-skilled immigrant and native workers appear to be in the same labor market, at least in the US.

To date, the literature offers two approaches for estimating the wage effects of migration, which yield quite different results. The national-level approach is subject to concerns about how one controls for changes in technology, though these should be at least partly allayed by the fact that countries with very different types of migration shocks exhibit similar migration wage elasticities. The area studies approach is subject to concerns about the endogeneity of immigrant settlement patterns, with it being difficult to assess the validity of proposed solutions to this problem. An issue often overlooked is that in an economy without distortions, even if all workers lose from immigration, the income gain to capital owners will be sufficient to ensure that national income increases. Indeed, it is unlikely that an economy could experience a gain in national income from immigration without some workers losing out.

### **C. FISCAL CONSEQUENCES**

By changing absolute and relative labor supplies, international migration may have consequences for a country's fiscal accounts. With emigrants being positively selection in terms of schooling, it is individuals with relatively high skill levels who leave sending countries, depriving them of higher-income taxpayers. To the extent that education and health care are public, sending countries may have made substantial investments in these individuals while young only to have receiving countries reap the

returns. The potentially adverse effects of brain drain on economic growth may be compounded by net tax losses from high-skilled emigration.

While there is a large body of theoretical literature on the taxation of skilled emigration (see Docquier and Rapoport, 2007), empirical research on the subject is sparse. In a recent contribution, Desai, Kapur, and McHale (2008) examine the fiscal effects of brain drain from India. In 2000, individuals with tertiary education accounted for 61% of Indian emigrants but just 5% of India's total population. Between 1990 and 2000, the emigration rate for the tertiary educated rose from 2.8% to 4.3%, but from just 0.3% to 0.4% for the population as a whole. Desai et al. examine Indian emigration to the US, which in 2000 was host to 65% of India's skilled emigrants. First, they use Mincer wage regressions to produce a counterfactual income series that gives emigrants the income they would have earned in India based on their observed characteristics and the returns to these characteristics in India. On the tax side, they calculate income tax losses by running the counterfactual income series through the Indian income tax schedule. They also calculate indirect tax losses using estimates of indirect tax payments per unit of gross national income. On the spending side, they calculate expenditure savings by taking the categories for which savings would exist – which are most government accounts except interest payments and national defense – and then estimating savings per individual. Their results suggest Indian emigration to the US cost India net tax contributions of 0.24% of GDP in 2000. Remittances by skilled emigrants generated a tax gain of 0.1% of GDP, partially offsetting these losses. For India, the tax consequences of skilled emigration appear to be small, though small countries with high emigration rates may face larger impacts.

In receiving countries, immigration may exacerbate inefficiencies associated with a country's system of public finance. Where immigrants pay more in taxes than they receive in government benefits, immigration reduces the net tax burden on native taxpayers. The total impact of immigration on native residents—the sum of the immigration surplus (the pretax income gain) and the net fiscal transfer from immigrants—would be positive. With progressive taxes and means-tested entitlements in many receiving countries, positive fiscal consequences from immigration would be more likely the more skilled is the labor inflow. In contexts where immigrants pay less in taxes than they receive in government benefits, immigration increases the net tax burden on natives, necessitating an increase in taxes on natives, a reduction in government benefits to natives, or increased borrowing from future generations.

There are dynamic fiscal effects from immigration (Auerbach and Oreopoulos, 1999). If the net tax burden on residents of a country is expected to increase in the future, immigration increases the tax base over which the burden is spread and reduces the increase that natives have to bear (Collado and Valera, 2004). But this is only true if the descendants of immigrants make positive net tax contributions. If the children of immigrants have low educational attainment, high levels of immigration today could instead increase the future tax burden on the native population.

