BIRTH RATES AND BORDER CROSSINGS:

LATIN AMERICAN MIGRATION TO THE US, CANADA, SPAIN, AND THE UK

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Abstract. We use census data for the US, Canada, Spain, and UK to estimate bilateral migration rates to these countries from 25 Latin American and Caribbean nations over the period 1980 to 2005. Latin American migration to the US is responsive to labor supply shocks, as predicted by earlier changes in birth cohort sizes, and labor demand shocks associated with balance of payments crises and natural disasters. Latin American migration to Canada, Spain, and the UK, in contrast, is largely insensitive to these shocks, responding only to civil and military conflict. The results are consistent with US immigration policy toward Latin America (which is relatively permissive toward illegal entry) being mediated by market forces and immigration policy in the other countries (which favor skilled workers and asylum seekers, among other groups) insulating them from many labor market shocks in the region.

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Puerto Rico . . .
Always the hurricanes blowing,
Always the population growing.
And the babies crying,
And the bullets flying.
I like to be in America!

Stephen Sondheim, *Westside Story*

1 INTRODUCTION

Latin America and the Caribbean have among the highest emigration rates in the developing world. In 2000, 5.1% of the region's population was living abroad, compared with emigration rates of 4.7% in the Middle East and North Africa, 2.6% in Sub-Saharan Africa, 1.8% in South Asia, and 0.9% in East Asia and the Pacific.[1] Due to a combination of geography and history, the large majority of emigrants from the region head for either one of the hemisphere's rich countries (the US, Canada) or for one of its former colonial powers (the UK, Spain).[2] In 2000, these four destinations were host to 75.4% of the region's emigrants (Table 1). While Mexican migration to the US captures most of the attention, it is by no means the only significant flow in the region. There are also sizable flows from the Dominican Republic, El Salvador, and Haiti to the US; Barbados, Jamaica, and Trinidad and Tobago to Canada and the UK; and Bolivia, Colombia, and Ecuador to Spain (Fajnzylber and Lopez, 2008).

In this paper, we examine how bilateral migration from Latin America to the region's four primary destinations responds to demographic change, economic shocks, and political upheaval. Our goal is to characterize how differential immigration policies in the destination countries mediate the impact of origin country shocks on bilateral

[1] The highest recent emigration rates are in Eastern Europe and Central Asia, largely because of individuals moving to Russia from former Soviet subjects following the end of the Soviet Union (Parsons et al., 2007).
[2] Former French and Dutch territories in the Western Hemisphere have high migration rates to France and the Netherlands but are too small to obtain the age-specific emigration rates necessary for our analysis.

migration flows. We measure bilateral migration rates by year and age cohort using data on immigrant stocks from destination country censuses and on the size of origin country birth cohorts from the World Bank. Our main findings are that, relative to other destinations, migration to the US is much more sensitive to origin country demographic and economic shocks and much less sensitive to origin country civil and military conflict. We interpret these results to mean that greater openness to illegal migration (as in the case of the US) makes a destination more exposed to wage shocks in origin countries, whereas greater openness to asylum seekers (as in Canada and the UK) makes a destination more exposed to origin country civil unrest.

Among the four destination countries, there are sharp differences in immigration policy with regards to skill, refugee status, and country of origin. These differences are important in light of the low skill levels of most Latin American emigrants, the propensity of the region for economic and political instability, and the variation in countries' colonial history. In the US, nearly half of immigration from Latin America is undocumented, with border enforcement only partially impeding the inflow of illegal migrants (Hanson, 2006).[3] While permissiveness toward illegal entry creates ample opportunity for low skilled immigration, the US is much less open to political refugees from Latin America (with the exception of Cuba). Canada's remoteness keeps its immigration legal.[4] The country uses a point system to regulate labor inflows, which heavily favors skilled applicants, while also allotting slots to refugees and asylees. In 2000, visas to skilled workers accounted for 58% of legal immigrant inflows in Canada, compared with 13% in the US (OECD, 2004). Outside of EU countries, the UK restricts

[3] Throughout the paper we use Latin America to refer to Latin America and the Caribbean.
[4] In 2002, Canada apprehended 9,500 illegal immigrants, compared to 1 million in the US (OECD, 2004).

immigration, with exceptions for skilled workers, asylum seekers, family members of UK citizens, and some Commonwealth citizens. The country also has low levels of illegal immigration compared to the US.[5] In Spain, large-scale immigration is a recent event, beginning in the late 1990s. Agreements with former colonies have enabled individuals from these countries to enter Spain, with many ultimately obtaining work permits.[6]

Surging emigration from Latin America is due in part to the high frequency of negative shocks in the region. We focus on four sources of shocks: balance of payments crises, natural disasters, civil and military conflict, and population-growth induced changes in labor supply. While there is literature on how economic and political trauma (due to currency collapses, disasters, or civil unrest) affects the region's growth performance (e.g., Collier et al., 2003; Raddatz, 2007; Edwards, 2008), much less work examines its importance for labor movements in the hemisphere. Over the last three decades, Latin America has experienced a demographic bulge, with large numbers of young people coming of working age and entering the labor force (Birdsall, Kelley, and Sinding, 2001). One would expect this regional increase in labor supply to have put downward pressure on wages and raised the incentive to emigrate. In some Latin American countries, birth rates have begun to drop sharply (Bongaarts and Watkins, 1996), but in others they have not. Whereas fertility rates in Mexico are on track to drop below replacement level by 2020 (Tuiran et al., 2002), they remain high in Central America and the Andes. Cross-national differences in fertility are useful empirically for isolating the effects of labor supply on emigration.

Our approach is to estimate how labor supply and demand shocks at the time a

[5] In 2001, the UK found and removed 45,000 illegal immigrants from within its borders (OECD, 2004).
[6] As distinct from the US, Spain has frequently regularized illegal immigrants in the country, facilitating their access to work permits (Dolado and Velasquez, 2007).

cohort enters the labor market affect initial and subsequent emigration. Since individuals are most mobile when they are young, shocks at the time of labor market entry may have long lasting effects on migration. Much of the work on the relationship between income and migration considers the contemporaneous correlation between living standards and labor flows.[7] By identifying how shocks to young cohorts affect migration over their working lives, we provide a dynamic account of how events in origin countries affect international labor movements. Linking changes in labor supply to particular birth cohorts requires that we aggregate across skill levels (in order to track origin country cohorts across time and national borders), preventing us from addressing migrant self-selection, the subject of much recent literature (see, e.g., Hanson, 2010). The payoff is that we are able to examine international migration over several decades and exploit sizable cross-origin-country variation in labor supply and demand shocks.

