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# Changes in the Transnational Family Structures of Mexican Farm Workers in the Era of Border Militarization

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**Abstract** Historically, undocumented Mexican farm workers migrated circularly, leaving family behind in Mexico on short trips to the United States. Scholars have argued that border militarization has disrupted circular migration as the costs of crossing the border lead to longer stays, increased settlement, and changing transnational family practices. Yet, no study has explored changes in the transnational family structures of Mexico-U.S. migrants that span the era of border militarization. Using data from the National Agricultural Workers Survey, we document a dramatic shift away from transnational family life (as measured by location of residence of dependent children) among undocumented Mexican farm workers and a less dramatic shift among documented Mexican farm workers in the United States between 1993 and 2012. These trends are not explained by changes in the sociodemographic characteristics of farm workers or by changing demographic conditions or rising violence in Mexico. One-half of the trend can be accounted for by lengthened duration of stay and increased connections to the United States among the undocumented, but none of the trend is explained by these measures of settlement among the documented, suggesting that some Mexican farm workers adopt new family migration strategies at first migration. Increases in border control are associated with lower likelihood that children reside in Mexico—a finding that holds up to instrumental variable techniques. Our findings confirm the argument that U.S. border militarization—a policy designed to deter undocumented migration—is instead disrupting transnational family life between Mexico and the United States and, in doing so, is creating a permanent population of undocumented migrants and their children in the United States.

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**Keywords** Mexico-U.S. migration · Transnational families · Border control · Farm workers

## Introduction

Since 1993, the U.S. federal government has invested in a dramatic militarization of its southwestern border to deter undocumented migration.<sup>1</sup> This policy of prevention by deterrence has made undocumented border crossings more costly and risky and, in doing so, has unintentionally lengthened the stays of undocumented Mexican migrants in the United States, who work longer to recoup the greater costs of crossing and who skip trips home to avoid the risks of re-crossing (Massey et al. 2015; Reyes 2004). At least partly as a result of reduced return migration, the estimated undocumented population in the United States in this era of border militarization nearly tripled from 3.5 million in 1990 to 11.7 million in 2012, with more than one-half of undocumented migrants originating from Mexico (Passel and Cohn 2014; Warren and Warren 2013).<sup>2</sup>

Lengthening undocumented migrant trips and growth in the population of undocumented migrants, among other trends, have led scholars of Mexico-U.S. migration to argue that border militarization turned what was for most of the twentieth century a circular migration flow into a settled population of undocumented migrants and their families (Massey et al. 2002). Circular migrants left family members behind in Mexico and returned frequently for visits, living a so-called transnational family life (Dreby 2010). The argument is that this circular migration/transnational family strategy has been undermined by border militarization: instead of deterring migration, border militarization has ushered along the process of family formation in the United States through lengthened migrant stays. Yet, we lack studies of changes in the family structures of Mexican migrants that span the era of border militarization or of the impact of border control on transnational family structure.

This oversight is especially troubling in the case of children of undocumented parents, a population that has more than tripled in size since the mid-1990s (Passel and Cohn 2014). This group is the subject of recent immigration policies, including the as-yet unpassed federal Development, Relief, and Education for Alien Minors (DREAM) Act, the Deferred Action for Childhood Arrivals (DACA) program, and the Deferred Action for Parents of Americans and Legal Permanent Residents (DAPA) program, all of which are policies that are reactive and temporary solutions to an underlying problem.<sup>3</sup> Understanding the role of immigration policy in generating this vulnerable population in the first place might help inform comprehensive, rather than patchwork, immigration policy solutions.

The study of the impacts of policy on transnational family practices also helps elucidate a theoretical debate about the settlement process, given that the formation or reunification of families in the destination country is considered the best and often final indicator of

<sup>1</sup> “Undocumented” refers to immigrants who are present in the United States without proper authorization.

<sup>2</sup> The total and the Mexican undocumented populations peaked at 12 million and 6.9 million, respectively, in 2007 and declined during the Great Recession to their current levels (Passel and Cohn 2014).

