Are Third World Emigration Forces Abating?

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ABSTRACT

Most observers appear to believe that Third World emigration pressure is on the rise. But history suggests that migration typically follows a bell shape, in which case it might be entering on the downward phase. This paper estimates the economic and demographic fundamentals driving emigration from the developing world to the United States since 1970. The results suggest that emigration pressure, determined largely by source country demographics, education, poverty and migrant stock dynamics, has recently been abating. Projections into the future suggest that it may even decline, and that its composition will be much more African and much less Hispanic.

Keywords: Third World, emigration, development, life cycle

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1. INTRODUCTION

Academic papers and media reports are often written as if the supply of Third World immigrants facing host countries is perfectly elastic, and that the rate of mass emigration from developing countries will increase indefinitely, at least after the current recession. Much of it takes the host country demand side perspective, ignoring the sending country supply side. For example, Lant Pritchett tells us that "there are five irresistible forces in the global economy creating growing pressures for greater movement of labor … from poorer to richer countries" (2006, p. 138). Statements like this imply that immigration rates into high-wage host countries – unless checked by tougher immigration policy or by another great depression – will rise to ever-increasing heights. After all, it is argued, the economic gap between host and sending countries should remain large for some time, and as the post-industrial world ages and its share of working native-born adults shrinks, then the demand for additional foreign-born young adults should soar to fill the gap.

History suggests the contrary, and it also suggests that analysts should pay more attention to the supply side. This paper examines the source country forces that drive trends in migration from poor to rich countries, much of which involves long-distance intercontinental migration. We first examine the evidence suggesting that source country emigration follows a bell-shaped pattern, sometimes called an emigration 'hump' but what we prefer to call an emigration life cycle. We then ask what economic and demographic factors might explain these life cycles, and whether emigration rates from the poorer parts of the world have reached a peak from which they may have started to decline.

We use a standard migration model to shed light on this issue, focusing on emigration to the US from a variety of source countries since the early 1970s. Our results indicate that demographic trends, relative income and education, poverty and migration dynamics all play a role, as theory would predict. They suggest that the demographic transition and migrant stock dynamics were the key forces behind mounting emigration pressure from the 1970s to the 1990s. We then explore the future. Any forecast is hazardous and is dependent on host country immigration policy, but our results imply that migration

pressure is already losing some of its heat, and that this cooling is likely to increase. While this applies to Latin America and large parts of Asia, this is not true of the poorest countries, particularly in sub-Saharan Africa, which are still in early stages of their emigration life cycle.

2. THE EMIGRATION LIFE CYCLE

Observers have often noted that the pattern of migration for a typical country passes through distinct phases. Perhaps the most well known characterization is that of Zelinsky (1971) who termed it the mobility transition. Zelinsky envisaged the typical pattern of evolution as a movement from low mobility to high mobility both in rural-urban and international migration, followed by a slowing down in net migration and a rise of circulatory migration. He associated the increase in mobility with modernization, industrialization, and urbanization, as well as with the demographic transition. Most notably, these descriptive accounts have been used to explain 19th century European emigration, where at first emigration rates rose steeply from very low levels, after which the rise began to slow down as the emigration rates reached a peak and subsequently fell. These life cycles have emerged in both aggregate country emigration rates and from regions within countries (Akerman 1976, p. 25; Hatton and Williamson 1998, pp. 48-9; Hatton and Williamson 2005, Ch. 4; Gould 1979).

Since such patterns are found in the historical data, shouldn't we also expect to find them more recently? If so, then the common prediction that there will be increasing migration pressure in our future might be in error. But future predictions depend on where today's developing countries are in their emigration cycles. If they are on the steeply rising part then the common prediction might be correct, but if they are at their peak then migration pressure will recede rather than increase. Thus, one group argues that economic development in poor countries will stem the emigrant tide, while another argues that it will increase the tide (Nyberg-Sørensen *et al.* 2002; de Haas, 2007a; Hatton and Williamson 2005). While

extrapolations from the past are tempting, we need to know more about the mechanisms at work to be sure that they are likely to dominate the future as well.

The mass intercontinental migrations from 19th century Europe provide a classic test of the emigration life cycle since it was relatively unconstrained by policy. On the upswing, the growth in living standards and real wages at home often exceeded those in New World destinations. Since standard migration theory predicts that rising relative income at home should reduce emigration, declining incentives to emigrate must have been dominated by other forces working in the opposite direction. Analyzing 12 countries, we found that one key offset was the rising birthrate which 20 years later created large cohorts of young, mobile adults. Another was the gradual reduction in poverty at home, a force that increased the ability of potential emigrants to invest in the move. We also found evidence of strong network effects embedded in rising stocks of previous emigrants resident abroad. The end of the fertility transition was one of the key forces producing the downswing of the emigration cycle at the end of the 19th century, and this was reinforced by convergence in real wages between destination and source countries (Hatton and Williamson 1994, 1998: Chapter 2, 2005: Chapter 4).

Emigration spread to southern and eastern Europe in the decades before the First World War, regions which were much poorer but beginning to develop. Most observers think that this early development eased the poverty constraint which had previously kept potential migrants at home despite the large incentive to emigrate. As modern development took hold and living standards increased, the effect of easing of the poverty constraint on emigration dominated the effect of narrowing (the still large) international wage gap. Faini and Venturini (1994) show that increasing income at home accounted for much of the surge in Italian emigration after the 1870s, especially after the turn of the century. Such findings are consistent with micro-level evidence that in the early stages of the emigration life cycle migrants were not the poorest but those with skills and resources (Erickson 1990; Wegge 1998).[1] Such findings are also consistent with the fact that early emigration stages usually involved short moves to neighboring countries which were less costly than a transatlantic passage.

Similar life cycle patterns can be found in more recent emigration experience, but over a much shorter time period (Martin and Taylor 1996). One oft-cited example is South Korea where emigration rose steeply to a peak in 1982 and subsequently declined (Stalker 2000, p. 52). Similar patterns have been observed for other Asian countries and it is tempting to associate such compressed emigration cycles with economic miracles and accelerated demographic transitions. It has also been suggested that emigration cycles in southern Europe were interrupted between 1913 and 1950, after which they resumed, tracing out an emigration cycle, reaching a peak in the 1980s (Faini and Venturini 1993). The emigration life cycle may be less pronounced in Latin America where a dramatic decline in fertility has not been accompanied by strong economic catching up. Nevertheless, one observer has concluded that "the thesis of a migration hump has begun to be clearly demonstrated for the case of Latin America" (Durand 2009, p. 20).[2]

Such analyses have been incorporated into official reports that have contemplated the effects of source country development on emigration pressure. According to the UK House of Commons report on Migration and Development:

> "What the migration hump shows is that there is little migration at low levels of development… but that as development takes place and income levels rise, so too does migration… Migration continues to rise with income levels until an income threshold is reached, and the domestic economy begins to offer opportunities at home, migration starts to taper off" (UK House of Commons 2004, pp. 20-1; also quoted in Lucas 2005, pp. 49-50).

Lucas (2005, p. 53), however, finds little evidence that such patterns are universal, concluding that there are no common patterns, or that they are contingent on a variety of other factors.

One such factor distorting the emigration life cycle might be host country immigration policies, like the guestworker policies that drew migrants to northern Europe from Turkey, Morocco and the former Yugoslavia. After a steady increase in the 1960s, the numbers declined sharply after the programs were abruptly halted in 1973/4. For some of these countries, the decline in migration opportunities abroad may

have diminished emigration pressure. But for others, like Morocco, emigration pressure remained strong (Fargues 2004, De Haas 2007b, Van Dalen *et al.* 2005, Carling 2002). Emigration to the Gulf States from south and southeast Asia offers another example where emigration rose and fell, this time with the price of oil (Massey *et al.* 1998, Chapter 5; Prakash 1998; Kannan and Hari 2002).