Related literature includes Hanson and McIntosh (2010), who find that variation in labor supply across Mexican regions accounts for nearly a third of regional variation in Mexican emigration rates, and Clark, Hatton, and Williamson (2007), who find that countries with larger populations of young people have higher rates of legal migration to the US. Because both papers examine a single destination – the United States – they are silent on how variation in receiving country immigration policy affects the sensitivity of migration to events in sending countries, a feature that is central to our analysis. Mayda (2009) and Ortega and Peri (2009) find that tightening immigration policy in OECD countries reduces bilateral migration flows. Still unknown is how immigration policy affects the responsiveness of migration flows to different types of shocks.

In section 2, we present a simple dynamic model of migration from a given origin

[7] See Hanson (2009) for a review of recent literature.

country to multiple destinations. In section 3, we describe data on labor supply, migration rates, economic and political shocks, and other variables. In section 4, we present the empirical results. And in section 5, we offer concluding remarks.

2 EMPIRICAL FRAMEWORK

To understand emigration from Latin America, we construct a simple model of bilateral labor flows. We account for differences in worker age but not other aspects of skill.[8] In the origin country, the wage for age group *i* at time *t* is,

$$W_{it} = X_{it}(L_{it})^{\eta}, \tag{1}$$

where W_{it} is the wage, X_{it} is other factors that affect the wage (including time-specific shocks, the supply of capital, and the size of other labor cohorts), L_{it} is the population in group *i*, and $\eta \leq 0$ is the inverse labor-demand elasticity. The supply of labor in the origin country is the population of group *i* that has not emigrated, such that

$$L_{it} = L_{i0} - M_{it} \tag{2}$$

where L_{i0} is the pre-emigration population of group *i* and M_{it} is the number of individuals in *i* that have left the country by period *t*. Putting (1) and (2) together,

$$\ln W_{it} = \ln X_{it} + \eta \ln L_{i0} - \eta m_{it}, \tag{3}$$

where $m_{it}=M_{it}/L_{i0}$ is the fraction of group *i* that has moved abroad.[9]

An individual in the origin country has the option to stay at home or move to country *c*. In the year birth cohort *i* first enters the labor market, the wage in country *c* is,

$$W_{i0}^{c} = X_{i0}^{c}(L_{i0}^{c})^{\eta}, \tag{4}$$

[8] We ignore other aspects of skill because in order to measure net migration by age in Latin America we need to track populations by characteristics which are invariant to time.
[9] In (3), we utilize the approximation that, for small values of X/Y, $ln(X+Y) \approx lnX + Y/X$.

where period 0 is the time of labor market entry for group i (such that no emigration has occurred) and η is the inverse labor-demand elasticity.[10] To allow for costs in labor mobility between countries, we follow Blanchard and Katz (1992) and Borjas (2006) by assuming that migration from the origin country to destination country c in any period t is an increasing function of the lagged difference in wages between the two countries:

$$v_{it}^{c} = \sigma^{c}\left(\ln W_{i,t-1}^{c} - \ln W_{i,t-1} - F^{c}\right), \tag{5}$$

where $v_{it}^{c} = \Delta M_{it}^{c} / L_{i0}$ is the net emigration rate to country c for group i at t, $\sigma^{c} \in [0,1]$ is the supply elasticity, and F^{c} is the disutility that origin country nationals associate with living in country c. In the empirical analysis, we allow the labor supply elasticity, σ^{c}, to vary by destination country, which captures differences in immigration policy.

To solve the model, define the pre-migration effective wage differential between the origin country and destination c as,

$$\omega_{i0}^{c} = \ln W_{i0}^{c} - \ln W_{i0} - F^{c} = \eta \ln \ell_{i0}^{c} + \ln x_{i0}^{c} - F^{c}. \tag{6}$$

where $\ln \ell_{i0}^{c} = \ln L_{i0}^{c} - \ln L_{i0}$ is initial log relative labor supply and $\ln x_{i0}^{c} = \ln X_{i0}^{c} - \ln X_{i0}$ is initial log relative labor demand. The pre-migration wage difference is increasing in the origin country's relative labor supply (since $\eta < 0$) and decreasing in the origin country's relative labor demand. Using (3), (5), and (6), we solve for the $t = 0$ emigration rate and iterate forward, solving for the wage and emigration rate in each period. Approximating that $(1+x)^{t} \approx 1+tx$, the net migration rate from the origin country to country c at time t is,

$$v_{it}^{c} = \sigma^{c}\omega_{i0}^{c}[1 + \eta\sigma^{c}(t-1)] \tag{7}$$

Plugging in the determinants of the initial wage differential in (6), we obtain,

[10] In later periods, we assume the wage in country c is determined by initial labor supply and subsequent innovations to labor demand, imposing the restriction that the impact of immigration on the destination country's wage is negligible (which is straightforward to relax; see Hanson and McIntosh, 2010).

(8) $$\nu_{it}^{c} = \ln \ell_{i0}^{c} \left[\theta^{c} + (\theta^{c})^{2}(t-1)\right] + \left[\ln x_{i0}^{c} - F^{c}\right]\left[\sigma^{c} + \sigma^{c}\theta^{c}(t-1)\right]$$

where $\theta^{c} = \eta\sigma^{c} < 0$. Equation (8) shows that migration to country *c* is decreasing in the relative size of country *c*'s initial labor supply (since $\theta^{c} < 0$) and increasing in initial relative labor demand (since $\sigma^{c} > 0$). The effects of initial conditions diminish as a cohort ages, owing to wage adjustment in the origin (as captured by interactions with *t*). Since these dynamic wage adjustment terms depend on the product of elasticities, their effect on migration are likely to be small (which unreported empirical results confirm). Allowing later labor demand shocks to affect wages introduces distributed lags in these innovations in (8). In the estimation, we control for labor market shocks that occurred between the time a cohort comes of working age and the current period.

Equation (8) is the basis for the empirical estimation. For individual birth cohorts in Latin American countries, we examine the correlation between the decadal rate to a specific destination country and initial relative labor supply, initial relative labor demand, and innovations to wages. We also control for the size of other labor market cohorts. By pooling data across cohorts, origins, destinations, and time, we are able to include a rich set of fixed effects in the estimation to control for unobserved determinants of migration.

3 DATA

The data we require for the estimation include measures of migration rates for pairs of origin and destination countries, labor supply by birth cohort and country, and measures of economic shocks for origin and destination countries.