<sup>3</sup> As of this writing, the federal DREAM Act is unpassed, the 2012 DACA is active, and the 2014 DACA expansion and DAPA program are halted on court injunction.

migrant settlement (Chavez 1988). Classic migrant settlement theory understands the process as unfolding inevitably as a result of the passage of time and exposure to the host society (Massey 1986). Others have argued that settlement practices can shift in response to changing structural conditions, such as new policies (Cornelius 1992). These alternatives can be assessed by examining whether the changes in transnational family structures are accounted for by increased durations and connections to the United States or are also occurring among less-settled migrants.

To investigate these questions, we use data from the National Agricultural Workers Survey (NAWS; an annual, nationally representative survey of farm workers in the United States) to analyze changes in transnational family structures—specifically, the location of residence of children—of Mexican-born parents in the United States from 1993 to 2012. Farm workers are an ideal population to study the impacts of border militarization on transnational family life. The majority of farm workers are Mexican immigrants, and since the mid-1990s, about one-half of U.S. farm workers are undocumented (Martin 2012). The seasonal nature of farm work historically made circular migration common among farm workers (Cornelius 1992). Because farm workers frequently work away from their primary residences, the NAWS records the location of residence of all dependents regardless of coresidence at the time of the survey.

## **Border Militarization**

The era of U.S. border militarization began in 1993 with concentrated border control programs and steady annual increases in budget, staff, and equipment. Congressional appropriations for U.S. Border Patrol increased by a factor of 13 since 1990, and staff assigned to the Southwest Border Patrol (SWBP) increased more than fivefold, from 3,226 in 1990 to 18,506 in 2011 (Department of Homeland Security 2015). Fencing now extends along 700 miles, more than one-third of the southwestern U.S. border, with legislation mandating the construction of additional miles. Secretary of Homeland Security Jeh Johnson (2015) reported that the U.S. Border Patrol in 2015 had the “largest-ever level of technology and equipment,” including helicopters and other manned aircraft, mobile surveillance, remote video surveillance, aerial (drone) surveillance, seismic sensors, and infrared monitors.

By raising the costs and risks of undocumented border crossings, border control is designed to deter potential crossers and thereby control undocumented migration: that is, prevention through deterrence. Research on the effects of border militarization on migration has found that the policy has had both intended and unintended consequences. Border militarization has made undocumented border crossings more expensive, difficult, and dangerous. Fees to employ a border smuggler increased from an average of \$750 in 1990 to \$3,000 in 2012 (Mexican Migration Project 2015). Furthermore, border crossings take longer to complete, from an average of two days in 1986 to five days in 2004 (Gathmann 2008). Crossings have also become more dangerous because enforcement in highly trafficked areas of the border has diverted crossers into more remote and treacherous landscapes, and the rise of criminal smuggling rings has led to harassment, extortion, and rape (Andreas 2011; Cornelius 2001). One measure of this impact is the migrant border crossing mortality rate, which quadrupled from 1997 to 2009 (Haddal 2010).

Evidence on the effectiveness of border control as a deterrence policy is mixed (Angelucci 2012; Cornelius and Salehyan 2007; Hanson and Spilimbergo 1999; Hanson et al. 2002; Massey et al. 2002, 2015). The mixed results arise for several reasons, including differences in the period covered, the measurement of undocumented border crossings, and the technique used to account for factors affecting both migration and border control. Although the undocumented population in the United States grew from 1990 through 2007 (Passel et al. 2014), those who have argued that border control has been effective claimed that undocumented migration flows would have been larger over this period had the policy not been implemented (Angelucci 2012).

Despite debate over deterrence, there is little debate that border control has led to lengthening migrant stays and declining return migration among undocumented migrants who are not deterred—what scholars have called a “caging effect” (Massey et al. 2015; Reyes 2004). As the costs and risks of crossing the border increase, migrants work longer to recoup the costs of crossing. They also postpone or skip return trips home in order to avoid the costs and risks of reentry. Lengthening stays present challenges to how immigrants structure their family life across borders.

