Temporary Protected Status and Immigration to the United States[Ψ]

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Abstract: Although immigration reform has proved elusive for more than forty years, presidents from both parties have issued crucial executive actions that regulate inflows of new immigrants and the status of those already in the US. We focus on a particular class of executive actions, those related to granting immigrants Temporary Protected Status (TPS), exploiting the fact that immigrants who hold TPS receive access to the formal US labor market regardless of their legal status. Harnessing the New Economics of Labor Migration (NELM), we hypothesize that granting TPS to immigrants increases remittances to crisis-affected countries, decreasing the demand for both legal and illegal entry into the United States. We find robust statistical support for this hypothesis, and we also use synthetic control methods to evaluate TPS as a policy lever in prominent TPS-eligible countries. Our findings shed light on potentially unintended consequences that flow from providing labor market access to immigrants in the United States.

Keyworks: Immigration, Remittances, Apprehensions, New Economics of Labor Migration

I. Introduction

Discussions of immigration policy and reform in the United States over the last forty years almost always focus on Congressional gridlock and inaction. Despite the high issue salience of immigration in public opinion polls and despite innumerable legislative proposals, Congress has largely shied away from the issue, passing no comprehensive immigration reform legislation since the early 1990s. With Congress stuck at an immigration impasse for years, presidential administrations from both parties have taken crucial actions that regulate both inflows of new immigrants and the status of immigrants already in the US. While these actions

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receive little scholarly attention, executive actions on immigration have a long history and may have wide-reaching and unexpected (or unintended) consequences.

Executive actions on immigration to the United States have a long and rich history. Every president in the post-World War II era has deployed blanket protections for immigrant groups facing hardship.[1] With Congress unwilling to act, President Truman issued executive grants of relief following World War II for groups targeted and displaced by Nazi Germany. Kennedy extended and expanded protections to Cubans due to the Cuban Revolution. Carter suspended deportation proceedings for 250,000 Silva letter-holders in 1977[2] while Reagan provided a similar protection for 200,000 Nicaraguan refugees in 1987. President H.W. Bush continued this tradition of shielding individuals from deportation by extending Reagan's "family fairness" policy to 100,000 spouses in 1990, and Bill Clinton similarly halted deportation proceedings for 40,000 Haitians in 1997 over concerns about political instability in that island nation.

These actions, when applied to all noncitizens present in the United States, are a form of relief called extended voluntary departure (EVD). Unlike refugee status which, as defined by the United Nations 1951 Refugee Convention, provides protection to individuals fearing persecution, EVD provides blanket coverage to all noncitizens present in the United States in the event that their country experiences a natural disaster, civil conflict, or other humanitarian crisis. The application of EVD is optional: in practice the Secretary of State would make a case to the Attorney General the conditions in a particular country would place returning foreign nationals at risk. The Attorney General, in turn, would issue what amounted to a form of prosecutorial discretion that directed immigration authorities to not pursue deportation proceedings against individuals from the country in question.[3] Between 1960 and 1990, EVD was granted to foreign nationals from 16 countries (see Appendix A). President George H.W. Bush used his executive

[1] See Appendix A for a near-exhaustive list of major executive actions on immigration, including temporary grants of relief.

[2] In 1977, due to a lawsuit involving Cuban visas and immigration quotas for the Western Hemisphere, a federal court ordered the Immigration and Naturalization service to issue documents to Mexicans present in the US that shielded them from deportation and allowed them to gain employment. These documents came to be known as Silva letters due to the namesake of the court case, and Silva letter holders were either allowed to apply for visas or were granted legal permanent residency with the 1986 Immigration Reform and Control Act (IRCA).

[3] See Frelick and Kohnen (1995) and Seltzer (1992) for a discussion of the history and law surrounding EVD.

authority to provide a similar kind of relief—known as deferred enforced departure (DED) — to Chinese nationals after the Tiananmen Square Massacre in 1989 (Bergeron 2014).

Over the course of the 1980s, both members of Congress and the public at large grew concerned about what they viewed as an arbitrary — and increasingly political — use of EVD and DED. Most noticeably, concerns over the Regan Administration's refusal to grant El Salvadorians either refugee status or EVD led to congressional action, which culminated in the Immigration Act of 1990 (Anchors 2007). Established by Congress, the Immigration Act of 1990 grants temporary legal status to foreign nationals from nations experiencing excessively difficult living conditions but who do not qualify as refugees. These conditions may be borne from natural disaster, political and economic instability, or violent conflict. Managed by the Secretary of Homeland Security but in close consultation with the President, TPS offers two critical benefits to foreign nationals: a temporary shielding from deportation proceedings *even if* the migrant arrived to the US illegally, and legal access to the formal labor market. TPS is initially granted for two years, can be renewed indefinitely, but can also be terminated at the discretion of the executive branch. Executive actions by President Trump and current Secretary of Homeland Security Kirstjen Nelson have made this clear, as they recently ended TPS protections for more than 400,000 immigrants from El Salvador, Honduras, Haiti, Nicaragua, Sudan, and Nepal.

What are the consequences of TPS for immigration to the United States? Surprisingly, there is no scholarship on this question. In this article, we exploit the fact that migrants who hold TPS receive access to the formal US labor market, regardless of their legal status. This access allows migrants to obtain employment opportunities that, on average, pay higher wages than if they did not have formal labor market access. In line with models from the new economics of labor migration (NELM) that conceive of migration as a household risk diversification strategy, we expect TPS holders who have obtained higher-paying jobs to remit more money home to their friends and family than they would without TPS. These remittances increase household incomes in crisis-affected countries, reducing the propensity for other household members to migrate for economic opportunity. And we show, both theoretically and empirically, that this increase in remittances decreases the demand for migration — both legal and illegal — into the United States.

In Section Two, we discuss how executive actions like those related to TPS fit into standard theoretical models of migration and we generate testable implications from those

models. In sections Three, Four, and Five, we empirically evaluate the effect of TPS on three outcome variables: remittances, legal immigration to the US, and illegal immigration to the US. In Section Six, we use the method of synthetic control to address the question: what would remittances and immigration from countries such as El Salvador and Honduras be had their expatriates not received TPS? In Section Seven we conclude, discussing both theoretical and policy implications.

II. Migration, Remittances, and TPS: Theory and Hypotheses

In order to understand the effect of TPS, we need a theoretical model of migration and remittances. A standard understanding of migration — both internal and international — has its roots in the neoclassical microeconomic model of investment: prospective migrants weigh the costs and benefits of remaining at home versus migrating to any potential destination. If the net benefit — the expected future wage less the costs of moving — exceeds the expected wage at home, then migration will occur (Sjaastad 1962; Borjas 2014). Underlying this model are two key assumptions: (1) the decision to migrate is made by the individual and (2) emigration—the decision to leave—is treated as a permanent decision. It is important to note that, from the neoclassical perspective, migration can occur even if the probability of obtaining a job in the destination is low, so long as the expected wage rate is higher than the status quo wage in the country of origin.

Is a focus on the individual an effective starting point with which to explore the causes and consequences of immigration? Scholars working in the tradition of what is now called the new economics of labor migration (NELM) answer this question with an emphatic "no," arguing that migration decisions—especially from countries in the global south—are made by the family/household unit and not the individual (e.g., Stark and Levhari 1982; Stark 1984; Katz and Stark 1986; Massey et al. 1998). The rationale underlying the NELM perspective is one that gives pride of place to economic risk: because labor markets in developing countries are often volatile, insurance markets are underdeveloped, and programs of government support are limited or nonexistent, migration is part of a household's strategy to diversify its labor portfolio, which helps decrease potential risks to its long-term income (Massey 2009).

The NELM approaches the migration decision much like a portfolio manager attempting to manage risk in financial markets. Some family members will get an education, others will work locally, and others may go abroad to find work. So long as conditions in the foreign labor market are uncorrelated with the local labor market, the strategy of migration minimizes aggregate risk for the household. And, importantly, the NELM framework provides a lens with which to understand the role of remittances—income sent back from migrants to family members back home. Not only do remittances help the migrant's family smooth consumption in the face of domestic (home country) economic volatility, these funds also provide the household with a way to accumulate savings and overcome deficiencies in local credit markets (Stark 1984). Importantly, some segment of remittances may be used as an investment in future consumption, as at least a portion of the money sent home is intended to be consumed by the migrant upon return. Whether invested or used for consumption, the NELM views remittances as a mechanism that bolsters economic development in migrant sending countries (Taylor 1999).[4]

That the NELM framework focuses on household risk diversification makes it an appropriate point of departure for examining the effect that TPS on migration to the US. As noted above, TPS provides blanket relief for citizens of a crisis-affected country who were present in the US when a crisis hit their home country. Those who receive protected status are able to legally enter the labor market—whether the migrant is present in the US legally or illegally.[5] For those who entered the US on temporary work visas, TPS crucially provides a blanket extension of that status. Gaining access to the formal US labor market is an economic boon to immigrants. For instance, Rivera-Batiz (1999) and Kossoudjii and Cobb-Clark (2002) find that obtaining a green card—a shift to permanent legal status in the United States—increases the wages of an immigrant by 6 to 13 percent on average. [6] To the best of our knowledge, there is

[4] This effect is not without controversy. In a recent paper, Clemens and McKenzie (2014) discuss problems in identifying the overall effect of remittances on home country economic growth.
[5] TPS allows for legal labor market access regardless of whether the migrant entered the US illegally or legally and overstayed their visa. Protected status allows both legal and illegal migrants to remain in the country and not fear deportation so long as the individual does not commit a criminal offense (a felony).
[6] Amuedo-Dorantes and Bansak (2011) and Pan (2012) reach differing conclusions with regard to the effect of legal permanent resident status on employment, with Amuendo-Dorentes and Bansak (2011) finding that women are more likely to exit the workforce once they obtain status while Pan (2012) finds the opposite effect for women.

only one paper that explicitly examines the labor market effects of TPS and it identifies a similar positive of protected status on Wages: Orrenius and Zavodny (2015) find that Salvadoran immigrants with TPS are more likely to find employment as compared to Salvadorans in the US illegally and that, on average, the jobs they find pay higher wages (Orrenius and Zavodny 2015).