Some observers have emphasized the role of political transitions in source countries. State formation, or more often reformation, creates transitions during which institutions are uprooted, which in turn creates some losers who exit (Zolberg 1983). The most obvious cases are the transitions in eastern Europe and the former Soviet Union, events which generated mass outflow in the early 1990s, aided by better opportunities to escape. Transitions have also taken the form of lengthy civil wars, generating bursts of emigration, which often persist through network effects. Such political upheavals can create migration humps such as in Central America where emigration induced by the conflicts in Nicaragua (1976-9), El Salvador (1979-91) and Guatemala (1980-96) subsequently ebbed. The effects of civil war and terror can be most clearly seen in the number of asylum applications in the developed world, which peaked in 1992 and have since declined. Much of the post-1992 decline in asylum applications can be attributed to abating violence and civil war, but also to tougher asylum policies (Hatton 2009).

This brief survey raises three questions. First, are emigration humps simply special cases or do they obey similar laws of motion? Second, can they be linked to common economic and demographic fundamentals or are they the result of host country policy or source country political events? Third, does an understanding of the fundamentals driving past emigration help provide some guide to future trends in Third World emigration pressure?

3. TRENDS IN INTERNATIONAL MIGRATION SINCE THE 1970s

While emigration life cycles have been examined for individual countries, we lack a sense of how general such trends are and whether they are revealed at more aggregative regional levels. Of course,

observers frequently focus on aggregate *immigration* rates into host countries. *Emigration* rates emerge when, in the denominator, the host country population is replaced by the sending country population. Since population growth in the host countries has been much slower than that in the sending countries, this makes quite a difference to the timing and magnitude of the rates.

This paper will focus on migrants from countries in three major sending regions: Latin America including the Caribbean; the Middle East, North Africa and Asia; and sub-Saharan Africa. We exclude from consideration the countries of eastern Europe and the former Soviet Union as these are affected by political upheavals in the middle of our period. Table 1 reports rates of immigration to the United States (US immigrants relative to US population) and emigration to the United States (US immigrants relative to source country population), for five year periods from 1970-4 to 2000-4 (1970-4 = 100).[3] Two things stand out in the upper two panels. First, immigration rates increase much more steeply than emigration rates. The migration surge looks a lot more modest when standardized by the more rapidly growing source populations: for example, while US emigration rates for Latin America and the Caribbean rose by a little more than 50 percent, the region's immigration rate almost doubled. Second, regional emigration rates follow somewhat different profiles. From Latin America, they rose steeply to the early 1990s followed by a slight fall. Emigration rates from Asia rose sharply to a peak in 1980-4 before undergoing a substantial decline. While the absolute numbers are much smaller for sub-Saharan Africa, they exhibit a secular increase throughout the period, and, once again, the increase is much less dramatic for emigration than for immigration.

< Table 1 about here >

The lower panel of Table 1 provides a more detailed breakdown for Latin America and Asia. It shows that the Latin American trend is not just due to Mexico, even though the latter accounted for about half of all US immigration from the Americas (including Canada) during the 1990s. Nor is the Latin American pattern due to the legalization of undocumented migrants in 1989-91, as these have been

eliminated from the data. However, there are some differences across Latin America. There was a stronger upward trend in emigration rates from Central than from South America, and the former reached a plateau after the 1990s, the latter waited until 2000-4 to reach its peak. Asian emigration rates show more evidence of decline in the last two decades although it is much clearer in the Middle East and North Africa (MENA), where emigration rates underwent a pronounced decline after 1980-4, and East Asia, where the rates underwent a modest decline after 1990-4, than in South Asia, where the post-1990-4 decline was reversed in 2000-4.

These trends raise four questions. First, are they driven by a few countries with very large immigrant numbers that dominate the regional totals, or is there a distinct life cycle in the emigration rates even if we give equal weight to each country? This possibility is investigated by regressing the log of emigration rates (to allow for differences in scaling) on time and time squared for all the countries in each regional sample over the seven five-year periods 1970-4 to 2000-4, using country fixed effects. Table 2 reports that the 26 countries of Latin America and the Caribbean yield a positive coefficient on the linear time trend and a negative coefficient on the squared term. This result implies a significant bell shape with a maximum in the early 1990s. An even stronger life cycle pattern is found for the 35 countries in MENA and Asia, where the peak also occurs in the early 1990s. By contrast, only the linear term is significant for sub-Saharan Africa, the sending region containing the poorest countries. These results confirm a fall in emigration rates for two of the major sending regions, while the third has yet to reach its peak. Nevertheless, there is considerable diversity in the emigration trajectories within as well as between regions and we exploit this variation in the econometric work that follows.

< Table 2 about here >

Second, is the fall in Third World emigration rates just for those going to the United States, or do we observe the same for other host countries? Table 3 reports immigration and emigration rates to Canada and Germany from the three sending regions.[4] The Latin American and Asian immigration rates for

Canada have been falling since 1990-94, repeating the US pattern. This suggests that the slowdown and fall in immigration rates from the early 1990s is not just the result of some US-specific policy changes. And, again repeating the US pattern, immigration rates from Africa and Asia rose much more steeply than did their emigration rates. Also, the emigration rates from Asia and Latin America into Canada have fallen more dramatically since 1990-94 than have immigration rates, as has been true of the US. Finally, the rise in the African emigration rate to Canada was, once again, slower than for the immigration rate. The lower panels of Table 3 document migration rates to Germany:[5] the German immigration rates display a strong upward trend to 1990-94, and a fall (or a pronounced slowdown in the rise) thereafter; and, once again, the emigration rates show a more pronounced life cycle than do immigration rates.[6]

< Table 3 about here >

Third, is the recent fall or pronounced slowdown in emigration rates simply due to tougher host country immigration policy? And if immigration policy has become tougher, did emigration pressure from sending countries help trigger those policies? These questions suggest that when analyzing trends in emigration from any source region, overall host country policy constraints must be taken in to account. The empirical work that follows does just that.

4. MODELING INTERNATIONAL MIGRATION

Most economic analysis of international migration uses the framework first set out by Sjaastad (1962) and refined by Borjas (1987, 1994), Chiswick (2000), and others. Thus, we characterize the emigration decision as depending on the economic gain from migration net of its costs, the latter including waiting time and meeting admission criteria as well as poverty constraints.

The incentive for individual i in country j to migrate to country k, v_{kji}, is the difference between the utility from the economic gain net of the non-economic cost or compensating differential:

$$v_{kji} = u_{ki} - u_{ji} - z_{kji} \quad (1)$$

where u_{ki} and u_{ji} are economic utility at the destination and the origin respectively and z_{kji} is the compensating differential representing the individual's non-economic preference. In order to capture individual heterogeneity, z_{kji} is assumed to be a random variable with mean across all individuals in country j, $Z_{kj} > 0$. This ensures that not all individuals migrate, even if the economic benefits are positive.

Individual i's income in the two countries depends on the individual's human capital

$$w_{ki} = \alpha_k s_i e_{ki} \quad (2)$$

$$w_{ji} = \alpha_k s_i e_{ji}$$

where w denotes income, s denotes years of schooling, and e represents an idiosyncratic component of income that may differ between locations. The return to schooling in the two countries is captured by the ratio of average income to human capital: $\alpha_k = (W_k/S_k)$ and $\alpha_j = (W_j/S_j)$.

Assuming logarithmic utility the incentive to migrate can be written as:

$$v_{kji} = ln(\alpha_k s_i e_{ki}) - ln(\alpha_j s_i e_{ji} - c_{kji}) - z_{kji} \quad (3)$$

where c_{kj} is the cost of migrating from j to k. Alternatively, substituting for α_k and α_j

$$v_{kji} = ln(W_k/W_j) - ln(S_k/S_j) - ln(e_{ki}/e_{ji}) - c_{kji} - z_{kji} \quad (4)$$

The incentive to migrate from j to k thus depends on relative income and relative human capital, consistent with recent approaches that stress the income gap for given human capital (Grogger and Hanson 2008; Rosenzweig 2006), and the costs of migration are a proportional linearization (e.g. Borjas, 1987, Chiquihar and Hanson 2005).