### **Transnational Family Life**

Prior to the era of border militarization, undocumented migrants frequently left their spouses and/or children in Mexico, migrating to the United States for work, then often returning to Mexico at the year’s end for several months before remigrating to the United States for another work sojourn (Cornelius 1992; Massey et al. 1987; Roberts 1995). The system of circular migration between Mexico and the United States was initiated in the 1940s with the Bracero Program, which gave Mexican migrants temporary visas to work on U.S. farms. With the termination of the Bracero Program in 1964 and the introduction of quotas for legal immigration from the Western Hemisphere in 1965, circular migration from Mexico continued but was largely undocumented for at least the next 20 years (Massey and Pren 2012). Although some circular migrants eventually settled in the United States with their families, the majority of migrants departing Mexico for the United States in the 1970s and 1980s, even among those who had spent as many as 15 cumulative years in the United States, were members of transnational families with spouses and children in Mexico (Massey 1986).

The idea that this particular form of transnational family life is disrupted by border militarization draws on theory about the settlement process. Settlement is understood as the outcome of cumulative exposure to life in the destination country; as migrants gain local knowledge, form social ties, and make economic connections, they are increasingly likely to settle (Massey 1986). The single best indicator of settlement is the migration of immediate family members or the formation of new families in the country of destination (Chavez 1988). Whereas Massey (1986) conceived of the settlement process as inevitable and predictable, Cornelius (1992) theorized that various structural conditions can slow or accelerate the process. For example, the Immigration Reform and Control Act (IRCA) of 1986, which provided legal amnesty to more than 3 million undocumented migrants, may have accelerated settlement given an expectation of a subsequent amnesty (Cornelius 1992). Following the initiation of the U.S. policy of

border militarization, both Cornelius and Massey argued that the impact on settlement would be profound (Cornelius 2001; Cornelius and Salehyan 2007; Massey and Pren 2012; Massey et al. 2002, 2015). According to Massey's theory, settlement occurs inevitably as a result of longer stays; according to Cornelius' theory, migrants change their migration strategies in anticipation of long separations, which threaten family well-being (Dreby 2010; Frank and Wildsmith 2005; Suarez-Orozco et al. 2002).<sup>4</sup>

With these insights in mind, scholars have concluded that border control unintentionally created a large and settled population of undocumented migrants and their families (Massey et al. 2002). Yet, few studies have documented changes in the transnational family structures of Mexico-U.S. migrants in the era of border militarization. Massey et al. (2002) found that women's participation in Mexico-U.S. migration increased after 1993, but they found no change in the migration of children through 1998, the last year of data that they analyzed. The population of children of undocumented parents in the United States has tripled since 1995 (Passel and Cohn 2014), but this change could reflect growth in the population of undocumented adults with no change in the family practices among those adults.

There is a rich body of research studying transnational family life, suggesting its importance among Mexican migrants in the United States and their families in Mexico (Dreby 2007, 2010; Smith 2006). Quantitative studies have provided estimates of the extent of transnational family life at different points in time (Nobles 2013; Suro 2005). These studies did not gauge change over time or directly examine the role of border militarization in family migration patterns. However, qualitative studies of undocumented migration began from the premise that border militarization has undermined transnational family life and has thus led many families to choose instead to live in the United States in undocumented or mixed legal status (Dreby 2015; Gonzales 2011), suggesting that the argument resonates with scholars who are deeply engaged in migrant communities in the United States. Nevertheless, Dreby's (2010:8) claim that "despite mounting evidence about the lives of transnational migrants, we actually have very little understanding of how contemporary legal structures shape migrant parents' sacrifices" sets the stage for our analysis.

## Research Methods

To understand how transnational family life has changed in the era of border militarization, we begin by describing the transnational family structures of documented and undocumented Mexican-born farm workers in the United States from 1993 to 2012. We focus on the location of residence of the farm workers' children: in Mexico versus in the United States. Because investments in border control follow a linear time trend over this period, we are unable to include both year and annual measures of border control in the same analysis. Therefore, we take two approaches. First, we analyze the time trend in a series of regression models, accounting for various alternative explanations (described in detail later in the article). To understand whether the time trend results

<sup>4</sup> That border control disrupts circular migration and leads to family formation in the United States does not mean that other types of transnationalism are disrupted. Settled migrants may still maintain transnational ties with extended family and friends in their communities of origin.

primarily from settlement, we then incorporate several measures of settlement. Second, we use instrumental variable techniques to estimate the impact of annual changes in border control on the likelihood of children residing in Mexico, accounting for the same set of factors included in the time series models.