3.1 Bilateral migration rates

To calculate bilateral migration rates we use the number of immigrants by age and

origin country in each destination county's census count, and the size of the relevant birth cohorts in the origin country, as measured by the World Development Indicators. The bilateral net migration rate for a given birth cohort and origin-destination pair is then the change in the stock of immigrants in that cohort from a particular origin country in a particular destination, divided by the size of the original birth cohort in the origin. In all regressions, the dependent variable is the annualized bilateral net migration rate for a birth cohort over the relevant time period (in most cases the ten years between censuses).

For the US, we are able to measure age-specific stocks of immigrants from all but the very smallest Latin American and Caribbean countries in 1980, 1990, 2000, and 2005, using data from decennial censuses and the American Communities Survey (2005).[11] For Canada, we have similar measures from decennial censuses for 1981, 1991, and 2001, provided by Statistics Canada. Data for the UK and Spain are more problematic. For the UK, we have country specific immigration stocks aggregated by five year birth cohorts in 1981, 1991, and 2001, based on data provided by the UK Census Commission. For Spain, we have similar data for 1981, 2001, and 2007 (the 1991 census reports region rather than country of birth for many countries in the sample). One problem is that the UK provides incomplete data on immigration stocks for non-Commonwealth countries in the region, as does Spain for countries that are not former colonies. Consequently, UK and Spanish data are a mix of stocks for individual origin countries and aggregates of remaining countries in the region. In both cases, the residual aggregates are very small in size, indicating that few individuals from former Spanish colonies migrate to the UK or vice versa.

[11] We can measure immigrant stocks for the US in earlier years as well, but this is of no use since our data on births do not begin until 1960 (meaning we cannot measure source-country labor supply before 1976).

To gauge the magnitude of emigration from Latin America and the Caribbean, Table 1 reports total emigration rates in 2000 by origin country, as well as the fraction of emigrants residing in the US, Canada, Spain, and the UK, using data from Parsons at al. (2007). Excluded are Cuba, which severely restricts emigration, and countries with fewer than 200,000 inhabitants in 2000, on which we have incomplete data.

Evident in Table 1 is variation in the attractiveness of the four destinations to emigrants from the region. In the Caribbean and Central America, the share of emigrants going to the four destinations is above 50 percent in all countries, except Nicaragua,[12] and above 70 percent in all other countries except Haiti, a former French colony, and Antigua and Barbuda. In more remote South America, the share of emigrants going to the four destinations exceeds 50 percent for only two countries, Ecuador and Guyana. For Bolivia, Chile, Paraguay, and Uruguay, neighboring Argentina is an important destination; the share of emigrants going to the four destinations plus Argentina is above 60 percent for each country. For Colombia, neighboring Venezuela is an important destination; the share of its emigrants going to the four destinations plus Venezuela is over 80 percent. Thus, in South America nearby rich nations compete for migrants with more distant high-income countries. We also see that Argentina and Brazil – South America's largest nations – have low emigration rates, under 2 percent in either case. For this reason we exclude from the countries in Table 1 Argentina, which in the sample period is more a destination for migration than an origin, and Brazil, which as a former Portuguese colony sends few migrants to the US, Canada, the UK, or Spain. We focus on migration rates for individuals aged 16 to 40, as these are peak years for migration (Hanson and McIntosh, 2010).

[12] In 2000, 43% of Nicaragua's emigrants resided in neighboring Costa Rica.

To gauge the variation in migration rates for the sample cohorts, Table 2 shows the annualized average changes in migration rates across cohorts by origin and destination country pair in the latest available period. Aside from a few small Caribbean countries, migration to the US rises most rapidly for nearby Mexico and Central America (El Salvador, Honduras, Guatemala), migration to Canada rises most rapidly for former British colonies (Antigua and Barbuda, Grenada, Guyana, Jamaica, Trinidad and Tobago), and migration to Spain varies across origins, with Bolivia and, particularly, Ecuador being strong outliers.[13]

3.2 Labor market shocks

The first labor market shock we consider is the change in labor supply, as predicted by differences in birth rates across countries. We measure labor supply using the number of live births in each country, as reported in World Development Indicators, which begin in 1960. Assuming that individuals enter the labor force at age 16, the number of individuals born, say, in El Salvador in 1970 would indicate the number of individuals coming of working age in 1986. Column 1 of Table 2 shows substantial variation in the growth rate of birth cohorts across origin countries during the period 1960 to 1985, which corresponds to the growth rate of cohorts coming of working age from 1976 to 2001. The size of birth cohorts grew rapidly in many poor countries (e.g., Guatemala, Haiti, Honduras, Paraguay) but grew slowly or declined in the region's richer countries (e.g., Antigua and Barbuda, Barbados, Chile, Uruguay), though a few richer countries had high birth rates into the mid 1970s (e.g., Mexico, Venezuela).

In using number of births to measure labor supply, we ignore variation across

[13] On Ecuadoran migration to Spain, see Bertoli, Fernández-Huertas Moraga, and Ortega (2010).

source countries in both mortality rates and labor force participation rates, data on which we cannot obtain by age and year. While cross-country variation in mortality rates is a concern, there are two reasons why it is unlikely to be a significant problem for our analysis. One is that we focus on migration of those of prime migration age, which is 16 to 40. For individuals out of childhood but not yet in middle age, variation in mortality across Latin American countries is low. More importantly, much of the variation in mortality rates is absorbed by the country and time dummies that we include in the estimation. In unreported regressions of annual mortality rates for nations in Latin America on country dummies and year dummies, the adjusted R squared is 0.94 for infant mortality, 0.95 for under-5 mortality, and 0.86 for adult mortality. Thus, most of the cross-country variation in mortality can be removed by removing country-specific means and time-specific means from the data, which we do in the empirical analysis.

An important question is whether the factors that produce variation in fertility across countries are correlated with emigration, potentially confounding our empirical analysis. The literature associates national differences in levels and changes in fertility with a large set of determinants (see, e.g., Dasgupta, 1995; Galor, 2005; Lehr, 2009). Because realizations on emigration are observed between 16 and 40 years after the shifts which caused the changes in birth cohort size, we take these changes to be pre-determined for our analysis. We assume that, given country, year, and cohort fixed effects, the most plausible explanation for correlation between country-level birth cohort size and subsequent migration is the cohort size itself.

To control for how changes in labor demand affect migration, we include in the estimation of equation (8) per capita GDP in the year a cohort entered the labor market,

as well as contemporaneous per capita GDP, for both the origin and destination country. (As we control for origin and destination country fixed effects in the regressions, per capita GDP effectively picks up how differential income values in a given year affect migration.) Over our time period, Latin America experienced multiple balance of payments crises, frequent natural disasters, and episodes of intense civil unrest, events that disrupt the lives of individuals, reducing their income and wealth and often displacing them from their homes. While these shocks are temporary, they are often severe in nature, leading to temporary or permanent emigration. We construct measures of the incidence of these shocks equal to the number of events that occur in a country over a given time period divided by the number of years in the period, which we refer to as the annualized shock incidence, as reported in an appendix.