The probability that an individual will migrate is $\Pr(v_{ijk} > 0)$. Aggregating across all individuals in country j, and rearranging, the sending country emigration rate can be written as

$$M_{kj} = f(ln(W_k/W_j) - \ln(S_k/S_j) + E_{kj} - C_{kj} - Z_{kj}) \quad (5)$$

where E_{kj} is the mean difference in log of the idiosyncratic components of income across all individuals in j.[7]

Additional features can be easily added to this basic model. As migration is a forward-looking decision, the costs and benefits must be viewed in present value terms, with younger individuals having higher present values.[8] Even in the presence of variables representing costs and benefits, emigration rates should therefore depend positively on the proportion of young adults in the population. In addition, network effects are often found to be one of the most important influences on migration at the micro level (e.g. Munshi 2003). This 'friends and relatives effect' can be viewed as reducing the costs of migration and perhaps also as reducing the size of the compensating differential in favor of the home country. At the macro level this effect is typically proxied by the stock of previous migrants from *j* residing in *k*—an effect that may be reinforced by immigration policies that stress family reunification, as in the United States.

It is widely recognized that poverty acts as a constraint on migration owing to capital market imperfections. This constraint is especially important for long-distance moves as it is hard to raise a loan for an investment in a move which takes the borrower out of the lender's jurisdiction. As noted earlier, such effects may help to account for the upswing in the emigration life cycle. Less often noted is the fact that network effects may serve to ease the poverty constraint, through remittances for travel and support at the destination. The implication is that the greater is the migrant stock in the host country, the less will the poverty constraint bind.

Finally, there are the effects of immigration policy as well as political changes in source countries to consider. The former can be thought of as working through the costs of migration. The smaller is the quota and the tighter are immigration restrictions, the greater the cost in terms of effort and waiting time. The effects of political turmoil, civil war, and rights abuse can be captured in the non-economic preference for the source country, Z.

The augmented emigration equation can be expressed as

$$M_{kj} = \beta_1 \ln(W_k/W_j) - \beta_1(S_k/S_j) + \beta_2 Dem_j + \beta_3 lnStk_{kj} - \beta_4 Pov_j + \beta_5 Pov_j \times Stk_{kj} + \beta_6 ImP_k + \beta_7 Pol_j \quad (6)$$

Where M_{jk} is the migration rate from *j* to *k*, Dem_j represents the demographic composition, Stk_{kj} is the stock of previous migrants as a ratio to source country population, Pov_j is a measure of poverty, ImP_k is immigration policy at the destination and *Polj* is political conditions at the source.

Previous econometric studies have provided support for these variables as the key forces driving migration. Karemera *et al.* (2000) used panel data on emigration rates to the US and Canada for the decade 1976-1986, including a wide range of explanatory variables. They found that emigration rates were related negatively to distance from the United States, negatively to origin country income, positively to US income, and negatively to the US unemployment rate. In addition, they found that migration was positively related to measures of political rights and individual freedom in source countries, and negatively to political instability. Using data documenting German immigration from 86 African and Asian countries in 1981-95, Vogler and Rotte (2000) found the expected relative income effect, but also the bell shape relationship between source country emigration and income. They also found positive effects for political freedom and negative effects for the immigration reforms of 1987 and 1993. Analyzing longer run German data, Fertig and Schmidt (2001) found that the source-country share of population in the migration-sensitive age group had a strong influence, and thus they used demographic variables as a basis for projections.

Recent studies have modeled flows to a variety of destinations. Mayda (2009) analyzed migration to 14 OECD destinations from 79 source countries for 1980-1995. One of her findings is that income and education enter the migration equation with opposite signs, consistent with the model set out above.

Another is that origin country income effects are smaller than destination country effects. This too is consistent with our model where an increase in income both reduces the incentive and increases the ability to migrate in poor countries. Pedersen *et al.* (2008) studied immigration to 27 OECD countries from 129 source countries in the 1990s, also finding source country effects to be weaker than destination country effects. Both studies provide evidence of positive effects on migration associated with migrant networks and of negative effects associated with the economic, cultural and geographical distance between origin and destination. Taken together, these studies provide results that are broadly consistent with the model set out here. It is worth noting, however, that most of these studies focus on annual data over relatively short periods rather than on long term trends, as we do here.

5. ESTIMATES FOR THE UNITED STATES

The United States is home to more than half of the migrants from poor and middle income countries to the rich OECD. Nevertheless, since the US is only one possible destination of many for potential migrants from poor countries, broad 'world' inferences require caution. Still, there are several advantages to using US immigration as our benchmark. One is that we have data from 1970 on a wide variety of source countries, offering a much better data base compared with other host countries. Another is that the US has not been subject to changes in its borders or in the political regimes of its immediate neighbors, unlike a destination such as Germany. Also, the United States has had few major changes in immigration policy since 1965, when the Act abolished country-of-origin quotas. Finally, the fact that US immigrants from all sources compete on equal terms subject to the overall quota means that we should be better able to observe the effects of economic and demographic fundamentals at the source.[9]

Thus, we have continuous data on immigration from a wide range of source countries spanning all world regions, stretching back to the early 1970s. True, measured immigration only includes legal migration for permanent settlement, from which we have excluded the IRCA legalizations that would

otherwise create a spurious spike in the annual data, particularly for Latin American countries and especially for Mexico. We do not capture the flow of illegal immigration as there are no systematic time series for our period by country of origin, and so our results must be interpreted subject to that caveat. [10] It is also worth noting that the legal immigration flow includes both new arrivals and what are called 'adjustments', where the latter accounts for as much as half of the measured inflow (54 percent in 1995-2004). 'Adjustments' are migrants who have resided in the US for a period before switching to permanent status. The fact that the average time between arrival and 'adjustment' is about three years[11] poses a problem of synchronization for any study using annual data (including those cited above that use US data). In what follows, we use instead five year averages, since our focus is on long run trends. By using beginning period values of the key economic and demographic variables, we also achieve a better alignment of timing between explanatory variables and migration outcomes.

The data sources are given in the Appendix. The dependent variable is the log of the five-year emigration rate for fiscal years (e.g. 1970-4 includes the fiscal years 1970/1 to 1974/5), where the denominator is the source country population in the initial year (e.g. 1970). In the absence of suitable international wage data we use GDP per capita from the Penn World Tables as our measure of income. Average years of schooling from Barro and Lee (2000) are used for education. Both of these variables are measured at the beginning of each five year period. The stock of immigrants from the source country resident in the US is calculated from census benchmarks and is expressed per thousand of the source country population at the beginning of the five-year period.

Our measure of demographic composition is the share of population aged 0-14, fifteen years before the beginning of the observation period. By using data on the birth cohort, we avoid possible endogeneity that might otherwise arise from the effect of emigration on the population age structure. We do not have indexes of poverty that extend back to the 1970s for most of our countries, so we construct a proxy by using a non-linear transformation of per capita income: the inverse of per capita income squared (multiplied by 100,000 for scaling). The proxy is consistent with recent studies that estimate the elasticity

of changes in the poverty headcount ratio with respect to changes in per capita income (Ravallion and Chen 1997; Bourguinon 2003, p. 17). Our poverty index declines steeply as income increases from low levels, but the effect diminishes as income rises to higher levels.[12]

We use the total number of visas available under the quota per million of total source country population of as a measure of overall ease or tightness of US immigration policy (Clark *et al.* 2007, Appendix 2). This measure is constructed separately for the Eastern and Western Hemispheres up to 1978, after which the US merged them into a worldwide quota. To capture social and political conditions in source countries, we use the Freedom House indicators of civil liberties and political rights (each ranging from 1 -- least rights, to 7 -- most rights). We also include from the Polity IV database the index of political authoritarianism (ranging from 10 -- most autocratic, to -10 -- most democratic) and we also include a variable for years of political transition, ranging from zero (no years) to 1 (five years).