## Data and Sample

The NAWS is an annual, cross-sectional survey of agricultural workers collected by the U.S. Department of Labor (DOL) from 1989 to 2012. It uses a multistage, national probability sample of workers employed in crop agriculture: that is, in farms, orchards, greenhouses, and nurseries growing crops, plants, or trees and their seeds; or in establishments providing services, such as aerial dusting or cultivating services, to crop agriculture. To capture undocumented and circular migrants, the NAWS sample is stratified by region of interview and crop cycle, farming clusters, counties, and agricultural employers (Wiedrick 2014). Sampling frames are daily labor rosters provided by employers. NAWS excludes farm workers with H-2A temporary work visas because information about these workers is collected by the U.S. Citizenship and Immigration Services (CIS) agency.<sup>5</sup> In-person interviews were conducted on work sites over three cycles within each year in order to account for the seasonal nature of farm work. Between 1,500 and 3,600 farm workers were interviewed each year for a total sample of 56,976 from 1989 to 2012. We use the restricted, balanced repeated replication weights with 80 replications to account for this design, which requires using two-year time segments in analyses that include time trends.

The study's analytic sample includes Mexican-born parents of dependent-age children (i.e., under age 18) who were interviewed in 1993 or later; questions about the location of children were not asked prior to 1993. We excluded respondents of other national origins because sample sizes were too small to yield reliable estimates over time. Complete data are available for 92 % of Mexican-born parents. The only variable that accounts for more than 1 % of the sample with missing data is hourly wages, at 4 %. Our final analytic sample includes 17,288 Mexican-born parents, 9,467 of whom were undocumented at the time of the survey and 7,821 of whom were documented (i.e., had temporary legal status, were legal permanent residents, or were naturalized U.S. citizens).

## Measurement of Key Variables

The dependent variable is defined as whether the farm worker respondent has any children under age 18 who reside in a foreign country, which we assume to be Mexico for children of Mexican-born parents. This variable was created by the DOL from a roster enumerating all household members, including all members who live under the same roof or are financially dependent on the farm worker but reside elsewhere.

<sup>5</sup> The NAWS was designed to provide information about the farm labor force; the fact that CIS collects information about H-2A visa holders meant that the information would be redundant. For our purposes, the effect of excluding temporary visa holders is unclear. Insofar as temporary visa holders are better able to maintain a transnational family life, the exclusion of H-2A visa holders may overestimate changes in transnational family life among all Mexican farm workers over this period. On the other hand, H-2A visa holders can sponsor immediate family members for H-4 visas, facilitating family life in the United States.



Because the NAWS public data files report roster information by respondent, we know whether they have any dependent-aged children who reside in a foreign country; however, we do not know additional characteristics of those children, including their age, gender, place of birth, or time of migration. Therefore, the trends that we observe in the changing location of residence of children will capture both changes in the migration of children to the United States and the birth of children in the United States, and we cannot disentangle the two.<sup>6</sup> Survey respondents can have children in both the United States and a foreign country, but the vast majority (97 %) of respondents in our sample reported children only abroad or in the United States.<sup>7</sup>

We analyze the location of residence of dependent-aged children as a function of year and, separately, by annual changes in border enforcement, measured by the size of the SWBP staff in the year of the interview.<sup>8</sup> As mentioned previously, because increases in the size of the SWBP staff follow a linear time trend, we cannot include both year and SWBP staff in the same regression model. To yield reliable estimates, we group years into 10 two-year periods. Because the data indicate that transnational family life was most common during 1997–1998, we use this time point as the reference category in our regression analysis. The size of the SWBP staff is obtained from the DHS website and is measured in thousands; in that part of the analysis, we use the full set of 20 time points.