From the perspective of the NELM, migration is an effort to diversify the sources of household income on the part of the migrant. It follows that access to the labor market and opportunities for higher wages should be associated with increased remittances to friends and family back home. Direct evidence on this point is limited, as data enabling scholars to establish a causal link between labor market access and remittances does not exist. However, in a set of papers, Bollard, McKenzie, and Morton (2009) and Bollard, McKenzie, Morton and Rapoport (2011) exploit surveys of migrants residing in the US, France, Germany, Italy, Spain, and Australia. Using this micro-level data they find that, even after controlling for a migrant's gender and their level of education — along with a battery of other demographic, economic, and social characteristics — higher wages are associated with an increase in both the frequency and amount of remittances that migrants send home.

All else equal, then, we hypothesize that countries whose migrants receive TPS in the United States will receive larger flows of remittances because protected status provides migrants with access to the labor market and an opportunity for higher wages.[7] But should TPS — and associated remittances — influence subsequent inflows of migrants from the affected country? On the one hand, both neoclassical and NELM theories anticipate that remittances to a country of origin decrease migration out of that country. From the neoclassical perspective, remittances increase the income (consumption) of those left behind, which will decrease the income gap between host and homeland, consequently decreasing the motivation to migrate. The implication of NELM models would also be that remittances decrease migration, though not because the

[7] It is important to recall, however, that the NELM framework is based on the idea that families insure against risk through migration. A large literature indeed finds that even without any policy change in the migrant's host country, exogenous shocks such as a natural disaster or civil war in a migrant's homeland result in increased remittances to that country (e.g., Yang 2011, Naude and Bezuidenhout 2014). Despite remittances being counter-cyclical, we expect TPS, because it provides all legal and illegal migrants access to the labor market, to be associated with an even larger increase in remittances.

wage gap is closed. Rather remittances, because they help smooth consumption and provide a means of diversifying family income, decrease the need for subsequent migration.[8]

This linkage is not unambiguous, however. While traditional neoclassical economic models predict a negative monotonic relationship between the wage gap and the number of migrants (Sjaastad 1962), the empirical record suggests otherwise. At least in the cross-section, the relationship between income and migration is more akin to an inverted-U. For countries with low initial levels of income, an incremental increase leads to *increased* levels of emigration (de Haas 2007). But this effect is not monotonic: as countries reach middle-income status, further increases in income lead to flattening, and then decreasing, emigration rates as they enter later stages of development.[9] The key here is that higher income has impacts on both emigration *incentives* and *constraints*. An initial increase in income reduces the relative economic benefits of migrating (reduces incentives), but it also simultaneously makes migration itself more affordable (reduces constraints) (Dao et al. 2016). The implication in the case of TPS is that if this class of executive actions does increase remittances, and household incomes rise in crisis-affected countries as a result, then whether or not those remittances translate to less immigration to the US is ultimately an empirical question. We explore this question in the empirical sections that follow.

Furthermore, TPS might increase immigration to the US from crisis-affected countries due to its effects on social network formation. Transnational social networks are perhaps the most important factor to understanding the migration decision and choice of destination. Since migration is an inherently risky undertaking, migrants are more likely to move to destinations where they can access networks of co-ethnics (Fitzgerald et al. 2014). Dense networks of co-ethnics provide information about economic opportunities and serve as a social safety net, helping new migrants in finding housing and integrating into a new community (Portes and Borocz 1989; Portes 1995; Massey et al. 1993; Faist 2000; Sassen 1995; Light et al. 1999). Since

[8] We have not found any theoretical or empirical papers that explicitly investigate the effect of remittances on subsequent migration, though the formulation in Taylor (1999) comes close. In Taylor's view, because remittances enhance development and economic wellbeing in the migrant's homeland (or village), additional migration becomes unnecessary.

[9] Zelinsky (1971) originally identified this relationship and termed it the *mobility transition curve*. A wealth of empirical work supports Zelinsky's descriptive theory in a number of contexts (see Akerman 1976, Gould 1979, Hatton and Williamson 1994, and Dao et al. 2016).

TPS effectively expands and enriches transnational social networks in the US, it might increase immigration to the US through this pathway. However, TPS may not have the same effect as increased permanent migrant stocks, as it is in principle a temporary status for legal and illegal immigrants. In addition, protected migrants must already be present in the US at the time that the president extends TPS, so it may not considerably increase the size of existing social networks. Once again, it remains an empirical question as to what TPS might do to aggregate migrant inflows from crisis-affected countries.

III. TPS and Remittances

We examine the effect of TPS on remittances by constructing a panel of countries observed from 1990 through 2015. Our 'global' sample is comprised of all non-OECD countries (excluding Chile, Israel, Mexico, and South Korea) for which data are available that are not in the World Bank's high-income category. The inclusion of a number of covariates — especially the use of a variable measuring the number of migrants from a country residing in the US — restricts our sample to 138 countries. Within the usable sample of countries, TPS was granted to migrants from twelve countries: Bosnia and Herzegovina, Burundi, El Salvador, Guinea, Honduras, Haiti, Liberia, Nicaragua, Nepal, Rwanda, Sierra Leone, and Yemen.[10] A list of countries in the sample are included in Appendix B; specifics with regard to variable sources and measurement are included in Appendix C.

As all of our data are observed on an annual basis, we code TPS as "1" for the year that a country was designated with this status. A country continues to be coded as having TPS until that status officially ends; that means that renewals of TPS continue to be coded as "1." In all other cases, TPS is coded as zero. Protected status was coded based on TPS notices held by the US Department of Justice.[11]

The dependent variable, "Remittances/GDP", measures remittances received by country *i* at time *t* as a share of that country's gross domestic product. In alternate specifications, we also use "Remittances/Pop", which measures remittances on a per-capita basis.[12] Macroeconomic

[10] We were unable to include five TPS countries-- Angola, Kosovo, Somalia, South Sudan, and Syria-- in our sample due to lack of data on remittances.
[11] See https://www.justice.gov/eoir/temporary-protected-status for these notices.
[12] It is important to note that our measure captures remittances from all countries in the world, not just the United States. On average, the United States is the source of approximately 60% of

models of remittances emphasize both conditions in home and host countries.[13] These include the size of the country's expatriate population, as a larger expatriate population should be a source of more remittances, all else equal. Given that we are looking at TPS as applied to migrants who reside in the US, we measure the expatriate population as the log of the number of foreign born from country *i* residing in the US at time *t*.

Other determinants of remittances include exchange rate depreciation — as a currency depreciates vis-à-vis the US dollar, we expect an increase in remittances from the US, as these remittances will net more consumption or investment in real terms. To capture the potential influence of exogenous shocks to a country, we include two variables: a dummy variable coded "1" during periods of civil war and another that measures the number of natural disasters experienced by the country at time *t*. Because TPS provides a migrant with access to the labor market, we include two variables to proxy for the health of the US economy: the log of the annual average weekly wage in the United States and the US's annual unemployment rate. We expect, all else equal, that higher average wages will translate into higher remittances, while a higher unemployment rate will have the opposite effect. Finally, we control for the size of a country's population and its GDP per capita, both in log form.

Table 1 displays our initial findings. All models are estimated using ordinary least squares and include a set of country dummy variables to account for unmeasured country-specific factors that may be associated with remittances. Robust standard errors clustered by country are in parentheses. All variables are lagged by one year to decrease the chance of simultaneity.

Columns 1-3 in Table 1 correspond to different estimation samples: column (1) includes all countries that are not in the World Bank's high-income category, column (2) excludes both high-income and upper middle-income countries, and column (3) restricts the sample to countries in the Western Hemisphere (excluding Canada). In all three samples, TPS has a positive and statistically significant effect of remittances. When TPS is in force, remittances as a share of GDP experience a massive increase—almost tripling from the average of 2.7% of GDP

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all remittances; for countries in the Western Hemisphere the United States is the source of 98%of all remittances (Author's calculations based on the World Bank's bilateral remittance matrix for 2010 http://www.worldbank.org/en/topic/migrationremittancesdiasporaissues/brief/migration-remittances-data).

[13] See the review in Leblang (2017).

to close to 9% of GDP in column (1), from 3.2% of GDP to 8.2% of GDP in column (2), and from 2.4% of GDP to 7.2% of GDP in column 3. When we estimate the model using per capita remittances[14], we find similarly large effects: when TPS is in force we find an increase of almost one hundred dollars (measures in 2010 US dollars) per person from an average of one hundred fifty dollars.

The effect of the included control variables is mixed: consistent with existing literature, we find a positive and statistically significant effect of the migrant population from country *i* residing in the US (larger migrant populations increase remittances). The other variables show different patterns depending on the sample: increases in US wages or unemployment have the expected effect — wages increase while unemployment decrease remittances depending on the sample. Most interesting are the variables measuring exogenous shocks—natural disasters or civil conflicts. In no specification are natural disasters, exchange rate depreciation, or civil war statistically significant predictors of remittances. This latter result may be consistent with a growing body of literature suggesting that remittances, by smoothing consumption, may decrease the likelihood of the onset of a civil war (Regan and Frank 2014).

As a robustness check, we re-estimate the model in Appendix Table D-2 using the Arellano-Bond dynamic panel data estimator. This estimator allows efficient estimation of a lagged endogenous variable — to account for the possibility that remittances may be a trending variable — in the presence of country fixed effects. These results are consistent with those in Table 1, though the effect of TPS is understandably attenuated.

These results show that, at least in the aggregate, countries whose migrants receive TPS protection receive larger flows of remittances. Our estimates suggest that this effect can be quite large, whether measuring remittances as a proportion of GDP or on a per capita basis. Does this increase in remittances influence the flow of migrants to the United States? In the next two sections we investigate the effect of TPS and remittances on legal and illegal migration to the United States.

[14] These results are not reported here to save space but are available in Appendix Table D-1.

IV. TPS and Legal Immigration to the United States

We hypothesize that TPS will influence migration into the US through the effect of protected status on remittances. The effect of remittances on migration is ambiguous: from the perspective of the financial constraint literature, all else equal, an additional dollar of income should increase a potential migrant's liquidity, allowing them to migrate. The NELM approach, however, suggests that because migration is a strategy to diversify family income, remittances should actually weaken the draw of foreign labor markets.[15] In this section we utilize novel data on migration to the United States to distinguish between these two predictions.

Existing studies of migration tend to draw on census data to measure the inflow of migrants into a destination country. Those data, however, fail to distinguish between migrants who have recently entered the country and those who have adjusted their visa status. We draw on data from the Department of Homeland Security (post-2000) and from the Immigration and Naturalization Service (pre-2000) to measure *legal* immigration as a count of the number of new arrivals into the US in year *t* from country *i*.[16] As our interest is in the effect of TPS on migration—through its effect on remittances — into the US, we limit our attention to immigration from countries in the Western Hemisphere (excluding Canada). Narrowing our focus in this way is substantively reasonable, as the majority – over two-thirds — of new arrivals to the US each year come from the Western Hemisphere.