In the US, immigrant households have historically made greater use of subsidized health care, income support to poor families, food stamps and other types of public assistance (Borjas and Hinton, 1996). The reason for native-immigrant differences in the uptake of welfare programs is simple. Immigrant households tend to be larger than native households, have more children, and have very low incomes, making them eligible

for more types of benefits. In the last decade, however, the difference between immigrant and native use of welfare programs in the US has fallen because of reforms to welfare policy, which restricted non-citizens from having access to many federally funded benefit programs. While immigrant households still make greater use of public healthcare than native households, their use of other types of public assistance has fallen (Borjas, 2003; Capps et al., 2005). In the European Union, enlargement to include lower income countries in Central and Eastern Europe has led to low-skilled migration to higher income countries, possibly increasing welfare usage (Sinn, 2002).

Calculating the total fiscal consequences of immigration, while straightforward conceptually, is difficult in practice. To estimate them correctly, one needs to know many details about the income, spending, and employment behavior of the population of immigrants. As a result, there are few comprehensive national level analyses of the fiscal impact of immigration. In one of the few such studies, Smith and Edmonston (1996) estimate that in 1996 immigration imposed a short-run fiscal burden on the average US native household of \$200, or 0.2 percent of U.S. GDP. In that year, a back of the envelope calculation suggests that, following the logic of equation (3), the immigration surplus was about 0.1 percent of GDP (Borjas, 1999b), meaning that the short run immigration in the mid-1990s reduced the annual income of US residents by about 0.1 percent of GDP. Given the uncertainties involved in making this calculation, this estimate is unlikely to be statistically indistinguishable from zero. While we cannot say with much conviction whether the aggregate fiscal impact of immigration on the US economy is positive or negative, it does appear the total impact is small.<sup>4</sup>

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<sup>4</sup> This estimate is based on short run considerations. Going from the short-run to the long-run can change the results dramatically.

Tax and transfer policies create a motivation for a government to restrict immigration, even where the level of immigration is set by a social planner. If immigrants are primarily individuals with low incomes relative to natives, increased labor inflows may exacerbate distortions created by social-insurance programs or means-tested entitlement programs, making a departure from free immigration the constrained social optimum (Wellisch and Walz, 1998).<sup>5</sup> Pay as you go pension systems create a further incentive for politicians to manipulate the timing and level of immigration (Scholten and Thum, 1996; Razin and Sadka, 1999). Given its graying population and unfunded pension liabilities, one might expect Western Europe to be opening itself more aggressively to foreign labor inflows. However, concerns over possible increases in expenditure on social insurance programs may temper the region's enthusiasm for using immigration to solve its pension problems (Boeri and Brücker, 2005).

#### **D. HUMAN CAPITAL ACCUMULATION**

International migration has the potential to affect the accumulation of human capital in both sending and receiving countries. In receiving countries, migration may increase the relative supply of high-skilled labor (e.g., Canada), low-skilled labor (e.g., Spain), or both high and low-skilled labor (e.g., the US). To the extent wages fall for the skill group whose relative supply increases, native workers have an incentive to select out of that skill group. Alternatively, immigration may affect native schooling decisions by increasing competition for scarce educational resources.

Using data on the US, Borjas (2004) estimates a negative correlation between the number of foreign students and the number of native-born students in university graduate

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<sup>5</sup> In the long run, immigrants may affect voting outcomes directly through their participation in the political process (Razin, Sadka, and Swagel, 2002; Ortega, 2004).

programs, suggesting that foreign students may crowd out natives. Even with crowding out, the arrival of foreign students may still lead to an increase in the net supply of skilled labor in the US. Stuen, Mobarak, and Maskus (2006) find that university departments with more foreign graduate students have more publications in scientific journals, suggesting inflows of foreign students may spur knowledge creation.

Betts and Lofstrom (2000) and Hoxby (1998) present evidence that immigration reduces college attendance for US natives, particularly for minority students, and Betts (1999) finds that increases in the number of student-age immigrants in a US locality are associated with decreases in the likelihood that local minority students complete a high school degree.<sup>6</sup> For Israel, Paserman and Gould (2008) find that having more immigrants in one's grade school class is associated with a lower likelihood that a student will subsequently matriculate in or graduate from high school (even controlling for the overall immigrant presence in one's grade school). While the precise mechanisms behind these relationships are unclear, it does appear that the performance of native students deteriorates following a local influx of immigrant students.