Table 4 presents the estimated regressions for emigration rates to the US from 62 countries. We use a balanced panel including 24 countries in Latin America and the Caribbean, 25 in Asia and MENA, and 13 in sub-Saharan Africa.[13] The dependent variable is the log of the emigration rate, where gross emigration is bounded at zero. Fixed country effects absorb influences having no time variation such as distance between the source country and the US or whether the source country is English speaking. The *t*-statistics are based on robust standard errors to correct for heteroskedasticity.

< Table 4 about here >

In the column (1) regression all the economic and demographic variables are of the expected sign and all are significant with one exception: relative education gives a negative sign, as predicted, but it is not significant. Column (2) imposes the restriction of equal and opposite sign on income and education implied by the theory. The restriction is not rejected by the data: adding relative education to the regression in col. (2) produces a t-statistic of 0.72. The poverty proxy gives a negative sign as expected,

and the interaction between poverty and the emigrant stock is positive, a result consistent with the thesis that a large migrant stock eases the poverty trap that otherwise constrains potential migrants.[14]

Column (3) adds the civil rights component of the Freedom House index, and the negative sign indicates that greater freedom at home leads to less emigration. By contrast, more liberal political rights has no effect; when this variable is added to the regression in column (3) the t-statistic is 0.4. Column (4) adds the transitional regime variable, which takes on a large positive coefficient suggesting that political transitions have an important role in provoking emigration, presumably among those who lose from the transition.[15] The addition of political regime variables has little effect on the other coefficients in the model with the exception of poverty and its interaction with the migrant stock, which increase in size. While poverty and conflict often go together these results suggest that they have independent effects, which become stronger when taken in combination.[16]

Now consider the magnitude of the effects. The coefficient on the cohort variable implies that a one percentage point increase in the size of the migration-sensitive cohort in the source country increases emigration to the US by about 2.5 percent. This effect is large: at sample averages, it implies an increase in five-year emigration rates of about 2.7 per thousand of the source population between the early 1970s and the early 1990s. The effect of the migrant stock is also very large: an increase of one percent in the US source country migrant stock increases the emigration rate by about 0.36 percent. At the sample means (including the interaction with poverty), this implies a chain migration effect where for every 1000 added to the stock of previous migrants a further 120 would arrive in the following five-year period, or 24 each year. That figure was much the same in the 19th century (20 per year: Hatton and Williamson 2005, p. 65). As we shall see, this has important implications for the dynamics of migration since it means that migration streams persist long after the original shocks that created them die out.

The effect of source country poverty is of special interest. Excluding the interaction with the migrant stock, an increase in per capita income from US$1,000 to $2,000 (about equivalent to the East

and Southeast Asian per capita income level in 1960 and its subsequent growth rate up to 1985, 3.4 percent: Maddison 2008) increases the emigration rate by 14 percent. In contrast, an increase for today's middle income country from $10,000 to $11,000 has a negligible effect on the emigration rate (0.03 percent). To see more clearly how the poverty-constraint-eradication effect contributes to the emigration life cycle, note that a 50 percent increase in per capita income at $1000 raises the emigration rate by 10 percent while the same percentage increase at $10,000 raises the emigration rate by just 0.1 percent. In short, the poverty effect is powerful at low-income levels and weak at middle-income levels, as predicted.

There are two forces that tend to offset the impact of the poverty constraint. The first offset operates through the relative income gap. With no change income at the destination and no change in relative education, a 50 percent increase in per capita income from $1,000 reduces emigration by 11 percent—exactly offsetting the poverty effect. However, if per capita income growth at home is positive but does not exceed that of the US – that is, no catching up or falling behind, emigration pressure still rises. The second offset can occur through the interaction with the migrant stock. When a country with a migrant stock abroad equivalent to 10 per thousand of the home population enjoys an increase in per capita income from $1000 to $1500, the emigration rate increases by just 1.2 percent, as compared with a 10 percent increase for a country with zero migrant stock (i.e. no emigration history). Thus, a large migrant stock in the host country can largely eliminate the poverty constraint for poor countries.

6. THE SOURCES OF TRENDS IN THIRD WORLD EMIGRATION RATES

This section documents how the fundamentals that determine emigration (Table 4) influenced long term trends. Table 5 compares actual and predicted log emigration rates in our balanced panel for each of the seven five-year periods, both expressed as deviations from the overall 1970-2004 mean for the source region. The patterns observed for these mean deviations do not exactly replicate Tables 1 and 2

since they are estimated with a smaller sample of source countries. Nevertheless, the patterns are certainly consistent.

< Table 5 about here >

The actual or observed mean deviation for Latin America rises from 31 log points below the average in 1970-4 to 19 log points above the average in 1990-4 before falling to 2000-4. The predicted values rise from 26 log points below the average in 1970-4, reaching a plateau of about 20 log points above the average in 1995-9. The Asia and MENA region exhibits a steep increase in the observed mean deviations from -39 log points in 1970-4 to a peak of 25 log points in 1990-4 followed by a decline to 2000-4. The predicted values yield a similar profile, although the predicted peak occurs in 1985-9 rather than 1990-4. The trajectory for sub-Saharan Africa is a fairly linear upward trend, and it is evident in both the actual and predicted series.

Two questions naturally follow. The first, which we pursue here, is this: How do the underlying explanatory variables account for these emigration trends in the source regions? We save the second for the next section: What happens to the Third World emigration rate when the explanatory variables are projected into the future? In order to examine the contributions of the different variables, we multiply the change in the explanatory variable by its coefficient in column 4 of Table 4. For each of the explanatory variables the total effect includes both direct and indirect effects. The indirect effect works through the impact of the resulting change in migration on the migrant stock, which in turn affects migration in the next period. These indirect effects are then netted out of the total migrant stock effect, which appears as the residual migrant stock effect. Table 6 reports the decomposition for changes in the emigration rates by region in log points for two periods, 1970-4 to 1990-4 and 1990-4 and 2000-4.

< Table 6 about here >

For Latin America, and for Asia and MENA, demographic effects were pushing emigration up until 1990-4 and down thereafter, and the total turnaround was about 20 log points. Changing income and

education gaps were also driving emigration up everywhere, except for falling income gaps in fast-growing Asia. For the latter, the impact of education catch up was huge, as it reduced relative returns to education at home. The poverty effects, which work both directly and through their interaction with the migrant stock, only had a powerful effect in sub-Saharan Africa where the rise in poverty rates diminished emigration rates.

Immigration policy had a substantial negative effect on Latin America between 1970-4 and 1990-4. Due to the merging of the Eastern and Western Hemispheres under the new worldwide quota system, Latin Americans had to compete with a much larger pool of potential migrants relative to the number of visas available, while the rest of the world took up the slack. Although political transitions and trends in civil liberties have powerful effects on emigration for individual countries, their effects are relatively modest at the regional level.

As we have already suggested, emigration experience for sub-Saharan Africa differed from the rest. Demographic trends were similar to the other regions up to 1990-4, but they did not reverse subsequently as the demographic transition persisted longer. Relative income and education trends gave a much bigger boost to emigration as education was catching up from low levels and income per capita fell dramatically behind. Together, these three forces served to increase sub-Saharan emigration by an enormous 42 log points between 1970-4 to 1990-4 and 26 log points between 1990-4 to 2000-4. Deepening poverty, however, undid about a third of this effect up to 1990-4 and almost all of it in the subsequent years. Progress in civil liberties tended to reduce emigration up to 1990-4, but this was offset by the fallout from political transitions.