Individual-level models of immigration emphasize utility maximization and argue that migration occurs when the expected wage at a potential destination (in this case the US) is greater than the expected wage in the migrant's homeland less the costs of migrating. This micro-level framework has been modified to include a variety of macro-level determinants and to broaden the conceptualization of migration costs.[17] We include a wide battery of variables to

[15] Because we are interested in the effect of TPS, our focus is on immigration to the US. However, we recognize that the inflow of remittances could decrease emigration to other nations as well.

[16] An advantage of using data from DHS and INS is that they separate immigration into new arrivals and adjustments of status. The former category—which we use—measures the number of people applying for and receiving a green card through a US consular service. Adjustments of status, on the other hand, capture individuals already present in the US who have adjusted their visa status to a green card.

[17] See Stark (1984). Clark, Hatton, and Williamson (2007), Hatton and Williamson (2002), and Fitzgerald, Leblang, and Teets (2014) which contains reviews and empirical tests of these models.

capture the push and pull factors driving migration to the United States. From the perspective of both the NELM and standard micro-economic models, migration is driven by economic factors such as relative wages (home country GDP/US GDP), relative economic inequality (home country GINI Index/US GINI index), and relative education (home country educational attainment/US educational attainment). As migration is inherently risky, scholars stress the importance of social networks — friends and family — in helping decrease the social and informational costs associated with cross-border migration. We measure social networks as the log of the size of the foreign-born population from a country of origin residing in the US.[18] Finally, we include two variables to capture factors that potentially "push" migrants to exit their country: the annual number of natural disasters in the country of origin (in log form) and the existence of an ongoing civil war. As the dependent variable is the number of new arrivals, we include the log of the size of population in the country of origin to control for the pool of potential migrants.

We estimate the effect of remittances and TPS on new arrivals—our measure of legal migration—from 24 countries in the Western Hemisphere over the years 1989-2015[19] using a Poisson model.[20] We prefer a Poisson model to OLS because the dependent variable (a) is bounded on the left by zero and (b) the dependent variable is a discrete count of legal migrants into the US. The inclusion of fixed effects for countries of origin accounts for omitted variables that remain constant within country and obviates the need for variables suggested by gravity models of international migration.[21]

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[18] It is important to note that the stock of the foreign-born population can also have a policy interpretation within the context of legal migration to the US. As the vast majority of immigrant visas are issued for the purpose of family reunification, the foreign-born population can be interpreted as a proxy for the number of families who are attempting to reunify with family members from abroad.

[19] Missing data for some of the covariates – including remittances – reduces the size of the sample in some years. Countries included in the sample are listed in Appendix B.

[20] Santos Silva and Tenreyro (2006) demonstrate that the Poisson model is preferable to both OLS and negative binomial specifications when the model contains high dimensional fixed effects; they show that under these conditions, the Poisson model produces unbiased parameter estimates.

[21] Gravity models of international migration—like gravity models of international trade—hold that dyadic flows of people (or goods) are influenced by transactions costs. These costs are generally measured by the inclusion of variables such as bilateral distance, whether the countries share a common official language, a common border, and/or a common colonial heritage. As

Column (1) of Table 2 contains the results of the fixed effects Poisson model. Surprisingly, most of the control variables—other than the source country's population, the size of the foreign-born population, and the income ratio—are statistically indistinguishable from zero.[22] As anticipated, and consistent with earlier findings, migration from country *i* to the US increases with the existing size of the foreign-born population from that country and decreases as the wage gap decreases. All else equal, countries in the Western Hemisphere with larger populations are sources of a larger number of migrants to the United States.

Our variable of interest is remittances as a share of the migrant's country of origin GDP. From the perspective of the NELM, an increase in remittances should decrease the demand for migration. But as we noted earlier, literatures related to the mobility transition and the importance of liquidity constraints expects that each additional dollar remitted should increase the ability of individuals to migrate. The estimated coefficient on remittances as a share of GDP in column (1) of Table 2 is negative and statistically significant.[23]

To get a sense of the magnitude of the effect of remittances on legal migration, note that the average number of new arrivals from countries in the Western Hemisphere is 5,730, with a standard deviation that is over twice the mean (11,878). Meanwhile, average remittances as a share of origin country GDP is approximately 4.5 percent, with a standard deviation of about 5. Holding all else constant, increasing remittances by one standard deviation *decreases* new arrivals into the US by twenty-three percent (from 6,700 to approximately 5,100) per annum. Figure 1 illustrates the marginal effects of the log of remittances as a percentage of GDP on the predicted number of new arrivals to the US. As expected, holding all other variables at their means, an increase in remittances as a percentage of GDP yields a statistically significant and substantively important decrease in arrivals of new migrants to the United States.

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these variables do not vary over time, the inclusion of origin country fixed effects eliminates the need to explicitly include these gravity controls.

[22] Interestingly, this is not due to the inclusion of country fixed effects. Removing the fixed effects renders the education ratio statistically significant, but the remainder of the control variables remain insignificant.

[23] We explored the potential for nonlinearity in the effect of remittances on migration into the US by entering remittances/GDP along with its square. In those results, not reported here, both parameters are negatively signed but neither is individually significant due to a high level of collinearity (correlation is .94).

One may be skeptical with regard to the estimated size of this coefficient: it is known that measures of remittances are often (massively) underestimated.[24] As a robustness check, in column (2) of Table 2, we replace the remittances variable with the TPS dummy variable. That variable is statistically significant and is also negative: all else equal, immigration from countries whose migrants are TPS-eligible decreases by approximately twenty-four percent (from 5,635 to 4251). In column (3) we include both variables and, surprisingly, both are statistically significant and negative. One plausible explanation for this is that, as noted earlier, remittances are under-reported; because TPS provides access to the labor market, it provides migrants with the opportunity to obtain higher wages which, in turn, yields higher remittances—either through official or unofficial channels. These remittances, in turn, decrease the need for additional family members to seek labor market opportunities in the US.

V. TPS and Illegal Immigration to the United States

The NELM logic linking remittances to a decrease in the demand for legal immigration should hold for illegal immigration as well. As discussed above, families use migration as a mechanism to diversify sources of income. If legal immigration is not a possibility, all else equal, the NELM logic would hold for illegal methods of entry into a foreign labor market. Existing scholarship shows that illegal immigrants from Mexico, on average, earn higher wages in the US then they would at home even though their wages are lower than what would be obtained in the legal labor market (Hanson and Spilimbergo 1999). And, given that the logic of the NELM is not about relative wages per se, but about the diversification of income streams, the key consideration is accounting for the risk that a family member will be caught when attempting to enter a country (labor market) illegally. We turn to the measurement of risk below.

The challenge in applying our argument to illegal immigration is measurement. Assuming that immigration authorities want to prevent illegal entry,[25] observing illegal immigration is difficult if not impossible. While there are a number of approaches to estimating

[24] See Mohapatra and Ratha (2011) and World Bank (2006) and Clemens and McKenzie (2014) for an opposing view.

[25] A crack-down on illegal migrants would hinder the labor supply and push up wages in sectors such as agriculture, construction, and hospitality. That would decrease wages for business owners in some politically sensitive and geographically concentrated areas. See, for example, Root (2016) for a discussion of the sensitivity of illegal migration enforcement in Texas.

illegal immigration (e.g., Hoefer, Rytina, and Baker 2007; Passel and Cohn 2016), these estimates are problematic for two reasons. First, these approaches use data from the US Decennial Census and/or the American Community Survey to generate estimates of the *stock* of the foreign-born population that is in the US illegally. As such, they are unsuitable for measuring the annual *flow* of illegal migrants into the country. Second, the measures of the stock of illegal migrants cannot distinguish those who have entered the US illegally from those who entered legally and overstayed their visas. Consequently, even taking first differences of the stock measures would not generate accurate estimates of the inflow of illegal migrants.

As we cannot directly observe the number of illegal entrants into the US, our approach is to proxy for the demand for illegal entry by using data on the number of people attempting to enter the US without inspection at air and sea ports of entry and at the southern border of the US. We obtain data on the number of individuals apprehended by Customs and Border Patrol (CBP) each year, broken down by country of origin, and use this as our measure of the demand for illegal entry into the US. While imperfect, assuming "that the *apprehension rate* is constant, changes in apprehensions are a direct indicator of changes in illegal inflows" (Office of Immigration Statistics 2017).

We cannot know if the apprehension rate is constant, but we can model the factors that may influence apprehensions and include those factors in our empirical model. The first set of factors that influence apprehensions is related to border enforcement efforts at the Southern Border of the US and at other ports of entry. Some scholars use a variable for the number of CBP officers placed along the southern border (Bohn and Pugatch 2015).[26] Others use current line-watch hours as a proxy for enforcement, finding a negative relationship between line-watch hours and the number of apprehensions (Hanson and Spillimbergo 1999; Hanson 2006). Unfortunately, the Department of Homeland Security stopped reporting and publishing information on line-watch hours after 2009, arguing that provision of these numbers supplied information to potential coyotes and smugglers. However, the total number of border patrol officers employed — a variable that we have continuous data for starting in 1980 — has a

[26] These studies anticipate that, when controlling for the US unemployment rate, relative hourly wages in Mexico and the US, relative GDP per capita, output levels across commonly undocumented supplied labor industries, and a legislation indicator of 1 for implementation of the IRCA, an addition of 1,000 border patrol officers to a CBP sector outpost decreases the sector's share of Mexican immigrants by 21.9% (Bohn and Pugatch 2015).

correlation of .987 with line watch hours.[27] Yet all models face challenges associated with endogeneity, as most models begin with a core assumption that the number of apprehensions in a given time period is a function of the number of illegal attempts to cross the border and a given level of border enforcement (Hanson and Spilimbergo 1999). To decrease the possibility that changes in the number of border patrol agents is caused by the number of apprehensions, we lag this variable by one year.

Existing studies of illegal migration also identify labor shocks in American economic sectors that typically rely on sources of undocumented labor as determinants of apprehensions. As demand for labor increases, all else equal, we should see an increase in demand for illegal entry (Bohn and Pugatch 2015; Hanson and Spilimbergo 1999). We proxy for labor demand using two variables: the seasonally adjusted unemployment rate in the US and the log of US housing starts, as construction employs an estimated 15 percent of all unauthorized migrant workers (Passel and Cohn 2016). Illegal immigration into the US may also be a result of a lack of visas for legal entry: assuming a constant visa cap, any increase in the demand for entry into the US may result in a diversion from legal to illegal migration. Consequently, we include a measure of the total number of visas (all categories) issued by the US in the prior year. Finally, some who enter the US without inspection do so in order to apply for asylum. Backlogs in asylum courts may signal to potential migrants either that they will not be granted a hearing in timely fashion, or that immigration officials are purposively delaying hearing with the intent of deterring those who would seek asylum. We include a variable measuring the average number of days it takes for an asylum case to be heard, broken down by country of origin.

