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Economic Motivations of Migrants from the Northern Triangle

Project Report

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The Borders, Trade, and Immigration Institute

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Contact
Email: bti@uh.edu
Website: www.uh.edu/bti/
Twitter: @bti_uh
LinkedIn: Borders, Trade, and Immigration

National Center for Risk and Economic Analysis of Terrorism Events
University of Southern California

Economic Motivations of Migrants from the Northern Triangle

Final Report

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EXECUTIVE SUMMARY

Although overall immigration inflow from the Northern Triangle region, comprising El Salvador, Guatemala, and Honduras, to the U.S. is relatively small in the context of total immigration into the U.S., and despite the likelihood that this inflow has not risen significantly over the past two decades, Northern Triangle migrants have been a focal point of considerable public attention and debate for almost a decade. This may be attributed to the fact that this inflow has a large unauthorized component, making the Northern Triangle region the single most important source region of illegal immigration into the U.S.

The two core goals of this study were to identify the socio-demographic characteristics of emigrants and potential emigrants from Northern Triangle countries, and to assess how improved economic outcomes in these countries might affect the migration decisions of their citizens. We examined the socio-demographic characteristics of actual and potential migrants, including how these characteristics have changed over the past two decades, using data from two surveys. First, we evaluated data from a module of the La Encuesta sobre Migración en la Frontera Sur de México (EMIF-Sur) migrant survey of adults who actually migrated to the U.S. and were then returned to their home country by U.S. authorities. Because it is assumed that asylum seekers are not captured in this sample, it is most likely to include data from those migrating for economic reasons. Second, we examined data from the Latin American Public Opinion Project (LAPOP) survey that captures adults who are considering migrating in the future (potential migrants). We then analyzed the extent to which improvement in economic conditions in Northern Triangle countries could potentially affect decisions of their residents to emigrate by relating the intention to emigrate, as captured in the LAPOP survey, to a range of socio-demographic, economic, and crime/safety variables. We then supplement this analysis with an evaluation of how migratory flows were historically affected by change in economic conditions in two case studies of migration to the U.S., of Mexican nationals and of Puerto Rican residents. Finally, we review how migration from the Northern Triangle might affect economic development in this region through remittance flows. The magnitude of emigration from the Northern Triangle and associated remittance flows back to the Northern Triangle has reached a magnitude such that economic development in that region is plausibly being affected by these flows.

Northern Triangle migrants are, on average, roughly 30 years old, and the large majority have close friends and/or family already living in the U.S. Potential migrants are somewhat more

likely to be male and have more years of education than those not contemplating migrating. The characteristics of non-asylum-seeking adult migrants, who are the most likely to be migrating for economic reasons, changed significantly around 2012-13, which is when the asylum-seeker flow first started to grow. Prior to 2012-13, these migrants were more likely to say that they reside in the U.S. and to report as having worked prior to their trip. This suggests that the proportion of first-time migrants who had not previously been in the labor force increased after 2012-13. We also find additional evidence from the 2018 and 2019 surveys that confirms that the primary reason for the migration of adults from the Northern Triangle is economic opportunity, and that drought or other environmental factors have not played a significant role in the decision to emigrate.

Statistical analysis of the intention to migrate that is captured by the LAPOP survey suggests that this intention is significantly influenced by economic and crime/violence factors, as well as by having a social network in place in the U.S. The material impacts of income are not, however, very large, and a simulation of the impact of significantly increasing the economic well-being of potential migrants in their home country suggests that this would have only a marginal impact on the intention to migrate. This is not surprising given the dramatic increase in income that a migrant can expect to achieve by moving to the U.S.

Our case study of Mexico suggests that, although more research is needed to better understand the dramatic fall in Mexican migration to the U.S. in the 2010s, this fall can be attributed to demographic changes in Mexico and the U.S. as well as changes in U.S. enforcement policies, but it is not due to improved economic outcomes for potential migrants in Mexico. Our case study of Puerto Rico suggests that economic development did impact migration decisions in the 1960s, but that federal transfers subsequently played a more important role, and that large-scale emigration began again after Puerto Rico stopped converging toward the U.S. income level. We lastly find that the Northern Triangle economies are now dependent on migration to the U.S. to a striking degree because of the size of remittance flows sent back to the Northern Triangle by migrants residing in the U.S. This dependency may be leading to economic outcomes that are inhibiting development of the Northern Triangle economies (the "Dutch disease" phenomenon, which can hurt export growth).

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1. Introduction

Migration from Northern Triangle countries is driven in part by weak economic conditions in origin countries. One policy mechanism through which the United States could reduce illegal immigration would be to promote strong economic institutions in those countries. In order to design optimal development policies for Northern Triangle countries, officials and decision-makers need to better understand who the migrants are and what policy and program measures might be most effective in influencing their decision-making.

In this report, we describe research on the relationship between migration and economic growth in three components. First, we analyzed the characteristics of actual and potential migrants in terms of where they live, what their economic situation is, and the degree to which economic motivations cause them to want to emigrate. Those who have emigrated or intend to emigrate were compared to those who do not want to emigrate in order to understand the key systematic differences between these populations. We used both survey data and regression analysis to ascertain the results.

Second, we developed a graphical interface tool that allows users to project changes in migration from the Northern Triangle based on assumptions about the impact of U.S. policies on local economic and security conditions in the Northern Triangle. This tool is based on a statistical analysis that related the intention to emigrate to various underlying root-cause factors causing people to want to emigrate, including their economic situation, income, and local violence conditions. The projection tool permits users to assess the impact on emigration of economic development programs that increase income and employment or security improvement programs that reduce crime. The tool can be used to establish key quantitative metrics for economic development or security improvement programs in terms of how these programs need to improve economic or security outcomes in order to mitigate emigration from the Northern Triangle.

Third, we assessed the historical evidence on policies that have affected emigration flows from the Northern Triangle, Puerto Rico, and Mexico to the U.S. This assessment was based on survey data as well as case studies on historical cessations of large-scale migrant flows from less-developed countries and territories to the U.S. Insights from the assessment were used to identify how economic conditions changed as migratory flows ended, and which U.S. policy initiatives were effective in stemming the flow of migrants. These case studies shed light on the

role that economic development played in impacting migrant flows, as well as the policies that were adopted to bring that development about.

This report is organized as follows. Section 2 describes the recent trends in migration from the Northern Triangle. Section 3 analyzes the characteristics of Northern Triangle migrants and their motivations to emigrate. Section 4 describes both a macro-level and individual-level analysis, including a simulation of how changes in economic conditions could influence migration flows. Section 5 includes two historic case studies from Mexico and Puerto Rico of migration flows that originally increased dramatically but ebbed in subsequent years. Section 6 concludes with a cautionary note about the negative impact of remittance flows to the Northern Triangle on foreign exchange rates and export opportunities. A brief conclusion is provided in Section 7.

2. How Significant Is Immigration From Northern Triangle Countries?

It is important to ground analysis of migration flows from the Northern Triangle to their general significance in the picture of immigration into the U.S. We review here their size in the context of overall immigration into the U.S., and with regard to unauthorized immigration specifically.

2.1 Northern Triangle Immigration in the Context of Overall Immigration Flows

Table 1 shows the estimated foreign-born population residing in the U.S. by region of birth. These estimates include both legal and unauthorized immigrants.[1] Although migration from Northern Triangle counties has received a large amount of attention in recent years, Central American immigrants accounted for only 8% of all immigrants in 2018, as compared to 28% for immigrants from Asia and 25% for immigrants from Mexico. It is also important to put recent dynamics in immigrant flow into context. The number of Central American immigrants who arrived between 2013 and 2018 was 79% more than those who arrived between 2008 and 2012, which reflects the surge of Northern Triangle asylum seekers that began in 2012. However, the number of immigrants from Asia rose by 73% and was four times larger than the number from Central America. Immigration from South America rose by 141%, and the number of South American immigrants who arrived between 2013-2018 exceeded the number of Central American immigrants. Thus, the intense focus on Northern Triangle immigrants is perhaps surprising given that this migrant flow is relatively small when put into the context of overall immigration into the U.S. The focus likely results from the fact that many Central American immigrants arrive at the U.S.-Mexico border without legal permission to enter the U.S., whereas immigration from most other regions is perceived to be largely legal (see below for discussion of Northern Triangle unauthorized immigration).[2]

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[1] The estimates are derived from the American Community Survey household survey and reflect how well that survey captures the foreign-born population from different birth regions. The degree to which this survey captures immigrants with legal and unauthorized status has never been firmly established, and it is possible that these estimates more poorly capture the number of immigrants from regions with a higher rate of unauthorized immigration than legal immigration.

[2] Controversy about immigrants from the Northern Triangle may also result from perceptions that they are involved in criminal activity at a higher rate than other immigrant groups and/or that they provide less benefit to the U.S.

It is also important to note that the number of Central American immigrants who arrived during 2008-2018 was essentially equal to those who arrived between 1999-2008 (roughly 1 million). Although the surge of asylum seekers from the Northern Triangle has dominated discussion of migration from that region, these estimates make clear that large-scale immigration from this region had been taking place well before the asylum-seeker surge.

Table 1. Foreign-Born Population by Region of Birth and Year of Arrival in the U.S.: 2018

Region of birth	Total	(share)	By year of arrival:				
			2013-2018	2008-2012	2003-2007	1998-2002	Before 1998
Total	**44,729,178**	**100%**	**7,604,617**	**4,682,422**	**5,303,157**	**6,589,503**	**20,592,223**
Mexico	11,182,111	25%	928,523	775,875	1,485,420	2,238,925	5,753,368
East and Southeast Asia	8,648,528	19%	1,500,243	946,080	926,337	941,610	4,334,258
Europe	4,848,270	11%	657,376	358,714	414,540	634,284	2,783,356
Caribbean	4,463,891	10%	768,542	576,927	470,081	479,039	2,169,302
South Asia	3,668,982	8%	1,148,791	589,390	446,589	470,990	1,013,222
Central America	3,590,330	8%	657,604	367,185	559,321	537,020	1,469,200
South America	3,304,380	7%	706,779	292,896	366,750	626,399	1,311,556
Sub-Saharan Africa	2,032,470	5%	547,733	379,302	330,441	303,174	471,820
Middle East/ North Africa	1,784,898	4%	432,957	276,164	183,893	205,151	686,733
Canada	827,093	2%	151,646	67,457	62,946	87,060	457,984
Oceania	246,371	1%	61,091	28,265	32,969	34,158	89,888
Central Asia	131,854	0%	38,881	21,083	20,612	17,039	34,239

Source: Pew Research Center, "Facts on U.S. Immigrants, 2018": https://www.pewresearch.org/hispanic/2020/08/20/facts-on-u-s-immigrants-current-data/

A longer-run perspective on immigration from Mexico and Central American countries is provided in Table 2, which gives estimates of the foreign-born population between 1960 and 2018. Although people born in Mexico continue to account for the large majority of immigrants from these countries, growth in immigration from Mexico slowed dramatically after 2000, and the estimated number of Mexican immigrants residing in the U.S. fell between 2010 to 2018 (this important change will be discussed in more depth below). Growth in the numbers of Northern Triangle immigrants has exceeded growth by Mexican immigrants since 1970, which reflects

that there were almost no Northern Triangle immigrants living in the U.S. in 1960. This growth has actually decelerated significantly since 1990.

Table 2 shows that immigration outcomes have varied significantly across Central American countries. In 1970, the number of immigrants from each Central American country residing in the U.S. was roughly similar; subsequently, immigration from Northern Triangle countries has, in general, significantly exceeded immigration from other countries in Central America. Immigration from Nicaragua also kept pace with the Northern Triangle region through 1990 but then experienced a sharp deceleration in growth.

Table 2. Foreign-Born Population: Mexico and Central American Countries, 1960-2018

	1960	**1970**	**1980**	**1990**	**2000**	**2010**	**2018**	Ratio of 2018 to 1970
Mexico	575,902	759,711	2,199,221	4,298,014	9,177,487	11,746,539	11,182,111	15
El Salvador	6,310	15,717	94,447	465,433	817,336	1,207,128	1,420,399	90
Guatemala	5,381	17,356	63,073	225,739	480,665	797,262	1,003,841	58
Honduras	6,503	19,118	39,154	108,923	282,852	518,438	646,331	34
Nicaragua	9,474	16,125	44,166	168,659	220,335	246,687	262,304	16
Panama	13,076	20,046	60,740	85,737	105,177	99,853	103,818	5
Costa Rica	5,425	16,691	29,639	43,530	71,870	75,838	87,997	5
Belize	2,780	8,860	14,436	29,957	40,151	44,227	48,012	5
Growth:								
Mexico		32%	189%	95%	114%	28%	-5%	
El Salvador		149%	501%	393%	76%	48%	18%	
Guatemala		223%	263%	258%	113%	66%	26%	
Honduras		194%	105%	178%	160%	83%	25%	
Nicaragua		70%	174%	282%	31%	12%	6%	
Panama		53%	203%	41%	23%	-5%	4%	
Costa Rica		208%	78%	47%	65%	6%	16%	
Belize		219%	63%	108%	34%	10%	9%	

Source: 1960-2000: Table 3 in Campbell Gibson and Kay Jung, "Historical Census Statistics on the Foreign-Born Population of the United States: 1850 to 2000," Working Paper No. 81, Population Division, U.S. Bureau of the Census.
2010: http://www.pewhispanic.org/2012/02/21/statistical-portrait-of-the-foreign-born-population-in-the-united-states-2010/
2018: https://www.pewresearch.org/hispanic/2020/08/20/facts-on-u-s-immigrants-current-data/

Table 3 shows the 2018 population of Northern Triangle and Mexican immigrants living in the U.S., as well as the populations of their home-countries. El Salvador and Belize are clear outliers with respect to the degree to which their citizens migrated to the U.S. over the longer

run. The extent to which the variation evident in these two tables can be explained by differences in economic development, demographic trends, crime and violence levels, geographic location, and/or other factors is unclear and needs to be better understood.

Table 3. Ratio of U.S.-Resident Immigrants to Home-Country Population in 2018

	Foreign-born resident in U.S.	Home-country population	(ratio)
Mexico	11,182,111	126,190,788	8.9%
Northern Triangle	*3,070,571*	*32,355,216*	*9.5%*
El Salvador	1,420,399	6,420,744	22.1%
Guatemala	1,003,841	16,346,950	6.1%
Honduras	646,331	9,587,522	6.7%
Nicaragua	262,304	6,465,513	4.1%
Panama	103,818	4,176,873	2.5%
Costa Rica	87,997	4,999,441	1.8%
Belize	48,012	383,071	12.5%

Source: Foreign-born estimates taken from Table 2. Home-country population values are from World Development Indicators database.

It would also be useful to have some understanding of how much new migration from the Northern Triangle to the U.S. could take place in coming years. Research that was done a decade ago argued that Mexican immigration into the U.S. had peaked in the 2000s, and this has so far proven to be the case.[3] It is not clear if similar research could be done for Northern Triangle countries given less availability of needed demographic data. It might, however, be possible to develop and implement an alternative approach. Although this study will not develop such projections, it is an important task for researchers, as having a sense of how much more migration could potentially take place would be useful to policymakers and analysts.

2.2 Northern Triangle Immigration in the Context of Unauthorized Immigration Flows

Although overall immigration from the Northern Triangle is relatively small compared to inflows from other regions, the Northern Triangle is now the most significant source region for unauthorized immigration into the U.S. Table 4 shows that even though the number of

[3] See Hanson and McIntosh (2007, 2009). This research is discussed in more detail in section 5 below.

unauthorized immigrants from most regions of the world is estimated to have fallen since 2007, the number of unauthorized Northern Triangle immigrants has risen significantly, and the ratio of unauthorized immigrants to total immigrants is the highest for these three countries. More than half of Northern Triangle immigrants are estimated to hold unauthorized status. Aside from this region, the number of unauthorized immigrants is estimated to have risen in only a handful of countries, and in these countries, the ratios of unauthorized to total immigrants are significantly smaller than for the Northern Triangle.[4]

Table 4. Unauthorized and Total Foreign-Born Residents in the U.S.: Pew Research Center Estimates

	Unauthorized immigrants			**Total foreign born**	
	2007	**2017**	(growth)	**in 2017**	(ratio)
Total	**12,200,000**	**10,500,000**	**-14%**	**44,406,371**	**24%**
Mexico	6,950,000	4,950,000	-29%	11,236,543	44%
Central America	1,500,000	1,900,000	27%	3,507,296	54%
El Salvador	*600,000*	*750,000*	*25%*	*1,385,122*	*54%*
Guatemala	*400,000*	*600,000*	*50%*	*951,501*	*63%*
Honduras	*300,000*	*400,000*	*33%*	*643,896*	*62%*
South America	900,000	775,000	-14%	3,219,623	24%
Brazil	*180,000*	*160,000*	*-11%*	*458,213*	*35%*
Colombia	*180,000*	*140,000*	*-22%*	*794,870*	*18%*
Venezuela	*55,000*	*130,000*	*136%*	*352,245*	*37%*
Ecuador	*150,000*	*120,000*	*-20%*	*447,538*	*27%*
Peru	*150,000*	*100,000*	*-33%*	*462,932*	*22%*
Caribbean	475,000	475,000	0%	4,405,841	11%
Haiti	*110,000*	*100,000*	*-9%*	*689,749*	*14%*
Dominican Republic	*200,000*	*240,000*	*20%*	*1,163,124*	*21%*
Jamaica	*90,000*	*90,000*	*0%*	*741,782*	*12%*
Asia	1,300,000	1,450,000	12%	12,180,847	12%
India	*325,000*	*525,000*	*62%*	2,605,027	*20%*
China	*325,000*	*375,000*	*15%*	2,860,642	*13%*
Philippines	*190,000*	*160,000*	*-16%*	*2,001,879*	*8%*
Korea	*180,000*	*150,000*	*-17%*	*1,069,113*	*14%*
Europe, Canada	650,000	500,000	-23%	5,850,245	9%

[4] Interestingly, unauthorized immigration from India has grown substantially. However, the large majority of Indian immigrants have authorized status.

Canada	*95,000*	*80,000*	*-16%*	*805,248*	*10%*
Middle East	140,000	130,000	-7%	1,829,494	7%
Africa	250,000	250,000	0%	1,928,329	13%

Source: Unauthorized immigrants: Pew Research Center fact sheet, https://www.pewresearch.org/fact-tank/2019/06/12/us-unauthorized-immigrant-population-2017/
Foreign born in 2017: Pew Research Center, https://www.pewresearch.org/hispanic/2019/06/03/facts-on-u-s-immigrants-2017-data/

A basic conclusion that can be drawn from this review is that, although overall immigration inflow from the Northern Triangle is relatively small in the context of total immigration into the U.S., it has a substantial unauthorized component which has become the most important source of net increase in unauthorized immigrants. For many years, demand for entry into the U.S. by Northern Triangle migrants has been much greater than the legal quotas allocated to Northern Triangle countries, and large, unauthorized inflows have resulted.

3. Characteristics of Northern Triangle Migrants and Their Motivations for Emigration

Understanding the characteristics of those who are potential and actual migrants to the U.S. from the Northern Triangle is important for recognizing whether there are particular groups in this region that have a higher likelihood of emigrating to the U.S. We review here evidence from two useful survey sources to develop a portrait of migrant characteristics.