To capture balance of payments crises, which are typically followed by a banking crises and collapse in GDP, we use the measures of sudden stops in Cavallo (2007), which indicates whether a country has a large decline in its current account, with foreign capital inflows suddenly reversing and becoming capital outflows. Calvo (1998) associates such episodes with a loss in investor confidence in a country, as occurs when investors downgrade expectations about a country's capacity to service its debts or maintain a pegged exchange rate. Cavallo's definition of a sudden stop is whether a country experiences a decline of greater than two standard deviations in a current account surplus in successive years, where he measures the standard deviation four different ways. We take the average incidence across the four measures between census intervals. Mexico, Colombia, and Ecuador are the countries most prone to capital inflow reversals, with 11 other economies experiencing at least one sudden stop in recent years. Nine

countries experience no sudden stops, with seven of these being Caribbean nations.

Natural disasters are a common occurrence in Latin America, given its proximity to the Ring of Fire and exposure to tropical storms in both the Caribbean and Pacific. Following Yang (2008), we define a serious natural disaster as an earthquake over 7.5 on the Richter scale, a windstorm (e.g., hurricane) lasting a week or more, or a landslide or volcanic eruption that affects more than 1000 people. We count the number of events that occur between census intervals. Data on these events are from the International Emergency Event Database (http://www.emdat.be/). Mexico, Ecuador, Nicaragua, and Honduras have the highest incidence of natural disasters, with only seven countries escaping a serious disaster during the sample period.

The last three decades have been a time of political transition in Latin America, with military coups displacing democratically elected governments during the 1960s and 1970s, followed by a return to democracy in the 1980s and 1990s. Armed insurgencies have occurred in over a half dozen countries, with these conflicts involving thousands of casualties and lasting for a decade or more. We measure conflict as the fraction of years between census intervals in which a serious conflict exists (be it extra-state, intra-state, internal, or internationalized internal in nature) that resulted in the deaths of over 1,000 people. The source is the CSCW Monadic Armed Conflict Database from the International Peace Research Institute (http://www.prio.no/). Colombia, El Salvador, Guatemala, and Nicaragua are the most conflict prone countries, with each country being subject to a conflict of some type in one quarter or more of the sample years.

3.3 Immigration policy in receiving countries

The four main receiving countries for Latin American emigration differ

considerably in their immigration policies. The US, which is the most important destination for Latin American emigrants, manages immigration through granting permanent residence visas and temporary work visas, and enforcing US territory against illegal immigration. The 2,000 mile long US border with Mexico makes illegal entry an attractive option for migrants from Latin America. In 2005, the last year of our US sample, there were 18.9 million immigrants from Latin America and the Caribbean residing in the US, of whom 46.2% were estimated to be in the country illegally (Passel, 2006). The majority of legal immigrants from Latin America enter as family members of US citizens and residents. In 2005, family sponsored visas accounted for 76.6% of US legal inflows from the region, with employer sponsored visas (the majority of whom are skilled workers) accounting for 13.6% and refugees and asylees accounting for only 1.9% (DHS, 2005).[14] While the US is relatively open to inflows of low-skilled labor from Latin America, few individuals in the region qualify as skilled workers and fewer still (outside of Cuba) as refugees or asylees. The latter outcome is the consequence of US policies that tend to favor asylum claims from individuals fleeing left-wing regimes over claims from individuals fleeing right-wing ones (see, e.g., Kirkpatrick, 1982).

Canada has long managed its immigration policy through a regime that favors skilled workers, the legal basis for which was established in 1976 and modified several times since (Mayda and Patel, 2004). Individuals earn points for entry depending on their youth, education, work experience, ability to speak English or French, and having a job offer from a Canadian employer. In 2001, the last year in our Canadian sample, skilled immigrants accounted for 60.6% of permanent immigration visas, family members of Canadians 26.6%, and refugees and asylees 11.3% (OECD, 2004). Because of the

[14] These figures exclude Cuba, for which 90.0% of immigrants are refugees or asylees.

emphasis on skills, Latin America, where education levels remain relatively low, accounts for a small share of Canadian immigration, comprising 8.0% of legal inflows in 2001. If an individual from Latin America cannot qualify for a Canadian visa on the basis of skills or family, the primary means of entry would be through asylum.

The UK belongs to the European Union and allows for the unrestricted movement of EU citizens. Outside of the EU, immigration is limited to family members of UK citizens, skilled workers, temporary workers with a job offer from a UK employer, citizens of Commonwealth countries with UK ancestry, and refugees and asylees. Commonwealth citizens aged 17 to 30 who lack UK ancestry may qualify for a "working holiday" in which they spend two years in the UK, with eligibility to work for one of these.[15] Some individuals may abuse such visas by staying on in the country and working illegally. In 2001, the last year of our UK sample, asylum seekers accounted for 24.5% of immigration admissions, temporary foreign workers 22.8%, and EU citizens 16.2%, with the remainder made up by family members of UK citizens and skilled workers (OECD, 2004). In 2002, which is after our UK sample period, the UK implemented a point system intended to expand skilled immigration (Mayda and Patel, 2004). For Latin America, opportunities to migrate to the UK would appear to be limited primarily to Commonwealth citizens and refugees and asylum seekers.

Spain's immigration policy is somewhat difficult to specify. As an EU member, it allows the unrestricted movement of EU citizens. Until the late 1980s, the country was primarily a source of emigration. Following the sudden increase in immigration inflows in the 1990s, government policy responded slowly, being concerned initially with how to treat those who had already found a way into the country. It appears that a large fraction

[15] See http://www.ukvisas.gov.uk.

of non-EU immigrants who entered Spain in the 1990s and 2000s did so illegally or as visitors (Dolado and Velasquez, 2007). For those able to obtain employment, the government has been relatively permissive in granting legal work permits, offering multiple amnesties to undocumented workers in the last two decades. The most significant barrier to migrants from Latin America entering Spain may not be obtaining a visa but the cost associated with travel, establishing residence, and finding initial employment as an undocumented worker. Recently, Spain has expanded the number of work visas it supplies in an attempt to direct immigration through legal channels, requiring prospective migrants to line up a job before entering the country.