In sending economies, the focus of research has been less on how migration affects competition for schooling and more on how opportunities for emigration affect the incentive to acquire skill. In poor countries, the income gain from emigration is often substantial, promising to raise real earnings by two to four times (Clemons, Montenegro, and Pritchett, 2008). Moreover, the gain to migration is larger for individuals with higher education levels (Rosenzweig, 2007; Grogger and Hanson, 2008). An increase in the probability that individuals from a poor sending country will be allowed to emigrate to

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<sup>6</sup> In related work, Betts and Farlie (2003) find that immigration induces natives to select out of public schools and into private schools.

the US or Europe may thus increase the incentive to obtain higher levels of education. The quantitative impact of this brain gain effect depends on the elasticity of the sending-country supply of educational services and the perceived probability of migrating successfully. Where seats in colleges and universities are in limited supply, increases in the demand for higher education may have little effect on the local number of educated workers.<sup>7</sup> Relatedly, where receiving countries allocate immigration visas in a non-random manner (say, by reserving entry slots for family members of existing US residents), many sending-country residents may have little hope of moving abroad, leaving their incentive to acquire skill unaffected by emigration opportunities.

Only a handful of empirical papers have examined the relationship between emigration and human-capital accumulation. For a cross-section of countries, Beine, Docquier, and Rapoport (2006) report a positive correlation between emigration to rich countries (measured by the fraction of the tertiary educated population living in OECD countries in 1990) and the increase in the stock of human capital (measured as the 1990 to 2000 change in the fraction of adults who have tertiary education). This finding is consistent with emigration increasing the incentive to acquire education. However, it is not clear that one can make inferences about the causal impact of brain drain on educational attainment from the cross-section correlation between emigration and schooling. Individuals are likely to treat education and migration as joint decisions, making the two outcomes simultaneously determined.

Some evidence suggests international migration may increase the flow of ideas between countries. In China, India, and Taiwan, the migration of skilled labor to Silicon Valley – where Indian and Chinese immigrants account for one third of the engineering

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<sup>7</sup> Unless, of course, individuals are able to migrate abroad for their education. See Rosenzweig (2006).

labor force – has been followed by increased trade with and investment from the US, helping foster the creation of local high-technology industries (Saxenian, 2002). When individuals live and work in another country they are exposed to new political ideologies and alternative systems of government. Spilimbergo (2008) suggests there is an association between a country's democratic tendencies and the political systems of the countries under which its students did their university training. He finds a positive correlation between the democracy index in a sending country and the average democracy index in the countries in which a country's emigrant students have studied. Migration flows may also help erode barriers to trade. Successive waves of emigration from China have created communities of ethnic Chinese throughout Southeast Asia, as well as in South Asia and on the east coast of Africa. Rauch and Trindade (2002) find that bilateral trade is positively correlated with the interaction between the two countries' Chinese populations, consistent with ethnic business networks facilitating trade.

## **5 SUMMARY**

There is ample evidence that international migration raises gross incomes for migrants, while it redistributes incomes within sending and receiving countries. Because the net impact of immigration on receiving countries appears to be small and the gain to migration appears to be so large, it is natural to presume international migration raises global income. Still, there remain many unknowns in evaluating migration's impact.

Economic theory suggests international migration expands global output. Moving labor from low productivity to high productivity countries improves world allocative efficiency. No study suggests there are large negative consequences from global migration. In the US, which is the largest receiving country for immigrants, the net

impact of immigration, to a first approximation, appears to be a wash (Borjas, 1999b). The global gains from migration are largely captured by migrants themselves, which they share with family members at home through remittances. Unless there are large unmeasured negative externalities from migration or migration exacerbates existing distortions in ways that have not yet been detected, it would be difficult to justify restrictive barriers to global labor flows. While the gross income gain to migration appears to be large, the net gain is unknown, given little evidence on migration costs.