3.1 Data Sources on Migrant Characteristics

The flow of migrants from Mexico and the Northern Triangle to the U.S. are arguably the most intensively researched migration flows in history. After mass migration from Mexico to the U.S. began in the 20th century, U.S. and Mexican governmental and academic institutions made major investments in collecting data from individual migrants to better understand their characteristics, the nature of their trip(s), their economic situation in their home country and in the U.S., and other relevant factors.[5] As migrant flows from Northern Triangle countries began to intensify, data was collected on them as well. Key data sources include:

- U.S. decennial population censuses
- U.S. household surveys: Current Population Survey, American Community Survey
- U.S. immigration enforcement administrative records (e.g., apprehension records)
- Mexican population censuses
- Mexican household surveys: National Survey on Occupation and Employment (ENOE), National Survey of Demographic Dynamics (ENADID)
- Migrant surveys: Mexican Migration Project, Las Encuestas sobre Migración en las Fronteras Norte y Sur de México (EMIF) surveys
- Other surveys: Latin American Public Opinion Project (LAPOP) survey

Each data source is subject to limitations in terms of capturing the universe of migrants and potential migrants, the range of questions asked, and other important aspects. There is no "perfect" source of data on these populations, and researchers have used a particular source that provides the best information in light of the specific questions that they are interested in

[5] See Hanson (2006) for a detailed review of data sources on Mexican migrants.

exploring. Recent research efforts have also productively used several data sources in conjunction with each other.[6]

We use here two sources of data to describe the characteristics of Northern Triangle migrants: the Encuesta sobre Migración en la Frontera Sur de Mexico (EMIF-Sur) migrant survey and the Latin American Public Opinion Project (LAPOP) household survey. The EMIF-Sur survey captures migrants who actually left their home country and arrived in the U.S. The LAPOP survey captures people in their home country who are thinking of emigrating.

3.2 Characteristics of Actual Migrants

The EMIF migrant surveys are implemented by the El Colegio de la Frontera Norte (COLEF) on both Mexico's northern border (EMIF-Norte) and southern border (EMIF-Sur). The EMIF-Sur survey began in 2004 in order to better understand the flow of migrants from the Northern Triangle. The surveys are jointly managed by COLEF and a set of Mexican governmental institutions that support it. We use here data on migrants who actually left their Northern Triangle country of residence and were detained in the United States and returned by U.S. immigration authorities. COLEF deploys field researchers to survey returned migrants in international airports in the capital cities of the three countries where returnees arrive. Sampling by the EMIF surveys is done in two stages. In the first stage, survey implementers decide on the sites and timing with which to deploy field researchers based on available knowledge about flows. In the second stage, a pair of field researchers who are deployed to a particular site at a particular time obtain a sample from the migrants flowing through the site at that time. One researcher counts the total number of migrants who pass through the site; the other researcher randomly selects migrants from the flow and, if the migrant agrees, administers the questionnaire to them.

The nature of bias that results from this sampling procedure for the flow that is being sampled is not well understood. A known bias is present in this sample, because migrants who are returned by U.S. authorities are far less likely to be asylum seekers as opposed to those deemed economic migrants, and this means that the EMIF survey's module of returned migrants

[6] See Hanson (2006) for a review of data sources on Mexican immigration. See Roberts (2017) for research that brings together household survey and immigration enforcement data to analyze unauthorized immigration.

does not cover a significant part of the migrant flow from the Northern Triangle. The characteristics of returned migrants presented below will be quite different than for the asylum-seeker flow that is excluded from this sample. For the purposes of this study, which is focused on those coming to the U.S. for economic reasons, this bias is less concerning (although the bias will be more relevant if there are a significant number of those claiming asylum who are actually coming to the U.S. for economic reasons).

Table 5 compares the sample size of the EMIF-Sur module on migrants returned by U.S. authorities to their home countries to total removals by U.S. authorities. Across all years and the three countries, the EMIF sample comprised 5.7% of all of those returned. In the context of typical survey sample sizes relative to the underlying population, this is a large sample.[7]

Table 5. EMIF-Sur Sample Size and Removals

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
	EMIF-Sur Returned by U.S. Authorities module: sample size									
El Salvador	1,316	1,489	1,700	2,230	2,399	2,230	2,016	1,908	1,650	1,169
Guatemala	2,206	2,097	2,398	3,621	2,451	1,475	1,625	1,698	1,682	1,303
Honduras	1,451	1,626	1,678	1,131	1,574	1,316	847	765	636	1,110
	Total removals by U.S. authorities									
El Salvador	20,017	17,945	18,910	21,130	26,671	21,899	20,264	18,448	14,877	18,190
Guatemala	29,403	30,871	38,885	47,013	54,405	33,379	33,886	33,049	49,135	53,180
Honduras	24,652	22,675	31,724	36,635	40,877	20,298	22,015	22,163	28,451	40,751
	EMIF-Sur sample as % of total removals									
El Salvador	7%	8%	9%	11%	9%	10%	10%	10%	11%	6%
Guatemala	8%	7%	6%	8%	5%	4%	5%	5%	3%	2%
Honduras	6%	7%	5%	3%	4%	6%	4%	3%	2%	3%

Source: Removals by U.S. authorities are from Table 41D, 2019 Yearbook of Immigration Statistics, Department of Homeland Security.

Data on people who actually migrate from the Northern Triangle to the U.S. are collected by the following:

1. The EMIF-Sur migrant survey: this survey captures samples of people who are in the process of emigrating from the Northern Triangle, people who had migrated and are voluntarily returning to the Northern Triangle, and people who had emigrated without

[7] This does not necessarily mean that potential biases in the sample are mitigated by its large size.

legal permission to enter Mexico or the U.S. and had been apprehended and returned by Mexican or U.S. authorities, respectively;

2. The American Community Survey of randomly selected households in the U.S.: this survey captures people who have successfully migrated to the U.S., whether legally or illegally, and are currently residing in the U.S. The survey asks about citizenship status but does not distinguish between those who legally and illegally immigrated into the U.S. Although the survey asks many questions about each household member's circumstances in the U.S., it does not ask any questions about their circumstances in their home country or their trip to the U.S.;
3. Border Patrol and Office of Field Operations apprehension/inadmissibility records: these U.S. government administrative data contain information on a range of personal characteristics and cover every migrant who is apprehended in the U.S.-Mexico border region.

We evaluate here data from the EMIF-Sur migrant survey's module of those who were apprehended and returned to their home country, because this survey asks a range of questions about why the migrant emigrated, their work status in the home country, and other characteristics that the other two data sources do not. A useful task for future research would be to compare the samples of migrants captured in the three sources and evaluate how similar or dissimilar they are to each other. As already mentioned, the EMIF sample of returned migrants does not include those claiming asylum, as those migrants are rarely returned by U.S. authorities.

Table 6 below gives average values for a range of characteristics of those captured in the EMIF-Sur deported module.[8] Roughly 90% of these migrants are male and are, on average, in their late 20s; a vast majority have relatives in the U.S., and most do not speak English. These characteristic averages have been stable over the period from 2009-2019. Other characteristic averages have changed significantly:

- For Guatemalans and Hondurans, the share of those who lived in an urban area in their home country was above 50% prior to 2014, but this share fell sharply thereafter;

[8] EMIF asks about the number of years of schooling that the migrant completed, but tabulations revealed that responses to number of years of schooling is not usable as values greater than 6 are not reported, which is not plausible.

- For El Salvadorans and Hondurans, the share of those who stated that they lived in the U.S. was high prior to 2012 but subsequently also fell sharply;
- For El Salvadorans and Guatemalans, the share of those who said that they spoke English fell after 2012;
- For all three countries, the share of those who said that they worked in their home country prior to the start of their trip fell after 2013.

Changes in these characteristic values generally happened around the time when the asylum-seeker flow first grew sharply, between 2012 and 2014. One potential explanation for these changes is that, prior to the first surge of asylum seekers, the flow of adult migrants to the U.S. had a larger circular-migration component of people who went back and forth between their home country and the U.S., but once the asylum-seeker surge began, the flow included more single adults who had never migrated to the U.S. before.

Table 6. EMIF-Sur: Deported by U.S. Authorities Module
Migrant Characteristics

	% male[A]			Average age[B]			% living in urban area[C]			% stating that they "live in USA"[D]		
	El Salvador	Guatemala	Honduras	El Salvador	Guatemala	Honduras	El Salvador	Guatemala	Honduras	El Salvador	Guatemala	Honduras
2009	86%	86%	86%	30	29	29	55%	77%	89%	73%	8%	37%
2010	86%	87%	88%	32	28	32	37%	58%	73%	69%	18%	64%
2011	89%	92%	92%	32	28	31	38%	61%	72%	68%	7%	65%
2012	96%	95%	92%	30	27	29	48%	99%	62%	45%	18%	25%
2013	92%	90%	78%	29	27	29	52%	87%	73%	28%	16%	9%
2014	80%	85%	76%	28	27	29	47%	74%	37%	13%	16%	4%
2015	85%	85%	81%	27	27	29	51%	41%	19%	9%	18%	8%
2016	85%	85%	86%	27	27	28	62%	42%	22%	9%	16%	6%
2017	84%	85%	86%	29	28	28	59%	47%	28%	28%	32%	5%
2018	72%	86%	94%	29	26	29	55%	40%	18%	30%	21%	23%
2019	76%	90%	89%	30	26	29	56%	53%	19%	23%	16%	14%

Source: Tabulated from data of relevant EMIF-Sur modules.
A: tabulated from “sexo” variable.
B: tabulated from “edad” variable.
C: tabulated from p11_u variable. Tabulation restricted to those reporting that they live in their home country, not the U.S.
D: tabulated from p11p variable.

Table 6 (continued). EMIF-Sur: Deported by U.S. Authorities Module
Migrant Characteristics

	% that have relatives in the U.S.[A]			% that speak English[B]			% who worked in place they live prior to trip start[C]		
	El Salvador	Guatemala	Honduras	El Salvador	Guatemala	Honduras	El Salvador	Guatemala	Honduras
2009	95%	77%	95%	28%	28%	11%	43%	63%	83%
2010	98%	79%	98%	32%	33%	17%	57%	86%	94%
2011	99%	79%	93%	42%	33%	17%	33%	92%	99%
2012	97%	82%	78%	24%	25%	4%	66%	82%	84%
2013	95%	81%	81%	9%	13%	18%	79%	66%	74%
2014	95%	84%	83%	9%	18%	19%	53%	33%	71%
2015	98%	83%	82%	7%	17%	25%	32%	23%	60%
2016	98%	86%	86%	9%	16%	19%	20%	17%	52%
2017	98%	84%	89%	20%	22%	22%	27%	40%	50%
2018	97%	88%	87%	22%	15%	24%	33%	31%	68%
2019	96%	76%	82%	13%	14%	21%	47%	38%	63%

Source: Tabulated from data of relevant EMIF-Sur modules.
A: tabulated from p40 variable.
B: tabulated from p4 variable.
C: tabulated from p13_2 variable.

Table 7 shows the distribution of EMIF-Sur returned migrants across broad occupations of the migrants in their home country prior to their trip. For all three countries, there was a large increase after 2012-13 in the percentage of migrants who had not worked in their home country prior to their trip. This is consistent with the evidence above that a major change in the nature of the flow of adult migrants took place as the first asylum surge mounted. For those who had worked prior to departure, relatively fewer migrants were in the agriculture sector in El Salvador as compared to Guatemala and Honduras, and almost no migrants were in "white-collar" occupations.

Table 7. EMIF-Sur: Deported by U.S. Authorities Module
Distribution of Migrant Occupations in Home Countries

	Not working prior to trip[A]	"White-collar"[B]	Agriculture, forestry	Manufacturing, mining	Construction	Transport	Services[C]
El Salvador							
2009	16%	1%	4%	27%	30%	4%	19%
2010	14%	1%	8%	30%	23%	3%	21%
2011	14%	1%	9%	32%	23%	1%	20%
2012	20%	0%	13%	28%	21%	2%	15%
2013	29%	0%	14%	4%	23%	5%	23%
2014	56%	0%	10%	2%	13%	5%	14%
2015	74%	0%	7%	3%	6%	3%	7%
2016	83%	0%	4%	1%	4%	2%	6%
2017	78%	0%	3%	2%	8%	1%	7%
2018	71%	1%	3%	4%	10%	1%	10%
2019	61%	1%	5%	3%	17%	3%	11%
Guatemala							
2009	46%	1%	18%	11%	8%	4%	12%
2010	21%	2%	26%	16%	14%	4%	16%
2011	31%	1%	26%	14%	11%	4%	12%
2012	35%	1%	22%	14%	16%	2%	11%
2013	40%	1%	27%	4%	11%	2%	14%
2014	70%	0%	13%	3%	4%	2%	8%
2015	80%	0%	9%	2%	2%	1%	5%
2016	85%	0%	7%	2%	2%	1%	4%
2017	63%	1%	12%	3%	8%	2%	10%
2018	73%	0%	10%	3%	6%	1%	7%
2019	68%	1%	9%	3%	8%	2%	10%

Honduras							
2009	28%	1%	3%	21%	23%	3%	21%
2010	7%	0%	4%	28%	37%	0%	24%
2011	7%	0%	8%	25%	36%	1%	23%
2012	25%	0%	19%	22%	24%	1%	9%
2013	38%	1%	23%	8%	16%	2%	12%
2014	45%	1%	22%	6%	11%	3%	12%
2015	52%	1%	20%	5%	10%	2%	10%
2016	57%	1%	19%	3%	11%	2%	7%
2017	60%	1%	17%	5%	12%	1%	5%
2018	33%	1%	28%	8%	14%	3%	13%
2019	39%	1%	22%	6%	14%	5%	13%

Source: Tabulated from question p13_4 of relevant EMIF-Sur modules. EMIF-Sur provides detailed occupations that are aggregated into these broad categories according to occupation groupings of the U.S. Census Bureau. EMIF-Sur occupation codes changed significantly in 2013.
A: Unemployed, homemaker, student, retired, otherwise not in labor force.
B: Professional, management, business, technical, education, sports.
C: Includes trade, sales, maintenance and repair, as well as other service sectors.

3.3 Characteristics of Potential Migrants

The LAPOP survey has been conducted biannually since 2004 in most countries of the Western Hemisphere. It asks a nationally representative sample of adults aged 17 or older a wide range of questions on their socio-demographic characteristics, economic situation, crime and safety conditions, political attitudes, and other variables. Although the set of questions asked varies from country to country and year to year, a stable set of core questions has been asked since 2004 in a broad set of countries. The LAPOP survey is useful for understanding the characteristics of *potential* migrants because it identifies people who are thinking or not thinking about migrating in the future, not people who have actually migrated. Table 8 describes the LAPOP survey waves that we use in this study.

Table 8. LAPOP Surveys in Northern Triangle Countries

Survey year	El Salvador		Guatemala		Honduras	
	Dates	Sample size	Dates	Sample size	Dates	Sample size
2004	Apr-May 2004	1,589	Mar 2004	1,708	Feb-Mar 2004	1,500
2006	Jun-Jul 2006	1,729	Jun-Jul 2006	1,498	May 2006	1,585
2008	Feb-Mar 2008	1,549	Feb-Mar 2008	1,538	Feb 2008	1,522
2010	Jan-Mar 2010	1,550	Jan-Mar 2010	1,504	Jan-Feb 2010	1,596
2012	Apr 18-May 12, 2012	1,512	Mar 7-Apr 5, 2012	1,509	Jan 27-Feb 17, 2012	1,728
2014	Mar 28-Apr 30, 2014	1,512	Apr 1-May 10, 2014	1,506	Mar 18-May 9, 2014	1,561
2016/17	Oct 21-Dec 6, 2016	1,511	Feb 16-May 20, 2017	1,546	Oct 14-Nov 20, 2016	1,560
2018/19	Nov 11-Dec 6, 2018	1,511	Jan 22-Mar 20, 2019	1,596	Oct 2-Nov 16, 2018	1,560

Source: For 2008-2018/19 surveys, information on dates and sample size are given in country technical information reports available at https://www.vanderbilt.edu/lapop/core-surveys.php. For 2004 and 2006 surveys, information on dates and sample size are obtained from relevant publications available at https://www.vanderbilt.edu/lapop/studies-year.php.

The LAPOP survey asks all respondents if they "have any intention of going to live or work in another country in the next three years." This question is broadly phrased with respect to both level of intensity of intention to migrate ("any intention") and timeframe (as a three-year horizon is specified). The number answering "yes" can thus be expected to be much larger than the number of those who actually subsequently emigrate. This is borne out in Table 9, which gives the percentage of respondents who did and did not state an intention to migrate in the next three years. The share of those stating an intention to migrate is typically over 20%, which clearly greatly exceeds plausible values for the actual number of migrants from these countries. However, there is variation in these shares across countries and over time, and this variation is correlated with the variation in actual migration (see the detailed discussion in section 4 on regression analysis). In 2018, Guatemalan respondents were also asked whether they had considered emigrating in the past year, and whether their potential destination was the U.S. or another country (this question was not asked for other countries, or in other years). Table 10 shows the cross-tabulation of this question with the prospective intent-to-migrate question. The large majority who considered migrating had the U.S. as their potential destination.

Table 9. LAPOP Migration Intention Question[A]

	El Salvador		Guatemala		Honduras	
Intending to migrate:	No	Yes	No	Yes	No	Yes
2004	71%	29%	79%	21%	81%	19%
2006	71%	29%	85%	15%	76%	24%
2008	75%	25%	82%	18%	79%	21%
2010	75%	25%	80%	20%	85%	15%
2012	76%	24%	86%	14%	89%	11%
2014	72%	28%	82%	18%	68%	32%
2016	64%	36%	73%	27%	59%	41%
2018	74%	26%	75%	25%	62%	38%

Source: Tabulated from question q14 in LAPOP survey.
A: "Do you have any intention of going to live or work in another country in the next three years?"

Table 10. Emigration Intentions of Guatemalans in 2018 LAPOP Survey

		q14: "Do you have any intention of going to live or work in another country in the next three years?"	
		No	**Yes**
q14alt: "In the last 12 months, have you considered emigrating from your country?"	**No**	1,131	193
	Yes	65	207
For those answering "Yes" to q14alt: "And where do you think you would emigrate?"			
United States	222		
Other country (not U.S.)	39		

Source: Tabulations of questions q14, q14alt, and q14dest in 2018 LAPOP survey.

Table 11 shows key characteristics of those intending and not intending to migrate. The following observations can be made on these summary statistics:

- Men are a (slight) majority of those intending to migrate. This is in contrast to the percentage of returned migrants in the EMIF-Sur survey who were male, which was usually well above 80%. This can be explained by female migrants using the asylum-seeker channel at a higher rate than male migrants.

- The median age of those intending to migrate is 29 years old, nine years less than the median age of those not intending to migrate.
- Those intending to migrate have roughly 1.5 more years of completed schooling than those not intending to migrate.
- Two-thirds of El Salvadorans intending to migrate live in urban areas, which is somewhat higher than those not intending to migrate. Slightly less than half of Guatemalans, both intending and not intending to migrate, live in urban areas. Slightly more than half of Hondurans intending to migrate live in urban areas, compared to slightly less than half of those not intending to migrate.
- A significantly higher percentage of those intending to migrate reported receiving remittances than of those not intending to migrate. It is important to note that although less than one-third of all respondents reported receiving remittances, a larger percentage report having close family living abroad, and in a question that was only asked in 2018, a large majority in all three countries reported having close friends and/or family residing in the U.S. Social networks that could facilitate migration thus potentially extend significantly beyond those who are actively financing relatives or friends in the home country.
- Table 12 shows that in 2018, less than one-third of respondents reporting that they had close friends and/or family living in the U.S. also reported receiving remittances. A majority of Northern Triangle households with members living in the U.S. do not receive financial assistance from those relatives.
- Average income is generally slightly higher for respondent households intending to migrate, but the difference is less than 10%.
- Table 13 shows that for El Salvador and Honduras in 2010, the percentage of those intending to migrate who had recently lost their job and had not found a new one was only slightly higher than for those not intending to migrate, but for Guatemala, the former percentage was double the latter percentage.
- Those intending to migrate report being the victim of a crime in the past year at a significantly higher rate than those not intending to migrate.