The largest effects have been saved for last. Up to 1990-4, the migrant stock had very powerful effects ranging between 42 and 47 log points in all three regions. After 1990-4, these effects weakened in Latin America and Asia, but much less so in sub-Saharan Africa. This more modest fall off in sub-Saharan Africa arises from the fact that migrant stocks were low relative to the flow at the beginning of

the period. Even without any change in the other explanatory variables, immigration would be adding to the stock, with subsequent cumulative effects on the flow. This is the migrant stock catch-up effect that some observers see as the driving force in the upswing of the emigration life cycle.

How did these effects get started? The answer to that question lies in the 1950s and 1960s. Under the old quota system created in the 1920s, immigration to the US from non-European countries was highly constrained, the most important exception being Mexico. But behind these discriminatory barriers emigration pressure was building up. One source of the pressure was the start of the demographic transition in the Third World. Added to this, a revolution in primary schooling began to narrow the education gap between the developed and the developing worlds (Easterlin 1981; Schultz 1987). And although growth miracles in the 1950s and 1960s were limited to a few East Asian exceptions, modest but steady growth was gradually easing poverty constraints in most of Latin America, MENA and much of Asia.

Emigration pressure stemming from the fundamentals was much weaker in 1950 but by the 1960s they were building up. When the 1965 Act radically widened the opportunities for Third World emigration, [17] it led to a steep increase in immigration to the US so that even by the early 1970s the flow had risen sharply relative to the existing migrant stock. The cumulative effects of a burst of initial immigration, leading to a rapidly increasing migrant stock, which then fed further increases in migration, lasted to 1990 and beyond. And it was fostered by the immigration reform itself, which, for quota migrants, gave the bulk of the weight to family connections, and admitted immediate relatives outside of the quota.

7. WHAT WILL FUTURE THIRD WORLD EMIGRATION LOOK LIKE?

Here we use our model to gain an impression of likely future for Third World emigration, even though it depends, of course, on what assumptions we make in the projections. For example, what should

we assume about host country policy when we project the future? While a change in immigration policy would clearly impact future Third World emigration, there has in fact been little change in US policy since 1976. Thus, the projections will assume that there will be neither tightening nor loosening in the immigration constraint in the near future. We also assume no trend changes in source country political conditions, civil liberties and regime transitions, as we have no way of making such forecasts. However, our empirical results now arm us with a way to assess how such changes in source country non-economic conditions would matter, even if we cannot predict such changes.

We use the data in our balanced panel to project the underlying trends in the explanatory economic and demographic variables by sending region. The income and education variables are regressed on a time trends, with country fixed effects. The results are provided in Table 7. As the first row shows, per capita income in Latin America grew at about 4 percent per five-year period over the 30 years between the 1970 and 2000. The rate of growth was much higher in Asia at about 12 percent while in sub-Saharan Africa incomes fell at nearly 5 percent every five years. This is the pattern reflected in trends in the log of US to source country income per capita shown in the second row. The US per capita income grew considerably faster than those of Latin America and at about the same rate as the countries in our Asian sample, while sub-Saharan African fell behind at a rate of around 16 percent every five years. The education years ratio in the third row shows that while Latin America fell behind the US both Asia and Africa underwent some catching up. The per capita income trends in Table 7 are used to construct a projection of our poverty variable.

< Table 7 about here >

The demographic projections rely on the UN medium variant up to 2030. The other projections are based on extending the linear trends estimated in Table 7. As we did for Table 6, we calculate the effect of the change on emigration rates in each period but we also take account of its effect on the migrant stock in subsequent periods. Thus, the simulation updates the migrant stock in each period and

adds the indirect effects on emigration through the migrant stock (including its interaction with poverty) to the direct effect in the subsequent period. We also allow for the independent effect of stock-flow dynamics which were so powerful in Table 6. These are simulated from the initial migrant stocks and flows in 2000-4.

Table 8 reports the overall difference in log points between the simulated emigration rate in 2020-4 or 2030-4 and the base period 2000-4. As before, these are averages of the individual countries in each regional group. For Latin America and Asia, demographic pressures are predicted to reduce emigration rates by 20-22 log points up to 2020-4 and by 33 log points up to 2030-4. These demographic forces will dominate trends in emigration rates in the future since no other fundamental will do anywhere near the work that this one will in these two regions. However, the combined effects of relative income and education partially offset some of the demographic effects: the two combined increase emigration rates up to 2020-4 by 3 log points in Latin America and 10 log points in Asia, and by 5 and 15 log points up to 2030-4, respectively. The demographic effects are also negative in sub-Saharan Africa, but much smaller, while the relative income and education effects are both positive and big -- adding up to a powerful 28 log points up to 2020-4 and 43 log points up to 2030-4.

The effects of poverty (including the interaction with the migrant stock) are neutral for Latin America -- where the poverty constraint is less binding, and positive for Asia – where the poverty constraint is more binding but is being quickly eroded. Poverty rates are projected to increase in sub-Saharan Africa, and the net effect on emigration is negative as the direct effect of deepening poverty outweighs the interaction with the migrant stock. The negative effect of growing African poverty on emigration largely offsets the positive effect of the widening gap in per capita income.

The penultimate row in Table 8 shows the independent effect of the migrant stock. As noted previously, this arises because migrant stocks are projected to increase even in the absence of any further 'push' from the other emigration fundamentals. These migrant stock dynamics produce effects that persist

into the future at different rates for different source regions. For the Latin American countries, where the current migrant stock is big relative to the flow, the stock dynamics have no effect (0 log points). For the Asia and MENA countries, where the current migrant stock is lower, dynamics increase the emigration rate by 9 log points up to 2020-4 and 12 log points up to 2030-4. The most striking result, however, is for sub-Saharan Africa, where the migrant stock is still very low relative to the current flow: in this case, stock dynamics are projected to increase the emigration rate by 25 log points to 2020-4 and by an enormous 44 log points to 2030-4.

< Table 8 about here >

Adding these effects together, the overall projection in the bottom row of Table 8 implies a significant decline in the emigration rate from Latin America and the Caribbean, and a slight decline in the rate from Asia and MENA. Sub-Saharan Africa, on the other hand, is projected to undergo a steep increase in its emigration rate, driven by rising income gaps, falling education gaps and migrant stock dynamics. Trends in predicted emigration over the long term can be seen in Figure 1 where the predictions underlying Table 8 are rebased and combined with those in Table 5. This reveals a distinct inverted U shape for South America and the Caribbean and a much milder one for Asia and Mena. And it further emphasizes the long term upward trend in emigration from Sub-Saharan Africa.

< Figure 1 about here >

When the three regions are weighted by shares in total US immigration (in 2000-4), the projected result is a fall of 5.2 log points in the overall emigration rate by 2020-4 and 9.5 log points to 2030-4. Alternatively, when they are weighted by sending region populations, the result is a modest increase of 2.2 log points to 2020-4 and 2.3 log points to 2030-4. Thus the weights matter but even so the results support the view that there will be no mounting emigration pressure from the Third World over the next two decades, and a likely fall thereafter.

Of course, these predictions are based on the assumption that the trends in per capita income and education will be the same in the future as in the past. If instead growth of per capita income in Asia were to falter and look more like the experience of Latin America then the emigration rate would increase by 0.09 log points by 2030-4 rather than falling by the 0.02 log points reported in Table 8. Conversely if Latin America and the Caribbean had the same income growth that is projected for Asia then emigration rates would fall by 0.40 log points by 2030-4 rather than by 0.28 log points. But if the same were true of Sub-Saharan Africa its emigration rate would increase by 0.67 log points rather by the 0.51 in Table 8. This is because the decline in the incentive to emigrate is outweighed by the increase in the ability to emigrate. Thus the trends projected for the Latin American and Asian regions will differ from those predicted in Table 8 and Figure 1 if economic growth in the future differs from past experience but, given the importance of demographic trends and stock dynamics, these deviations are unlikely to be great. For Africa, on the other hand, almost any scenario suggests that emigration pressure will increase.