4 RESULTS

4.1 Basic Regressions

Table 3 provides an initial view of the results by estimating the migration effects of labor supply and demand shocks. The dependent variable in all specifications is the annualized percent net migration rate for a given birth cohort and origin-destination pair (i.e., the change in the stock of immigrants in that cohort from a particular origin country in a particular destination, divided by the size of the original birth cohort in the origin). Let N_{ic} be the number of children born in origin *i* for birthyear cohort *c*. When we use the censuses of destination country *j* in year *t* , we count M_{ijct}, the number of migrants from each origin cohort in the destination at that time. The stock migration rate at a moment in time is then $m_{ijct} = 100 * \left(M_{ijct} / N_{ic} \right)$ and the flow migration rate between two census intervals is $dm_{ijct} \equiv m_{ijct} - m_{ijct-1}$. This rate will be different depending on the amount of time having elapsed between censuses, and so we divide it by the time interval

to arrive at our annualized dependant variable, adm_{ijct}. The specification for our core regression is then:

$$adm_{ijct} = \gamma_1 \log(N_{ic} / N_{jc}) + \gamma_2 \log(GDP_{ic} / GDP_{jc}) + \beta X_{ict} + \alpha_i + \mu_j + \eta_c + \rho_t + \varepsilon_{ijct}.$$

$\hat{\gamma}_1$ is the core parameter of interest; this gives the extent to which average migration flows are increased when the origin cohort is large relative to the destination cohort, controlling for a set of origin cohort/time level characteristics and for fixed effects for origin, destination, birth cohort group and census year group.

The first four columns of Table 3 present impacts by destination country and the last column pools observations across destinations. Data are for 5-year birth cohorts. Initially, we exclude the size of younger or older cohorts from the regression. Column 5 pools data across destinations and includes destination country fixed effects as well.

The analysis features variables that enter at the origin country level, the origin birth cohort level, and the destination birth cohort level. The data therefore have a non-nested multi-level structure, and it is not clear how we should handle the standard errors. The number of clusters is relatively small across most of the primary dimensions (25 birth countries, 4 destinations, 4 destination census waves, and 7 aggregated birth cohorts), and so our ability to estimate consistent cluster-level covariance terms is limited.[16] As a conservative approach to estimating standard errors that nonetheless provides sufficient observations for consistent estimation, we cluster our analysis at the dyad level (origin * destination), for 71 dyads in a dataset of 804 observations.[17] In the first four columns of Table 3, this is equivalent to clustering by origin country.

[16] Cluster asymptotics are based on the number of clusters and not the number of observations per cluster (Cameron, Gelbach, and Miller 2008).

[17] We have experimented with different clustering structures, and all results discussed here are robust to the alternative strategy of clustering by origin country.

For the US, we find a strong impact of a demographic push created by large origin birth cohorts. In Table 3, the log birth cohort size ratio (birth cohort size in origin/birth cohort size in destination) enters positively and highly significantly. Emigration rates are highest for the middle age group, comprising individuals 23-34 years old. Further, emigration is weakly increasing in the initial income of a cohort and strongly decreasing in distance to the origin country. The marginal effects indicate that a 10% increase in the relative size of the origin birth cohort will lead to a 0.36 percentage point increase in the net migration rate to the US over the course of 10 years, similar to the number found using cross-Mexican state variation in Hanson and McIntosh (2010).[18] Put differently, the 52% decrease in total fertility rates that occurred in Mexico between 1978 and 2002 (from 5 to 2.4, Tuiran et al. 2002) would alone cause the fraction of a Mexican birth cohort that migrates to the US each decade to drop by almost 2 percentage points.

Canada displays patterns that are similar but considerably muted relative to the US. For Canada, the marginal effect of a given labor supply shock for migration is $1/24^{th}$ as large, and insignificant, and the marginal effect of distance is $1/13^{th}$ as large, and significant. Results for Spain, for which we have 96 observations, show that migration rates are insignificantly correlated with initial cohort size and decreasing in distance to the origin. For the UK, for which we have only 40 observations, we obtain a *negative* correlation between birth cohort size and migration and, again, a negative correlation between migration rates and distance to the origin.

[18] Is it reasonable that such similar marginal effects are found in Hanson & McIntosh (2010) using cross-state Mexican variation, and in this paper using cross-country variation? On the one hand we might expect lower marginal effects in this sample because we include distant countries with low sensitivity to labor supply shocks. On the other hand, the impact of cross-state variation on migration propensities will be dampened by migration within Mexico, which provides a safety-valve for states that see radically different population growth than their neighbors. The similarity of the marginal effects suggest that these two forces balance out in aggregate.

The final column of Table 5 pools observations across countries and allows coefficients for the regressors to differ for the US. As suggested by the results in the first four columns, the impact of initial birth cohort size is significantly larger for the US, as is the impact of distance to the origin country. Thus, for the US we see greater sensitivity to labor supply shocks in origin countries and greater sensitivity to proximity to origin countries. A 10% increase in the size of an origin birth cohort will result in about 0.1 percentage point *more* of that cohort migrating to the US over a decade than to the other destinations, and for every 1000 km distance from the destination differential migration to the US falls by 0.7 percentage points relative to other destinations. That birth cohort size and distance matter relatively more for bilateral migration to the United States reflects the greater importance of low-skilled flows of illegal workers in total US immigration from Latin America.

In Table 4, we introduce two changes to the specification. First, we allow coefficients to differ for birth cohort size in the origin and in the destination country, in contrast to the regressions in Table 3, which impose homogeneity of the coefficients. Second, we introduce the size of younger and older cohorts into the estimation, to allow for the possibility that younger and older workers are an important source of competition for jobs in the origin country labor market. We again examine results for each destination separately and then for the four destinations pooled.

For the US, the coefficient on origin country birth cohort size is positive and significant and on destination birth cohort size is negative and significant, consistent with the model in section 2. While the absolute value of the origin country coefficient is roughly twice as large as for the destination country, we cannot reject that the coefficients

are equal and opposite in sign. The relatively small coefficient on destination country birth cohort size may reflect the modest variation left in this variable, once birth cohort and census wave fixed effects are removed from the estimation. The coefficients on older and younger birth cohorts are insignificant for the US, as they are for the other countries. In later regressions, we will exclude these variables from the analysis.

For Canada, we see coefficient estimates that are qualitatively similar to the US – the coefficient on origin country birth cohort size is negative and on destination country birth cohort size is positive – but much smaller in quantitative magnitude. For Spain and the UK, we have insufficient observations to include destination country birth cohort size as a regressor, given that the regressions already have controls for destination country, birth cohort, and census wave fixed effects. The final column of Table 4 shows that, similar to Table 3, relative birth cohort size in the origin country contributes to migration, with significantly stronger effects in the United States.