Table 11. LAPOP Respondent Characteristics

	% male						Median age					
	El Salvador		Guatemala		Honduras		El Salvador		Guatemala		Honduras	
Intending to migrate:	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
2004	**44%**	**57%**	**39%**	**55%**	**39%**	**57%**	**36**	**29**	**35**	**30**	**40**	**30**
2006	**43%**	**56%**	**39%**	**52%**	**38%**	**54%**	**37**	**28**	**36**	**26**	**39**	**24**
2008	**37%**	**57%**	**43%**	**51%**	**40%**	**53%**	**38**	**29**	**37**	**30**	**38**	**24**
2010	**42%**	**55%**	**40%**	**52%**	**37%**	**52%**	**38**	**29**	**36**	**29**	**37**	**24**
2012	**40%**	**53%**	**41%**	**52%**	46%	51%	**40**	**30**	**39**	**27**	**38**	**26**
2014	**46%**	**59%**	**41%**	**52%**	**45%**	**52%**	**41**	**32**	**39**	**28**	**41**	**31**
2016	**47%**	**52%**	**45%**	**52%**	**43%**	**56%**	**41**	**32**	**38**	**30**	**40**	**29**
2018	**42%**	**53%**	**41%**	**55%**	**41%**	**55%**	**40**	**29**	**39**	**29**	**39**	**29**

	Average years of schooling						% living in urban area					
	El Salvador		Guatemala		Honduras		El Salvador		Guatemala		Honduras	
Intending to migrate:	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
2004	**7.0**	**8.4**	**5.6**	**6.7**	**5.4**	**7.3**	**57%**	**63%**	46%	47%	**45%**	**60%**
2006	**7.4**	**9.0**	**6.3**	**7.6**	**6.7**	**8.7**	**57%**	**65%**	**46%**	**54%**	44%	47%
2008	**7.9**	**9.8**	**5.8**	**7.1**	**6.8**	**8.8**	**60%**	**68%**	45%	51%	44%	43%
2010	**8.2**	**10.3**	**7.5**	**8.1**	**6.9**	**8.5**	**60%**	**71%**	49%	44%	45%	48%
2012	**7.1**	**8.7**	**6.5**	**8.9**	**6.6**	**7.9**	**64%**	**69%**	46%	46%	**49%**	**56%**
2014	**8.1**	**9.5**	**6.0**	**7.3**	**6.8**	**8.8**	**61%**	**67%**	50%	44%	**51%**	**60%**
2016	**8.5**	**9.7**	**7.9**	**8.6**	**7.1**	**8.3**	**61%**	**68%**	50%	46%	**51%**	**57%**
2018	**8.7**	**10.0**	8.0	8.2	**7.1**	**8.4**	**61%**	**68%**	**53%**	**44%**	**51%**	**58%**

Source: Tabulated from questions q1, q2, "ed", and "ur" in the LAPOP survey.

Bold font indicates statistically significant difference between "No" and "Yes" values at the 10% significance level or better.

Table 11 (continued). LAPOP Respondent Characteristics

	% receiving remittances from abroad						% having close relatives living abroad/ *% having close friends/relatives currently in the U.S. (2018)*					
	El Salvador		Guatemala		Honduras		El Salvador		Guatemala		Honduras	
Intending to migrate:	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
2004	**20%**	**29%**	**11%**	**23%**	**14%**	**29%**	**36%**	**45%**	n/a	n/a	n/a	n/a
2006	**22%**	**31%**	**7%**	**28%**	**18%**	**27%**	**35%**	**45%**	**25%**	**40%**	**37%**	**50%**
2008	**24%**	**34%**	**10%**	**16%**	**16%**	**39%**	**39%**	**49%**	**25%**	**42%**	**30%**	**49%**
2010	**20%**	**34%**	**10%**	**25%**	**13%**	**25%**	**27%**	**42%**	**29%**	**38%**	**27%**	**42%**
2012	**19%**	**31%**	**7%**	**23%**	**10%**	**35%**	**32%**	**43%**	**19%**	**43%**	n/a	n/a
2014	**16%**	**31%**	**5%**	**9%**	**17%**	**31%**	n/a	n/a	n/a	n/a	n/a	n/a
2016	**23%**	**31%**	**11%**	**19%**	**19%**	**34%**	n/a	n/a	n/a	n/a	n/a	n/a
2018	**21%**	**31%**	**11%**	**18%**	**18%**	**27%**	**71%**	**81%**	**53%**	**72%**	**66%**	**80%**

	Average income (PPP exchange rate)						% victim of crime in past year					
	El Salvador		Guatemala		Honduras		El Salvador		Guatemala		Honduras	
Intending to migrate:	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
2004	$594	$604	n/a	n/a	**$409**	**$558**	**16%**	**21%**	**12%**	**17%**	**11%**	**26%**
2006	**$541**	**$662**	$577	$629	**$500**	**$571**	**13%**	**23%**	**17%**	**31%**	**17%**	**25%**
2008	**$590**	**$678**	$522	$460	**$551**	**$608**	**16%**	**28%**	**16%**	**22%**	**12%**	**19%**
2010	**$555**	**$674**	$505	$477	$599	$642	**20%**	**35%**	**22%**	**27%**	13%	16%
2012	$543	$569	$470	$478	**$659**	**$809**	**15%**	**26%**	**18%**	**32%**	**17%**	**31%**
2014	$591	$626	$422	$420	**$491**	**$567**	**16%**	**26%**	16%	20%	**14%**	**27%**
2016	$660	$695	$499	$450	**$593**	**$709**	**17%**	**35%**	**21%**	**33%**	**15%**	**31%**
2018	$538	$567	**$429**	**$366**	$384	$389	**17%**	**30%**	**18%**	**27%**	**15%**	**27%**

Source: Tabulated from questions q10a, q10c, q10cus, and vic1ext in the LAPOP survey. For average income, see discussion in next section on how average income is calculated.

Bold font indicates statistically significant difference between "No" and "Yes" values at the 10% significance level or better.

Table 12. Cross-Tabulation of Receives Remittances and Has Close Friends/Family in U.S.: 2018

	El Salvador	Guatemala	Honduras
(A) Gets remittances, no close friends/relatives in U.S.	10	17	28
(B) Gets remittances, has close friends/relatives in U.S.	343	193	307
(C) Does not get remittances, no close friends/relatives in U.S.	389	651	417
(D) Does not get remittances, has close friends/relatives in U.S.	758	723	805
B/(B+D)	31%	21%	28%

Source: Tabulated from questions q10a and q10cus in 2018 LAPOP survey.

Table 13. "Have you lost your job in the last two years?": 2010

2010	El Salvador		Guatemala		Honduras	
Intending to migrate	No	Yes	No	Yes	No	Yes
In labor force:						
(A) Lost job and has not found a new one	62	22	104	80	56	15
(B) Lost job but found a new one	76	50	81	67	41	18
(C) Did not lose job	923	204	771	188	1032	182
A/(A+B+C)	6%	8%	11%	24%	5%	7%
Memo: not in labor force	59	12	198	40	182	22

Source: Tabulated from question ocup1b1. This question was asked in 2010 only.

3.4 Why Do Northern Triangle Migrants Go to the U.S.?

Motivations for emigration from the Northern Triangle to the U.S. have been an analytical focal point since the asylum-seeking migrant surge began in the early 2000s. Roberts et al. (2018) evaluated previous studies, reviewed a range of evidence, and carried out several analyses and concluded that, "Adult asylum seekers have primarily been driven by economic motivations, and juvenile migrants by economic opportunities and reunification with family, and evidence on the impact of crime and violence on juvenile and adult flows is mixed." We provide here some additional insight into motivations of Northern Triangle migrants from the 2018 and 2019 EMIF-

Sur and LAPOP surveys. Data from these surveys further support that the main motivation of migration from the Northern Triangle is economic opportunity, and that factors such as crime and violence, and drought and other environmental factors have been of secondary or no material importance.

The 2018 EMIF-Sur survey included two questions on why a returned migrant had left their home country. The first question asked a respondent for a reason, and the second question gave them the possibility to give another reason. Table 14 tabulates combined responses to these two questions for migrants who reported spending a year or less in the U.S. prior to being returned. These results confirm the finding of Roberts et al. (2018) that for adult migrants who are returned to their home country by U.S. authorities and are thus not asylum seekers, crime and violence are of secondary importance for El Salvadorans and of minimal importance for Guatemalans and Hondurans.

Table 14. 2018 EMIF-Sur: Deported by U.S. Authorities Module
"For what reason(s) did you leave (home country) on your last trip?"

	El Salvador		Guatemala		Honduras	
Economic reasons[A]	1,136	68%	1,730	92%	591	83%
Family reasons[B]	211	13%	117	6%	65	9%
Violence or insecurity	320	19%	18	1%	34	5%
Natural disasters	2	0%	1	0%	2	0%
Other reasons	2	0%	17	1%	21	3%

Source: Tabulated from questions 13_12_1 and 13_12_2 of relevant 2018 EMIF-Sur modules. Only migrants whose answers to questions p37t and p37t equate to a stay in the U.S. prior to removal of less than 366 days are included in the tabulation.
A: Economic reasons include "lack of employment or economic crisis in their place of origin" and "very low income and/or poor working conditions."
B: Family reasons are "family separation, family reunification, family violence, etc."

The 2019 EMIF-Sur survey asked returned migrants if a range of situations or reasons played a role in their decision to leave their home country. Respondents answered "yes" or "no" to each situation separately and could choose multiple reasons for migrating. Table 15 below tabulates responses for each reason for migrants who reported being in the U.S. for a year or less prior to being removed. These results are particularly interesting because they show no support for the

idea that drought or reduced harvests have caused significant migration from Guatemala and El Salvador, although this has been marginally relevant for Honduras.

Table 15. 2019 EMIF-Sur: Deported by U.S. Authorities Module
"Did the following situations make you leave (home country) on your last trip:"

	Support your family?	Reunite with your family?	Drought or reduced harvest?	Damage from earthquakes, floods, or hurricanes?	Robbery or assault?	Domestic violence?	Threats, extortion, or kidnapping?	Existence of gangs or violent groups?	Other reasons?
El Salvador									
Yes	290	96	0	1	2	2	6	24	0
No	542	736	832	831	830	830	826	808	832
% yes:	35%	12%	0%	0%	0%	0%	1%	3%	0%
Guatemala									
Yes	561	30	1	3	5	2	9	6	3
No	554	1,084	1,113	1,111	1,109	1,112	1,105	1,108	1,111
% yes:	50%	3%	0%	0%	0%	0%	1%	1%	0%
Honduras									
Yes	510	239	86	11	50	25	57	54	2
No	353	624	777	852	813	838	806	809	861
% yes:	59%	28%	10%	1%	6%	3%	7%	6%	0%

Source: Tabulated from responses to questions p13_12_1 to p13_12_9 of relevant EMIF-Sur module. Respondents could choose multiple responses. Only migrants whose answers to questions p37t and p37t equate to a stay in the U.S. prior to removal of less than 366 days are included in the tabulation.

The 2019 EMIF-Sur survey also administered a special module of questions on "Environmental Migration and Violence in the Northern Triangle" to migrants who had been in the U.S. no more than six months. This module was administered to a subset of migrants during the period from April-September. Migrants were asked if they had experienced a range of outcomes in the year prior to their leaving for the U.S.:

- Table 16 tabulates responses for a range of violence, crime, and persecution outcomes;
- Table 17 tabulates responses for a range of environmental outcomes, including drought, various other factors impacting agriculture, and disease;
- Table 18 tabulates responses for a range of natural disaster outcomes; and,

- Table 19 tabulates responses for a question on whether food insecurity played a role in the migration decision.

These results suggest that economic motivations were important for a significant number of migrants, and family reunification for a small but significant number in the case of El Salvador and Honduras, but that crime/violence and environmental factors were not significant. As discussed above, the EMIF-Sur migrant sample does not include asylum seekers and is biased against finding significant crime/violence motivations. However, it should not be biased with respect to environmental factors, as drought and other impacts presumably reduce the ability to farm and earn income.

Table 20 gives migrant responses to the question of whether natural disasters or environmental factors were a reason for emigrating from their home country. Almost all respondents said that they were not affected by these outcomes in the year before migration. For the very small number who said that they were affected, the majority said that it was not a reason for migration.

Table 16. 2019 EMIF-Sur Survey: Deported by U.S. Authorities Module
"During the 12 months before you left your country, did you or any member of your household face:"

	Robbery or assault?	Threats or extortion?	Intimidation by gangs or criminal groups?	Religious or political persecution?	Domestic or family violence?	Conflicts or difficulties with another person?	Did you feel rejected in the place where you lived?	Homicide of a relative or acquaintance?	Violence in your community?
El Salvador									
Yes	17	43	19	0	0	0	0	4	1
No	795	769	794	813	813	813	813	809	812
% yes:	2%	5%	2%	0%	0%	0%	0%	0%	0%
Guatemala									
Yes	11	15	1	0	3	0	0	1	2
No	790	786	800	801	798	800	801	800	799
% yes:	1%	2%	0%	0%	0%	0%	0%	0%	0%
Honduras									
Yes	87	59	22	3	16	8	7	11	13
No	595	623	660	679	666	674	675	671	669
% yes:	13%	9%	3%	0%	2%	1%	1%	2%	2%

Source: Tabulated from responses to questions m_1_0_1 to m_1_0_9 of relevant EMIF-Sur module.

Table 17. 2019 EMIF-Sur Survey: Deported by U.S. Authorities Module "During the year before you left your country, were you or any member of your household harmed by:"

	Drought?	Poor quality or wear (erosion) of the land?	Cold or intense heat?	Land or water pollution?	Pests that affect crops?	Conflicts over land or water?	Diseases such as Zika, cholera, or dengue?
El Salvador							
Yes	1	0	0	0	0	0	0
No	812	813	813	813	813	813	813
% yes:	0%	0%	0%	0%	0%	0%	0%
Guatemala							
Yes	6	0	21	0	0	1	0
No	796	802	781	802	802	801	802
% yes:	1%	0%	3%	0%	0%	0%	0%
Honduras							
Yes	37	20	5	7	6	1	2
No	644	661	676	674	675	680	679
% yes:	5%	3%	1%	1%	1%	0%	0%

Source: Tabulated from responses to questions m_2_1 to m_2_7 of relevant EMIF-Sur module.

Table 18. 2019 EMIF-Sur Survey: Deported by U.S. Authorities Module "During the year before you left your country, were you or any member of your household harmed by:"

	Floods?	Storms or hurricanes?	Volcanic eruption or ash fall?	Earthquakes?	Landslides?	Forest fires?
El Salvador						
Yes	1	0	0	0	0	0
No	812	813	813	813	813	812
% yes:	0%	0%	0%	0%	0%	0%
Guatemala						
Yes	1	2	1	1	0	0
No	800	799	800	800	801	801
% yes:	0%	0%	0%	0%	0%	0%
Honduras						
Yes	8	3	3	1	2	2
No	673	678	678	680	679	679
% yes:	1%	0%	0%	0%	0%	0%

Source: Tabulated from responses to questions m_3_0_1 to m_3_0_6 of relevant EMIF-Sur module.

Table 19. 2019 EMIF-Sur Survey: Deported by U.S. Authorities Module
"In the last 3 months before the start of your trip, due to lack of money or resources, did you ever worry that food would run out at home?"

	El Salvador	Guatemala	Honduras
Yes	272	47	219
No	541	752	457
% yes:	33%	6%	32%

Source: Tabulated from question m5 of relevant EMIF-Sur module.

Table 20. 2019 EMIF-Sur Survey: Deported by U.S. Authorities Module
"Did natural disasters or change in the environment motivate you to leave your country?"

	El Salvador	Guatemala	Honduras
In the last year, we were not harmed by environmental issues	810	774	622
Yes	1	2	5
No[A]	2	25	53

Source: Tabulated from question m4 of relevant EMIF-Sur module.
A: This answer indicates that the person was affected by a natural disaster or change in the environment, but that this did not motivate them to leave their country.

As discussed previously, the migrant population being captured by this EMIF-Sur module are those over 17 years old who actually migrated and who were caught by U.S. enforcement authorities and returned to their home country. This population does not include those who actually migrated and were caught and applied for asylum, those who actually migrated and were not caught, and potential migrants who have not actually migrated. With respect to the population of potential migrants, the 2019 LAPOP survey asked respondents over 17 years old in Guatemala who stated that they were thinking of migrating in the next three years about the reasons why they were thinking of emigrating. Table 21 below tabulates responses for the 266 people who stated that they were thinking of migrating. Respondents could cite as many reasons as they wanted and were not limited to one or two responses.

Results suggest that the large majority of potential adult Guatemalan migrants were thinking of migrating for economic opportunity reasons. Reasons such as violence and insecurity, family reunification, and drought were of, at best, marginal importance. These results are particularly interesting because they reflect the thinking of people who were still residing in their home

country at the time they were surveyed and comprise adults who reflect the entire migrant population, not just a particular subset of it.

Table 21. 2019 LAPOP Survey: Guatemala
For those who have considered emigrating in the past year:
"Why are you thinking of emigrating?"

	Number citing this as a reason		Number citing only this reason		Average intensity of intention to emigrate[A]
Economic opportunity	204	63%	169	74%	3.1
Insecurity and violence	23	7%	9	4%	3.6
Family reasons/reunification	22	7%	13	6%	3.6
Pressures (family, community)	17	5%	12	5%	3.1
Education	17	5%	4	2%	3.5
Corruption	9	3%	4	2%	2.7
Hunger	8	2%	3	1%	3.0
Drought	4	1%	1	0%	4.0
Discrimination	4	1%	1	0%	n/a
Natural disaster	3	1%	0	0%	-
Other	11	3%	11	5%	3.0

Source: Tabulated from questions q14mot_1 to q14mot_10 in 2019 LAPOP Guatemala survey.
A: Intensity of intention to emigrate has response values of 1 (unlikely), 2 (a little likely), 3 (somewhat likely), and 4 (very likely).

4. The Intention to Emigrate from the Northern Triangle and Its Correlates

In order to evaluate the influence of economic factors on the decision to migrate from the Northern Triangle, we analyzed data from the Latin American Public Opinion Project (LAPOP) household survey. This analysis further develops the analysis presented in Roberts et al. (2018) and Hiskey et al. (2014).

LAPOP began in 2004 in 11 countries, with the intent to study democratic values in the Latin American and Caribbean regions. It has expanded over time and now implements household surveys in most countries of the western hemisphere. LAPOP country surveys collect national probability samples of people over 17 years of age through face-to-face interviews in respondents' homes. National sample sizes have ranged between 600 and 4,500 and typically equal around 1,500. Details on sample design for each country and survey year are available on the LAPOP website. [9] The survey has asked a standard set of questions across countries that will be used here, including questions on the geographic and socio-demographic characteristics of individual respondents, economic conditions of the respondent's household, and outcomes related to crime and safety.

The LAPOP questions that are used in statistical analysis here include:

- Migration intention question (Q14): "Do you have any intention of going to live or work in another country in the next three years?" (binary yes-no response)
- Remittance receipt question (Q10a): "Do you or someone else living in your household receive remittances, that is, economic assistance from abroad?" (binary yes-no response)
- U.S. social network question (Q10cus), asked in 2018 only: "Do you have close friends or close family members currently living in the United States?" (binary yes-no response)
- Household income questions: Q10, Q10new_12, Q10new_14, Q10new_16, Q10new_18. The use of these questions to develop a household income measure is discussed below.
- Crime/violence question (Vic1ext): "Have you been a victim of any type of crime in the past 12 months? That is, have you been a victim of robbery, burglary, assault, fraud,

[9] See https://www.vanderbilt.edu/lapop/. LAPOP is based at Vanderbilt University and implemented through a network of partnering academic institutions and survey organizations based in countries where the surveys are conducted.

blackmail, extortion, violent threats, or any other type of crime in the past 12 months?" (binary yes-no response)

- Crime/violence question (Vicbar7), asked in 2014-2018 only: "Have there been any murders in the last 12 months in your neighborhood?" (binary yes-no response)
- Gender question (Q1): Male-female binary response
- Age question (Q2)
- Education question (ED): "What was the last year of education that you completed or passed?"
- Province and municipality of residence

This survey does not observe people who have actually migrated, only potential migrants (people who are contemplating migrating). Q10a asks if the person's household receives economic assistance from abroad; this question is a good proxy for whether the person has a family member or friend in the potential destination country who could help them with their trip and/or settling upon arrival. Q10cus, which was only asked in 2018, is specific to the U.S. and is broader than the remittance question.