The impact of immigration on receiving country labor markets is hotly disputed. The evidence would seem to favor the argument that wage effects from immigration do exist. Studies using national level data, while subject to concerns about their ability to control for all relevant labor market shocks, yield consistent qualitative results across sending and receiving countries (with Israel being an exception). The results are also consistent with observed changes in native labor supply. Studies using local level data, whose results suggest immigration has little wage impact, are subject to concerns about the endogeneity of immigrant settlement patterns that have yet to be fully resolved. The literature has focused on the wage effects of immigration, while largely ignoring impacts on non-labor income. In theory, one would expect the gains in non-labor income (plus the gains to workers that complement foreign labor) to more than offset the losses to workers than compete with immigrant labor.

The net fiscal consequences of international migration are also poorly understood. In sending countries, there are only a handful of studies on emigration's fiscal impacts and these focus on the movement of high-skilled workers to high-income destinations. In receiving countries, the impact of immigration on the tax burden of natives is a central

issue in political opposition to labor inflows. While there are many studies on how immigration affects government expenditure, there are few on how it affects government revenue, making it difficult to evaluate the net fiscal impact of labor inflows.

Another unknown is the effect of emigration on the incentive to acquire skill in sending countries. In the cross-section, countries that have higher emigrant stocks abroad also have faster growth in the number of educated adults, but this association may not be informative about the consequences of brain drain. We still do not know how changes in the opportunity to emigrate affect human capital accumulation. Many individuals migrate abroad to complete their education, with many ultimately returning to their home countries. Circular migration is important for the accumulation of skill in developing countries, though migrants from the poorest countries are those most tempted to emigrate permanently. Even where migration is permanent, having emigrants abroad may help a country lower its barriers to trade, investment, and technology flows.

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**Table 1: Percent of Foreign-Born Population in Total Population**

	1995	2000	2005	Change 1995-2005
Australia	23.0	23.0	23.8	0.8
Austria		10.5	13.5	
Belgium	9.7	10.3	12.1	2.4
Canada	16.6	17.4	19.1	2.5
Czech Republic		4.2	5.1	0.9
Denmark	4.8	5.8	6.5	1.7
Finland	2.0	2.6	3.4	1.4
France (a)		10.0	8.1	
Germany (b)	11.5	12.5		
Greece (c)		10.3		
Hungary	2.8	2.9	3.3	0.5
Ireland (d)	6.9	8.7	11.0	4.1
Italy (c)		2.5		
Mexico	0.4	0.5	0.4	0.0
Netherlands	9.1	10.1	10.6	1.5
New Zealand (d)	16.2	17.2	19.4	3.2
Norway	5.5	6.8	8.2	2.7
Poland				
Portugal	5.4	5.1	6.3	0.9
Slovak Republic (c)		2.5	3.9	
Spain (c)		5.3		
Sweden	10.5	11.3	12.4	1.9
Switzerland	21.4	21.9	23.8	2.4
Turkey		1.9		
United Kingdom	6.9	7.9	9.7	2.8
United States	9.3	11.0	12.9	3.6

Notes: (a) 2000 value is from 1999; (b) 2004 value is from 2003; (c) 2000 value is from 2001; (d) 1995 value is from 1996. Source: *International Migration Outlook*, OECD, 2006 (1995 data) and 2007.

**Table 2: Share of OECD Immigrants by Sending Region, 2000**

Low Income Sending Region	Share of Immigrants by OECD Receiving Region				Change in OECD Share 1990 to 2000
	All OECD	North America	Europe	Asia, Oceania	
Mex., Cen. Am., Caribe	0.202	0.374	0.025	0.002	0.053
Southeast Asia	0.102	0.137	0.039	0.160	0.016
Eastern Europe	0.099	0.049	0.161	0.116	0.042
Middle East	0.063	0.032	0.113	0.029	0.001
South Asia	0.052	0.052	0.055	0.036	0.011
North Africa	0.044	0.009	0.098	0.018	-0.006
South America	0.041	0.050	0.031	0.035	0.010
Cen., So. Africa	0.036	0.021	0.061	0.021	0.007
Former Soviet Union	0.029	0.023	0.042	0.010	-0.002
Pacific Islands	0.004	0.003	0.001	0.027	0.000
Total	0.672	0.750	0.626	0.454	0.132
<hr/>					
High Income Sending Region					
Western Europe	0.244	0.152	0.336	0.368	-0.111
Asia, Oceania	0.055	0.062	0.018	0.156	-0.010
North America	0.029	0.037	0.020	0.023	-0.011
Total	0.328	0.251	0.374	0.547	-0.132