4.2 Additional labor market shocks

We next consider how a broader set of shocks affect migration. Our data provide an intuitive way to examine the impact of shocks on migration because we have long time series over many countries, and so observe a sufficiently large number of shocks in the data to estimate precise impacts. The three shocks we consider in Table 5 are the annualized number of serious natural disasters (earthquakes, windstorms, landslides, volcanic eruptions), the annualized number of sudden stops (severe negative reversals in the current account), and the annualized incidence of civil and military conflict (years in which there are more than 1,000 conflict-related deaths). Table 5 takes the pooled data structure to the analysis of origin-country shocks in driving emigration from the

Americas, similar to column 5 of Tables 3 and 4.

In column 1, the incidence of natural disasters has a negative and insignificant effect on migration to the four destinations as a group, but a positive and strongly significant effect on migration to the United States. The positive effect on US migration is seen by adding the coefficient on natural disasters to the coefficient on the interaction between natural disasters and the US dummy variable, a sum which is positive and significant (as shown by the second to last row of the table). Similarly, in column 2 sudden stops have a negative effect on migration to the four destinations overall but a positive effect on migration to the US, although the total effect of sudden stops on US migration is only marginally significant. These results stand in contrast to column 3, in which the incidence of civil conflict has a positive and significant effect on migration to the four destinations but a negative effect on migration to the United States.

Whereas negative economic shocks in the form of disasters or balance of payments crises contribute to greater migration flows to the US, they do not contribute significantly to migration to Canada, the UK, or Spain. The reverse holds true for political shocks in the form of civil unrest, which leads to greater migration to Canada, the UK, and Spain but not to the United States. These estimates indicate that a one standard deviation increase in the incidence of natural disasters (e.g., the Bahamas instead of Costa Rica in 2005) would increase migration to the US by about 8 percentage points over ten years and decrease migration to the other destinations by a similar amount. These results are consistent with Yang's (2008) findings that a Latin American country experiencing a serious windstorm (i.e., hurricane) is followed by a substantial increase in remittances from immigrants abroad. A one standard deviation increase in

annualized civil conflict, on the other hand (e.g., Peru instead of Honduras in the 1990s) would increase migration to the other destinations by about one third of a percentage point over 10 years while decreasing migration to the US by a similar amount.

The difference in these results reflects the differences in migration policies in the destinations. The US is relatively open to economic migration of low skilled workers from Latin America through illegal entry but relatively closed to political refugees, except for those coming from left-wing countries, which in the sample period applies only to Cuba (which is not in our data) and Nicaragua. Canada, the UK, and Spain, in contrast, are less open to illegal immigration and more open to asylum seekers, insulating their exposure to economic shocks in Latin America but enhancing their exposure to political shocks in the region.

Having examined the effects of labor supply and labor demand shocks independently, we conclude our empirical analysis by testing whether 'American exceptionalism' is also found in the intersection of these two types of shocks. Table 6 interacts labor supply shocks (birth cohort ratios) with labor demand shocks (natural disasters, sudden stops, and conflict) and uses a triple-interaction with a US dummy to test for heterogeneity of effects across destinations. This triple-interaction further reinforces the uniqueness of the US as a destination. Large cohorts are particularly prone to migrate to the US when they face a sudden stop, and this effect is significant within the US alone and strongly different from the pattern relative to other destinations. Large cohorts facing civil conflict, on the other hand, are somewhat more likely to migrate to other destinations but significantly less likely to migrate to the US. These results demonstrate that the impact of labor demand shocks is modulated by cohort-level labor

supply in a manner that is strongly heterogeneous across destinations.

4.3 Robustness Checks

One concern could arise in our analysis if it were the case that countries that had shocks in one period always had them in later periods, or if the impact of the shocks themselves displayed sufficient persistence. In unreported results, we calculate annualized shock variables over the *preceding* census interval and include them in a specification similar to Table 5. We find natural disasters to be the only type of shock with any persistence in migration impacts, but the lagged effects are always of the same sign and with a reduced magnitude from the original shock. The heterogeneity observable in the response to shocks for migration to the US is very similar in the response to lagged shocks. Inclusion of these lags does not change our overall read on the results, which is that natural disasters disproportionately increase migration to the US and political shocks increase it to the other destinations.

In other unreported results, we examined whether the results may be driven by Mexico, which is the largest source country for immigrants in the US. All of our results are robust to dropping Mexico from the estimation sample. We also considered whether the importance of agriculture may mediate the impact of labor market shocks. Since the supply of agricultural land is relatively inelastic, increases in labor supply may have a more negative effect on wages in agriculture dependent economies than in economies specialized in manufacturing (which is intensive in the use of relatively elastically supplied capital). We found no evidence that the level of agricultural development in origin countries matters for emigration.

5 DISCUSSION

We intersect data on the size of birth cohorts in origin countries with data on the size of immigrant stocks by age and origin country in the US, Canada, Spain and UK to examine factors associated with emigration from 25 Latin American and Caribbean countries over the period 1980 to 2005. Our cohort panel data cover a long time span over a broad set of countries and therefore provide a good platform for examining how large shocks contribute to migration. We find that for migration to the US labor supply shocks, in the form of abnormally large or small birth cohorts, are a significant push factor, while they are weakly correlated or uncorrelated with migration to Canada, Spain, or UK. Additionally, natural disasters and balance of payments crises increase migration to the US, but not to the other destinations, whereas civil conflict has the reverse effect, decreasing migration to the US but raising it to Canada, Spain and the UK.

These results draw a picture of one destination, the US, that is uniquely engaged in a demographic dance with its neighbors. Inaccessibility by land, along with immigration regimes that are more formulaic and asylum-based, have effectively turned off a susceptibility to labor supply-driven migration in Canada, the UK, and Spain. The United States displays a similar insensitivity with respect to the far-off countries of South America. With its close neighbors, migration rates to the US respond strongly to shocks; larger or richer cohorts are most likely to migrate to the US, with this sensitivity heightened by economic volatility in the destination.

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Table 1: Emigration Rates in Latin America and the Caribbean, 2000

Origin Country	Emigration rate	Share of emigrants from US, Can, Spain, UK
Antigua & Barbuda	0.625	0.562
Bahamas	0.124	0.895
Barbados	0.401	0.852
Dominican Republic	0.111	0.828
Grenada	0.678	0.711
Haiti	0.096	0.643
Jamaica	0.371	0.884
Trinidad & Tobago	0.258	0.878
Mexico	0.105	0.928
Belize	0.214	0.857
Costa Rica	0.03	0.736
El Salvador	0.163	0.871
Guatemala	0.055	0.835
Honduras	0.058	0.822
Nicaragua	0.107	0.448
Panama	0.066	0.82
Argentina	0.017	0.41
Bolivia	0.047	0.188
Brazil	0.006	0.304
Chile	0.036	0.249
Colombia	0.04	0.443
Ecuador	0.058	0.768
Guyana	0.503	0.84
Paraguay	0.079	0.053
Peru	0.029	0.491
Uruguay	0.076	0.233
Venezuela	0.015	0.558
Total	0.051	0.754

The emigration rate is the share of emigrants (as measured by Parsons et al., 2007) in the total population. Very small countries in Latin America and the Caribbean are excluded.