Two questions are used regarding the crime and violence conditions that the respondent is exposed to. The question Vic1ext asks whether a person has actually been a victim of a crime. The question Vicbar7 is about a perception of crime risk. Those researching the influence of crime and violence on Northern Triangle migration decisions can choose between using data on actual crime outcomes and on crime perceptions. In terms of government data on crime, the only crime outcome that is believed to be well measured is homicide, and researchers have used the murder rate as an explanatory variable.[10] The LAPOP survey provides an extensive range of variables on both crime outcomes at the individual level and perceptions, including (for example) questions on whether a respondent had been a victim of crime in the past year, the perceived risk of being assaulted or robbed in one's neighborhood, and the presence of murders in one's neighborhood. Arguments can be made in favor of each option. The homicide rate and being a victim of crime represent actual outcomes as opposed to perceptions. However, personal decisions may be more influenced by perceptions, and homicide risk is just one type of crime

[10] See Clemens (2017) and Roberts et al. (2018).

risk that influences decisions (and is not necessarily the most important one). Estimations are presented here that use all of these variables.

4.1 Intention-to-Migrate Estimates: Individual- and Macro-Level Variables

We first estimate a regression that relates intention to migrate to both individual-level variables and macro-level variables, which include observed national and regional economic and violence outcomes. Individual-level variables include demographic characteristics (age, gender, education), individual crime experiences (victimization in previous year), and whether or not a person receives remittances from abroad.

Individual-level data are merged with observational data based on either the country of the respondent or the department (province) of the respondent. Some economic and opportunity data are derived from World Bank repositories. This includes the country GDP growth rate and country GDP per capita, the unemployment rate, and the murder rate. In each case, the merges take place on the country-year of the respondent. Data on foreign direct investment (FDI) come from the Inter-American Development Bank (IADB) and are reported at the country-year level. Finally, as an alternative measure of FDI, data on the number of U.S. multinational corporations operating in each country and the amount of associated employment is obtained from Woods & Poole Economics, Inc. (2020). The Woods & Poole data provide listings for each employer in the Northern Triangle, and these data are filtered to include only those employers who have an eventual parent company that is based in the United States. As alternative measures, the number of companies and the associated number of employees are aggregated to both the country level as well as the department/province level.

The resulting data is a set of individual-level observations of whether or not a person intends to migrate. There are 36,114 complete observations using the primary regression model. The propensity to express an intention to migrate is modeled using logistic regression. The binary decision to migrate is modeled as

$$Y_{it} = \eta \sum_{j} I(j) * t_t + \beta \sum_{j} I(j) * (age_{it} + education_{it} + victim_{it} + remittance_{it} + murderrate_{it} + FDI_{it} + employees_{it} + unemploymentrate_{it} + GDPPCGrowth_{it})$$

where *j* indexes a summation over the three countries. The first term of the indicator variable corresponds to a country-specific linear time trend. The second term is a set of country-specific coefficients for age, education, criminal victimization, remittance payments, country-level murder rate, country-level FDI, provincial multinational employees, county-level unemployment rate, and the country-level growth rate in GDP per capita. These variables are measured using contemporaneous values rather than lagged or moving averages. η is a matrix of coefficients associated with the linear time trend, and β is a matrix of correspondent coefficients for the non-time trend coefficients. Regression results are presented in Table 22 below.

Results for individual-level variables are consistent with *a priori* expectations. Guatemalans are less likely to intend to migrate, but their rate of intention was increasing over time, which is consistent with the low rate of actual emigration from Guatemala compared to the other counties and its increase over time. The intention to migrate is lower for females, decreases with age, and is positively correlated with education in El Salvador and Honduras (although the correlation is not materially large). Not receiving remittances is statistically and materially significant, as is the impact of having been a victim of crime.

Results for macro-level variables are mixed in terms of expected impacts. The murder rate impacts intention to migrate positively in El Salvador but negatively in Honduras. An increase in the GDP growth rate significantly lowers the intention to migrate in Guatemala but has no statistically significant impact in El Salvador or Honduras. The unemployment rate is positively correlated with intention to migrate in Honduras. Foreign direct investment (FDI) is negatively correlated with intention to migrate in Guatemala but positively correlated in El Salvador and Honduras. U.S. multinational employment is positively correlated with intention to migrate in El Salvador and Honduras.

4.2 Simulations

A simulation tool was created that permits evaluating how the intention to migrate changes if the right-hand side variables in Table 22 change. Figure 1 presents a baseline simulation of the intention to migrate in Guatemala given historical values in the graph on the top, and a simulation of improved economic conditions in the graph on the bottom. This simulation reflects an annual increase in Guatemala's GDP per capita that is 5% faster than the existing trend. For example, if Guatemala's GDP per capita growth rate in 2020 were 2%, then the projections would reflect a GDP per capita growth rate of 2.1% in 2021 and 2.205% in 2022. A comparison of the graphs shows only a marginal decrease in the rate of intention to migrate, which suggests that the impact of changing economic variables on the intention to migrate is relatively small. It is important to note that similar simulations were not made for El Salvador and Honduras because the coefficients on the GDP per capita growth rate are positive for these countries, so that a faster rate of growth would *increase* the rate of intention to migrate.

Table 22. Regression Analysis with Individual- and Macro-Level Variables

Dependent Variable: Emigrate	**Coefficient Value**
Guatemala	-65.335* (-38.7)
Honduras	-28.494 (-34.4)
Year	0.006 (0.01)
Guatemala*Year	0.033* (0.02)
Honduras*Year	0.014 (0.02)
El Salvador*Female	-0.491*** (-0.04)
Guatemala*Female	-0.507*** (-0.05)
Honduras*Female	-0.564*** (-0.05)
El Salvador*Education	0.013*** (0.005)
Guatemala*Education	-0.003 (-0.006)
Honduras*Education	0.027*** (-0.006)
El Salvador*Age	-0.035*** (-0.002)
Guatemala*Age	-0.042*** (-0.002)
Honduras*Age	-0.052*** (-0.002)
El Salvador*No Remittance	-0.494*** (-0.048)
Guatemala*No Remittance	-0.856*** (-0.067)
Honduras*No Remittance	-0.828*** (-0.055)
El Salvador*Not Victim	-0.496*** (-0.051)
Guatemala*Not Victim	-0.412*** (-0.058)
Honduras*Not Victim	-0.516*** (-0.057)
El Salvador*Murder Rate	0.016*** (-0.002)

Guatemala*Murder Rate	-0.006 (-0.009)
Honduras*Murder Rate	-0.018*** (-0.003)
El Salvador*FDI	0.0004*** (-0.0001)
Guatemala*FDI	-0.001*** (-0.0001)
Honduras*FDI	0.001*** (-0.0003)
El Salvador*Multinational Employees	0.001*** (-0.0003)
Guatemala*Multinational Employees	-0.0002 (-0.0002)
Honduras*Multinational Employees	0.0003** (-0.0001)
El Salvador*Unemployment Rate	-0.043 (-0.071)
Guatemala*Unemployment Rate	-0.012 (-0.153)
Honduras*Unemployment Rate	0.264*** (-0.025)
El Salvador*GDPPC Growth	0.006 (0.029)
Guatemala*GDPPC Growth	-0.119*** (-0.039)
Honduras*GDPPC Growth	0.125 (0.094)
Constant	-12.732 (-29.089)
Observations	36,115
Log Likelihood	-17,692
Akaike Inf. Crit.	35,455

Standard errors in parentheses. *p<0.1; **p<0.05; ***p<0.01

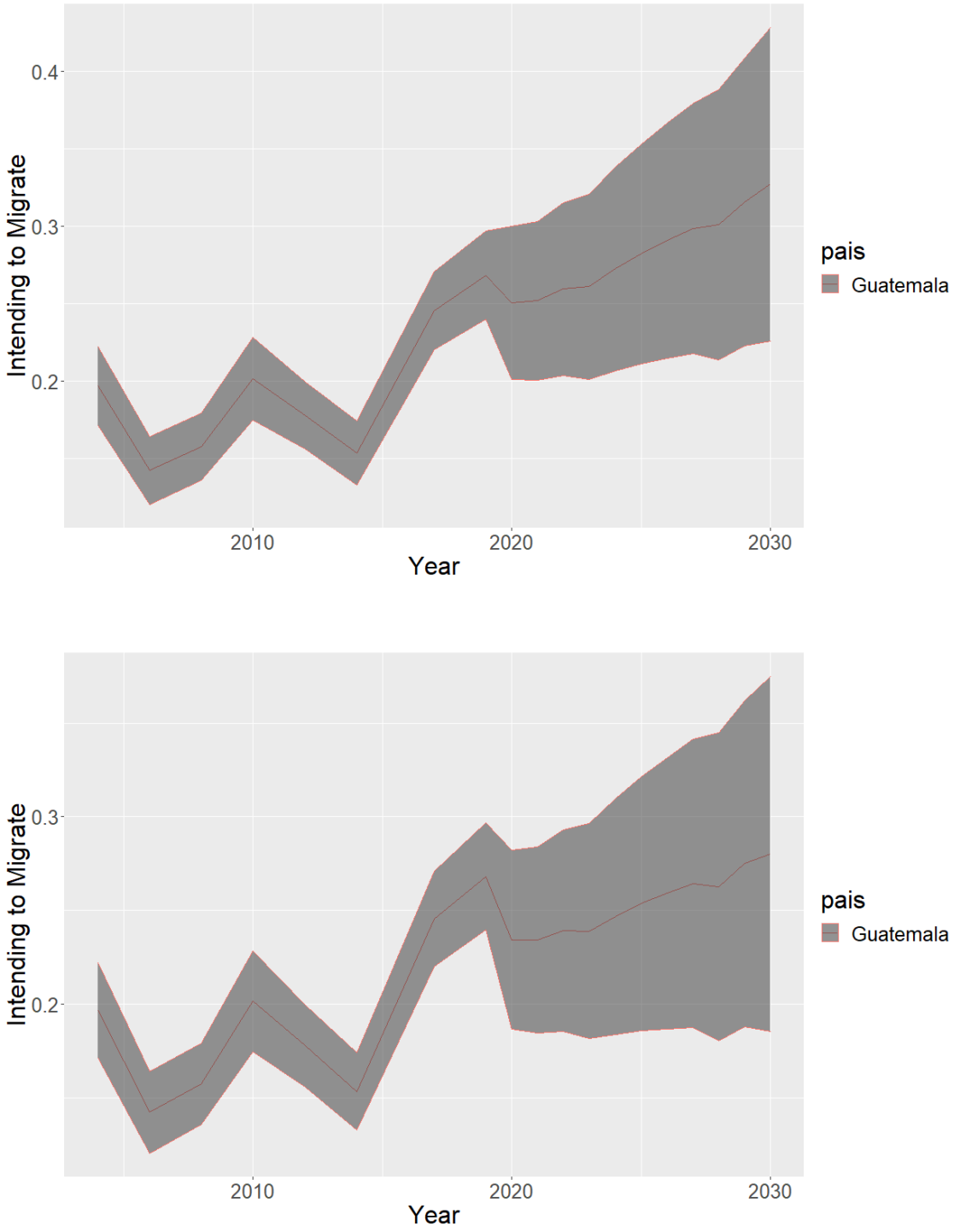

Figure 1. Intention to Migrate in Guatemala: Baseline (top) and Economic Improvement Scenario (bottom)

4.3 Intention-to-Migrate Estimates: Individual-Level Variables Only

We also estimate intention-to-migrate equations that are a function of individual-level variables only. In particular, the macro-level economic variables of the regressions presented above are replaced with a variable that is derived from LAPOP questions on household income level. The LAPOP survey asks respondents to report their household income by asking the following question: "In which of the following ranges is the monthly household income of this household, including remittances from abroad and the income of all working adults and children?" Respondents could choose among 10 ranges during 2004-2010, and among 16 ranges during 2012-2018/19. These ranges are specific to countries, and range values typically change from year to year. In order to construct household income values that are comparable across countries and time, the following steps are implemented. First, the lower and upper values of a range are converted into U.S. dollar values using an exchange rate. Then the midpoint value of the range is constructed as the arithmetic average of the range's lower and upper value in dollars. This midpoint value is set as the household's income level.

Two challenges are confronted in this methodology. First, the top income range is not bound from above, but states that income is "X units or more." A midpoint value for the range must be established in the absence of an upper bound. We establish upper-bound values for top ranges using the quantile estimator that is discussed in more detail in von Hippel et al. (2016).[11] Second, an exchange rate must be used to convert local currencies into U.S. dollars. There are two possibilities: the real exchange rate and the purchasing power parity (PPP) exchange rate. The real exchange rate is the nominal commercial exchange rate adjusted for change in price levels (inflation) in the two countries. The PPP exchange rate is the exchange rate between two currencies that equates the purchasing power of a unit of one currency in both economies. Both exchange rates are plausible candidates for use in this case, so two household income measures are constructed and used in estimation here.

Table 23 reports results for three binary logit regression estimations that use the entire sample of 2004-2018 data. Country and year dummies are included in each regression. The first regression includes household income measured using the PPP exchange rate, the second

[11] Some estimator results were implausible, and an arbitrary value of an estimator parameter had to be imposed in these cases. The value was chosen to be consistent with upper-bound values for plausible estimator values.

regression includes household income measured using the real exchange rate, and the third regression is the first regression with a squared income term included. Results are similar to those of the individual/macro variable regression. The intention to migrate is lower for females, decreases with age, and is positively correlated with education. Not receiving remittances is statistically and materially significant, as is the impact of having been a victim of crime.

The coefficients on year dummies suggest that the intent to migrate as captured in the LAPOP survey is correlated with actual migration out of the Northern Triangle region. Figure 2 shows the percentage change from a 2004 base value in total U.S. Border Patrol apprehensions of Northern Triangle nationals and change in the intention to migrate as reflected in year dummy coefficients for the regression in the first column of Table 23. The intention to migrate and total apprehensions both fell between 2004 and 2010, and both rose after 2012. The dramatic surge in actual migrant flow after 2012 is thus correlated with an increasing tendency to report an intention to migrate in the survey.

All coefficients on household income level have a negative sign and are statistically significant in the cases of Guatemala and Honduras. However, for the purposes of the study's key question, these coefficients do not suggest that household income is materially correlated with the intention to migrate. In a logit regression, the odds of an outcome change by $\{(e^{\beta} - 1)*100\}$ for a unit change in a variable that has coefficient β. These marginal effects are given for the first regression in Table 23. The impact of crime is captured by the effects for the victim variables: someone who has been a victim of crime in the past year is 60-70% more likely to intend to migrate than someone who has not been a victim. Receiving remittances has an even larger marginal impact. However, for even large changes in household income, estimated marginal effects are too small to translate into a significant change in the intention to migrate. For example, the sample average income level is $542. If income increases by $100, an 18% increase, the intention to migrate falls by 0.3%, 3.5%, and 1.0% in El Salvador, Guatemala, and Honduras, respectively. Even if average income doubles, the intention to migrate falls only by 1.6%, 19.0%, and 5.4%, respectively. The results of these regressions are thus consistent with the results of the simulation exercise presented above. Regardless of whether it is macro-level economic outcomes or micro-level household income, this evidence suggests that the intention to migrate is little impacted by changes in home-country economic conditions.

Table 23. Regression Analysis with Individual-Level Variables

	PPP Income			REX Income		PPP Income	
	Coefficient	Prob.	$(e^{\beta}-1)$	Coefficient	Prob.	Coefficient	Prob.
Constant	0.24**	0.02		0.24**	0.02	0.23**	0.02
Guatemala	-0.16	0.26	-15%	-0.18	0.21	-0.15	0.29
Honduras	0.04	0.77	4%	0.04	0.78	0.11	0.42
2006 dummy	-0.05	0.45	-5%	-0.06	0.33	-0.03	0.67
2008 dummy	-0.16***	0.01	-15%	-0.16***	0.01	-0.13**	0.04
2010 dummy	-0.27***	0.00	-24%	-0.27***	0.00	-0.24***	0.00
2012 dummy	-0.39***	0.00	-32%	-0.38***	0.00	-0.35***	0.00
2014 dummy	0.25***	0.00	28%	0.26***	0.00	0.27***	0.00
2016 dummy	0.58***	0.00	79%	0.60***	0.00	0.58***	0.00
2018 dummy	0.35***	0.00	42%	0.37***	0.00	0.36***	0.00
El Salvador*Female	-0.49***	0.00	-39%	-0.50***	0.00	-0.50***	0.00
Guatemala*Female	-0.50***	0.00	-39%	-0.50***	0.00	-0.50***	0.00
Honduras*Female	-0.53***	0.00	-41%	-0.53***	0.00	-0.54***	0.00
El Salvador*Age	-0.04***	0.00	-4%	-0.04***	0.00	-0.04***	0.00
Guatemala*Age	-0.04***	0.00	-4%	-0.04***	0.00	-0.04***	0.00
Honduras*Age	-0.05***	0.00	-5%	-0.05***	0.00	-0.05***	0.00
El Salvador*Education	0.01**	0.03	1%	0.01**	0.03	0.01***	0.01
Guatemala*Education	0.01**	0.05	1%	0.02**	0.03	0.02**	0.03
Honduras*Education	0.04***	0.00	4%	0.03***	0.00	0.04***	0.00
El Salvador*Income	-0.00003	0.41	-0.003%	-0.0001	0.44	-0.0001	0.11
Guatemala*Income	-0.00035***	0.00	-0.035%	-0.0007***	0.00	-0.0005***	0.00
Honduras*Income	-0.00010**	0.04	-0.010%	-0.0002	0.12	-0.0005***	0.00
El Salvador*Income^2						3.34E-08	0.16
Guatemala*Income^2						6.05E-08	0.12
Honduras*Income^2						1.44E-07***	0.00
El Salvador*Remittance	0.50***	0.00	65%	0.50***	0.00	0.51***	0.00
Guatemala*Remittance	0.89***	0.00	144%	0.89***	0.00	0.89***	0.00
Honduras*Remittance	0.83***	0.00	129%	0.82***	0.00	0.85***	0.00
El Salvador*Victim	0.48***	0.00	62%	0.48***	0.00	0.48***	0.00
Guatemala*Victim	0.46***	0.00	58%	0.46***	0.00	0.47***	0.00
Honduras*Victim	0.52***	0.00	68%	0.52***	0.00	0.53***	0.00
Observations	31,085			31,085		31,085	
McFadden R^2	0.11			0.11		0.11	
Akaike Inf. Crit.	0.999			0.999		0.999	
Log Likelihood	-15,506			-15,505		-15,497	