In all models, we include an interaction between the key independent variable (year or SWBP staff) and documentation status in order to test whether the central trends of interest are different for those with and those without legal documents. We expect that border control will have had a greater impact on the undocumented, at whom the policy is directed. However, we may also expect that documented migrants changed their practices given the research showing that enforcement efforts affect all Latinos, regardless of legal status (Hagan et al. 2009). In supplemental analyses, we ran the models separately for documented and undocumented workers, allowing all covariates to vary by legal status, and results were largely consistent.

### Alternative Explanations and Control Variables

Although border control has been prominent in discussions of the transformation of the Mexico-U.S. migration flow, at least three other trends could lead to changes in the transnational family structures of Mexican migrants since the early 1990s:

<sup>6</sup> The majority (79 %) of children of undocumented parents are U.S.-born citizens (Passel and Taylor 2010). Assuming that this rate is similar among farm workers, we would expect the change to be driven to a greater extent by births in the United States.

<sup>7</sup> This result is unexpected given qualitative studies featuring Mexican migrants with children in both countries (e.g., Dreby 2010; Mummert 2009). Because respondents were not asked to list children who are not financially dependent on them, it is possible that this rate is low because farm workers with children in the United States and children in Mexico are less likely to provide financial support to their children in Mexico. It is also possible that they continue to financially support children in Mexico but fail to report them on the survey questionnaire. Assuming that this pattern of response does not change over time, our results underestimate the proportion of farm workers with children in Mexico in any given year but do not misrepresent the time trends.

<sup>8</sup> We also lagged the independent variable by 1, 2, and 3 years, and the results were similar, with larger coefficients the longer the lag. Similar results reflect the fact that the SWBP staff increased linearly from 1990 to 2012.



(1) the changing composition of Mexico-U.S. migration, (2) changing demographic trends in Mexico, and (3) rising violence in Mexico.

The changing composition of Mexico-U.S. migration includes the feminization of migration, diversifying geographic origins and destinations, and increasing participation of indigenous Mexicans. Since 1990, women have made up an increasing share of migrants from Mexico to the United States (Rendall and Parker 2014), which may also draw children into migration, given that women are more likely than men to migrate for family reunification (Cerrutti and Massey 2001). To account for the growing participation of women in migration, we incorporate two variables: (1) respondent's sex, which will capture changes in the sex composition of farm workers; and (2) a variable measuring demand for immigrant women's labor in order to capture pull factors for (female) spouses' migration, given that farm work is dominated by men. This variable is measured by annual employment growth (in thousands) in the leisure and hospitality sectors, which employ the greatest share of Mexican immigrant women (Hall and Greenman 2015), in the year prior to the (female) spouse's migration or in the year prior to respondent's migration if the respondent is female, unmarried, or is missing information on the year of spouse's migration.<sup>9</sup> Employment data are from the U.S. Bureau of Labor Statistics Quarterly Census of Employment and Wages. We do not control for whether the farm worker's spouse resides in the United States, which is highly correlated with children residing in the United States and is largely a function of the same factors affecting the location of residence of children.<sup>10</sup>

The composition of Mexico-U.S. migration has also changed through geographic diversification in the origins and destinations of Mexican migrants. Since 1990, increasing numbers of migrants have originated outside the historic migrant-sending region of central-western Mexico: in particular, the number of migrants from central and southern Mexico has been increasing (Riosmena and Massey 2012). These new origins may impose different strains (as a result of distance or other factors) on transnational family life. Geographic origin is measured by region of origin in Mexico based on the respondent's state of birth. Region in Mexico differentiates between the historic region, the border region, the center region, and the periphery region (Durand et al. 2000).

In addition to changing geographic and social origins, diversification has occurred in the geographic destinations of Mexican migrants away from traditional gateway states and toward destinations in the South, Midwest, and Northwest regions of the United States (Massey and Capoferro 2008). It is possible that the distance from Mexico to these more-distant regions disrupts circular migration. Geographic destination is defined by region in the United States where the respondent was interviewed: East, Southeast, Midwest, Northwest, Southwest, and the state of California.

Alongside this geographic diversification has been increasing participation of indigenous Mexicans, both in and out of farm work (Fox 2006; Martin 2012). In his ethnography

<sup>9</sup> We also tested for employment growth in accommodation and food services and food manufacturing from 1990 to 2012; results are consistent.