Table 2: Average Annualized Percent Change in Migration by Origin and Destination, Latest Available Year

Origin Country:	Birth cohort growth rate in Origin, 1960-1985:	Destination Country: Canada	Spain	UK	USA
Antigua-Barbuda	-29.1%	0.073			-0.281
Bahamas	90.4%	0.001			0.224
Barbados	-8.8%	0.031		0.346	0.179
Belize	110.3%	0.020		0.027	-0.280
Bolivia	39.2%	0.001	0.624		0.032
Chile	3.5%	0.001	0.081		0.021
Colombia	15.5%	0.003	0.212		0.027
Costa Rica	26.0%	0.003	-0.013		0.180
Dominican Republic	14.3%	0.002	0.366		0.186
Ecuador	44.0%	0.003	1.347		0.132
El Salvador	18.8%	0.009	0.014		0.670
Grenada		0.434			0.976
Guatemala	61.2%	0.004	-0.003		0.380
Guyana	20.0%	0.173		0.107	0.974
Haiti	71.8%	0.014			0.129
Honduras	63.7%	0.002	0.047		0.462
Jamaica	30.1%	0.081		0.481	0.215
Mexico	45.7%	0.002	0.000		0.505
Nicaragua	63.0%	0.001	0.021		-0.020
Panama	26.7%	0.000	-0.028		0.059
Paraguay	76.5%	-0.001	0.242		0.023
Peru	44.0%	0.003	0.250		0.076
Trinidad & Tobago	33.6%	0.081		0.230	0.347
Uruguay	-4.5%	0.003	0.499		0.247
Venezuela	65.3%	0.002	-0.098		0.038

Notes: The years for which the columns 2-4 correspond are 2001 for Canada and the UK, 2005 for the US, and 2007 for Spain.

Table 3: Impact of Labor Supply Shocks

Dependent Variable: Annualized migration rate over census interval, percent	Five-year Birth Cohorts				
	USA	**CAN**	**SPN**	**UK**	**Pooled**
Log Birth Cohort Size Ratio	0.355	0.015	-0.202	-0.450	0.120
	(4.09)**	(1.15)	(1.10)	(3.68)*	(2.74)**
Log GDP pc Ratio at Age 16	0.148	0.014	-0.039	-0.009	0.059
	(2.22)*	(1.74)	(0.82)	(0.18)	(1.27)
Log GDP pc in year of census	0.032	-0.019	1.532	-1.091	0.102
	(0.42)	(1.11)	(4.66)**	(4.33)*	(1.15)
Young (16-22)	-0.079	-0.004	-0.036	0.022	-0.063
	(2.58)*	(1.29)	(1.23)	(0.95)	(2.70)**
Older (35-40)	-0.129	0.001	-0.065	-0.098	-0.060
	(1.84)	(0.28)	(2.02)	(2.56)	(1.15)
Dyadic Distance, (000 km)	-0.306	-0.023	-0.472	-0.805	-0.052
	(5.47)**	(2.71)*	(4.65)**	(4.48)*	(1.09)
Log Birth Cohort Size Ratio * US					0.085
					(3.04)**
Distance * US					-0.070
					(5.05)**
Observations	426	242	96	40	804

Birth country, birth cohort, and census wave fixed effects included in all specifications. Destination fixed effects included in column 5. Regressions are weighted by the size of the origin birth cohort.

* significant at 95%, ** significant at 99%, t-statistics in parentheses and SEs clustered by origin/destination dyad.

Table 4: Controlling for Adjacent Cohort Size

Dependent Variable: Annualized migration rate over census interval, percent	**USA**	**CAN**	**SPN**	**UK**	**All**
Log Origin birth cohort size	0.464	0.028	-0.392	-0.398	0.155
	(4.16)**	(1.30)	(1.60)	(1.56)	(3.16)**
Log Destination birth cohort size	-0.226	-0.021			-0.106
	(2.17)*	(1.05)			(1.78)
Log GDP pc Ratio at Age 16	0.195	0.016	-0.030	-0.006	0.077
	(4.07)**	(1.72)	(0.56)	(0.09)	(1.84)
Log GDP pc in year of census	0.010	-0.019	1.803	-1.022	0.090
	(0.15)	(1.12)	(4.28)**	(5.73)**	(1.13)
Log origin birth cohort size, (next/this)	11.430	5.777	-7.133	2.129	-2.745
	(0.33)	(1.31)	(1.80)	(1.15)	(0.44)
Log origin birth cohort size, (this/last)	-46.971	-5.276	5.695	-0.425	-4.232
	(1.27)	(1.40)	(1.58)	(0.17)	(0.59)
Young (16-22)	-0.071	-0.006	-0.027	-0.477	-0.047
	(2.53)*	(1.35)	(0.98)	(7.29)**	(2.65)*
Old (35-40)	-0.067	0.004	-0.066	0.000	-0.035
	(1.69)	(1.26)	(1.80)	(.)	(0.98)
Dyadic Distance (000 km)	-0.362	-0.032	-0.608	-0.772	-0.053
	(5.30)**	(2.22)*	(4.15)**	(5.28)**	(0.98)
Log Origin cohort size * US					0.086
					(2.99)**
Log Destination cohort size * US					0.116
					(1.33)
Distance * US					-0.070
					(5.01)**
Observations	425	242	80	30	777

All regressions calculated using five-year birthyear cohorts. Birth country, birth cohort, and census wave fixed effects included in all specifications, plus Destination country FE in column 5. Regressions are weighted by the size of the origin birth cohort.

* significant at 95%, ** significant at 99%, t-statistics in parentheses and SEs clustered by origin/destination dyad.