*p<0.1; **p<0.05; ***p<0.01

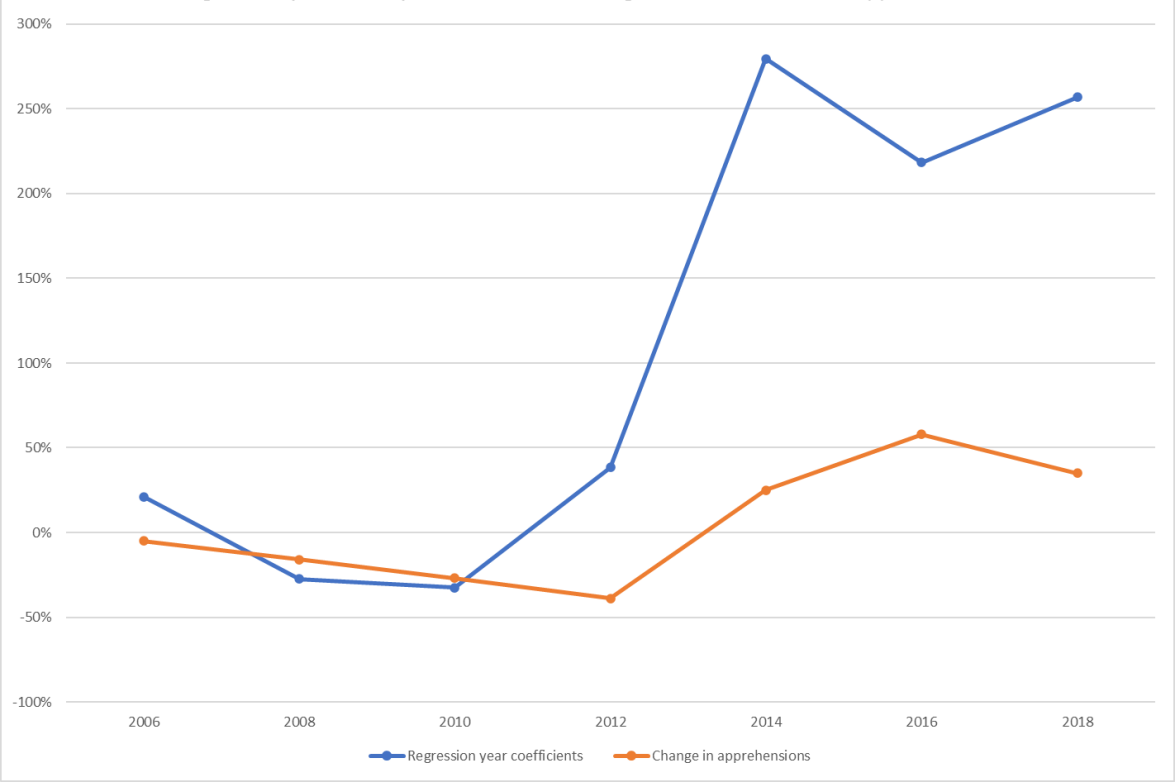

Figure 2. Validating Regression Results with Change in U.S. Border Patrol Apprehensions

4.4 Discussion

It is important to recognize that the regressions developed using LAPOP cross-sectional data estimate correlations between explanatory variables and the intention to migrate, but do not necessarily show causal relationships. Ideally, the causal impact of economic conditions on migration would be estimated using a natural experiment in which economic conditions were known to have improved for a particular subset of people but not for others. This would require monitoring the same group of people over time, including both those who did and did not migrate. A less ideal but still useful approach would be to collect longitudinal data on the same group of people over time and estimate the impact of differential changes in economic outcomes on migration using appropriate statistical techniques. This again would require monitoring the same group of people over time, including those who decide to migrate. We do not know of any data like this that is available for Northern Triangle countries. Even if such data existed, it is not

clear that there would be enough variability in economic outcomes to permit quantifying a causal relationship. In the absence of such data and variability, the best that can be done is to assess correlations in available datasets. LAPOP data does contain information on economic outcomes of households and is likely the best available survey data for the Northern Triangle countries.

Recognizing this limitation, it is nonetheless unsurprising that positive changes in economic outcomes have such a small impact on the intention to migrate. The potential economic gain following migration from the Northern Triangle to the U.S. is enormous. Roberts et al. (2018) show that the wage increase actually experienced by Northern Triangle migrants who go to the U.S. and work is greater than 10 to 1.[12] In the presence of a wage gap this large, even significant percentage changes in home-country income will have relatively little quantitative impact on the gain that could be expected from migration. Results from the LAPOP regressions are supportive of this hypothesis. This poses an important challenge for trying to use economic development as a way of affecting migration decisions. Even if development policies are successful, their impact on migration decisions may be relatively marginal.

[12] See Table ES-2 on page vi of Roberts et al. (2018).

5. Economic Influences on Emigration from Mexico and Puerto Rico

Quantification of the prospective impacts of economic development on migration decisions in the Northern Triangle can be supplemented with an evaluation of whether there are historical examples of improving economic conditions in source countries causing migration to fall. Although a great deal of research has been conducted on what causes mass immigration flows to emerge and evolve, relatively little research has been done on what causes migratory flows to abate and even essentially come to an end. For migratory flows that have fallen significantly in the past, to what extent has economic development in source countries played a role in causing this to happen?

Figure 3 puts the underlying economic incentive to migrate to the U.S. from Mexico, Puerto Rico, and Central American countries into longer-run context by showing the ratio of per capita national income in PPP prices to the U.S. level for these countries since 1950. In 1950, these countries were fairly tightly clustered at income levels that were 15-25% of the U.S. level. Since then, only Puerto Rico experienced a significant degree of convergence to the U.S. level, rising from roughly 20% to 50%. Mexico experienced some convergence in the 1960s and 1970s, but after the debt crisis of the early 1980s, its income level returned to a longer-run average of roughly 25%. The Northern Triangle countries also experienced falling ratios during the late 1970s-early 1980s, followed by three decades of no signs of any convergence. The country that has experienced the worst outcome in this region is Nicaragua, which fell from a level of roughly 20% in the mid-1970s to a long-run level of 5-6%. In contrast, Panama and Costa Rica have begun to converge over the past decade, although they are still at a level of roughly 30% of the U.S. PPP income level.

Table 24 shows net migration values for countries in the Central America and Caribbean regions in absolute numbers and as a percentage of starting-year population for five-year periods between 1950-2020. These values equal the number of immigrants minus the number of emigrants during each five-year period. Positive values indicate net immigration, so that the number of immigrants entering into the country exceeded the number of emigrants leaving it, whereas negative values indicate net emigration. There is significant variation across countries with respect to net migration outcomes. Costa Rica has always had positive net immigration. Belize and Panama went from having net emigration to net immigration in the 1990s. Although Mexico accounts for the largest volume of net migration in this set of counties, the number of net

emigrants was not unusually large as a fraction of Mexico's population. Puerto Rico has experienced the highest rates of emigration, in the 1950s and 2010s. These data show that there is significant variation in both economic and migration outcomes across countries in Central America and the Caribbean that could potentially be exploited by research.[13]

We focus here on two case studies: emigration to the U.S. from Mexico and from Puerto Rico. For decades, the largest immigration flow into the U.S. was from Mexico, but this flow has subsided dramatically over the past decade. Puerto Rico is an interesting case study because there are no policy barriers to movement from Puerto Rico to the mainland U.S., and the level of income in Puerto Rico was much lower than in the U.S in the 1950s but then converged significantly. How has economic development in Mexico and Puerto Rico affected migration to the U.S. over time?

[13] Nicaragua, for example, is a particularly interesting case. By 1990, it had become the poorest country in the Central American region, and a large Nicaraguan migrant community had been well established in the U.S, but subsequent emigration to the U.S. was low. Many Nicaraguans migrated to neighboring Costa Rica in the 1990s, and the number of Nicaraguans residing in Costa Rica likely exceeds those living in the U.S. (Taylor and Filipski, 2011, pp.11-12). Funkhouser (2006) evaluates survey data for Nicaraguan households in 1998 and 2002 and finds systematic differences in the characteristics of emigrants to the U.S. and to Costa Rica, in particular that migrants to the U.S. are significantly more likely to be from urban areas and to not already be in the labor force. Policy and geography also likely play a role. Costa Rica had liberal policies regarding Nicaraguan immigration until the mid-2000s, when policies became significantly more restrictive (Taylor and Filipski, 2011, pp.11-12.) Costa Rica and Nicaragua are also neighbors, and much of the migration has consisted of Nicaraguans living in rural areas close to the border to work in the agricultural sector in Costa Rica (analogous to the flow of Guatemalan migrants to southern Mexico).

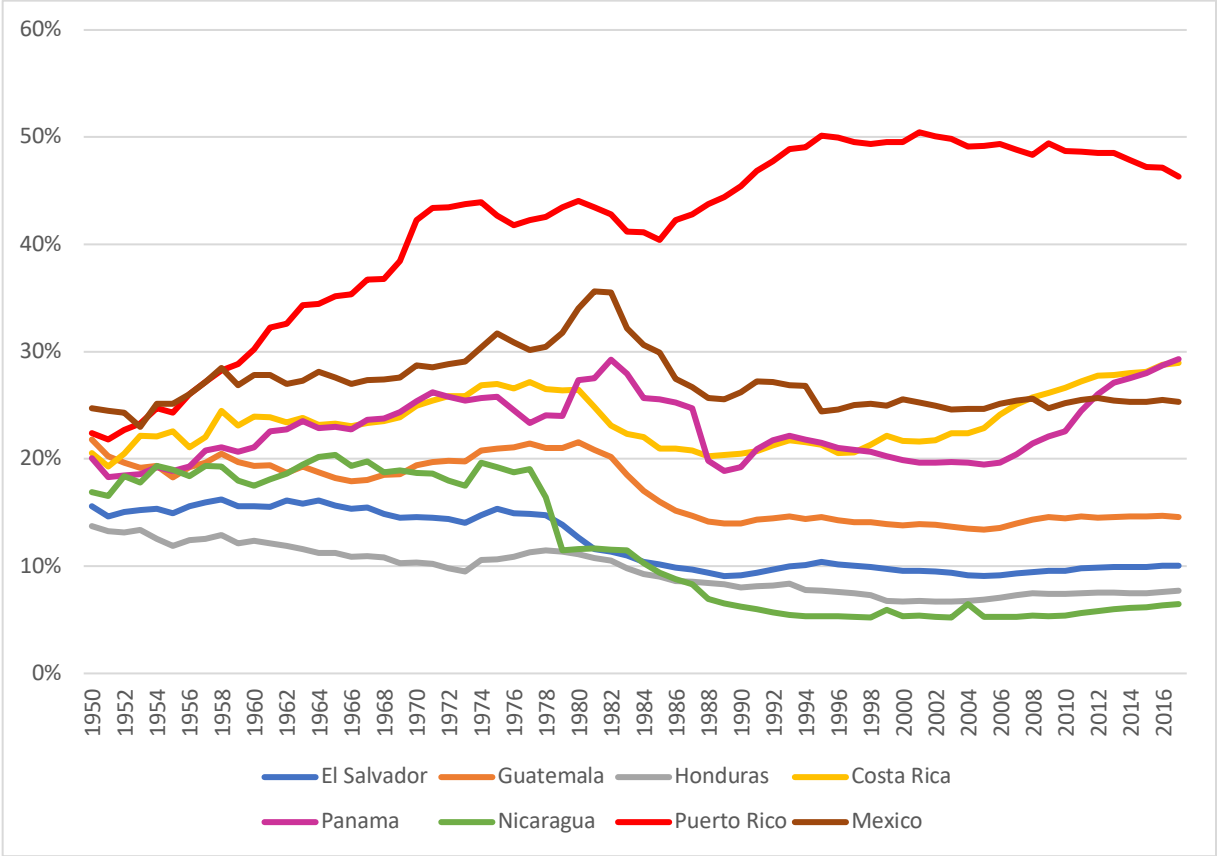

Figure 3. Per Capita GDP in Constant PPP Prices Relative to U.S. Level, 1950-2017

Ratio of per capita GDP levels in 1990 prices. Growth rates of per capita GDP in 2017 prices used to extend GDP values past 2008 (the last year for which 1990 price values are available).

Source: 1950-2008: Angus Maddison, "Statistics on World Population, GDP and Per Capita GDP, 1-2008 AD": http://www.ggdc.net/maddison/oriindex.htm. 2009-2017: World Development Indicators, World Bank.

Table 24. Net Migration Between 1950-2020: Central American and Caribbean Countries

Net migration (1,000)	1950-1955	1956-1960	1961-1965	1966-1970	1971-1975	1976-1980	1981-1985	1986-1990	1991-1995	1996-2000	2001-2005	2006-2010	2011-2015	2016-2020
Cuba	-30	-55	-204	-248	-190	-160	-270	-70	-120	-133	-146	-240	-80	-72
Dominican Republic	-19	-32	-43	-56	-71	-87	-118	-134	-144	-150	-153	-154	-153	-150
Haiti	-30	-35	-52	-58	-88	-98	-125	-135	-140	-145	-140	-138	-150	-175
Jamaica	-39	-150	-144	-150	-91	-98	-71	-147	-110	-93	-92	-87	-57	-57
Puerto Rico	-336	-208	-92	-134	-41	-20	-48	-55	0	-30	-146	-138	-243	-490
Belize	-3	-3	-2	-3	-11	-14	-5	-5	-9	12	6	9	8	6
Costa Rica	5	7	8	8	13	17	19	17	69	90	42	30	20	21
El Salvador	-62	-44	-24	-44	-91	-164	-232	-257	-265	-327	-313	-286	-240	-203
Guatemala	-3	-4	-10	-41	-138	-259	-283	-300	-367	-402	-281	-114	-50	-46
Honduras	-2	-12	-29	-41	-46	-51	-62	-74	-78	-65	-42	-25	-30	-34
Mexico	-232	-287	-409	-616	-920	-1,254	-1,273	-1,836	-2,019	-2,296	-2,206	-562	-422	-300
Nicaragua	-11	-11	-14	-19	-38	-58	-110	-150	-120	-145	-174	-155	-135	-106
Panama	-14	-12	-12	-13	-12	-14	-13	-9	2	10	16	22	28	56
As % of starting-year population														
Cuba	-1%	-1%	-3%	-3%	-2%	-2%	-3%	-1%	-1%	-1%	-1%	-2%	-1%	-1%
Dominican Republic	-1%	-1%	-1%	-1%	-2%	-2%	-2%	-2%	-2%	-2%	-2%	-2%	-2%	-1%
Haiti	-1%	-1%	-1%	-1%	-2%	-2%	-2%	-2%	-2%	-2%	-2%	-2%	-2%	-2%
Jamaica	-3%	-10%	-9%	-9%	-5%	-5%	-3%	-6%	-5%	-4%	-3%	-3%	-2%	-2%
Puerto Rico	-15%	-9%	-4%	-5%	-2%	-1%	-2%	-2%	0%	-1%	-4%	-4%	-7%	-14%
Belize	-4%	-3%	-3%	-3%	-9%	-10%	-4%	-3%	-5%	6%	2%	3%	2%	2%
Costa Rica	1%	1%	1%	0%	1%	1%	1%	1%	2%	3%	1%	1%	0%	0%
El Salvador	-3%	-2%	-1%	-1%	-2%	-4%	-5%	-5%	-5%	-6%	-5%	-5%	-4%	-3%
Guatemala	0%	0%	0%	-1%	-2%	-4%	-4%	-4%	-4%	-4%	-2%	-1%	0%	0%
Honduras	0%	-1%	-1%	-2%	-2%	-2%	-2%	-2%	-2%	-1%	-1%	0%	0%	0%
Mexico	-1%	-1%	-1%	-1%	-2%	-2%	-2%	-2%	-2%	-3%	-2%	-1%	0%	0%
Nicaragua	-1%	-1%	-1%	-1%	-2%	-2%	-3%	-4%	-3%	-3%	-3%	-3%	-2%	-2%
Panama	-2%	-1%	-1%	-1%	-1%	-1%	-1%	0%	0%	0%	1%	1%	1%	1%

Source: *World Population Prospects 2019*, Population Division, Department of Economic and Social Affairs, United Nations.

5.1 Case Study: Migration Between Mexico and the U.S.

Migration from Mexico to the U.S. has been a core interest for both countries for many decades and is one of the most intensively researched migration flows in history. We focus here on a striking recent development: the flow of Mexican immigrants to the U.S. has fallen to very low levels in the past decade. Mexican nationals began coming to work in the U.S. in large numbers during World War II. Until the mid-1960s, many came legally through the Bracero guest worker program and stayed only temporarily in the U.S., but after the termination of this program in 1965, mass illegal immigration began.[14] Figure 4 shows apprehensions by the U.S. Border Patrol of Mexican nationals from FY 1965 to 2020. Apprehensions are not a measure of the number of successful illegal entries, which is the key border flow measurement when it comes to assessing illegal immigration. Trends in apprehensions should nonetheless generally reflect trends in successful illegal entries. The figure shows that apprehensions had risen to high levels by the late 1970s and were close to or above 1 million annually between 1983 and 2006. However, apprehensions fell precipitously during 2006-2011 and continued to decline through the late 2010s, suggesting that a fundamental reversal in the flow of Mexican migrants to the U.S. occurred after 2006.

[14] There is a large literature on the history of Mexican immigration into the U.S. that cannot be comprehensively reviewed here. Much of this literature has been on illegal immigration. See Hanson (2006) for a review of illegal Mexican immigration through the mid-2000s and relevant references. See Roberts et al. (2013, pp.4-5 and pp.48-50) for a discussion of the Bracero program and relevant references.

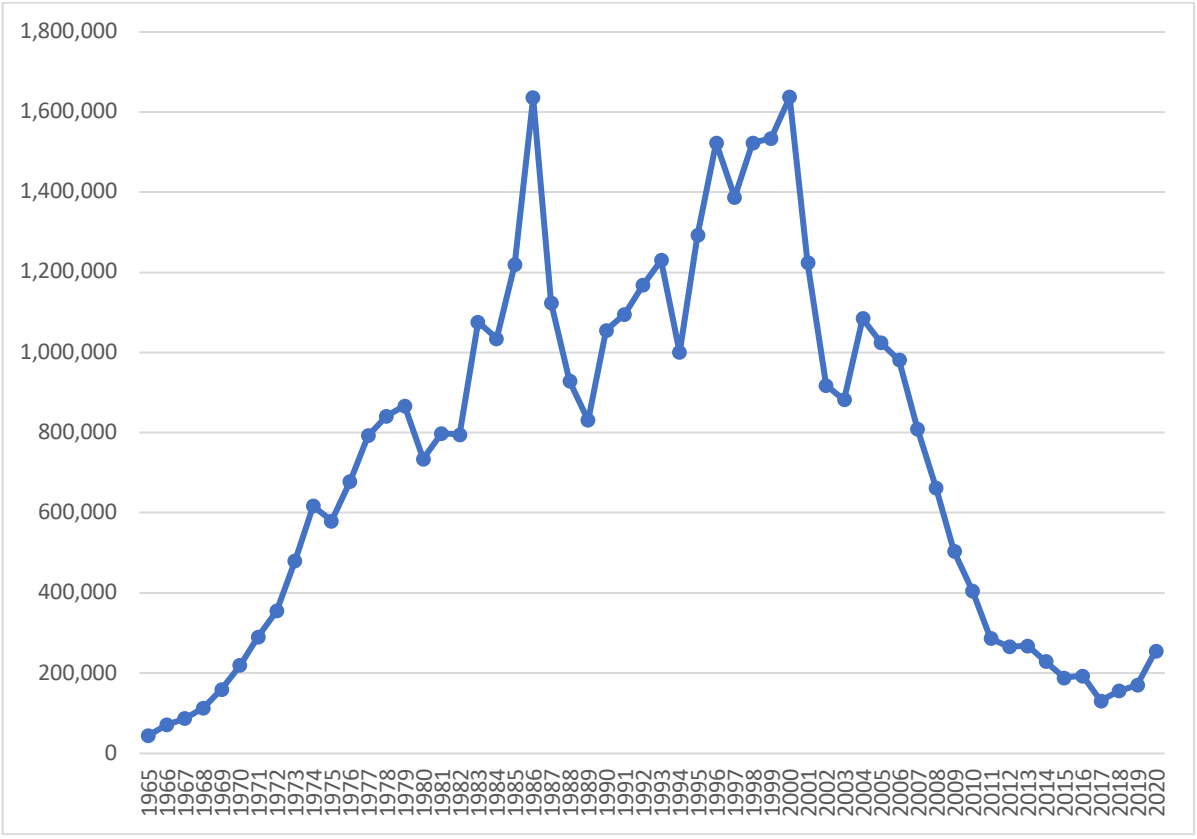

Figure 4. Apprehensions of Mexican Nationals by U.S. Border Patrol: FY 1965-2020

Source: INS Yearbook, various years; Yearbook of Immigration Statistics, Department of Homeland Security, various years; website of Customs and Border Protection, Department of Homeland Security.