[27] However useful line-watch hours are as a predictive variable, Massey, et al. argue that line watch hours and total officer hours cannot adequately account for dramatic shifts in technology and standard operating procedures within CBP and INS (Massey et al. 2016). This argument is reasonable, as the Department of Homeland Security remains the most rapidly changing federal department and the CBP the most changed agency since the early 1990s (Espenshade 1995). When modeling apprehensions over time, changes in CBP protocol, initiatives, and technology must be more directly controlled for when attempting to measure border enforcement. Increasingly sophisticated border enforcement technologies, however, may not have a dramatic effect on apprehension rates because changes in technology do not necessarily deter migration; rather, they will increase the costs associated with moving by making hired guides and more remote crossing locations more attractive to potential migrants. Expenses are perceived both literally (via expensive coyote crossing) and in the form of forgone wages due to longer crossing trips (Gathmann 2008).

In addition to these variables focusing on the demand for illegal entry, we include the same base set of covariates that we used in the model of legal migration. In addition, we include the lagged level of apprehensions; this variable can account for unmeasured and persistent push factors that may generate a demand for illegal entry into the US, while at the same time proxying for the demand for increased border patrol or other enforcement efforts at the US border.

As with our models of legal migration, in Table 3 we estimate a series of Poisson models and include country of origin fixed effects. The effect of remittances on apprehensions—our proxy for the demand for illegal entry into the US — is negative and statistically significant in column (1). For this sample of countries, remittances as a share of GDP has a mean of six percent with a standard deviation of 6.75 percent. All else equal, increasing remittances by one standard deviation decreases the estimated number of apprehensions from about 7,100 to about 6,000 — a difference of slightly more than 1,100. Figure 2, analogous to Figure 1, illustrates the marginal effects of remittances as a percentage of GDP on the predicted number of apprehensions from a country in a given year. As expected again, holding all other variables at their means, an increase in the log of remittances as a percentage of GDP results in a significant decrease in annual apprehensions at the border.

The control variables in column (1) of Table 3 are a mixed bag. The lagged measure of apprehensions is, surprisingly, statistically insignificant, indicating that apprehensions at time t-1 do not predict apprehensions at time t. Both the ratio of home country GDP per capita and the ratio home country income inequality are correctly signed and statistically significant: the demand for illegal entry into the US increases with relative inequality and decreases as the wage gap declines. As with legal migration, both the size of the home country population and the education ratio are statistically insignificant.

The push factors—civil war and natural disasters—are both statistically significant. Civil wars, all else equal, increase the demand for illegal entry into the US, as individuals flee violence and the potential loss of life associated with civil conflicts. It may be that civil war generates an increase in apprehensions as those individuals enter the US without inspection to seek asylum. Natural disasters, on the other hand, have a negative and statistically significant effect on apprehensions. This effect is consistent with other recent scholarship, which finds that while natural disasters generate displacement of populations, those populations tend to remain within

national borders, as disasters make it more difficult and expensive to move abroad (Beine and Parsons 2015).

The demand for illegal entry into the US also decreases with longer average wait times for asylum hearings; whether this is a variable that policymakers can manipulate for the purposes of deterring illegal entry is both a legal and normative question for a different paper. Consistent with other work, we find that increased staffing of the US CBP increases apprehensions. We also find that a strengthening US housing market—as measured by the (logged) number of housing starts — is also associated with an increased demand for illegal entry, as potential migrants see employment in the construction sector as an opportune way to diversify their family's income streams. The coefficient on US unemployment is statistically insignificant. Finally, the lagged US visa cap is negative and significant, suggesting that individuals who cannot legally enter the US will, all else equal, attempt to enter illegally.

In column (2), we substitute the TPS dummy variable for the measure of remittances. In column (3), we include both variables simultaneously. As with the legal migration models, both remittances and TPS are negatively signed and statistically significant regardless of specification, with parameter estimates that are relatively stable. That both variables are statistically significant again suggests that even the best available estimates of official remittances underestimate the magnitude of financial flows sent home by migrants.

VI. Policy Analysis: Synthetic Control

Finally, we turn to evaluating TPS as a potential policy lever that executives can pull to decrease flows of immigrants from particular countries in the event of crisis. To do this, we zoom in on a collection of prominent TPS-eligible countries that we take as major case studies: El Salvador, Honduras, and Nicaragua. Our goal is to answer the counterfactual question: what would remittances inflows and immigration to the US from these countries look like had their migrants not received TPS following natural disasters?

To do this, we use synthetic control methods for comparative case studies as proposed by Abadie et al. (2010). The synthetic control method uses a transparent quantitative algorithm to generate a combination of control units that, conditional on identifying all relevant pre-treatment covariates, gives us the best comparison possible between a unit of interest that received a treatment (in this case TPS) and a unit that did not receive the treatment. Synthetic control is

particularly useful for a policy analysis of TPS because a) is it well-suited to policy interventions that happen at an aggregated level (Abadie et al. (2015) and b) it gives us a sense of how TPS can affect the over-time outcome path of immigration from particular countries of interest (Abadie and Gardeazabal 2003).[28]

Very similar to the data employed in the statistical models presented above, we use annual country-level panel data from 1988 to 2015 on remittance inflows and legal immigration to the US. We choose the cases of El Salvador, Honduras, and Nicaragua because they are highly relevant to US immigration policy, given that all of them are geographically proximate in the Western Hemisphere and send significant amounts of illegal and legal immigrants to the US. We restrict our pool of control units to Western Hemisphere countries (excluding Canada) whose migrants have never received TPS and that have sufficient coverage on our predictors and outcome variables; this yields a total of 19 members of the control/donor pool.[29]

We explore the policy effects of granting TPS on two major outcomes: remittances received per capita and legal immigration to the US.[30] Our technical approach to synthetic control is in line with the recommendations of Abadie et al. (2010; 2015).[31] Sufficiently available data on remittances per capita does not begin until 1992, and so the pre-treatment outcome period for remittances per capita begins then. Meanwhile, our data on legal immigration (in line with our conventional statistical models) begin in 1988, allowing us to extend the pre-treatment outcome period back further for this outcome. The predictors for the remittances per capita and

[28] See papers cited here for a more detailed technical discussion of the synthetic control method. For other implementations of synthetic control in political science, see Montalvo 2011; Billmeier and Nannicini 2013; Heersink and Peterson 2016; Heersink et al. 2017.

[29] The control ('donor') pool countries are: Argentina, Belize, Bolivia, Brazil, Barbados, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, Guatemala, Guyana, Jamaica, Mexico, Panama, Peru, Paraguay, Trinidad and Tobago, and Venezuela. For remittance synthetic controls, Chile is excluded due to missing data on remittances per capita.

[30] While elsewhere in this paper we explore the effect of TPS on apprehensions as a proxy for illegal immigration, in the synthetic control context data problems prove to be insurmountable. While in more traditional statistical models we can account for US-side variables that affect apprehensions, such as CBP budget and number of border patrol agents, this proves impossible in a synthetic control model, in which predictors must be characteristics of individual units. Absent a better measure of illegal immigration, we instead focus our policy analysis on remittances and legal immigration to the US.

[31] To build our synthetic control units, we minimize the mean squared predicted error in the preintervention outcome period for each country-outcome pair. We use Abadie et al.'s (2011) "synth" package in Stata to implement the synthetic control method.

legal immigration synthetic controls are identical to our statistical models presented above, but in line with the recommendations of Abadie et al. we add as predictors certain years of the respective outcome variable in the pre-treatment period.[32]

We expect that for countries whose migrants receive TPS, actual remittances per capita after the granting of TPS should begin to significantly outpace the synthetic control unit; in other words, TPS should increase remittances per capita to a level *higher* than we would expect had TPS never been granted. We also expect that actual legal immigration after the granting of TPS should be significantly lower than for the synthetic control unit; in other words, TPS should decrease legal immigration to a level *lower* than we would expect had TPS never been granted. We have no expectations as to how these policy effects might persist (or not) over the course of TPS implementation, and regard synthetic control as a particularly useful method for exploring potentially heterogenous effects of TPS over time.

El Salvador

We first explore the effect of TPS on El Salvador, whose migrants received TPS in 2001 following an earthquake that caused widespread landslides and property damage. Around 263,000 Salvadorans living in the US in 2001 received TPS, by far the largest population protected by the executive action (CRS 2018). Figure 3 illustrates the results of our synthetic control estimates for El Salvador; in the first panel the outcome is remittances received per capita, and in the second panel the outcome is legal immigration to the US.

Both panels are in line with the general results of the statistical models presented above. While in the pre-treatment outcome period, El Salvador and "synthetic" El Salvador closely match each other in remittances received per capita, in just a few years post-TPS, actual remittances received per capita begin to far outpace "synthetic" El Salvador. This large gap persists through the end of our sample in 2015, suggesting that TPS can have a strong positive and persistent effect on the remitting behavior of migrants in the US. The summary result here is that had TPS not been granted to Salvadorans in the US in 2001, remittances per capita to El Salvador likely would have been much lower than they actually were. This effect does not wear off over time, and the gap generally continues to grow all the way to the end of our sample.

[32] See Appendix E for a more technical discussion of our synthetic control results, as well as for model diagnostics.

While the match between El Salvador and "synthetic" El Salvador on legal immigration is not quite as close in the pre-treatment outcome period (new arrivals are generally more volatile than remittances), we still see a very strong, negative effect of TPS on legal immigration in line with our expectations. Beginning in 2001, the number of new arrivals from El Salvador falls precipitously, while in "synthetic" El Salvador they rise significantly in the post-TPS period. The gap in new arrivals between El Salvador and "synthetic" El Salvador is largest around 2004, about three years after TPS was granted to Salvadoran migrants in the US. After 2004, actual new arrivals from El Salvador begin to increase again, but they never reach the level we would expect given the number of new arrivals we see from "synthetic" El Salvador. Actual new arrivals remain lower than what we would expect all the way through the end of our sample in 2015. This suggests that granting TPS to Salvadoran migrants in the US was effective at decreasing further legal immigration from El Salvador following the 2001 earthquake, and the policy effects of TPS appear to persist long after the executive initially grants it.