<sup>10</sup> In the NAWS, approximately 60 % of farm workers are married, and nearly all married farm workers are parents (Martin 2012). In supplemental analyses (not shown), we found that the trends for spousal location of residence among married farm workers are nearly identical to those for children, suggesting that this is a process of family migration or formation.

of indigenous farm workers from Oaxaca, Holmes (2013) observed that Triqui migrants are more likely than their mestizo counterparts to migrate with children. If this is also true of other indigenous groups, then increasing participation of indigenous Mexicans in Mexico-U.S. farm work may be related to changing transnational family practices. Indigenous identity was self-reported.

A second key trend potentially affecting the transnational family structures of Mexican migrants is the changing demographic context in Mexico. Since 1990, the Mexican total fertility rate declined from 3.8 to 2.2 births per woman (INEGI 2015a). From 1995 to 2009, median age at first union rose from 20.5 to 24.1 for women and from 22.9 to 26.8 for men (INEGI 2015b). Mexican-born farm workers tend to be young when they first migrate to the United States (on average, 22 years in the NAWS, which has not changed over time). Changing demographic conditions at origin may mean that as marriage and childbearing are delayed, Mexican-born farm workers are less likely to have spouses and children in Mexico prior to migration and therefore are more likely to start families in the United States after migration. Our measure of demographic conditions in Mexico is the teen (ages 15–19) fertility rate in Mexico in the year prior to migration, obtained from the Mexican National Institute of Statistics and Geography (*Instituto Nacional de Estadística y Geografía*; INEGI).<sup>11</sup>

The third and final trend that we account for is violence in Mexico. The number of drug-related homicides increased more than fivefold between 2007 and 2010 (Rios and Shirk 2011). The increase in violence may affect migration (Alvarado and Massey 2010; Arenas et al. 2010; Xie and McDowall 2008). We measure violence with the Mexican homicide rate, which is equal to the number of homicides per 100,000 population in the year of migration, as reported by INEGI.<sup>12</sup>

To test whether the time trends result from increased durations of stay and connections to the United States, we incorporate three measures of settlement: (1) years lived in the United States, (2) whether the farm worker owns or plans to purchase property in the United States, and (3) whether the farm worker speaks and reads English at least “somewhat” or “well” (as opposed to “not at all” or “a little”). We define years in the United States as the difference between the year of the survey and the year of first migration, categorized as 0–1 year, 2–4 years, 5–9 years, and 10 or more years. We additionally control for age in years at the time of the survey, education (years of completed schooling, ranging from 0 to 20), logged hourly wages (based on the last pay period), and GDP growth in the year prior to the survey in Mexico and the United States.

<sup>11</sup> This is the only relevant demographic variable that we found that spans the full period of migration of NAWS respondents. However, we also tested for the state- and year-specific teen fertility rate for migrants arriving in the United States between 1990 and 2012, and we found a positive association with child residence in Mexico. That is, migrants who left Mexican states in years with higher teen fertility rates were more likely to have children in Mexico at the time of the survey. Including this variable did not account for the time trend, consistent with our results for national teen fertility rate in Table 2. Because limiting the sample to migrants arriving after 1990 resulted in a substantial and systematic loss of sample, we present results for the national teen fertility rate instead.

<sup>12</sup> Because we do not know what year the children migrated, we also estimated models with the homicide rate measured in the year of the survey, the year prior to the survey, and the median year between the year of migration and the year of the survey. The results were consistent with those reported in the article. All coefficients were negative, but only some were significant at  $p < .05$ .

## Analysis

Our analysis of the time trends uses logistic regression of whether any dependent children reside in Mexico. In our analysis of border control, we use two-stage least-squares (2SLS) regression with border control instrumented in the first-stage regression. Because levels of border control may respond to earlier migration trends or to factors that also affect migration trends, annual levels of border control may not be exogenous, and the association between annual changes in border control and the likelihood of farm workers' children residing in Mexico will be biased in standard regression models. Instrumental variable techniques address this endogeneity by using an instrumental variable—that is, one that is associated with the endogenous variable (border control) but not with the dependent variable (children's residence in Mexico) except as through its impact on the endogenous variable. In the first stage, the endogenous variable is regressed on the full set of covariates plus the instruments; in the second stage, the predicted values from the first-stage regression are used in place of the endogenous variable's observed values. Because the first-stage regression produces predicted values of the endogenous variable using only exogenous variation in that variable (as captured by its correlation with the instrument), the second-stage regression produces unbiased (or causal) estimates of the effect of border control on the likelihood of children residing in Mexico (Morgan and Winship 2007).