Efforts have been made to go beyond apprehensions and make estimates of successful illegal entries, which is the important variable for assessing actual immigration outcomes. Results from a recent research effort to measure successful illegal entries across the U.S.-Mexico land border are presented in Table 25. These estimates suggest that illegal entries fell by 90%, which is an even larger drop than in apprehensions.[15]

[15] These estimates of successful illegal entries include entries of both Mexican and non-Mexican nationals. Mexican nationals account for a large majority of these entries.

Table 25. Illegal Entry Measures for the U.S.-Mexico Land Border

	2005	2007	2009	2011	2013	2014	2015	Growth: 2005-2015
Successful illegal entries[A]	**1,930,000**	**1,250,000**	**603,000**	**391,000**	**396,000**	**256,000**	**198,000**	**-90%**
-Between ports of entry	1,700,000	1,100,000	510,000	340,000	360,000	210,000	170,000	-90%
-At ports of entry	230,000	150,000	93,000	51,000	36,000	46,000	28,000	-88%
Requests for asylum	27,000	21,000	17,000	22,000	63,000	170,000	140,000	419%
Probability of giving up after apprehension[B]	11%	12%	23%	38%	51%	58%	58%	

Source: Roberts (2017).
A: All nationalities.
B: Between ports of entry.

Apprehensions and successful illegal entries are of course relevant only for illegal immigration, and Mexican citizens have immigrated legally to the U.S. as well. Perhaps the best summary measure of the totality of Mexican immigration is the estimated number of immigrants born in Mexico who are residing in the U.S., as shown in Table 2 in section 2 above. The flow of Mexican immigrants rose dramatically in every decade during 1970-2000, but growth slowed sharply in 2000-2010, and fell during 2010-2018.

Why has the overall inflow of Mexican immigrants fallen so dramatically, particularly after 2010? There is a range of hypotheses that could explain this, and these hypotheses are not mutually exclusive:

1) Improved economic outcomes in Mexico that make emigration to the U.S. less attractive;
2) Worse economic outcomes in the U.S. that make emigration less attractive;
3) Change in U.S. enforcement policies that make illegal emigration more costly and difficult;
4) Change in demographic conditions in Mexico and/or the U.S. that affect labor supply and demand.

Evidence to date that economic development in Mexico has made emigration less attractive is weak. There is no evidence that per capita Mexican national income has converged to the U.S. level, either in recent decades or over the much longer period since 1870.[16] Gandolfi et al. (2014)

[16] See Roberts et al. (2013, pp.8-10) for a discussion of the long-run income gap.

use U.S. and Mexican household and census data from 1988-2011 and find weak evidence that there has been any wage convergence in these two decades. Roberts (2017) presents recent research that estimates the impacts of economic and enforcement factors separately on emigration, as captured in the Mexican ENOE household survey. This research found that economic and enforcement factors both mattered significantly, and that an increase in the income that a potential migrant could expect to earn in Mexico reduced the chance that the person would actually emigrate. However, over the sample period of the study (2002-2015), real income as captured in the survey did not systematically increase.

Worsened economic conditions in the U.S. due to the housing bust that began in 2007 and the subsequent Great Recession in 2008 likely played a significant role in the sharp fall in unauthorized immigration apparent in the graph and table above. It is also true that U.S. enforcement policies changed significantly in the late 2000s and early 2010s. The number of Border Patrol agents rose by 74% during 2006-2011, and deployment of fencing and detection technologies increased substantially as well. Border Patrol also moved from a regime of returning most apprehended Mexican migrants to Mexico without any consequence to a regime where most apprehended migrants received some sort of penalty. It is possible that the change in enforcement posture also had a deterrent impact on illegal immigration and played a role in the Mexican immigration downturn.

That enforcement likely played some role is suggested in Table 25 above, which shows that the rate at which migrants gave up attempting to enter the U.S. after being caught rose from 11% in 2005 to 58% in 2015. This is a dramatic change in migrant behavior, and it is a change in the behavior of those who had already incurred the costs of making a trip to the border region and attempting illegal entry. Bazzi et al. (2021) review these changes and evaluate the impact of consequences on migrants' recidivism rate, and they find that, at least in part, consequences can explain this behavioral change. Additional evidence that enforcement likely had some deterrence impact on illegal immigration is a significant rise in the smuggling fee that most migrants pay to smugglers for their services.[17]

[17] Data on smuggling fees from Border Patrol apprehension records suggest that the average fee rose from roughly $1,500 in 2007 to almost $4,000 in 2015. See Figure 4 in https://cis.org/sites/cis.org/files/Border-Crossing-Stats-Report.pdf .

The dominant explanation for the fall in migration from Mexico to the U.S. is the demographic change in both countries, which is analyzed by Hanson and McIntosh (2007, 2009). They develop a theoretical model of migration based on Mexican labor supply and U.S. labor supply for groups that most compete with Mexican immigrants: high-school dropouts.[18] High Mexican fertility rates and a U.S. "baby bust" that began in the mid-1960s led to a high ratio of Mexican labor supply to U.S. labor supply and resulting emigration rates that peaked in the late 1990s. As Mexican fertility rates dropped to much lower levels and the U.S. baby bust ended, they predicted that emigration from Mexico would fall significantly starting in 2000, which it in fact did.

Given how much the Mexican fertility rate fell, demographic factors had to have played an important role in the Mexican immigration downturn. However, it is plausible that other factors played some role as well. We would observe the following:

- The Hanson-McIntosh model is based on a structural model of wage determination in Mexico and the U.S., and migration takes place because of a higher wage rate in the U.S. than in Mexico. The model that they estimate is a reduced form of this structural model. It is unclear what the predictions of the model are with respect to wage convergence, and whether the parameter values that they estimate imply a degree of wage convergence that is consistent with empirical evidence on convergence.
- The degree to which the Hanson-McIntosh analysis can explain the post-2000 downturn is quantitatively unclear. Their projections are of the emigration rate for birth cohorts relative to the 1940 birth cohort, and it is not clear what these projections imply about the absolute level of emigration from Mexico.[19] The fall that actually took place after 2010 seems to be too large to be completely explained by their projections.
- The fall that took place after 2010 also seems to be too abrupt to be capable of being explained by demographic factors alone. Figure 5 shows the ratio of the population of Mexican men in the 20-24 age group to the population in the 0-4 age group 20 years prior. In 1970, for example, the number of people in the 20-24 age group was roughly

[18] Their model also includes network effects that capture how having family and/or friends who have previously emigrated facilitate the emigration of others.

[19] See Figure 4 on p.37 and related discussion on pp.29-30 in Hanson and McIntosh (2007).

85% of the number of people in the 0-4 age group in 1950. This ratio captures the degree to which an initial birth-cohort population changed due to death and emigration from Mexico. Young adult males are focused on, because this subpopulation is the group most highly likely to emigrate from Mexico. The gradual fall in the ratio in the 1980s and 1990s captures the demographic-driven incentives to emigrate from Mexico, and the gradual rise in the ratio during 2000-2011 presumably reflects the demographic forces emphasized by Hanson and McIntosh. However, the ratio rises dramatically during 2011-2015, and the magnitude of this sharp jump suggests that forces other than demographic influences were also reducing emigration in this period.

Twenty years have passed since Mexican immigration peaked around 2000, and a great deal of data is available that could be used to try to determine to what degree different influences contributed to this fall. The large-scale Mexican ENOE household survey began in the early 2000s; this survey captures emigration events and can potentially be used to evaluate the roles of economic, enforcement, and demographic factors in the downturn. Roberts (2017) presents research that makes a first step in this regard, but more needs to be done, and this would require the Department of Homeland Security to make enforcement data, in particular data from U.S. Border Patrol apprehension records, available to researchers.

Although Mexican immigration into the U.S. is unlikely to return to levels seen in prior decades, it is nonetheless possible that it could increase significantly from the low levels of recent years. Figure 6 shows the monthly number of apprehensions of single-adult Mexican migrants in the U.S.-Mexico border region.[20] The flow of these migrants as proxied by apprehensions has risen substantially since April 2020.[21] This is a very recent development, and it is not yet clear why more migrants are coming from Mexico or whether this trend will be durable.[22]

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[20] Single adults are more likely to be migrating for economic reasons than the other migrant classifications that the U.S. government uses, including unaccompanied children and family unit members.

[21] U.S. Border Patrol moved to a new policy of removing many migrants for public health reasons under Title 42 in the summer of 2020, and this has led to a significant increase in recidivist apprehensions. Although the number of unique Mexican migrants who were caught attempting illegal entry has clearly increased, further analysis is needed to quantify that increase. See Roberts (2017) for discussion of a methodology that could be used for this purpose.

[22] The recent upturn may be due to negative economic developments in Mexico. There is evidence that Mexican emigration to the U.S. increases after economic crises and wage decline in Mexico (see Hanson and McIntosh, 2007, p.3).

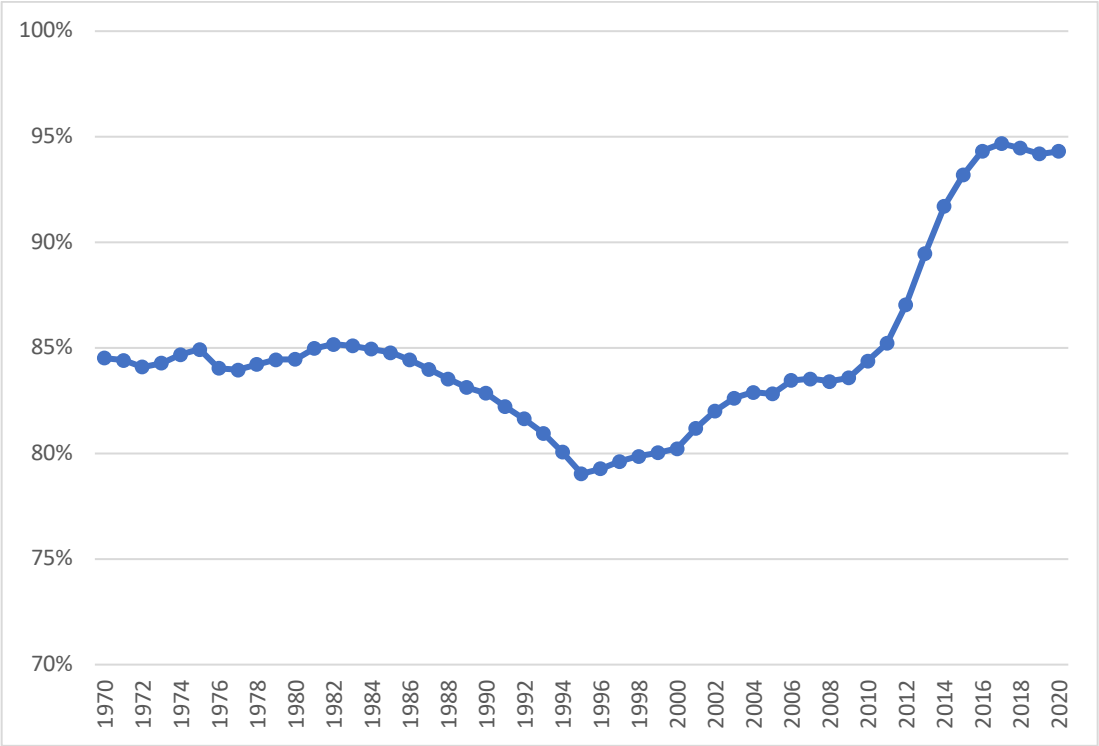

Figure 5. Mexican Males: Ratio of Population Aged 20-24 in Year X to Population Aged 0-4 in Year X-20

Source: Annual male population by five-year age group, *World Population Prospects 2019*, Population Division, Department of Economic and Social Affairs, United Nations.

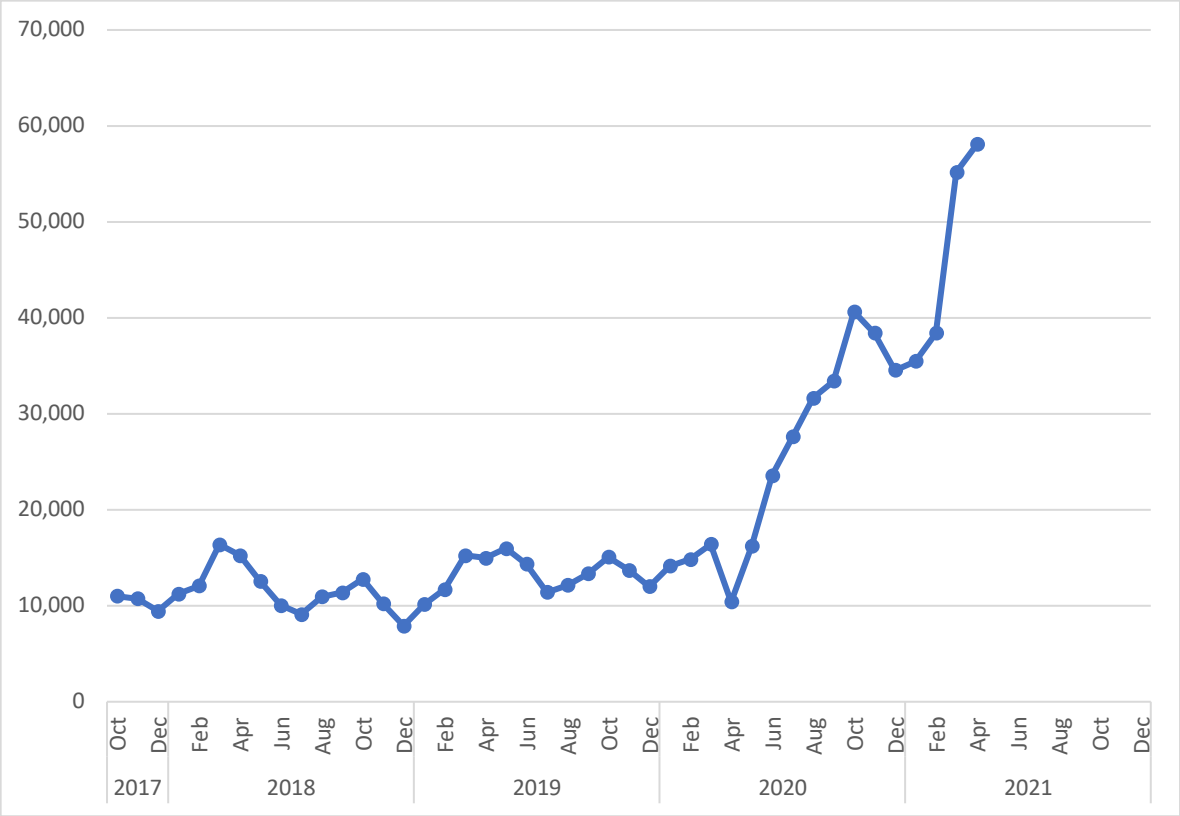

Figure 6. U.S. Border Patrol Monthly Apprehensions: Single-Adult Mexican Nationals

Source: Website of Customs and Border Protection, Department of Homeland Security.

5.2 Case Study: Migration Between Puerto Rico and the U.S.

Puerto Rico is a particularly interesting case study with respect to migration to the U.S. because there are no policy barriers to movement from Puerto Rico to the mainland of the United States. Migration from Puerto Rico to the mainland thus presumably reflects more clearly the influence of economic, social, and demographic factors. Puerto Rico became an unincorporated U.S. territory in 1898 and a Commonwealth in 1952. In 1904, the U.S. Supreme Court ruled that Puerto Ricans could move freely to the U.S. mainland, and U.S. citizen status was conferred in 1917.

5.2.1 Economic Development in Puerto Rico

Puerto Rico did not experience significant economic development until the 1950s. After the 1898 U.S. takeover, the Puerto Rican agricultural sector transformed from subsistence

agriculture and diversified production of export crops that sustained small farms and high levels of agricultural employment into a rural economy dominated by large sugar cane farms. This apparently led to higher rates of rural unemployment and underemployment.[23] High rates of poverty and unemployment and dependency on a monocultural agricultural sector prompted planning of Puerto Rican development in the 1930s, and eventually the Operation Bootstrap program was adopted in 1947. Operation Bootstrap was a system of economic incentives that included tax breaks and grants for infrastructure development that were intended to attract private U.S. capital and jumpstart the manufacturing industry, as well as measures to reform the sugar industry.[24]

Puerto Rico subsequently experienced rapid economic growth in the 1950s and 1960s. Figure 7 shows that Operation Bootstrap succeeded in boosting the ratio of gross capital formation to GDP from 8% in 1940 to 23% in 1960, and Figure 3 above shows that the level of per capita income in Puerto Rico began to converge with the U.S. at a strong pace in the 1950s and 1960s. Puerto Rico was touted as an example to the developing world of how to break out of a "poverty trap" and succeed economically, and it attracted attention from politicians and decision-makers around the world.[25] Operation Bootstrap was widely perceived to have succeeded in attracting private investment capital into Puerto Rico and making dramatic improvement to infrastructure. Friedlander (1965) also argues that emigration from Puerto Rico was an important ingredient in this economic success, because it dramatically lowered the population growth rate, increased the quality of the labor force as migrants were disproportionately concentrated in low-skill sectors and the unemployed, increased the capital-labor ratio, and sparked a virtuous cycle of increased savings, investment, and growth.

[23] See Rodríguez (1990), Ayala (1996), and Whalen and Vázquez-Hernández (2005).

[24] See Rivera-Batiz and Santiago (1996, pp.8-10) for a good discussion of Operation Bootstrap.

[25] See Friedlander (1965).

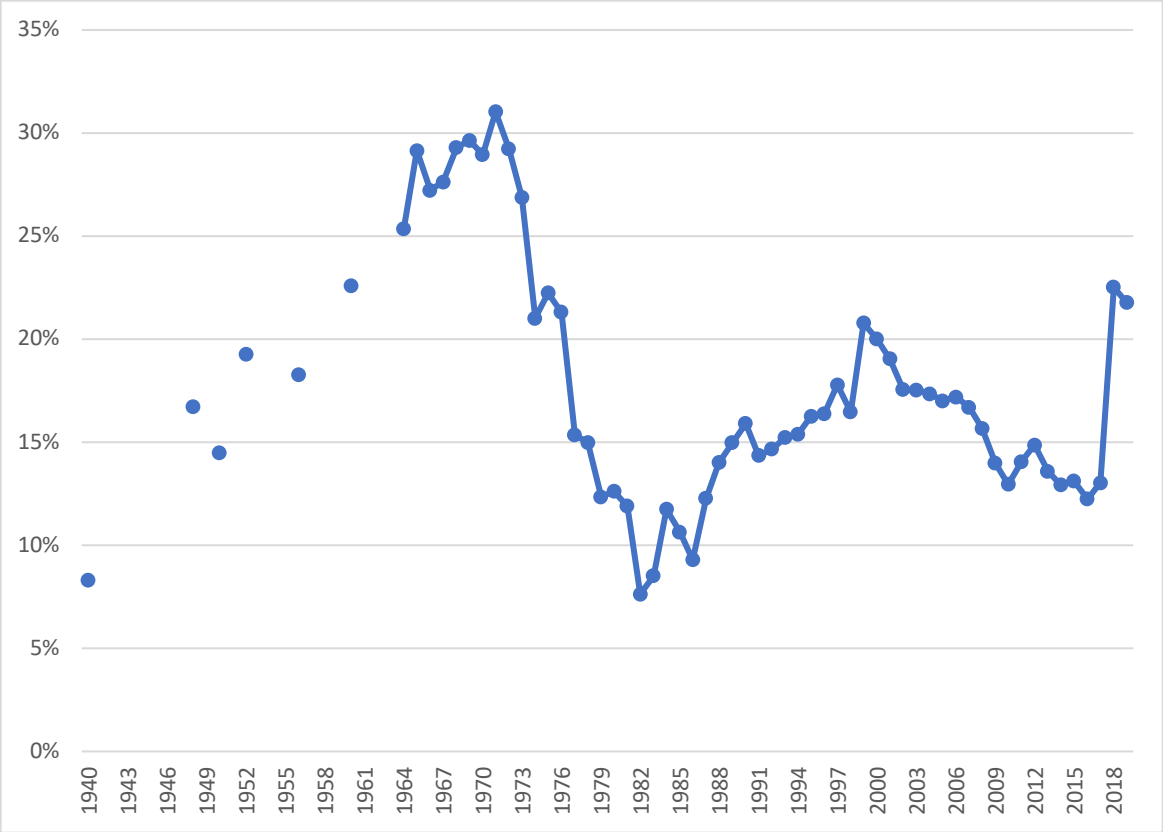

Figure 7. Puerto Rico: Ratio of Gross Capital Formation to GDP

Source: 1940-1956: calculated from data provided by "Informe Economico al Gobernador – 1967". 1960-2019: World Development Indicators database. Ratio of values in constant prices.