Honduras

The synthetic control results for Honduras are largely similar in nature. Honduran migrants received TPS slightly earlier than El Salvador, in 1998, when Category 5 Hurricane Mitch devastated the Honduran economy and killed at least 7,000 people. The estimated number of individuals from Honduras who received TPS is much lower than El Salvador, at about 86,000 (CRS 2018). Figure 4 shows analogous synthetic control results for Honduras; the results again support the proposition that TPS can increase remittances and decrease legal immigration to the US. On remittances per capita, Honduras and "synthetic" Honduras are near-perfect matches prior to the implementation of TPS. But almost immediately after, actual remittances received per capita begin to massively outpace remittances received per capita by "synthetic" Honduras. While there is indeed a dip in remittances to Honduras around 2008 (likely due to the Great Recession in the US), actual remittances per capita remain far higher than remittances per capita for "synthetic" Honduras. Again, this suggests that granting TPS to Honduran migrants significantly increased the amount of remittances sent back to Honduras over the 15 to 20 years that followed.

TPS also appears to have significantly reduced legal immigration from Honduras, especially in the immediate years following its implementation. In the pre-treatment period, Honduras and "synthetic" Honduras match nearly identically in terms of the number of legal

migrants to the US. Right after TPS was granted to Honduran migrants, however, legal migration from Honduras to the US *fell* to below 3,000 while in "synthetic" Honduras it *spiked* to nearly 6,000. Honduras and "synthetic" Honduras eventually re-converge around 2005, suggesting that unlike in El Salvador, TPS may not have had an effect that endured indefinitely. But in the years following 2005, we see divergence again in line with our expectations: legal migration from "synthetic" Honduras begins to far outpace actual legal Honduran immigration. We take these results to suggest that in line with our more general statistical results, TPS was an effective policy lever to increase remittances to Honduras post-crisis and to reduce demand for entry to the US from Honduras.

Nicaragua

In the case of Nicaragua, the effects of TPS are perhaps less clear and attenuated. Along with Honduras, Nicaragua received TPS in 1998 due to Hurricane Mitch. The Nicaraguan population protected by TPS is estimated to be orders smaller than those of El Salvador and Honduras, at about 5,000 individuals (CRS 2018). This suggests that TPS should have less of an effect on both remittances and legal immigration. The results displayed in Figure 5, analogous to those presented for El Salvador and Honduras, largely confirm this expectation. Actual remittances per capita grow slightly larger than those of "synthetic" Nicaragua in the immediate years following TPS, but not nearly as large as the increases we observe for El Salvador and Honduras. In addition, over time this effect completely vanishes, and in the leadup to the Great Recession, "synthetic" Nicaragua actually passes Nicaragua in remittances received per capita. Later on, a re-divergence occurs in line with our expectations, but in general the effect of TPS on remittances received per capita is not nearly as clear in Nicaragua as it is in El Salvador and Honduras. Again, this is likely due to the relatively small number of Nicaraguans who received TPS in 1998.

It appears that TPS did have a negative effect on legal immigration from Nicaragua, in line with our expectations, although this effect does not persist as long as it does in our other cases of interest. Starting in 1998, legal immigration to the US from Nicaragua increases only slightly to around 1,000, while for "synthetic" Nicaragua legal immigration increases dramatically to nearly 2,000. Actual legal immigration from Nicaragua continues to remain below what we would expect given "synthetic" Nicaragua until around 2009. From 2009 onward, it appears that the effect of TPS on Nicaraguan legal immigration becomes non-existent,

as actual legal immigration from Nicaragua starts to slightly outpace "synthetic" Nicaragua. However, since the synthetic control algorithm performs relatively poorly in the Nicaraguan case relative to El Salvador and Honduras, we caution against drawing any definitive conclusions for Nicaraguan immigration at the unit level.

Overall, the synthetic control results for El Salvador, Honduras, and Nicaragua suggest that TPS as an executive action can be an effective policy intervention. Temporarily shielding immigrants present in the US after a major crisis in their origin country can a) increase remittances to the origin, potentially mitigating the devastating effects of crisis and b) decrease the demand for legal entry to the US in the process. Especially in the cases of El Salvador and Honduras, two countries for which TPS-affected populations are especially large, instituting TPS seems to have striking effects on remitting behavior and immigration patterns that do not wear off even after many years of TPS renewals.

VII. Conclusions and Implications

Albeit at the forefront of current national political consciousness, Temporary Protected Status and its effects as a policy tool are understudied. Current discussions of TPS focus on the politics surrounding its decisions, rather than its labor market effects. In this paper, we've provided robust theoretical and empirical evidence demonstrating that TPS increases the amount of remittances sent to the country of origin; in some cases tripling the amount of money sent home. Though classical immigration frameworks would predict these increased funds to increase the amount of legal migration, using the NELM framework, we argue that increased remittances decrease both legal migration and the desire of foreigners to enter the United States illegally. Synthetic control models for Honduras and El Salvador confirm the implication that TPS can be an effective policy tool, assuming one's aim is to decrease illegal immigration.

These results suggest that research into the broader relationship between remittances and migration is needed. In contrast to the predictions of neoclassical models of migration which focus on financial constraints and income maximization, the NELM framework argues that migration is a family based strategy of financial risk diversification. At least for the case of migration from Western Hemisphere countries into the United States, we find empirical support for this latter theoretical approach.

The results also suggest a broader relationship between temporary—or even permanent—labor protections for migrants and subsequent legal and illegal flows. In the past, presidents have primarily used temporary blanket relief, including EVD and DED to assist refugees, asylum seekers, and other groups of foreign nationals facing instability or other extenuating difficulties in their countries of origin. Although TPS is intended to be more insulated from political pressures than these other measures, it provides the president with a direct policy lever to affect the flow of remittances into countries of origin, and even the flow of migrants themselves. In this way, TPS serves as a powerful source of executive influence over immigration to the United States.

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Table 1: Effect of TPS on Remittances

	(1)	(2)	(3)
TPS Dummy	5.071**	4.416**	4.775**
	(1.781)	(1.654)	(1.371)
ln(population)	-1.654	-4.079	0.862
	(2.433)	(3.170)	(6.827)
ln(Migrant Population in US)	1.145*	1.614*	3.387*
	(0.548)	(0.779)	(1.755)
Exchange Rate Depreciation	0.315	0.355	0.317
	(0.295)	(0.308)	(0.357)
ln(GDP per capita (PPP))	-0.819	-0.719	-2.262
	(0.895)	(1.252)	(1.325)
ln(total number of disasters)	0.121	0.053	0.216
	(0.144)	(0.178)	(0.191)
Civil war	-0.698	-0.658	0.050
	(0.424)	(0.457)	(0.961)
US average weekly wage	0.152*	0.230*	0.141
	(0.076)	(0.098)	(0.119)
US annual unemployment rate	2.052	8.305	-14.682*
	(7.423)	(10.230)	(6.150)
Number of observations	2,673	2,047	736
F statistic	3.005	3.081	8.894

Note: *p<0.05, **p<0.01. All models include country fixed effects. Standard errors clustered by country. All independent variables lagged by one year. (1) includes non-OECD countries but excludes high-income countries, (2) includes non-OECD countries but excludes high-income and upper-middle income countries, and (3) includes non-OECD countries in Western Hemisphere only.

Table 2: Effect of TPS on Legal Migration to the United States

	(1)	(2)	(3)
ln(Migrant Population in US)	0.746**	0.390	0.755**
	(0.279)	(0.292)	(0.282)
TPS Dummy		-0.282**	-0.180**
		(0.102)	(0.070)
Remittances as percentage of GDP	-0.042**		-0.038**
	(0.015)		(0.014)
Ratio of origin GDP to US	-4.252*	-3.666	-4.217*
	(1.776)	(2.029)	(1.708)
Ratio of origin Gini index to US	-0.128	-0.055	-0.131
	(0.270)	(0.271)	(0.269)
Ratio of avg. years of schooling in origin to US	0.645	0.717	0.760
	(0.761)	(0.946)	(0.750)
Civil war	-0.286	-0.302	-0.294
	(0.276)	(0.265)	(0.275)
ln(total number of disasters)	0.083	0.057	0.082
	(0.048)	(0.056)	(0.049)
ln(population)	1.235**	1.766**	1.210**
	(0.439)	(0.485)	(0.418)
Number of observations	604	639	604
Chi Square	2,227.433	511.64	1,345.318

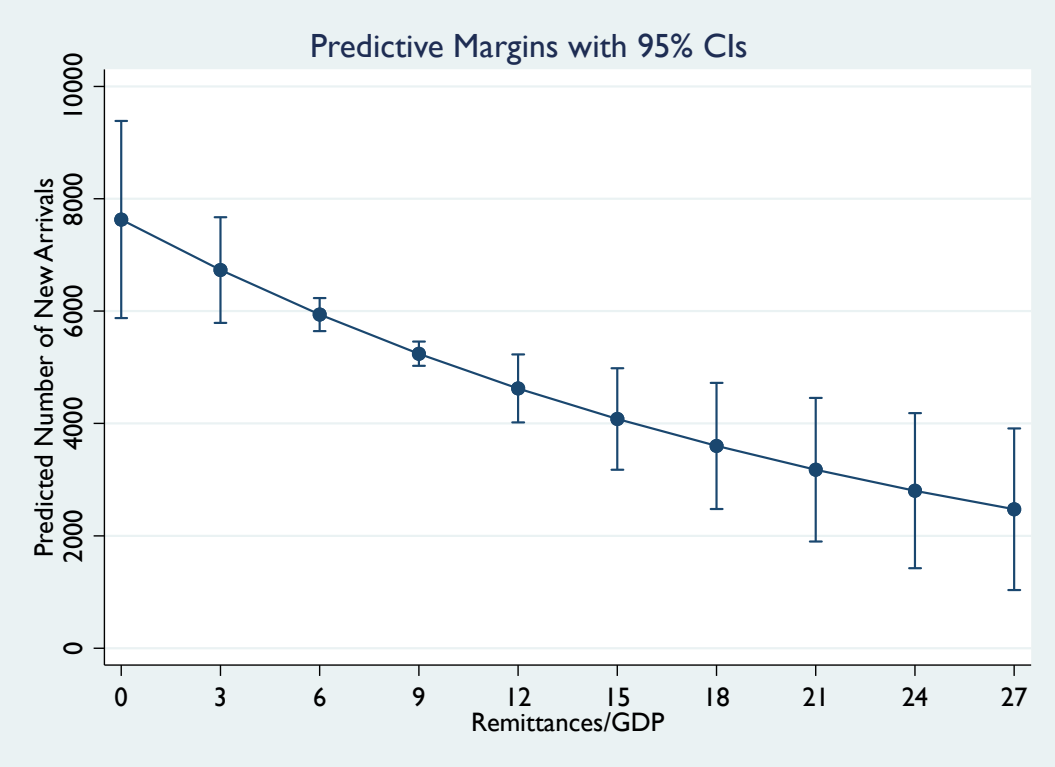
Note: *p< 0.05, **p<0.01. All models are Poisson models with robust standard errors and country fixed effects. All variables except the stock of international migrants lagged by one year. Sample includes all non-OECD countries in the Western Hemisphere from 2000-2015.