8. HOST COUNTRY IMPLICATIONS

This paper has argued that to understand the forces that drive international migration we must take a source country perspective. Only then can we assess the fundamental forces that have underpinned the flow and ebb of migration over the last half century, and will drive migration in the future. Much of literature, however, takes a host country perspective and its agenda is often determined by host country concerns about rising migration pressure leading to soaring immigration rates. What do we find when we look instead at the supply side, using emigration to the United States as our window on the process?

Trends in migration rates are very different when viewed from a source country perspective. Since the Second World War, population growth rates have been higher and fell later in poor sending countries compared with rich host countries where they have been lower and fell sooner. This has served to influence the timing and magnitude of the migration rates: emigration rates have tended to lead

immigration rates, but they have been less dramatic. Thus, even when emigration pressure in source countries decreases, immigration pressure viewed from a host country perspective may continue to increase as long as population growth in source countries exceeds that of rich host countries.

This paper has shown that late 20th century Third World emigration rates trace out country and region life cycles, or a bell shape, and it identified the underlying fundamentals. First, the US migrant stock effect made the most important contribution to the boom up to the 1990s, reflecting both the importance of family reunification in US immigration policy and the previous impact of economic and demographic fundamentals on migration flows which then got embedded in the current migrant stock. Indeed, were it not for the migrant stock effect, Latin American emigration rates would have *fallen* after 1970-74, and Asian rates would have fallen steeply after 1990-4 rather than merely dropping slightly. The birth cohort effect played an important role in the downturn after 1990-4 in Latin America and Asia although not yet in Africa. Education catch-up also played an important role everywhere in the Third World, augmenting emigration rates, but it was especially powerful in Asia. While there was certainly per capita income growth in Asia and Latin America, it was not fast enough to reduce the income gap with the US, and thus it contributed little to the emigration boom. For sub-Saharan Africa, however, it contributed a lot, as a very poor growth performance caused the region to lose ground and the income gap rose sharply. The change in the poverty trap mattered only for Africa, where a rise in poverty rates reduced emigration rates.

Having estimated the causes of the Third World emigration rates over the past half century, the paper explored projections into the future. These projections speak to a changing composition of US immigration by source and its total size. In 2000-4, the US immigration shares were 41 percent from Latin America and the Caribbean, 53 percent from Asia, North Africa and the Middle East, and 6 percent from sub-Saharan Africa. By 2030-4, the share from Latin America and the Caribbean is projected to fall to 33 percent while the share from Asia, the Middle East and North Africa will remain about the same. The sub-Saharan Africa share will rise steeply from 6 to 15 percent, more than doubling its share in the

immigration flow. In short, US immigrants will be more African and much less Hispanic fifteen or twenty years for now.

We offer a final observation. History demonstrates that migration stock dynamics are important. During the late 19th century European emigrations, for each 1,000 increase in the migrant stock resident in the US, 20 more migrants were pulled across the Atlantic each year (Hatton and Williamson 2005, p. 65). That 19th century figure is very close to the late 20th century estimate of 24 obtained here. The 'friends and relatives effect' was particularly strong on the upswing of every sending region's life cycle, first for Latin American emigrants, a little later for Asian emigrants, and most recently (and in the future) for the African emigrants. While the migrant stock effects fade over time, they still cause migration rates to persist long after the other fundamentals have turned down. This is an important reason why the pending decline in Third World emigration rates has been obscured from view.

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DATA APPENDIX

Countries Included in the Regression Analysis

Latin America and the Caribbean			
Argentina	Costa Rica	Haiti	Paraguay
Barbados	Cuba	Honduras	Peru
Bolivia	Dominican Republic	Jamaica	Suriname
Brazil	Ecuador	Mexico	Trinidad & Tobago
Chile	El Salvador	Nicaragua	Uruguay
Colombia	Guatemala	Panama	Venezuela
Asia, Middle East and North Africa			
Afghanistan	India	Kuwait	Syria
Algeria	Indonesia	Malaysia	Thailand
Bangladesh	Iran	Nepal	Tunisia
China	Iraq	Pakistan	Turkey
Cyprus	Israel	Philippines	
Egypt	Jordan	Singapore	
Hong Kong	Korea	Sri Lanka	
Sub-Saharan Africa			
Cameroon	Liberia	Sudan	Zimbabwe
Dem. Rep. Congo	Senegal	Tanzania	
Ghana	Sierra Leone	Uganda	
Kenya	South Africa	Zambia	

Data Sources

Immigration to USA: Five-year total immigration to the United States by country of birth is taken from the Department of Homeland Security, *Yearbook of Immigration Statistics* (before 2002 entitled the *Statistical Yearbook* of the Immigration and Naturalization Service). Five year totals calculated from annual data, with an adjustment to the years 1976 and earlier for the change in the fiscal year. The country of origin classification used here is country of birth rather than country of last residence. This ensures consistency between the immigrant flow and the immigrant stock as measured in the census.

Immigrant stock in the US: Foreign born stock data for the census years 1970, 1980 and 1990 are taken from C. J. Gibson and E. Lennon (1999), "Historical Census Statistics on the Foreign-born Population of the United States, 1850-1990," US Census Bureau Population Division, Technical Working Paper No. 29. Data for 2000 were obtained from the 2000 US Census. The intervening years 1975, 1985 and 1995 using the stock accumulation equation $S_{t+1} = (1\text{-}d)S_t + M_t$ where M is the migrant inflow, S is the migrant stock and d is the 'depreciation' rate calculated for each intercensal period.

Source country population: Total population and share aged 0-14 taken from United Nations (2007), "World Population Prospects: the 2006 Revision" (CD ROM).

Years of education: Average years of education for the population age 15 and over, at five-year intervals from the database of Barro and Lee, available at: http://www2.cid.harvard.edu.

Income per capita: Income per capita at constant 2000 prices (chain series) for years ending in 0 and 5 from A. Heston, R. Summers and B. Aten, Penn World Table 6.2, University of Pennsylvania, Center for International Comparisons of Production Income and Prices, available at: http://pwt.econ.upenn.edu/php_site/pwt_index.php.

US immigration policy: The immigration policy constraint is modeled as the number of immigrants coming under the overall quota. These include non-immediate relatives, employment visas, diversity immigrants, refugees and asylees, but excluding legalizations under the Immigration Reform and Control Act (1986). The quota is expressed per million of the total population of the countries to which it applies. Before 1979 this is constructed separately for the Eastern and Western Hemispheres.

Political Rights and Civil Liberties: Freedom House index at: http://www.freedomhouse.org/uploads/fiw/FIWAllScores.xls. The political rights index is based on scores relating to the electoral process, political pluralism and participation and the functioning of government. The civil liberties index is based on scores relating to freedom of expression and belief, associational and organizational rights, the rule of law and personal autonomy and individual rights.

Autocracy and political transitions: Polity IV index of Political Authority at: http://www.cidcm.umd.edu/polity/about/ . The version used here is the revised combined polity score, which is a composite index based on five components reflecting institutionalized constraints on authority of the government executive, the competitiveness of the political system and the degree of public participation. The political transition variable is given the value 0.2 for each year of transition so that a full five years of transition adds up to 1; otherwise zero.