However, growth slowed down considerably and convergence ceased in the 1970s, and Puerto Rico entered an era of comparative economic stagnation. Figure 7 shows that the investment-GDP ratio started to fall after 1970, and fell sharply after 1973, presumably driven by the recession impacting the U.S. economy. Investment recovered in the 1990s but never returned to its 1960s proportions, and the ratio began to fall again after 2000.

There were three other important developments in this era. First, the food stamp program, now known as the Supplemental Nutrition Assistance Program (SNAP), was introduced in Puerto Rico in 1974. By 1981, this program was providing benefits to 56% of Puerto Rico's

residents, almost three times the per capita benefits than the poorest U.S. state.[26] The program was reformed that year and converted into a block-grant program in which the amount that could be spent was capped, but the percentage of households receiving benefits remained very high, equaling 50% in 1982. This fell to roughly 35% in the mid-2000s.[27] In 2012, 38% of Puerto Rican households received benefits, as compared to 20% in the highest mainland state (Oregon).[28] In 2018, 42% of Puerto Rican households received SNAP benefits, compared to 17% in the next highest state (New Mexico).[29]

The second set of major policy changes were to U.S. minimum wage rules. The minimum wage was first introduced into the U.S. generally in 1938, but Puerto Rico was soon permitted various exemptions in recognition of how low its wage levels were compared to those in the mainland. These exemptions were eliminated in the late 1970s and early 1980s. Because the mandated U.S. minimum wage level is quite high as compared to Puerto Rican wage levels, this policy may have caused an increase in relative wages that eroded Puerto Rico's comparative economic advantage and increased unemployment and emigration. Several research studies have been done on this question, and evidence generally suggests that the minimum wage did increase unemployment and emigration to the U.S., although magnitudes are not entirely clear.[30]

Finally, alternative sites for U.S. investment began to appear in other emerging economies as they began to open their markets to foreign investment, and wages were often lower in these economies. Tariff liberalization also began to erode the advantages that Puerto Rico had from its tariff-free relationship with the U.S. economy.[31]

The growth slowdown and emerging awareness of the dependence of the Puerto Rican economy on transfers from the federal government prompted a re-evaluation of the optimism so prevalent in the 1960s. A 1985 study concluded that:

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[26] The history of nutrition assistance programs in Puerto Rico is described in detail in "Implementing Supplemental Nutrition Assistance Program in Puerto Rico: A Feasibility Study," Food and Nutrition Service, U.S. Department of Agriculture, June 2010: https://fns-prod.azureedge.net/sites/default/files/PuertoRico.pdf .

[27] See "Implementing Supplemental Nutrition Assistance Program in Puerto Rico: A Feasibility Study," page 10.

[28] Table 1 in "Supplemental Nutrition Assistance Program (SNAP) Receipt for Households: 2000-2013," U.S. Census Bureau, March 2015.

[29] Appendix Table 1 in "Supplemental Nutrition Assistance Program (SNAP) Receipt for Households: 2018," U.S. Census Bureau, June 2020.

[30] See discussion in Rivera-Batiz and Santiago (1996, pp.97-100) and Godoy et al. (2003, pp.217-218).

[31] See Rivera-Batiz and Santiago (1996, p.11).

> The Puerto Rican situation is simply that food stamps and other transfers from abroad support a majority of the population. Manufacturing, Puerto Rico's great industrial strength, is based on a tax gimmick that is also subject to revision. Much of the economic survival of Puerto Rico is due to pecuniary advantages, to fiscal or international bookkeeping rules that, if changed, can bring on more hardship. Because Puerto Rico has no direct representation in the U.S. Congress, it must rely essentially on the goodwill and discretion of the elected representatives of another people …. Puerto Rico and the United States are subject to (a) game of mutual ransom. If the transfers, food subsidies, and tax holidays are not forthcoming from the Congress, the Puerto Rican citizen can simply leave his land and obtain all the benefits of the American welfare system. Therefore, the transfers actually keep Puerto Ricans at home, not in the cities of the United States, and, as the system operates, without work. Some of the billions of dollars spent in Puerto Rico may have led to growth … Food stamps, perhaps the most pernicious of all transfers…affect the wage structure, spending patterns, and attitudes. They are direct payments for poverty, and have led to countergrowth in the open, island economy. (Weisskoff 1985, p.151)

Federal transfers as a percentage of personal income in Puerto Rico and in the U.S. generally for the period 1950-2019 are given in Figure 8. These transfers include Social Security (old age and disability), Medicare, Medicaid, unemployment benefits, veterans benefits, nutritional assistance (SNAP), and other programs. From 1950 to 1974, both ratios were rising and essentially the same, but in 1975, the Puerto Rican ratio rose dramatically due to the introduction of the SNAP program, leading to a permanent gap. Federal transfers accounted for roughly 30% of personal income in Puerto Rico in 2018, compared to 16% in the U.S. as a whole.

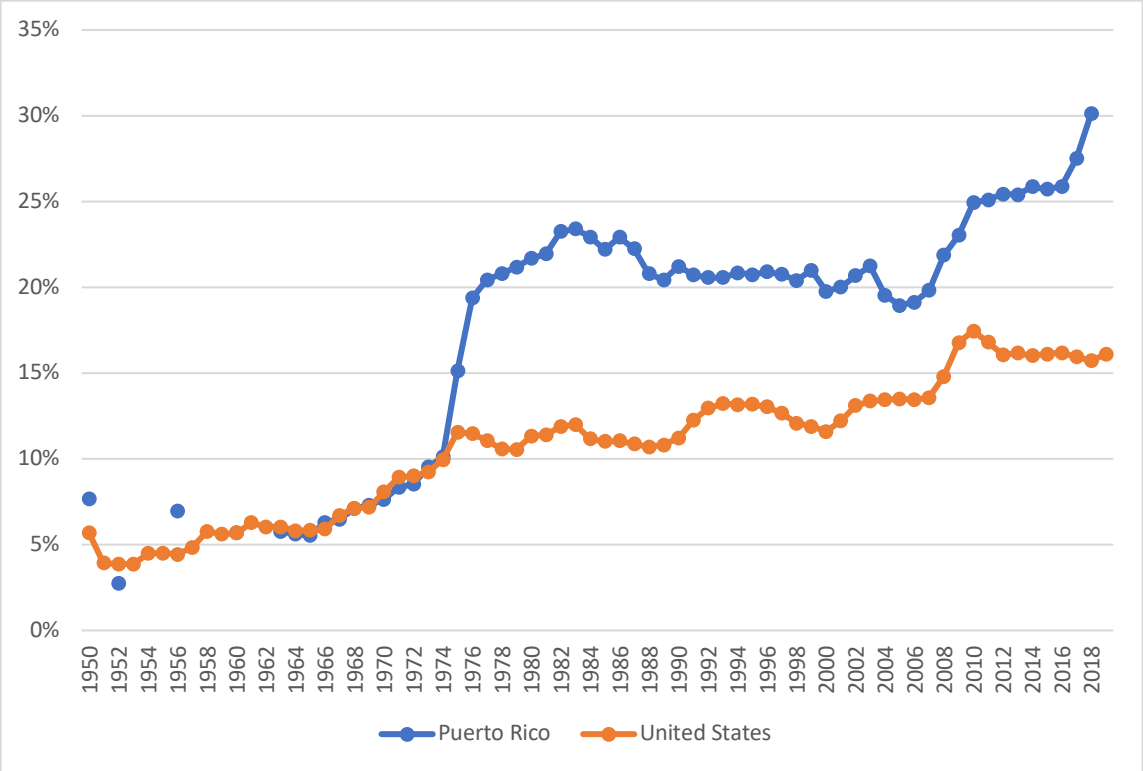

Figure 8. Federal Transfer Payments as a Percentage of Personal Income: Puerto Rico and U.S. National

Source: Puerto Rico: calculated from data provided by "Informe Economico al Gobernador," various years. U.S. calculated from data provided by the Bureau of Economic Analysis.

The stagnation of the 1970s led the U.S. government to implement a new round of tax breaks in 1976, known as Section 936, to promote private capital investment. After the U.S. economy began to recover in the early 1980s, investment in Puerto Rico began to revive (see Figure 7 above), and a second era of income convergence was experienced from the early 1980s to the early 1990s (see Figure 3 above). However, this convergence came to a halt in the mid-1990s, and there has been no change over the last two decades. Although the convergence that did take place between Puerto Rico and the U.S. is greater than for any other territory in the Central American/Caribbean region, it is now a historical memory.[32]

[32] Baumol and Wolff (1996) analyze Puerto Rico's economic convergence through the early 1990s and conclude that Puerto Rico would have experienced strong convergence even in the absence of tax breaks, federal transfers, and emigration. Lefort (1997) does similar econometric analysis and more pessimistically concludes that Puerto Rico was not converging in an absolute sense to the U.S. income level through the mid-1990s.

Major events that have happened over the past two decades include the expiration of the Section 936 tax credits at the end of 2005, the Great Recession in the U.S. in 2008, the Puerto Rican debt crisis that emerged in 2014, and Hurricane Maria that devastated Puerto Rico in September 2017. These negative shocks have had serious impacts on economic performance. Figure 9 shows real per capita GDP and household consumption and the unemployment rate for the period 1950-2019. For the first time in Puerto Rico's postwar history, per capita GDP stagnated over a prolonged period during 2004-2018. However, even though growth in per capita GDP came to a halt, per capita household consumption continued to grow throughout this period and even exceeded per capita GDP in 2019. That household consumption could continue to rise even though economic growth had come to a complete halt suggests an even bigger role of federal transfers in maintaining the standard of living in Puerto Rico than in the past. The unemployment rate did rise somewhat during the Great Recession, from 12% in 2008 to 16% in 2010, but has been falling since then, which may be due to emigration and will be discussed further below.

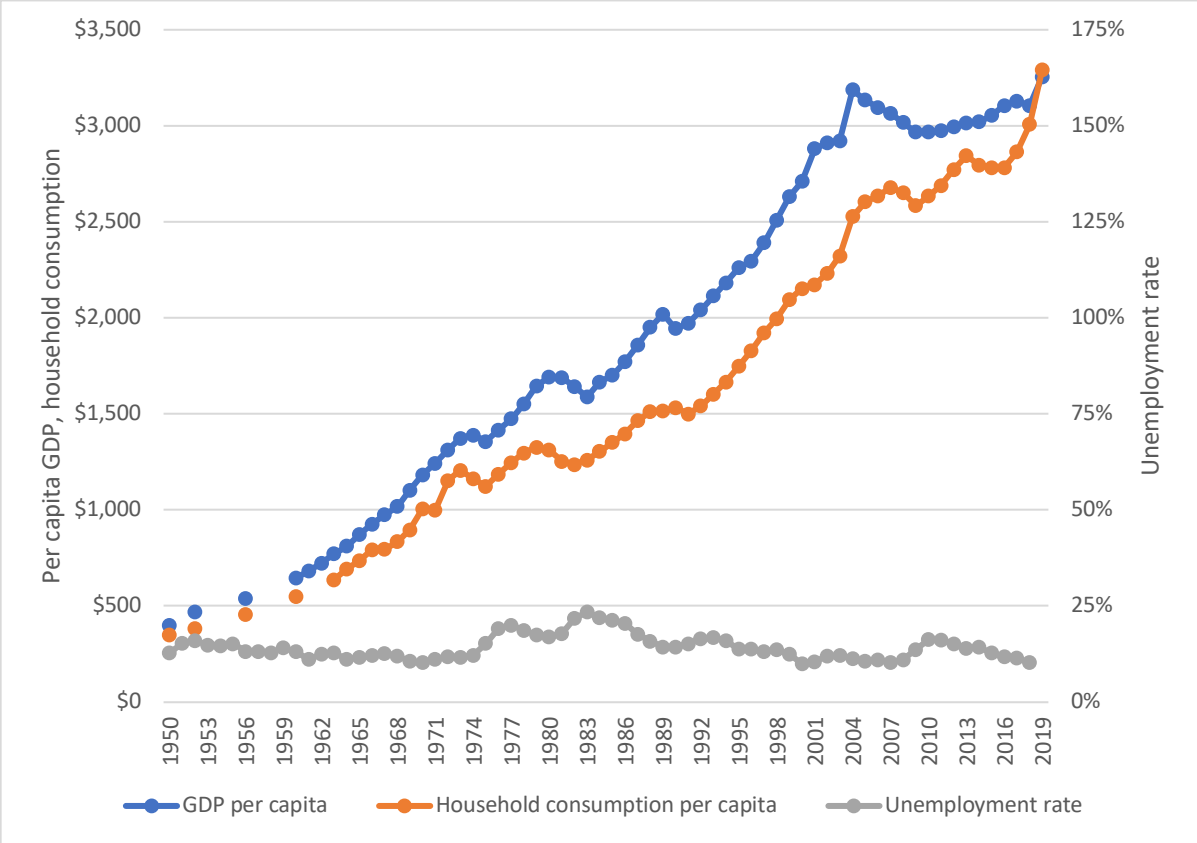

Figure 9. Puerto Rico: Per Capita GDP and Household Consumption (constant 1954 prices), and the Unemployment Rate

Source: GDP and household consumption: 1950-1969 from "Informe Economico al Gobernador," various years; 1970-2019 from World Development Indicators database. Unemployment rate is from "Informe Economico al Gobernador," various years.

5.2.2 Emigration From Puerto Rico

Although Puerto Ricans obtained the right to travel and emigrate freely to the U.S. in 1904, emigration from Puerto Rico was limited prior to the 1950s. Table 26 shows that those who reported being of Puerto Rican ancestry rose significantly in the 1920s and more slowly in the Great Depression-affected 1930s, but it was still a small population in 1940. Emigration picked up in the 1940s as travel costs fell,[33] but the biggest exodus of Puerto Ricans to the U.S. took place in the 1950s. Table 27 shows that net emigration (emigrants minus immigrants) was 15%

[33] Borjas (2008, p.35).

of the island's population in the early 1950s and 9% in the late 1950s, for a total of 25% of the island's starting population in 1950. This is one of the largest migratory movements in the history of the western hemisphere in terms of its share of the source-country population. The pace of net emigration slowed significantly in the 1960s and then fell to very low levels in the 1970s, 1980s, and 1990s. The pace of net emigration rose in the 2000s, followed by a second major exodus in the 2010s, when net emigration was 20% of the population in 2010.

Table 26. Population with Puerto Rican Ancestry Residing in the U.S.

1910	1,513
1920	11,811
1930	52,774
1940	69,967
1950	226,110
1960	892,513
1970	1,391,463
1980	2,014,000
1990	2,728,000
2000	3,406,178
2010	4,623,716

Source: 1910-2000: Whalen and Vázquez-Hernández (2005, pg. 3, Table 1-2).

Table 27. Net Emigration: Puerto Rico

	Net emigration[A]	As % of beginning population
1950-55	335,936	15%
1956-60	207,687	9%
1961-65	91,587	4%
1966-70	134,255	5%
1971-75	41,031	2%
1976-80	19,579	1%
1981-85	48,420	2%
1986-90	55,192	2%
1991-95	296	0%
1996-00	30,450	1%
2001-05	145,704	4%
2006-10	138,043	4%
2011-15	242,701	7%
2016-20	489,932	14%

A: Emigrants – immigrants.
Source: *World Population Prospects 2019*, Population Division, Department of Economic and Social Affairs, United Nations.

There has been considerable qualitative and quantitative research done on Puerto Rican economic development and migration since the 1940s.[34] This research suggests that in the 1950s, the sugar and needlework industries declined, and the increase in employment in manufacturing was not enough to make up for loss of jobs in these sectors. The U.S. economy also grew rapidly, and a large emigration to the U.S. thus took place even as Puerto Rican industrial development began to ramp up.[35] Emigration thus explains why the unemployment rate did not rise in the 1950s. As development continued into the 1960s, increasing demand for labor likely reduced labor market pressures and caused a fall in the rate of emigration.

[34] Key references on economic development include books by Friedlander (1965), Weisskoff (1985), Rivera-Batiz and Santiago (1996), and Dietz (2003). Godoy et al. (2003) reviews quantitative studies of migration through the early 2000s. Duany (1995) reviews the Puerto Rican migration literature through the early 1990s.
[35] Ayala (1996).

Interestingly, the rate of net emigration was very low in the 1970s even though Puerto Rican economic development had slowed significantly. This can be explained both by stagnant economic conditions in the destination U.S. economy and the introduction of the food stamp (later SNAP) program. Net emigration remained low in the 1980s and the 1990s, even though the U.S. economy performed well in these decades. This may have been due to improved economic performance in Puerto Rico, as economic growth increased in the 1980s and was quite strong in the 1990s, leading to a second burst of convergence to the U.S. income level. Puerto Rico also experienced a demographic transition such that labor supply fell due to falling fertility rates, so that the dynamic that Hanson and McIntosh identified for Mexico likely happened in Puerto Rico as well.[36]

As economic performance deteriorated in the 2000s, the pace of net emigration increased significantly, and in the 2010s, a second mass exodus from the island took place. This emigration has received considerable attention in the media. It is important to note that the pace of emigration would likely have been significantly larger if Puerto Rican households did not receive such large transfers from the U.S. government that maintain their standard of living. To our knowledge, no research has yet looked at the influence of transfers on household migration decisions, but the fact that transfers rose significantly in the 2010s and apparently sustained household consumption in the face of deteriorating economic performance suggests that this is a reasonable hypothesis.

Some interesting characteristics of Puerto Rican migration should also be noted:

- Circular migration from Puerto Rico to the U.S. that involves temporary stays of a few months or years is significant and appears to have increased over time. Godoy et al. (2003) review several studies and estimates of circular migration and characteristics of circular migrants (see pages 220-222). Rivera-Batiz and Santiago (1996) cite an estimate of 130,000 circular migrants in the 1980s and note that, “In the 1980s, 46 percent of the Puerto Rican migrants who moved to the United States resided there for only between six months and two years. Furthermore, the length of stay in the United States of the Puerto

[36] Rivera-Batiz and Santiago (1996) extensively discuss Puerto Rico’s demographic transition and migration in the 1980s (see chapters 2 and 3, respectively).

Rican migrants who return to the island is getting shorter over time."[37] Circular migration was also an important feature of Mexican immigration to the U.S.