Table 3: Effect of TPS on Apprehensions in the United States

	(1)	(2)	(3)
Remittances as percentage of GDP	-0.022*		-0.024*
	(0.010)		(0.010)
TPS Dummy		-1.096**	-1.133**
		(0.169)	(0.172)
Ratio of sending country GDP to US	-26.340**	-26.927**	-27.752**
	(8.633)	(8.655)	(8.614)
Ratio of sending country Gini index to US	1.752**	1.559**	1.685**
	(0.567)	(0.546)	(0.564)
ln(population)	1.032	1.141	1.158
	(1.292)	(1.293)	(1.255)
Ratio of average years of schooling in origin to US	1.037	1.403	1.056
	(2.264)	(2.461)	(2.289)
ln(total number of disasters)	-0.110*	-0.115*	-0.106*
	(0.050)	(0.055)	(0.050)
ln(average wait time for asylum app.)	-0.888**	-0.937**	-0.956**
	(0.161)	(0.146)	(0.154)
Civil war	0.233*	0.095	0.122
	(0.097)	(0.086)	(0.063)
ln(number of CBP staff)	4.184**	4.236**	4.329**
	(0.711)	(0.764)	(0.709)
ln(size of cap on visa applicants from origin)	-2.962**	-3.163**	-2.852**
	(0.913)	(0.842)	(0.906)
US annual unemployment rate	7.314	9.164*	7.798
	(4.774)	(4.526)	(4.787)
ln(US housing starts)	1.039**	1.081**	1.108**
	(0.376)	(0.376)	(0.369)
Number of observations	320	321	320
Chi Square Value	96,046	91,000	128,000

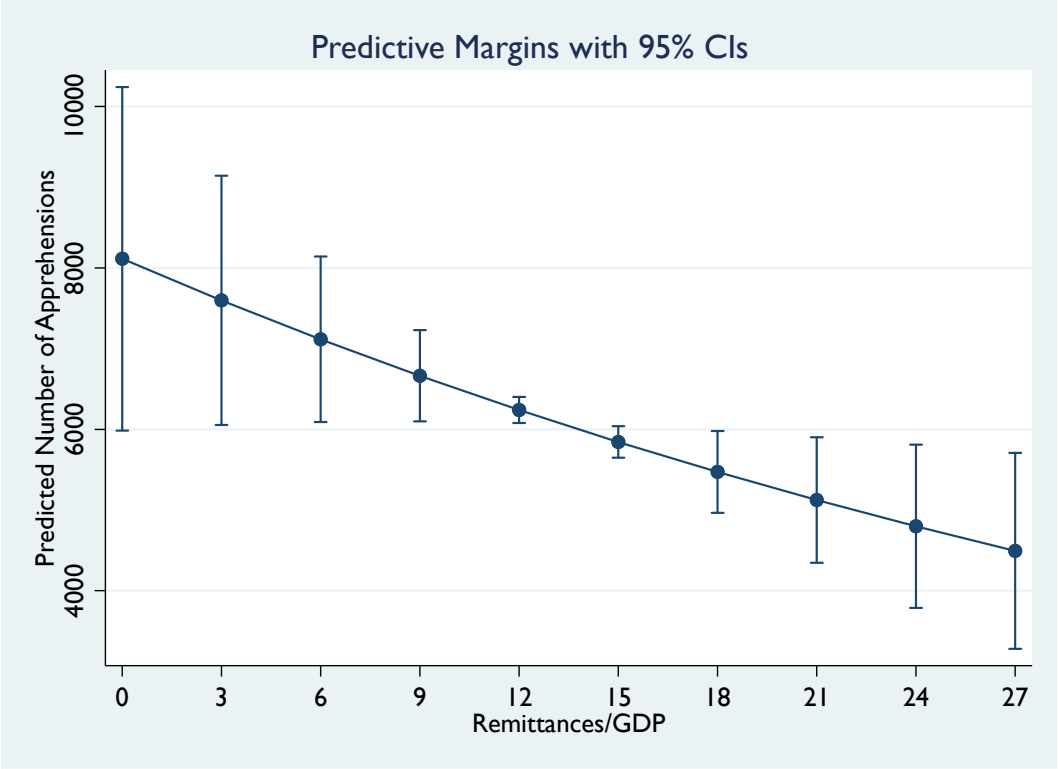
Note: *p< 0.05, **p<0.01. All models are Poisson models that include robust standard errors and country fixed-effects. All independent variables lagged by one year. Sample includes all non-OECD countries in the Western Hemisphere from 2000-2015

Figure 1
Marginal Effect of Remittances on New Arrivals



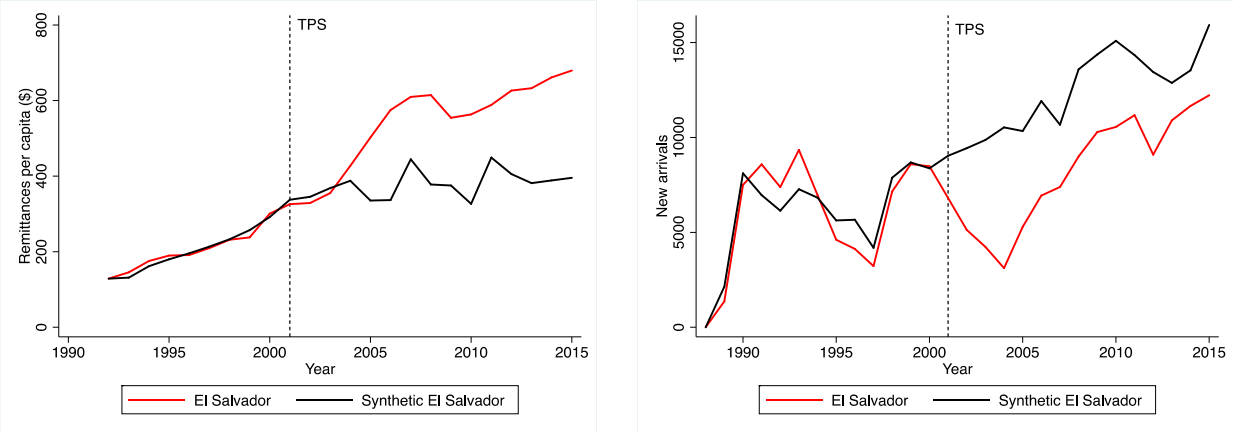
Marginal effects of increase in remittances as a percentage of GDP on New Arrivals. All other variables held at their mean. Model in column (1) of Table 2 used for calculation of marginal effects.

Figure 2
Marginal Effect of Remittances on Apprehensions



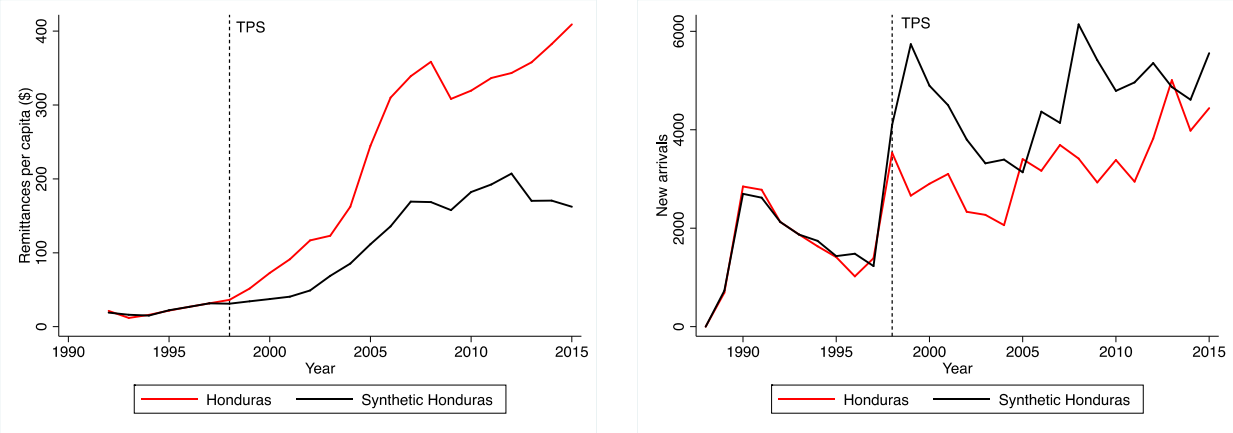
Marginal effects of increase in remittances as a percentage of GDP on apprehensions. All other variables held at their mean. Model in column (1) of Table 3 used for calculation of marginal effects.

Figure 3
Synthetic Control Estimates for El Salvador



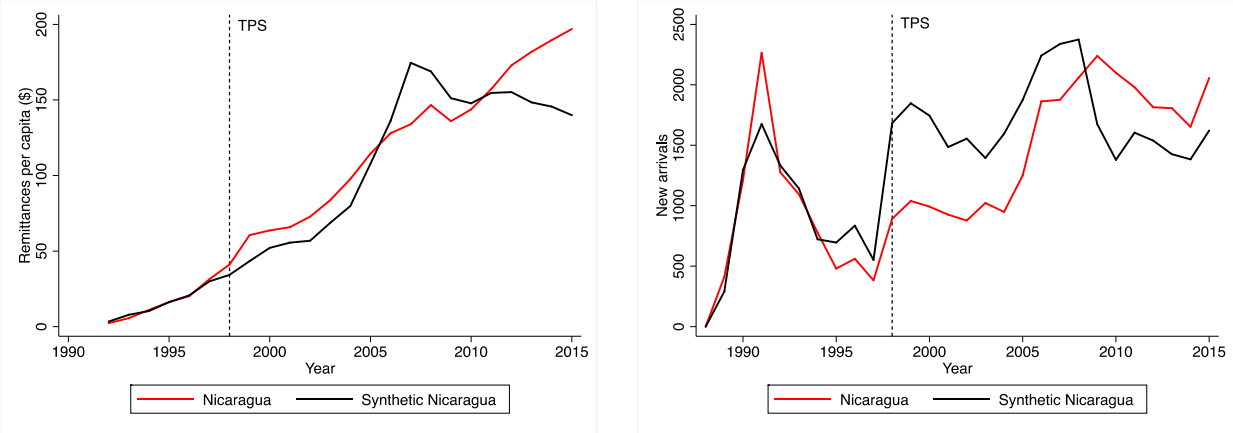
Synthetic control estimates for El Salvador. Panel (1) shows the effect of TPS on remittances per capita while panel (2) shows the effect of TPS on new arrivals to the US.