We follow the design of past research estimating the impacts of border control on various outcomes and used the U.S. Congressional election cycle and the defense budget as our instruments (Hanson and Spilimbergo 1999; Hanson et al. 2002; Orrenius and Zavodny 2003).<sup>13</sup> The logic is that (1) the budget for border control (and therefore the size of the staff) will be larger in Congressional election years, reflecting the political sway of investing in border patrol; and (2) that the budget for border control is also larger in years when greater amounts are expended on national defense, reflecting the influence of hawkish members of Congress; but (3) that neither of these conditions should affect the location of residence of Mexican farm workers' children except as through their impact on border control.<sup>14</sup> The interaction term between border patrol and legal status is also treated as endogenous, and the interactions between each instrument and legal status are included as instruments.

We confirmed that border patrol cannot be treated as exogenous using the Durbin and Wu-Hausman tests, both of which were significant at  $p < .001$ . We also verified that we do not have weak instruments; the  $F$  statistic for the instruments in the first-stage regression was greater than 10 and significant at  $p < .001$ . Finally, we tested for overidentification using Sargan and Bassman chi-square tests, and the  $p$  value for both tests was  $p = .156$ . Therefore, we failed to reject the null hypothesis that the model is specified correctly and errors are homoskedastic. In sum, these tests demonstrate the appropriateness of using instrumental variables for this analysis.

<sup>13</sup> Hanson and Spilimbergo (1999) and Hanson et al. (2002) examined the impact of border control on wages, and Orrenius and Zavodny (2003) explored the effect of border control on apprehensions.

<sup>14</sup> Other congressional immigration-related actions that might impact migrants' transnational family practices do not vary as cyclically as do budgetary decisions or the election cycle.

## Results

Table 1 shows the means and distributions for all individual-level variables in our analysis by the legal status of the farm worker. A far greater proportion of undocumented farm workers have children who reside in Mexico than do documented farm workers (49 % vs. 19 %, respectively) during this period. Compared with documented farm workers, undocumented farm workers are younger; are more likely to be indigenous; earn lower wages; and are less likely to be proficient with English, own a house in the United States, or have been in the United States 10 or more years. They are also more likely to come from new migrant-sending regions in Mexico and are more likely to reside in new destination regions in the United States.

**Table 1** Weighted means and distributions of characteristics of Mexican-born farm worker parents, by legal status, 1993–2012

	Undocumented	Documented
Child in Mexico***	49.0	19.1
Age***	32.3	38.7
Female	24.5	26.8
Indigenous***	12.8	6.4
Education (years)	6.2	6.2
Hourly Wage (2009 \$)***	8.8	9.8
Proficient With English Language***	5.5	16.3
Owns House/Property in United States***	8.0	38.9
Years in United States***		
0–1	20.6	0.6
2–4	14.8	2.2
5–9	26.2	9.6
10+	38.5	87.7
Region in Mexico***		
Historic	45.8	63.8
Border	9.6	14.2
Center	36.4	21.2
Periphery	8.2	0.8
Region in United States***		
East	14.7	6.0
Southeast	10.9	6.9
Midwest	13.9	12.0
Southwest	4.6	11.8
Northwest	16.8	13.1
California	39.0	50.1
Sample	9,467	7,821