- Puerto Rico is both a sender of emigrants to the U.S. and receiver of immigrants from the U.S. Borjas (2008) uses census data to show that 9-10% of the population residing in Puerto Rico between 1970-2000 were born elsewhere, mainly in the U.S., and that the majority of these residents who were born in the U.S. have Puerto Rican ancestry. He shows that most Puerto Ricans who migrated to the U.S. were on the lower part of the skills distribution as captured by education and work experience, but immigrants to Puerto Rico were concentrated in the higher part of the skills distribution, and their immigration played a significant role in changing the skill composition of the Puerto Rican workforce. Borjas' (2008) empirical estimates show that an increase in the U.S.-Puerto Rico wage gap for people with similar skill levels led to a greater level of emigration from Puerto Rico, and that emigration tended to increase the wages of Puerto Ricans who did not leave and had similar skill levels, while immigration tended to decrease wages.
- In the 1950s and 1960s, most Puerto Rican migrants went to New York City, but dispersion then followed. 72% of U.S. residents of Puerto Rican ancestry lived in New York State in 1960, but this fell to 49% in 1980 and 23% in 2010.[38] Puerto Rican immigration into the U.S. thus followed a traditional pattern of initial entry into "gateway" regions and subsequent geographic dispersion.
- Puerto Ricans residing in the U.S. send remittances back to a much lesser extent than other immigrant groups from the Caribbean/Central American region. A much smaller percentage of Puerto Rican households receive remittances than Mexican or Dominican Republic households, and the average monthly amount sent is smaller.[39] Duany (2010) attributes this to the large federal transfers to Puerto Rico, a stronger safety net for those who are unemployed or retired, and the higher standard of living in Puerto Rico.

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[37] Rivera-Batiz and Santiago (1996, pg. 61). See their discussion of circular migration on pp. 58-62.

[38] Data for 1960 and 1980 from Rodríguez (1990). Data for 2010 are from Pew Research Center, "Hispanics of Puerto Rican Origin in the United States, 2010" factsheet.

[39] Duany (2010).

5.3 Discussion

The Puerto Rican experience of the 1950s and 1960s suggests that economic development in the source country can impact migration decisions such that fewer people decide to emigrate. Even though economic development initially led to so much structural change that a large emigration took place, eventually conditions improved such that fewer and fewer people decided to emigrate. This process was driven by a substantial degree of income convergence between Puerto Rico and the U.S. The federal government absorbed the cost of a range of measures to kick-start this convergence, including tax breaks to attract private capital investment and grants to develop modern infrastructure. Over the longer run, emigration was also arguably dampened by federal transfers that maintained household consumption. In last two decades, economic growth in Puerto Rico has been weak and income convergence has ceased, and a large-scale emigration to the U.S. has recently taken place. This emigration would likely have been even larger if federal transfers were not sustaining household consumption. It is not clear how Puerto Rico will be able to return to a growth path that will reverse economic incentives to emigrate. These developments emphasize the longer-run vulnerability of a strategy of fostering economic growth in a source country to impact migration flows.

6. Economic Development in the Northern Triangle: Remittance Dependency and "Dutch Disease"

The lack of economic convergence of Northern Triangle countries with the U.S., and indeed with their regional neighbors, is a striking outcome. Even if significant growth in real incomes would only marginally affect migration decisions, it is a goal well worth pursuing for its own sake, and the U.S. government is making considerable investments to try to assist with achieving more rapid development. There is, however, an important nexus between economic development and emigration that could work against these development goals. The Northern Triangle economies are small and will need to achieve rapid growth in exports in order to economically develop. However, Figure 10 shows that since the early 1990s, the real exchange rate has appreciated substantially in Guatemala and Honduras, and such appreciation hurts the competitiveness of exports.[40]

[40] El Salvador has not experienced real exchange rate appreciation because its domestic currency was pegged to the U.S. dollar since the mid-1990s (and the U.S. dollar was effectively adopted as its currency since the mid-2000s), and price inflation in El Salvador has been very similar to price inflation in the U.S. since the mid-1990s.

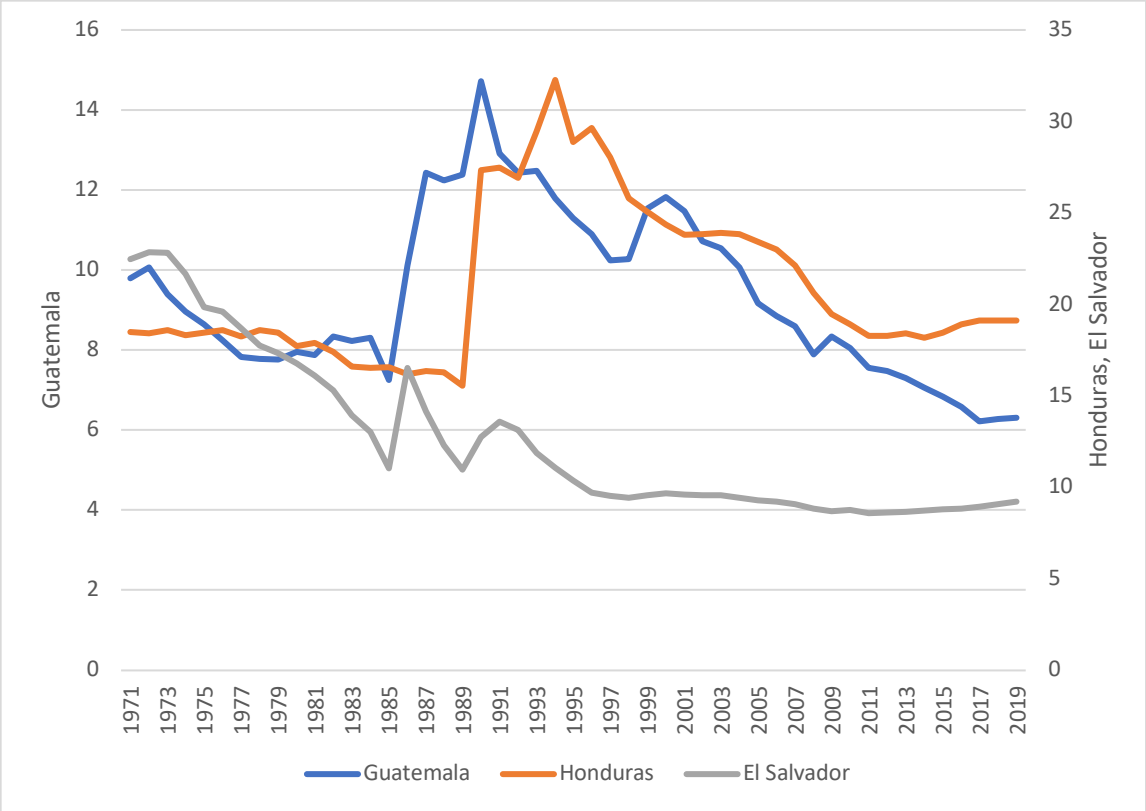

Figure 10. Real Exchange Rates: 1971-2019
(Local Currency Unit per $U.S.; Base = 2010)

Source: Calculated from data on official exchange rates (local currency unit per $U.S.) and consumer price indices obtained from the World Bank's World Development Indicators on-line database.

Real exchange rate appreciation can be due to several causes. In the case of the Northern Triangle economies, remittance inflows seem to be an important reason, as these inflows comprise a large fraction of the supply of dollars and create appreciation pressures. They also induce an increase in consumption demand that causes an increase in the price of non-tradable goods and services, and this causes real exchange rate appreciation and an expansion of the non-tradable sector at the expense of the tradable (export) sector. These economic impacts are known as "Dutch disease" and have potentially important impacts on economic growth and development. Remittance inflows also potentially reduce domestic labor supply, which further impacts economic activity. Although remittance inflows improve the welfare of households, they

may also inhibit economic development.[41] Acosta et al. (2009a) use data for 109 developing countries during 1990-2003 and find that remittances cause real exchange rate appreciation, although the effect is weaker in countries with deeper and more sophisticated financial markets that can more effectively channel remittances into investment opportunities. Acosta et al. (2009b) develop evidence that remittances have been causing Dutch disease in El Salvador. The International Monetary Fund (2019, pp.12-13) also finds evidence of unusually high elasticities of exports to the real exchange rate in Northern Triangle economies, which might make these economies more vulnerable to remittance-driven Dutch disease.

The high level of dependency of the Northern Triangle economy on remittance inflows can be seen in Figure 11, which shows remittance receipts as a percentage of exports since 1977. Remittances have long been at a very high level in El Salvador, equaling 70% or more of exports since 1990. The importance of remittances to the Guatemalan and Honduran economies has been rising since 2000, and in all three economies, remittances now equal over 70% of exports.[42] In contrast, Mexico's ratio has always been below 10%, and remittances have never been nearly as significant for the Mexican economy as they now are for the Northern Triangle economies. Even though Mexico has also experienced a large emigration to the U.S., the consequences of that emigration to the Mexican economy and its development have been much less significant. Northern Triangle countries now have "remittance-dependent" economies, and any disruption to the flow of remittances will have important consequences for household welfare. Ironically, the dependency on remittance inflows may also inhibit achieving economic development in the longer run.

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[41] Chami et al. (2008) evaluate remittance flows and their impacts on household welfare and economic development. One important conclusion is that "higher remittance receipts tend to appreciate the equilibrium real exchange rate, implying that the beneficial effects of remittances in generating higher and more stable levels of consumption may come at the expense of long-run growth" (p.58).

[42] Some of the increase in the ratios seen in Figure 11 was due to improved measurement of remittance inflows. For example, the increase in the Guatemalan ratio from 16% in 2001 to 40% in 2002 was due to a very large increase in measured remittances, which is likely a structural break associated with change in measurement of remittances.

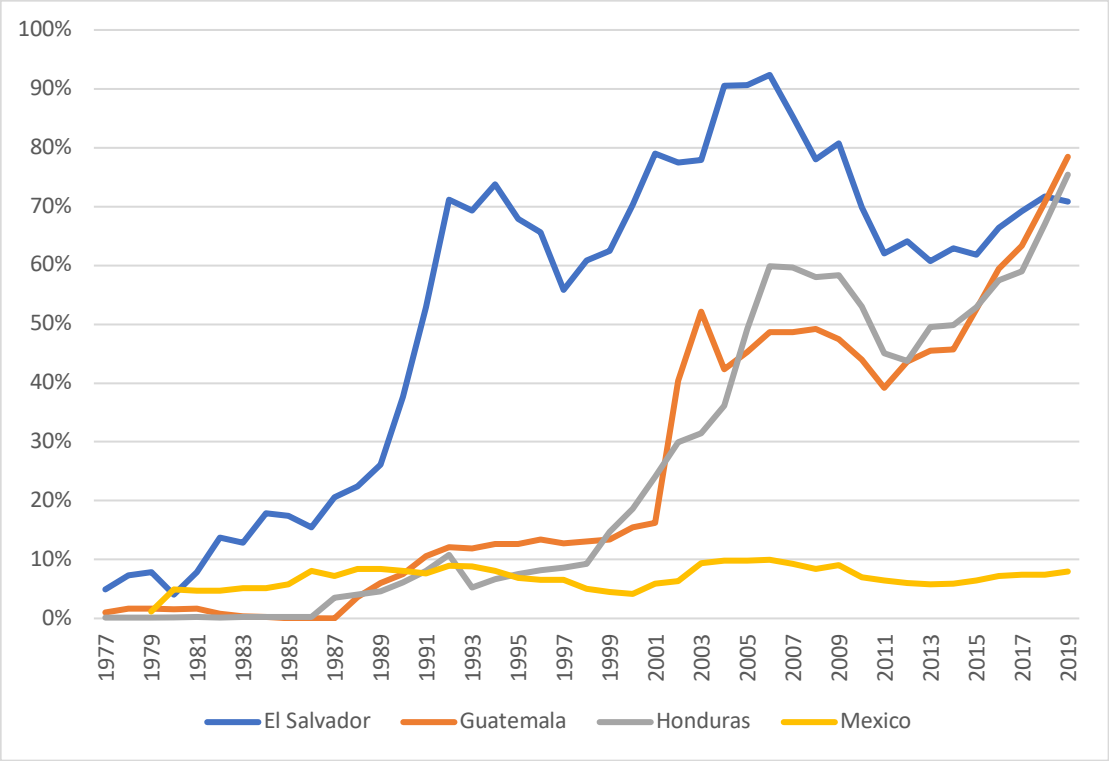

Figure 11. Personal Remittance Receipts as a Percentage of Exports of Goods & Services: El Salvador, Guatemala, Honduras, and Mexico

Source: Calculated from data on personal remittance receipts and exports in U.S. dollars obtained from the World Development Indicators database.

The Northern Triangle economies are not the only economies that are heavily dependent on remittances. Figure 12 shows the scatterplot of the remittance-GDP ratio and per capita GDP for 2015-2018 averages. There is clearly a negative correlation between these variables, so that poorer countries are more likely to be dependent on remittances. The most remittance-dependent economies in the world are the points in the lower right of the figure: Tajikistan, Nepal, Kyrgyz Republic, and Tonga.[43] Mexico has a fairly low remittance-GDP ratio. The Northern Triangle countries are highlighted in red. El Salvador and Honduras have high remittance-GDP ratios, with Guatemala's ratio being lower but still significant. If remittance-dependent economies lose their access to external labor markets, they will suffer major shocks to household welfare. A key challenge for promoting economic development in these economies is to reduce dependency on

[43] Bermuda is the unusual apparent outlier with a high remittance-GDP ratio and a high level of per capita GDP.

remittance inflows while minimizing negative impacts on household welfare and/or improve the contribution that these inflows make to investment and growth.

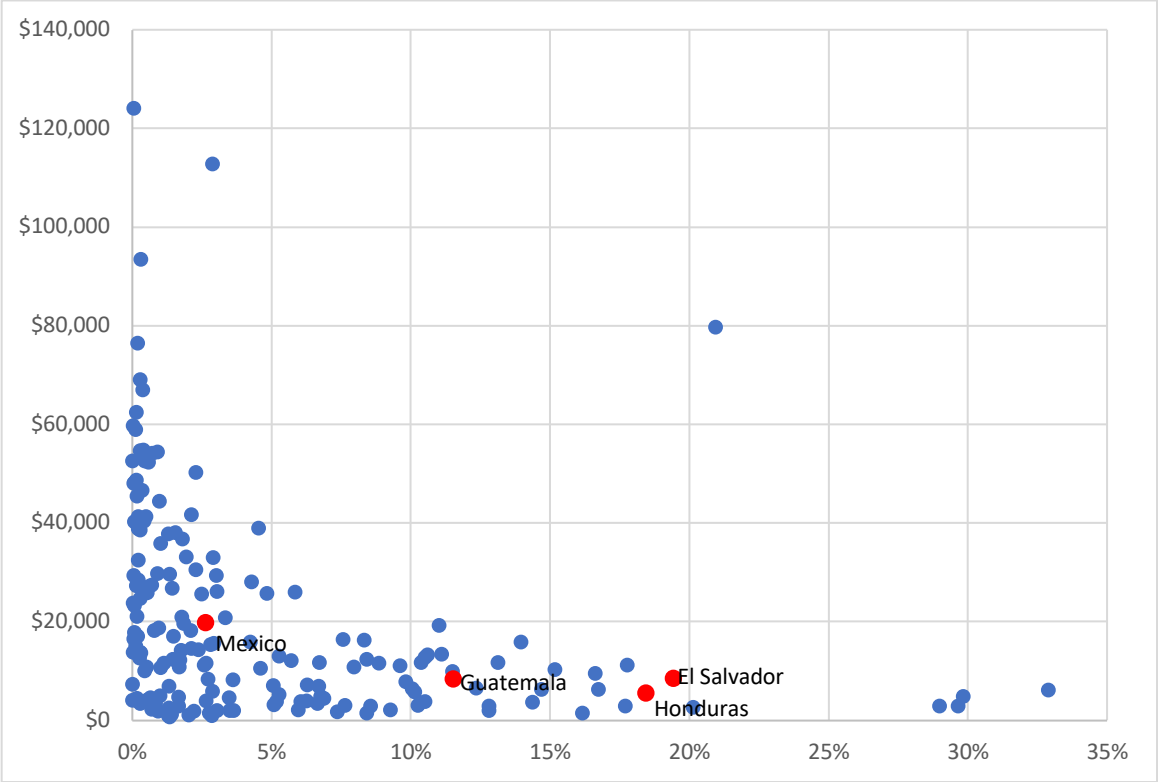

Figure 12. Personal Remittance-GDP Ratio and Per Capita GDP (PPP prices)
Remittance-GDP and per capita GDP values are averages of 2015-2018 values.

Source: Calculated from data obtained in the World Development Indicators database.

7. Conclusion

We summarize the results of this study as follows:

- Overall immigration inflow from the Northern Triangle is relatively small in the context of total immigration into the U.S., and this inflow has not risen significantly over the past two decades. However, this inflow has a large unauthorized component, and the Northern Triangle region has become the single most important source region of illegal immigration into the U.S.
- Survey data are used to assess the characteristics of actual adult migrants caught and returned by U.S. authorities (EMIF-Sur survey) and people thinking of migrating (LAPOP survey). The median age of actual and potential adult Northern Triangle migrants is roughly 30 years old. People expressing an intent to migrate have more years of education. The large majority of actual and potential migrants have close family and/or friends already living in the U.S. Potential migrants are somewhat more likely to be male.
- The characteristics of non-asylum-seeking adult migrants who left the Northern Triangle and were caught and returned by U.S. authorities changed significantly after 2012-13, when the asylum-seeker surge began. Prior to 2012-13, these migrants were more likely to say that they reside in the U.S. and to report as having worked prior to their trip. This suggests that the proportion of first-time migrants who had not previously been in the labor force increased after 2012-13.
- Survey evidence from 2018 and 2019 confirms that the primary reason for the migration of adults from the Northern Triangle is economic opportunity. There is no evidence that migrants came from Guatemala and El Salvador in these years because of drought or other environmental factors, although there is some evidence that this factor influenced Honduran migrants.
- Statistical analysis of the intention to migrate that is captured by the LAPOP survey suggests that this intention is significantly influenced by economic and crime/violence factors, as well as having a social network in place in the U.S. A simulation of the impact of significantly increasing the economic well-being of potential migrants in their home country suggests that this would have only a marginal impact on the intention to migrate.

- Two case studies that are of particular interest in assessing the degree to which economic development in source countries have affected migration flows to the U.S. are Mexico and Puerto Rico. For decades, the single largest migration flow to the U.S. was of Mexican nationals, but this flow began to subside in the 2000s and then contracted dramatically in the 2010s. The dominant explanation for the substantial decrease in Mexican emigration to the U.S. is demographic change in Mexico, in particular the fall in the Mexican fertility rate. Although more research is needed to fully understand developments in the 2010s, there is no evidence that improved economic conditions in Mexico have played a significant role in the striking subsidence of Mexican migration to the U.S.
- The Puerto Rican experience is of interest because there are no policy barriers to migration between Puerto Rico and the U.S., and the level of income in Puerto Rico after World War II was much lower than in the U.S. Developments in the 1950s and 1960s suggest that economic development in a source country can impact migration decisions such that fewer people decide to emigrate. However, the Puerto Rico experience also suggests vulnerabilities of any strategy based on the promotion of economic development. Large-scale federal transfers likely played an important role in limiting emigration after the 1960s, and developments in the 2010s show that large-scale migration can resume if the income convergence process stagnates.
- We lastly show that the Northern Triangle economies are now dependent on migration to the U.S. to a striking degree because of the size of remittance flows sent back to the Northern Triangle by migrants residing in the U.S. This dependency may be leading to economic outcomes that are inhibiting development of the Northern Triangle economies (the “Dutch disease” phenomenon).

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