Notes: This table shows data for 2000 on the share of different sending regions in the adult immigrant population of the entire OECD and of three OECD subregions. High Income North America includes Canada and the U.S. and High Income Asia and Oceania includes Australia, Hong Kong, Japan, Korea, New Zealand, Singapore, and Taiwan. Source: author's calculations using data from Beine, Docquier and Rapoport (2007).

**Table 3: Schooling of Residents and Immigrants by Destination Region**

		Share in adult immigrant population			Share in adult resident population		
		primary education	secondary education	tertiary education	primary education	secondary education	tertiary education
1990	Europe	0.616	0.210	0.174	0.332	0.485	0.183
	Canada, US	0.388	0.180	0.433	0.118	0.486	0.397
	Australia, N. Zealand	0.303	0.322	0.375	0.311	0.391	0.298
2000	Europe	0.510	0.240	0.250	0.233	0.541	0.226
	Canada, US	0.367	0.181	0.453	0.060	0.427	0.513
	Australia, N. Zealand	0.285	0.267	0.448	0.248	0.425	0.327

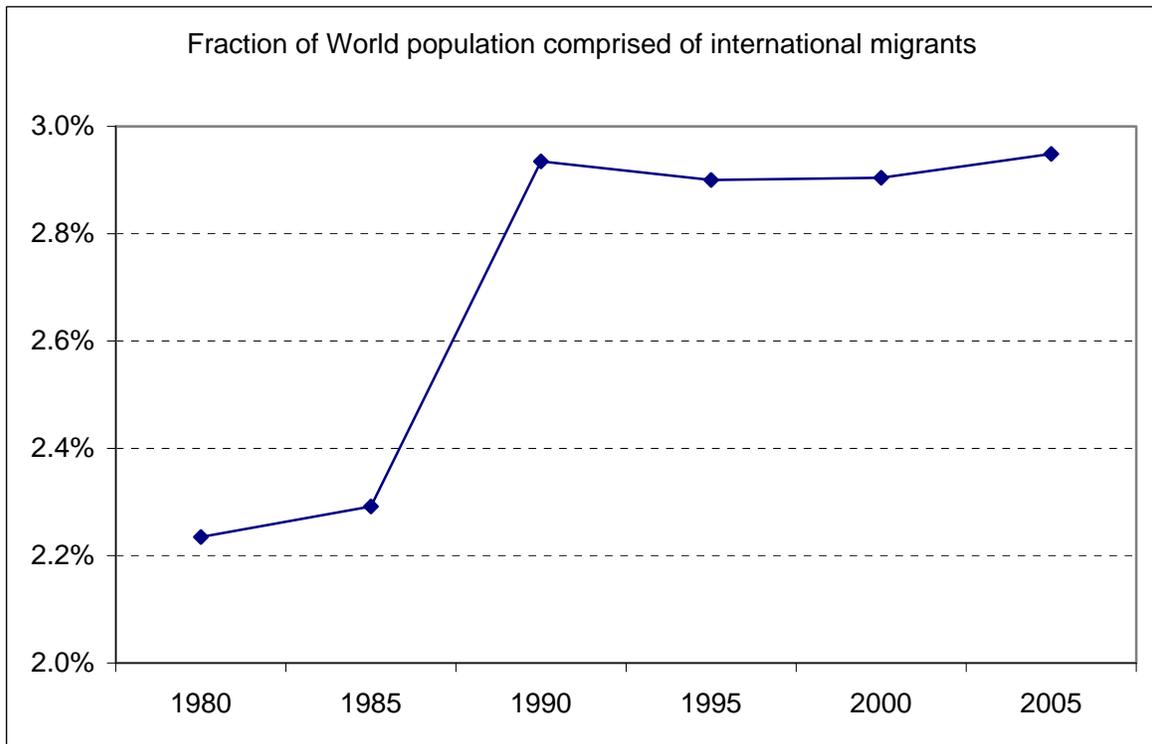
This table shows the share of adult (25 years and older) immigrants or residents by education group (primary, secondary, tertiary). Data for immigrants are from Beine, Docquier and Rapoport (2007); data for residents are from Docquier and Marfouk (2006). Europe consists of Austria, Belgium, Denmark, Finland, Germany, the Netherlands, Sweden, and the UK.