Table 1

Immigration and Emigration Rates to the US from Source Regions

Years	1970-4	1975-9	1980-4	1985-9	1990-4	1995-9	2000-4
	Immigration Rates						
Latin Am & Carib	100.00	116.19	113.82	170.37	198.62	169.01	186.76
Asia (inc MENA)	100.00	150.24	192.58	184.89	204.86	154.69	179.42
Sub-Saharan Africa	100.00	190.59	242.64	311.98	454.97	700.78	840.47
	Emigration Rates						
Latin Am & Carib	100.00	107.24	98.09	138.93	154.29	126.77	136.48
Asia (inc MENA)	100.00	142.45	197.48	165.68	150.27	93.25	91.81
S-S Africa	100.00	174.50	201.02	235.11	313.44	446.01	498.02
	Immigration Rates						
Mexico	100.00	90.88	95.41	184.39	230.62	185.99	205.67
Central America	100.00	182.07	248.35	314.21	456.40	417.81	559.17
Caribbean	100.00	119.95	99.43	131.61	130.17	110.55	102.51
S. America	100.00	155.16	157.43	183.54	198.63	188.74	226.39
S-S Africa	100.00	190.59	242.64	311.98	454.97	700.78	840.47
S. Asia	100.00	132.54	167.32	197.67	264.29	269.46	349.66
MENA	100.00	200.89	301.80	249.38	271.74	158.41	171.20
E. Asia	100.00	118.76	123.88	127.62	131.46	104.86	125.67
	Emigration Rates						
Mexico	100.00	81.29	77.99	141.82	168.40	130.55	140.65
Central America	100.00	164.99	204.99	243.67	328.26	279.47	350.01
Caribbean	100.00	115.47	94.32	122.46	118.57	100.38	93.35
S. America	100.00	144.01	136.80	150.72	155.53	142.97	167.35
S-S Africa	100.00	174.50	201.02	235.11	313.44	446.01	498.02
S. Asia	100.00	123.92	147.28	164.45	208.67	203.87	255.01
MENA	100.00	187.42	263.54	206.88	215.41	121.08	126.90
E. Asia	100.00	111.82	114.23	116.01	117.06	93.36	112.91

Table 2
Time Trends in Log Migration Rates to the US

	Latin America and Caribbean	Asia, Middle East and North Africa	Sub-Saharan Africa
Constant	0.715	-1.672	-3.921
	(6.43)	(10.49)	(21.50)
Time	0.262	0.496	0.225
	(4.11)	(5.37)	(2.16)
Time Squared	-0.026	-0.050	0.008
	(3.30)	(4.49)	(0.64)
R^2 (within)	0.156	0.168	0.438
Countries	26	35	38
Observations	182	245	264

Notes: The dependent variable is the five year total immigration from a source country divided by the initial year source country population. The time variable is scaled so that 1970-4 = 1, … , 2000-4 = 7.

Table 3
Immigration and Emigration Rates to Canada and Germany from Source Regions

	1970-4	1975-9	1980-4	1985-9	1990-4	1995-9	2000-4
	Immigration Rates to Canada						
Latin America	100.00	87.43	57.28	80.24	103.28	52.43	57.80
Africa	100.00	129.75	82.84	129.55	243.66	215.83	313.02
Asia	100.00	111.21	125.29	156.87	293.86	259.37	276.49
	Emigration Rates to Canada						
Latin America	100.00	88.77	58.69	82.32	107.35	54.69	59.90
Africa	100.00	120.90	70.98	101.28	181.07	149.37	201.28
Asia	100.00	105.90	114.79	137.89	256.46	221.16	230.31
	Immigration Rates to Germany						
Latin America	100.00	85.35	82.59	110.36	120.73	115.43	126.99
Africa	100.00	95.92	114.55	138.52	266.90	179.87	191.21
Asia	100.00	158.49	201.65	268.77	323.98	300.91	369.94
Turkey	100.00	64.62	41.95	36.45	37.71	29.04	25.65
	Emigration Rates to Germany						
Latin America	100.00	81.85	75.08	94.55	101.38	94.48	98.51
Africa	100.00	84.41	87.07	90.43	160.24	97.69	92.04
Asia	100.00	142.54	163.90	197.31	228.42	201.36	230.66
Turkey	100.00	57.14	32.85	25.15	24.96	18.12	14.77

Table 4
Determinants of Emigration Rates over 5 Year Periods 1970-4 to 2000-4
(Fixed effects, 62 countries)

	(1)	(2)	(3)	(4)
Constant	-2.136	-1.978	-2.437	-2.394
	(4.91)	(5.71)	(6.81)	(6.69)
Birth cohort: population share aged 0-14 fifteen years earlier.	3.233	3.233	2.863	2.839
	(3.82)	(3.82)	(3.49)	(3.45)
Log ratio of GDP per capita, US to source country	0.311			
	(3.53)			
Log ratio of average years of education, US to source country	-0.195			
	(1.45)			
Log GDP ratio – log education ratio		0.267	0.268	0.261
		(3.61)	(3.80)	(3.69)
Log ratio of emigrant stock in US to source country population	0.340	0.333	0.363	0.356
	(6.36)	(6.50)	(7.49)	(7.83)
Poverty proxy: inverse income squared	-1.763	-1.634	-1.621	-1.867
	(3.89)	(3.63)	(3.83)	(3.74)
Poverty × emigrant stock to source population	0.158	0.149	0.146	0.165
	(3.81)	(3.60)	(3.76)	(3.59)
Log ratio of immigration quota to source region population	0.138	0.132	0.125	0.121
	(2.91)	(2.81)	(2.70)	(2.70)
Civil rights index			-0.138	-0.128
			(5.29)	(4.92)
Transitional polity				0.697
				(2.76)
R^2 (within)	0.397	0.396	0.441	0.462
R^2 (between)	0.877	0.899	0.831	0.833
Countries	62	62	62	62
Observations	434	434	434	434

Table 5

Actual and Predicted Log Migration, 1970-4 to 2000-4
(log points deviation from mean)

	Latin America and Caribbean (24)		Asia, Middle East and North Africa (25)		Sub-Saharan Africa (13)	
	Actual	Predicted	Actual	Predicted	Actual	Predicted
1970-4	-0.31	-0.26	-0.39	-0.47	-0.90	-0.58
1975-9	-0.03	-0.12	-0.15	-0.21	-0.33	-0.34
1980-4	-0.08	-0.09	0.00	-0.04	-0.18	-0.17
1985-9	0.12	-0.03	0.11	0.06	0.07	0.00
1990-4	0.19	0.13	0.25	0.18	0.31	0.26
1995-9	0.02	0.20	0.02	0.24	0.46	0.37
2000-4	0.09	0.18	0.16	0.23	0.56	0.47

Table 6
Contributions to Trends in Log Migration 1970-4 to 2000-4
(difference in log points)