Figure 4
Synthetic Control Estimates for Honduras



Synthetic control estimates for Honduras. Panel (1) shows the effect of TPS on remittances per capita while panel (2) shows the effect of TPS on new arrivals to the US.

Figure 5
Synthetic Control Estimates for Nicaragua



Synthetic control estimates for Nicaragua. Panel (1) shows the effect of TPS on remittances per capita while panel (2) shows the effect of TPS on new arrivals to the US.

Appendix A: Major Executive Actions on Immigration and Reliefs Since WWII

Executive action	People affected	President	Year(s)
Eisenhower launches "operation wetback"		Eisenhower	1954
Foreign-born orphans paroled into custody of military families	923	Eisenhower	
Hungarians who escaped after failed uprising against Soviets paroled	31,915	Eisenhower	1956-58
Cuban asylum seekers paroled during Cuban Revolution	621,403	Eisenhower, Kennedy, Johnson, Nixon	1959-72
Chinese who fled to Hong Kong in 1962 paroled	15,100	Kennedy, Johnson	1962
Executive parole of refugees from Vietnam, Cambodia, & Laos	360,000	Ford, Carter	1975-79
EVD enacted for Lebanese (precursor to DED)	14,000 fled Lebanon to US, but exact number unknown	Ford	1976
Deportation of Silva letter-holders suspended	250,000 directly affected; number doubles including dependents	Carter	1977
EVD enacted for Ethiopians	>15,000	Carter, Reagan	1977-82
Soviet refugees paroled	>50,000	Carter	1977-80
EVD enacted for Ugandans	---	Carter	1978
EVD enacted for Nicaraguans	3,600	Carter	1979
EVD enacted for Iranians following Iranian Revolution	---	Carter	1979
EVD enacted for Afghans	---	Carter	1979
Cubans and Haitians involved in Mariel Boatlift paroled	123,000	Carter	1981
EVD enacted for Poles when Polish communist gov't declared martial law	7,000	Reagan	1981-87
Attorney General allowed Nicaraguans to escape deportation if they demonstrated "well-founded fear of persecution" even if denied asylum	~200,000	Reagan	1987
INS compelled to defer deportation proceedings for "compelling or humanitarian factors," undocumented children of noncitizens who	>100,000 families	Reagan	1987

applied for LPR after 1986 immigration reform granted temporary legal status			
Action for Chinese nationals deferred after Tiananmen square protests	80,000	Bush Sr.	1989
Deportation deferred for spouses and children of individuals who gained LPR through 1986 Immigration Reform and Control Act	Up to 1.5 million	Bush Sr.	1990
DED enacted for Kuwaitis who were airlifted to US during 1990 invasion of Kuwait	2,227	Bush Sr.	1991
DED enacted for certain Salvadorans when their TPS expired, DED later extended until 1994	190,000	Bush Sr., Clinton	1992
Operation Gatekeeper launched to stave off illegal immigration across the border between San Diego and Tijuana		Clinton	1994
Cubans paroled in US	~28,000	Clinton	1994
DED enacted for Haitians	40,000	Clinton	1997
Deferred action for noncitizen women and children who suffered assault/battery and petitioned for LPR	--	Clinton	1997
Deportations to El Salvador, Guatemala, Honduras, and Nicaragua temporarily suspended after Hurricane Mitch	150,000	Clinton	1998
DED enacted for Liberians	10,000	Clinton	1999-00 (extended)
Expedited naturalization for green-card holders who enlist in military	---	Bush	2002
Deferred action for foreign students affected by Hurricane Katrina, employer verification rules suspended	---	Bush	2005
Cuban Medical Parole Program established (Cuban doctors eligible to apply for parole)	1,574	Bush	2006-
DED enacted for Liberians when TPS expired (TPS later renewed)	3,600	Bush	
Bush pilots and expands Secure Communities Program by asking local law enforcement to share data with ICE		Bush	2008

DED for qualified Liberians (new grant)			Obama	2009
Deferred action for those whose spouses were US citizens but died (and the children of the deceased, up to the age of 21)	---	Obama	2009	
Case-by-case grants of parole-in-place for immediate family of US citizens in military	---	Obama	2010	
Haitian orphans paroled if in process of being adopted by US citizens, in response to 2010 Haiti earthquake	---	Obama	2010	
Extended Liberian DED status		3,600	Obama	2011-13
Deferred Action for Childhood Arrivals		up to 1.8 million	Obama	2012
Revised previous parole-in-place policy to grant it ordinarily		---	Obama	2013
Expand DACA period from 2 years to 3, expand eligible population, allow parents of citizens and permanent residents to request deferred action and employment authorization for three years, expand provisional waivers to families of US citizens (DAPA), allowed naturalization applicants to pay their application fees via credit card, expand immigrant visa programs		Obama	2014	
Obama and Secretary of State John Kerry increase the number of refugees admitted into the country annually from 70,000 to 100,000		30,000 annually	2015	
		Trump	2017	
Designated several countries for partial or full travel restrictions, Revised H1-B visa procedure, 120 day suspension of Refugee Admissions Act, Border Wall, Sanctuary Cities can't receive federal Grants				

Source: Compiled based on summary from American Immigration Council, timeline from Council on Foreign Relations, Congressional Record, and Federal Register.

Appendix B: Countries Included in Statistical Models

Countries included in remittance models:
Afghanistan, Angola, Albania, Argentina, Armenia, Antigua & Barbuda, Azerbaijan, Burundi, Benin, Burkina Faso, Bangladesh, Bulgaria, Bosnia & Herzegovina, Belarus, Belize, Bolivia, Brazil, Barbados, Bhutan, Botswana, Central African Republic, Chile, China, Côte d'Ivoire, Cameroon, Congo – Kinshasa, Congo – Brazzaville, Colombia, Comoros, Cape Verde, Costa Rica, Djibouti, Dominica, Dominican Republic, Algeria, Ecuador, Egypt, Eritrea, Ethiopia, Fiji, Micronesia (Federated States of), Gabon, Georgia, Ghana, Guinea, Gambia, Guinea-Bissau, Equatorial Guinea, Grenada, Guatemala, Guyana, Honduras, Croatia, Haiti, Indonesia, India,

Iran, Iraq, Jamaica, Jordan, Kazakhstan, Kenya, Kyrgyzstan, Cambodia, Kiribati, St. Kitts & Nevis, Laos, Lebanon, Liberia, Libya, St. Lucia, Sri Lanka, Lesotho, Lithuania, Morocco, Moldova, Madagascar, Maldives, Mexico, Macedonia, Mali, Myanmar (Burma), Montenegro, Mongolia, Mozambique, Mauritania, Mauritius, Malawi, Malaysia, Namibia, Niger, Nigeria, Nicaragua, Nepal, Oman, Pakistan, Panama, Peru, Philippines, Palau, Papua New Guinea, Paraguay, Romania, Russia, Rwanda, Saudi Arabia, Sudan, Senegal, Solomon Islands, Sierra Leone, El Salvador, Serbia, São Tomé & Príncipe, Suriname, Swaziland, Seychelles, Chad, Togo, Thailand, Tajikistan, Turkmenistan, Tonga, Trinidad & Tobago, Tunisia, Tanzania, Uganda, Ukraine, Uruguay, St. Vincent & Grenadines, Venezuela, Vietnam, Vanuatu, Samoa, Yemen, South Africa, Zambia, Zimbabwe.

Countries included in new arrival and apprehension models:
Argentina, Belize, Bolivia, Brazil, Barbados, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, Guatemala, Guyana, Honduras, Haiti, Jamaica, Mexico, Nicaragua, Panama, Peru, Paraguay, El Salvador, Trinidad and Tobago, Uruguay, Venezuela.

Appendix C: Variable Descriptions and Data Sources

Variable	Description	Source
Remittance Model		
Civil war	Binary variable that takes value of 1 for years in which the sending country experiences civil war and 0 otherwise	Peace Research Institute Oslo (PRIO)
TPS Dummy	Binary variable that takes value of 1 starting the year a country's migrants receive TPS and continues until TPS is terminated. Coded 0 otherwise.	United States Department of Justice
Exchange rate depreciation	Change in exchange rate between sending country and US	World Bank World Development Indicators
GDP per capita (PPP)	Natural log of GDP per capita in sending country, using PPP	World Bank World Development Indicators
Migrant Population in the US	Natural log of stock of the foreign-born population from sending country in US	U.S. Census 1960 - 2000 and American Community Survey 2000 – 2015
Total number of disasters	Natural log of total number of disasters in sending country	EM-DAT
Population	Natural log of population in sending country	UN World Population Prospects
Remittances as percentage of GDP	Remittances received by sending country in a as a share of that country's GDP	World Bank Migration and Remittances data
Remittances per capita	Remittances received by sending country divided by population	World Bank Migration and Remittances data
US unemployment rate	Annual unemployment rate	Federal Reserve
US average weekly wage	Average weekly wage	US Bureau of Labor Statistics

New Arrival Model		
Number of new arrivals	Number of new arrivals (excluding those who adjusted their status) from sending country	Immigration and Naturalization Service (INS) for pre-2000 and Department of Homeland Security (DHS) post-2000
Ratio of sending country GDP per capita to US	Ratio of GDP per capita in the sending country to the GDP per capita in the US each year	World Bank World Development Indicators
Ratio of sending country Gini coefficient to US	Ratio of Gini coefficient in the sending country to the Gini coefficient in the US each year	United Nations World Income Inequality Database
Ratio of average years of schooling in sending country to US	Ratio of the average years of schooling in sending country to average years of schooling in the US each year	World Bank World Development Indicators
Apprehensions		
US housing starts	Natural log of number of new residential construction projects begun during year	Mexican Migration Project, updated from 2010-2015 using data from HUD
Number of apprehensions	Number of migrants from each sending country apprehended by Department of Homeland Security	Department of Homeland Security
Number of CBP staff	Natural log of number of Customs and Border Patrol Staff	Department of Homeland Security
Average wait time for asylum	Natural log of average wait time (in days) before decision is made about applications for asylum from each sending country	Transactional Records Access Clearing House (http://trac.syr.edu/immigration/)