Table 5: The Impact of Labor Demand Shocks

	Shocks:			
Dependent Variable: Annualized migration rate over census interval, percent.	**Annualized # of Serious Natural Disasters (per '000 square km.)**	**Annualized # of Sudden Stops**	**Annualized Civil Conflict**	**All**
Natural Disasters * US	61.519			67.482
	(2.79)**			(2.66)*
Sudden Stops * US		0.626		0.716
		(1.48)		(1.83)
Civil Conflict * US			-0.334	-0.332
			(3.49)**	(3.37)**
Natural Disasters	-30.087	25.868	27.452	-36.489
	(1.33)	(3.29)**	(3.66)**	(1.39)
Sudden Stops	0.154	-0.207	0.171	-0.390
	(0.94)	(0.93)	(1.00)	(1.49)
Civil Conflict	0.000	0.001	0.193	0.215
	-0.01	(0.03)	(3.06)**	(3.06)**
Log Cohort Size Ratio	0.086	0.101	0.084	0.103
	(1.09)	(1.49)	(1.04)	(1.37)
Cohort Size Ratio * US	0.089	0.041	0.066	0.062
	(3.52)**	(2.40)*	(3.21)**	(3.59)**
Log GDP Ratio	0.084	0.091	0.096	0.092
	-1.52	(1.76)	(1.74)	(1.60)
Dyadic Distance ('000 km)	0.077	0.085	0.054	0.039
	(1.10)	(1.14)	(1.04)	(0.88)
Distance * US	-0.059	-0.079	-0.071	-0.059
	(4.69)**	(6.51)**	(7.06)**	(7.32)**
Observations	642	642	642	642
p-value on F-Test that the shock is significant in U.S.:	0.00	0.10	0.09	
Mean of the Shock Variable:	0.0006	0.0724	0.1201	

All regressions calculated using five-year birthyear cohorts, with birth cohort, birth country, destination country, and census wave fixed effects included in all specifications. Regressions weighted by origin birth cohort size. Cohort age dummies included as controls but not reported in the table.

* significant at 95%, ** significant at 99%, t-statistics in parentheses and SEs clustered by origin/destination dyad.

# of Serious Natural Disasters is the sum, over census intervals, of earthquakes over 7.5 Richter, windstorms lasting a week or more, or landslides or volcano eruptions affecting more than 1000 people in sending country.

# of Sudden Stops is the the sum, over census intervals, of Sudden Stops 1-4 from Cavallo data, defined as a fall in FA surplus of at least 2 SD from sample mean, with standard deviations calculated four different ways.

Civil Conflict is from CSCW Monadic Armed Conflict data, calculated as the number of years between census intervals in which a serious conflict exists (Extra-state, Intra-state, Internal, or Internationalized Internal) that killed over 1000 people in sending country.

Table 6: Interacting Supply- and Demand-side Shocks

Dependent Variable: Annualized migration rate over census interval, percent.	Shocks: Annualized # of Serious Natural Disasters (per '000 square km.)	Annualized # of Sudden Stops	Annualized Civil Conflict
Cohort Ratio * Disasters * US	28.537		
	(1.15)		
Cohort Ratio * Sudden Stops * US		1.239	
		(4.03)**	
Cohort Ratio * Conflict * US			-0.408
			(5.75)**
Cohort Ratio * Disasters	-5.208		
	(0.31)		
Cohort Ratio * Sudden Stops		-0.941	
		(4.02)**	
Cohort Ratio * Conflict			0.091
			(1.22)
Disasters	-39.986	-39.891	-22.120
	(1.16)	(1.72)	(1.03)
Disasters * US	143.780	66.135	48.462
	(2.21)*	(3.10)**	(2.34)*
Sudden Stops	-0.401	0.166	-0.466
	-1.56	(0.95)	-1.82
Sudden Stops * US	0.727	0.507	0.819
	(1.91)	(1.43)	(2.27)*
Conflict	0.211	0.194	0.151
	(3.07)**	(4.34)**	(2.65)*
Conflict * US	-0.317	-0.268	-0.943
	(3.38)**	(3.34)**	(4.51)**
Log Cohort Ratio	0.101	0.195	0.083
	(1.39)	(2.51)*	(1.04)
Log Cohort Size Ratio * US	0.055	-0.013	0.070
	(2.89)**	(0.46)	(4.16)**
Log GDP Ratio	0.095	0.107	0.084
	(1.64)	(1.73)	(1.45)
Dyadic Distance ('000 km)	0.039	0.021	0.010
	-0.88	(0.55)	-0.35
Distance * US	-0.059	-0.033	-0.056
	(7.50)**	(3.42)**	(7.04)**
Observations	642	642	642
p-value on F-Test that the interaction between the shock and the cohort size effect is significant in U.S.:	0.13	0.05	0.00
Mean of the Shock Variable:	0.0006	0.0724	0.1201

All regressions calculated using five-year birthyear cohorts, with birth cohort, birth country, destination country, and census wave fixed effects included in all specifications. Regressions are weighted by the size of the origin birth cohort. Cohort age dummies included but not reported.

* significant at 95%, ** significant at 99%, t-statistics in parentheses and SEs clustered by origin/destination dyad.

Appendix: Annualized values of shocks

Origin Country:	# of Serious Natural Disasters	# of Sudden Stops	Fraction of years in which Civil Conflict
Antigua-Barbuda	0.05	0.00	
Bahamas	0.04	0.00	0.00
Belize	0.05	0.00	0.00
Bolivia	0.13	0.03	0.00
Barbados	0.00	0.03	0.00
Chile	0.16	0.11	0.00
Colombia	0.02	0.09	0.42
Costa Rica	0.10	0.06	0.00
Dom. Republic	0.04	0.00	0.04
Ecuador	0.34	0.07	0.00
Grenada	0.00	0.00	
Guatemala	0.15	0.00	0.26
Guyana	0.00	0.00	0.00
Honduras	0.18	0.00	0.08
Haiti	0.04	0.00	0.00
Jamaica	0.01	0.00	0.00
Mexico	0.42	0.12	0.00
Nicaragua	0.20	0.03	0.23
Panama	0.00	0.04	0.00
Peru	0.18	0.04	0.31
Paraguay	0.00	0.04	0.00
El Salvador	0.12	0.01	0.31
Trin. & Tobago	0.00	0.03	0.00
Uruguay	0.00	0.04	0.00
Venezuela	0.03	0.04	

Number of Serious Natural Disasters: The sum, over census intervals, of earthquakes over 7.5 Richter, windstorms lasting a week or more, or landslides or volcano eruptions affecting more than 1000 people.

Number of Sudden Stops: The sum, over census intervals, of Sudden Stops 1-4 from Cavallo (2007), defined as a year-on-year fall in the current account surplus of at least two standard deviations from the sample mean, with the standard deviation calulated four alternative ways.

Civil Conflict: Calculated as the number of years between census intervals in which a serious conflict exists (Extra-state, Intra-state, Internal, or Internationalized Internal) that killed over 1000 people in a country.