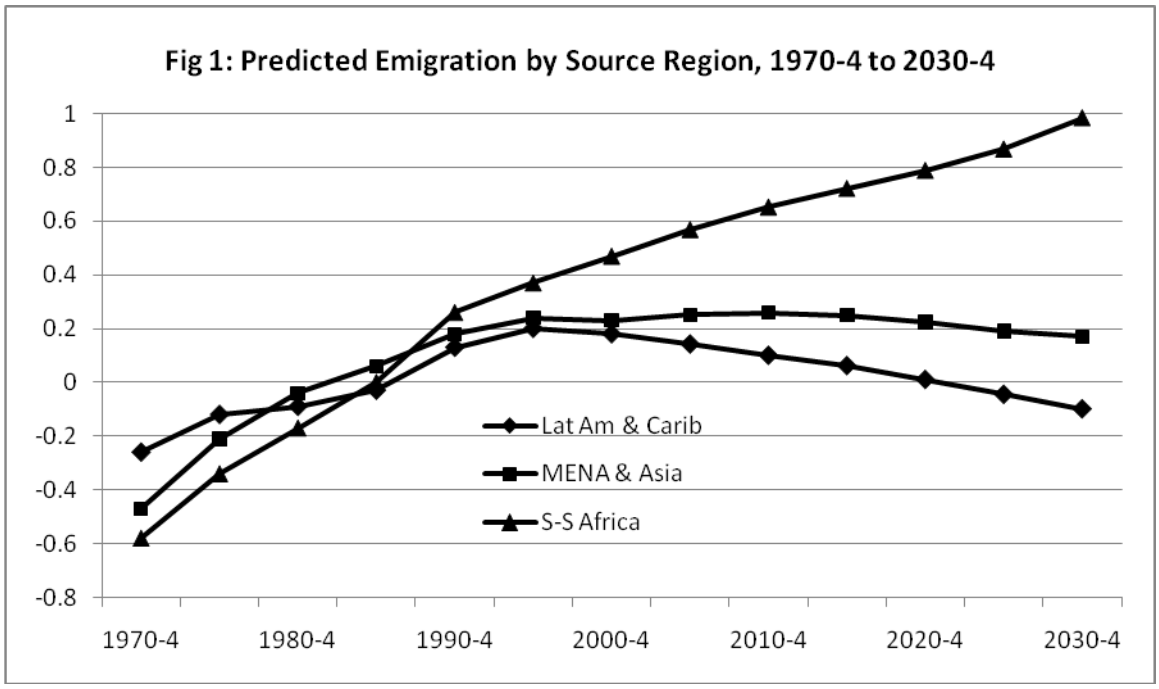
	Latin America and Caribbean (24)		Asia, Middle East and North Africa (25)		Sub-Saharan Africa (13)	
	1970-4 to 1990-4	1990-4 to 2000-4	1970-4 to 1990-4	1990-4 to 2000-4	1970-4 to 1990-4	1990-4 to 2000-4
Birth Cohort	0.11	-0.11	0.10	-0.11	0.10	0.05
Income Gap	0.07	0.04	-0.04	0.00	0.21	0.15
Education Gap	0.05	0.03	0.17	0.07	0.11	0.06
Poverty	0.01	0.00	0.05	0.00	-0.11	-0.20
Immigration Policy	-0.29	-0.03	0.08	-0.01	0.08	0.00
Civil Liberties	-0.03	-0.03	-0.07	-0.01	-0.10	-0.10
Political Transition	0.00	0.00	-0.05	0.01	0.10	-0.04
Residual Stock	0.47	0.15	0.42	0.11	0.46	0.30
Predicted	0.39	0.05	0.65	0.05	0.84	0.21

Table 7
Time Trends in Income and Education 1970-4 to 2000-4

	Latin America and Caribbean	Asia, Middle East and North Africa	Sub-Saharan Africa
Log source country GDP per capita	0.0412 (6.20)	0.1192 (10.01)	-0.0485 (2.96)
Log ratio of GDP per capita, US to source country	0.0713 (10.75)	-0.0067 (0.56)	0.1611 (9.90)
Log ratio of education years, US to source country	0.0443 (9.68)	-0.0961 (12.54)	-0.0763 (98.36)

Table 8
Predicted Trends in Log Migration Rate from 2000-4 to 2030-4

	Latin America and Caribbean (24)		Asia, Middle East and North Africa (25)		Sub-Saharan Africa (13)	
	2000-4 to 2020-4	2000-4 to 2030-4	2000-4 to 2020-4	2000-4 to 2030-4	2000-4 to 2020-4	2000-4 to 2030-4
Birth Cohort	-0.20	-0.33	-0.22	-0.33	-0.07	-0.12
Income Gap	0.08	0.12	-0.01	-0.01	0.19	0.29
Education Gap	-0.05	-0.07	0.11	0.16	0.09	0.14
Poverty	0.00	0.00	0.03	0.04	-0.14	-0.23
Stock Dynamics	0.00	0.00	0.09	0.12	0.25	0.44
Sum	-0.17	-0.28	-0.01	-0.02	0.32	0.51



Note: Unweighted averages by region in log points as deviations from the mean for 1970-4 to 2000-4.

[1] Wegge also finds that emigrants from Hesse-Cassel in the 1830s to 1850s who had friends or relatives abroad took less cash with them (1998, p. 977). This suggests that migrant networks may serve to ease the poverty constraint—a point to which we shall return below.

[2] Recent research has shown that immigrants to the US are concentrated in the middle of the income distribution prior to emigration (Chiquiar and Hanson 2005). While this is consistent with the operation of poverty constraints, it may also reflect differences in aspirations. But in general, the poorer and more distant is the source country, the more positively selected are the emigrants (Belot and Hatton 2008).

[3] The migration rates are for fiscal years 1970/1 to 2004/5. This is gross immigration for permanent residence and excludes illegal immigration for which we have insufficient data. We have, however, excluded legalizations under the Immigration Reform and Control Act of 1986, which otherwise would greatly inflate the figures for the years 1989-1991.

[4] Other host countries do not offer the kind of evidence necessary for the empirical analysis which follows.

[5] Comparisons with the US and Canada are complicated by German reunification in 1990 and the migration rates in Table 3 are based on the combined population throughout.

[6] Note that both the immigration and the emigration rates from Turkey fall steeply from the end of the guestworker era after 1974.

[7] E_{kj} can be thought of as reflecting the selectivity of migrants by education and skill as in Borjas (1987). Insofar as it affects the number of migrants, rather than the type of migrant, this will be absorbed in country fixed effects in our empirical analysis.

[8] Let the wage difference between destination and source country per year of working life be a constant *D*. If the age range of potential working-age migrants, *a*, runs from 20 to 65, and the discount rate is *r*,

then the present value of the gains will be: $PV(a) = \frac{D}{r}\left[1 - (1+r)1 + r^{-(46-a}\right]$, which is a decreasing function of a.

[9] Although country-specific quotas were abolished in 1965, a common per-country limit still exists. This was 20,000 until 1991 and subsequently 7 percent of the worldwide quota (30,583 for fiscal year 2000). Countries that have come close to their limit at different times include India, China, the Philippines, and Korea. The larger figures for Mexico are explained by the fact that it shares with the Dominican Republic an exemption from the per-country limit for immigrants entering under category 2 of the family-sponsored preferences.

[10] Studies of illegal immigration estimate the stock of illegal immigrants using census and other information to derive measures at different points in time. Recent examples include INS Office of Policy Planning (2001), Passell (2005), Hoefer et al. (2007) and Wasem (2009). Unfortunately these studies do not provide a firm enough foundation to adjust the official immigration data on immigrant flows as they focus on stocks in specific years, and they lack sufficient detail by source country.

[11] Using data from the New Immigrant Survey, Massey and Malone (2002) find that those gaining permanent residence had an average of 4.1 years previous experience in the United States. But this includes multiple visits, e.g. as tourists and non-resident visitors, not just the last spell prior to adjustment.

[12] It is important to note that this is intended to capture changes over time and not differences between countries. Indeed, we abstract from these cross-sectional differences by using country fixed effects in what follows.

[13] The African sample is limited (as compared with Table 3) by the absence of data for the explanatory variables.

[14] Our representation of poverty also seems to be supported by the data; adding the inverse of per capita income (not squared) to the regression in column (2) gives a t-statistic of 0.4.

[15] The variable for political authoritarianism has no significant additional effect; the t-statistic is 1.0.

[16] We have conducted several robustness checks using the regression in column (4) of Table 4. We checked to see if it is legitimate to pool the countries from the three different world regions; the F-statistic for this restriction is 1.9 which is not significant at the percent level. We also checked for differences over time; testing for a structural break at between 1985-9 and 1990-4 produced an F statistic of 1.5, which again is not significant.

[17] After the 1952 Immigration and Nationality Act, emigration from the Third World started increasing from a low base. Prior to 1952, there were no quotas for the Western Hemisphere but immigrants from Latin America were ineligible for citizenship, which limited the possibilities for family reunion. There was also a complete ban on immigration from the so-called Asia-Pacific Triangle. Under the 1952 McCarran-Walter Act, a small quota was allocated to the Asia-Pacific Triangle, but more importantly all immigrants became eligible for citizenship.