Appendix D: Additional Statistical Models

Table D-1: Effect of TPS on Remittances per capita

	(1)	(2)	(3)
TPS Dummy	85.640*	81.503*	98.998*
	(37.109)	(38.106)	(40.545)
ln(population)	-259.594**	-302.148**	-286.149
	(67.143)	(73.481)	(181.339)
ln(Migrant Population in US)	12.662*	13.972	145.487*
	(6.283)	(8.169)	(65.027)
Exchange Rate Depreciation	6.742	3.118	32.113*
	(4.446)	(4.862)	(12.905)
ln(GDP per capita (PPP))	72.892*	86.453*	74.946
	(29.156)	(35.052)	(66.686)
ln(total number of disasters)	1.279	0.694	1.874
	(3.509)	(3.432)	(6.157)
Civil war	-7.936	-6.852	3.261
	(8.228)	(8.612)	(31.263)
US average weekly wage	9.526**	9.785**	7.934
	(2.322)	(2.365)	(4.475)
US annual unemployment rate	136.028	301.586	-158.009
	(139.547)	(194.687)	(280.883)
Number of observations	2691	2064	737
F statistic	8.95	7.53	9.95

Note: *p<0.05, **p<0.01. All regressions include country fixed effects. Standard errors clustered by country. All independent variables lagged by one year. (1) includes non-OECD countries but excludes high-income countries, (2) includes non-OECD countries but excludes high-income and upper-middle income countries, and (3) includes non-OECD countries in Western Hemisphere only.

Table D-2: Effect of TPS on Remittances as a Proportion of GDP – Dynamic Panel Estimator

	(1)
TPS Dummy	1.073*
	(0.629)
ln(population)	1.101
	(1.265)
ln(Migrant population in US)	1.289*
	(0.554)
Exchange Rate Depreciation	0.009
	(0.112)
ln(GDP per capita (PPP))	-1.392
	(0.750)
ln(total number of disasters)	-0.263*
	(0.120)
Civil war	-0.417
	(0.458)
US average weekly wage	0.038
	(0.045)
US annual unemployment rate	-2.018
	(3.641)
Number of observations	698
Chi Square	1732.26

Note: *p<0.10, **p<0.05. Model(s) estimated using Arellano–Bond linear dynamic panel-data estimation and include robust standard errors. (1) includes non-OECD countries but excludes high-income countries, (2) includes non-OECD countries but excludes high-income and upper-middle income countries, and (3) includes non-OECD countries in Western Hemisphere only.

Appendix E: technical discussion of synthetic controls and model diagnostics

In this appendix, we present a more technical discussion and model diagnostics for the six synthetic controls we run in Section VI. Our implementation of synthetic control for this article closely follows the recommendations of Abadie et al. (2010; 2015), and we implement the method using Abadie et al.'s (2011) "synth" package in Stata. Replication data and code will be posted upon publication.

Countries

Treated units: El Salvador, Honduras, and Nicaragua.

Donor pool: Argentina, Belize, Bolivia, Brazil, Barbados, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, Guatemala, Guyana, Jamaica, Mexico, Panama, Peru, Paraguay, Trinidad and Tobago, and Venezuela.

As one can observe, our donor pool is restricted to the Western Hemisphere (excluding Canada) to ensure the creation of a relevant comparison synthetic unit. Some countries in the Western Hemisphere, particularly small Caribbean island countries, are excluded due to a lack of data availability on a number of predictors. For the remittance models, Chile is removed from the donor pool due to lack of data availability.

Predictors

The predictors used for the remittances per capita synthetic controls are: natural log of population, natural log of migrant population in US, exchange rate depreciation, natural log of GDP per capita (PPP), natural log of total number of natural disasters, civil war indicator, and certain years of remittances received per capita in the pre-intervention period (exact years depend on when country's migrants received TPS).

The predictors used for the new arrivals synthetic controls are: natural log of migrant population in US, natural log of remittances as a share of GDP per capita, ratio of sending country GDP per capita to US, ratio of sending country Gini coefficient to US, ratio of average years of schooling in sending country to US, civil war indicator, natural log of total number of natural disasters, natural log of population, and certain years of new arrivals in the pre-intervention period (exact years depend on when country's migrants received TPS).

All predictors, except for certain years of the dependent variable in the pre-intervention period, are averaged over the entire pre-intervention outcome period.

For the remittances per capita synthetic controls, data availability constrains us to begin the pre-intervention outcome period in 1992. For the new arrivals synthetic controls, the pre-intervention outcome period begins in 1988. This period ends in different years, depending on when a country's migrants received TPS. The end of the pre-intervention outcome period is noted for each country in the sections that follow.

El Salvador models

Remittances per capita model

Pre-intervention outcome period: 1992 – 2000
First year of TPS: 2001
Intervention period: 2001 – 2015

Control unit weights for El Salvador remittances model

Country	Weight
Brazil	0.22
Barbados	0.499
Jamaica	0.234
Mexico	0.047

Predictor balance for El Salvador remittances model

Predictor	El Salvador	Synthetic El Salvador
ln(population)	15.548	14.712
ln(Migrant Population in US)	13.416	11.809
Exchange Rate Depreciation	2.164	1.043
ln(GDP per capita (PPP))	8.350	9.016
ln(total number of disasters)	0.937	0.569
Civil war	0	0.010
Remittances per capita (2000)	300.667	291.802
Remittances per capita (1997)	209.416	213.366
Remittances per capita (1995)	189.606	179.815
Remittances per capita (1992)	128.568	128.697

New arrivals model

Pre-intervention outcome period: 1988 – 2000
First year of TPS: 2001
Intervention period: 2001 – 2015

Control unit weights for El Salvador new arrivals model

Country	Weight
Dominican Republic	0.202
Guatemala	0.502
Guyana	0.251
Mexico	0.039
Peru	0.006

Predictor balance for El Salvador new arrivals model

Predictor	El Salvador	Synthetic El Salvador
ln(Migrant Population in US)	13.289	12.677
ln(Remittances as percentage of GDP)	2.268	0.640
Ratio of origin GDP to US	0.065	0.066
Ratio of origin Gini index to US	1.238	1.296
Ratio of avg. years of schooling in origin to US	0.432	0.432
Civil war	0.308	0.320
ln(total number of disasters)	0.840	0.745
ln(population)	15.523	15.517
New arrivals (2000)	8,481	8,375.389
New arrivals (1995)	4,613	5,628.460
New arrivals (1992)	7,386	6,142.123
New arrivals (1990)	7,496	8,110.376

Honduras models

Remittances per capita model

Pre-intervention outcome period: 1992 – 1997
First year of TPS: 1998
Intervention period: 1998 – 2015

Control unit weights for Honduras remittances model

Country	Weight
Belize	0.143
Bolivia	0.192
Brazil	0.256
Costa Rica	0.159
Ecuador	0.052
Guyana	0.197
Mexico	0.001

Predictor balance for Honduras remittances model

Predictor	Honduras	Synthetic Honduras
ln(population)	15.543	15.550
ln(Migrant Population in US)	12.127	11.318
Exchange Rate Depreciation	2.162	2.163
ln(GDP per capita (PPP))	7.775	8.436
ln(total number of disasters)	0.992	0.800
Civil war	0	0.0003
Remittances per capita (1997)	31.515	31.505
Remittances per capita (1994)	16.028	15.096
Remittances per capita (1992)	21.342	18.971

New arrivals model

Pre-intervention outcome period: 1988 – 1997
First year of TPS: 1998
Intervention period: 1998 – 2015

Control unit weights for Honduras new arrivals model

Country	Weight
Belize	0.204
Bolivia	0.646
Guatemala	0.01
Jamaica	0.09
Mexico	0.05

Predictor balance for Honduras new arrivals model

Predictor	Honduras	Synthetic Honduras
ln(Migrant Population in US)	11.910	10.961
ln(Remittances as percentage of GDP)	0.874	-0.915
Ratio of origin GDP to US	0.043	0.063
Ratio of origin Gini index to US	1.363	1.335
Ratio of avg. years of schooling in origin to US	0.409	0.627
Civil war	0	0.018
ln(total number of disasters)	0.872	0.681
ln(population)	15.487	15.089
New arrivals (1997)	1,389	1,230.106
New arrivals (1994)	1,634	1,743.534
New arrivals (1992)	2,126	2,126.760
New arrivals (1990)	2,847	2,697.786

Nicaragua models

Remittances per capita model

Pre-intervention outcome period: 1992 – 1997
First year of TPS: 1998
Intervention period: 1998 – 2015

Control unit weights for Nicaragua remittances model

Country	Weight
Bolivia	0.492
Costa Rica	0.077
Ecuador	0.381
Guyana	0.049
Jamaica	0.001

Predictor balance for Nicaragua remittances model

Predictor	Nicaragua	Synthetic Nicaragua
ln(population)	15.333	15.814
ln(Migrant Population in US)	12.164	11.340
Exchange Rate Depreciation	1.940	4.366
ln(GDP per capita (PPP))	7.660	8.280
ln(total number of disasters)	0.981	0.919
Civil war	0.000	0.000
Remittances per capita (1997)	31.337	29.965
Remittances per capita (1994)	11.060	10.377
Remittances per capita (1992)	2.309	3.421

New arrivals model

Pre-intervention outcome period: 1988 – 1997
First year of TPS: 1998
Intervention period: 1998 – 2015

Control unit weights for Nicaragua new arrivals model

Country	Weight
Guatemala	0.233
Panama	0.767

Predictor balance for Nicaragua new arrivals model

Predictor	Nicaragua	Synthetic Nicaragua
ln(Migrant Population in US)	12.092	11.678
ln(Remittances as percentage of GDP)	0.440	0.296
Ratio of origin GDP to US	0.030	0.105
Ratio of origin Gini index to US	1.375	1.369
Ratio of avg. years of schooling in origin to US	0.384	0.566
Civil war	0.3	0.263
ln(total number of disasters)	0.878	0.544
ln(population)	15.290	15.081
New arrivals (1997)	383	551.826
New arrivals (1994)	778	722.676
New arrivals (1992)	1,277	1,332.935
New arrivals (1990)	1,211	1,297.027