**Table 4: Workers' Remittances and Compensation of Employees, % of GDP**

<u>Region</u>	<u>1992</u>	<u>1996</u>	<u>2000</u>	<u>2006</u>
East Asia & Pacific	0.55	0.69	0.97	1.46
Europe & Central Asia	0.32	1.04	1.45	1.42
Latin America & Caribbean	0.66	0.71	0.99	1.92
Middle East & North Africa	5.67	3.32	2.87	3.64
South Asia	1.74	2.39	2.83	3.47
<u>Sub-Saharan Africa</u>	<u>0.68</u>	<u>0.94</u>	<u>1.35</u>	<u>1.45</u>

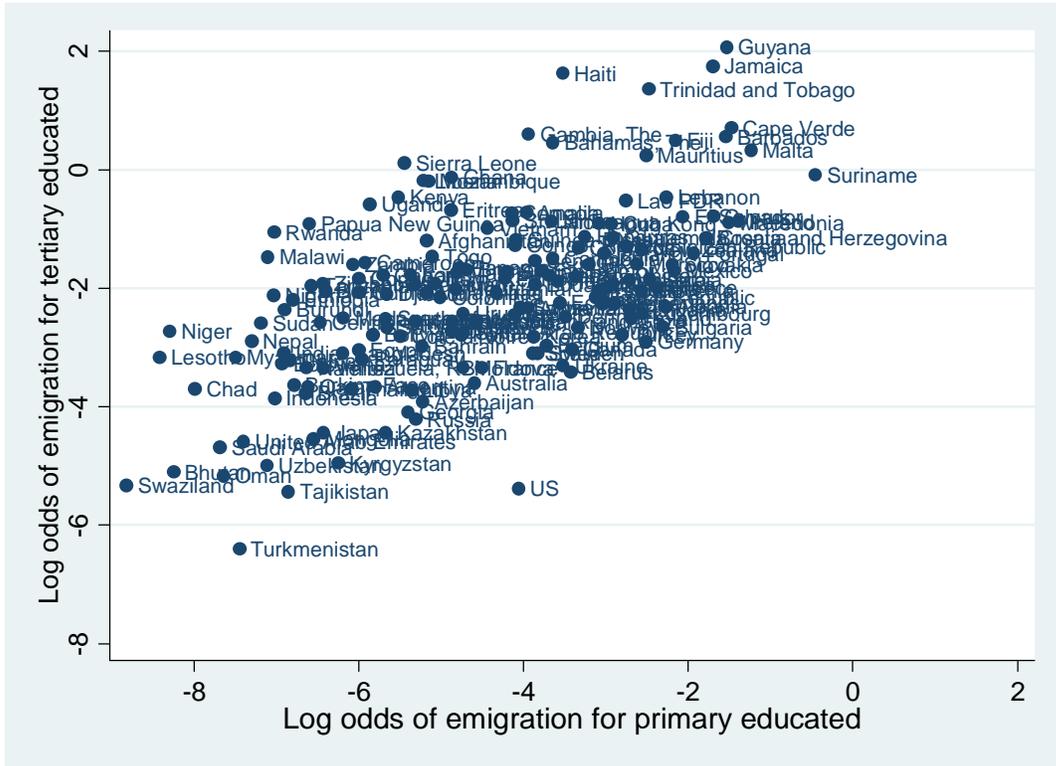
Source: World Development Indicators.

**Figure 1**



Source: United Nations (2005).

**Figure 2: Positive selection of emigrants, 2000**



Source: Grogger and Hanson (2008).