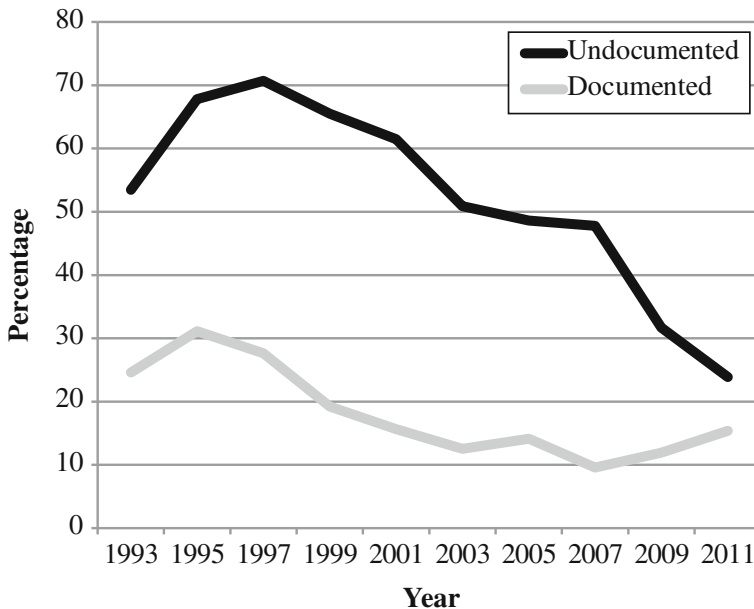
Source: National Agricultural Workers Survey.

\*\*\* $p < .001$  for  $t$  tests or chi-square tests for equal distributions between documented and undocumented Mexican-origin parents

Figure 1 shows the percentage of Mexican farm worker parents in the United States with dependent-aged children who reside in Mexico from 1993 to 2012 by legal status of the farm worker. The trend lines show dramatic changes in transnational family life over this period, particularly for undocumented farm workers. In 1993–1994, just over one-half (53 %) of undocumented Mexican farm workers had at least one child who resided in Mexico. This figure increased to more than two-thirds (70 %) in 1997–1998 and declined thereafter. By 2011–2012, less than one-quarter (24 %) of undocumented Mexican farm workers in the United States had children who resided in Mexico. Documented farm workers experience a similar decline, particularly from 1995 to 2007, when this percentage declined from 31 % to 10 %. After 2007, the share of documented Mexican farm workers with children in Mexico increased to 15 % in 2011–2012, although this is not statistically different from 2007–2008.

At all time points, the percentage of documented farm workers with children in Mexico was lower than it is among the undocumented, likely reflecting their greater degree of settlement in the United States and ability to sponsor family members for legal status. However, because of differences in the trend lines, the documentation gap shrank over this period. Whereas the undocumented were more than four times more likely to have children in Mexico during 2003–2004, this difference had decreased to 55 % by 2011–2012.

Table 2 presents the results from logistic regression models of children residing in Mexico. Model 1 includes controls for age, education, wage, and Mexican and U.S. GDP growth; Model 2 adds tests of our alternate explanations; and Model 3 adds measures of settlement. The results show that farm workers who were older, less



**Fig. 1** Changes in the percentage of Mexican farm workers in the United States with any dependent-aged children who reside in Mexico by legal status, 1993–2012. Point estimates refer to the two-year period beginning in the listed year. The sample is limited to parents of dependent-aged children. *Source:* National Agricultural Workers Survey

educated, and less well-paid had higher odds of children residing in Mexico. Women and nonindigenous farm workers had lower odds of children residing in Mexico. Farm workers from the periphery region had greater odds than those from the historic region of children residing in Mexico, and farm workers in all regions outside the U.S. East had lower odds of children residing in Mexico.

The odds ratios for economic conditions are generally not significant. The odds of children residing in Mexico were lower in years with higher teen fertility in Mexico, contrary to our expectations (see footnote 11). Because the Mexican teen fertility rate declined linearly over time, this result may capture variation in years since migration among farm workers in the United States for 10 or more years. Higher homicide rates in the year of migration are associated with lower odds of children residing in Mexico.

Finally, all our measures of settlement are associated with lower odds of children residing in Mexico. The odds of children residing in the United States increase nonmonotonically with time in the United States. Farm workers who own property in the United States had 95 % lower odds of children residing in Mexico, and farm workers who are proficient in English had 58 % lower odds of children residing in Mexico.

Our key interest is whether these factors account for the time trends observed in Fig. 1. We answer this question using predicted probabilities derived from the estimates in Table 2 and graphed in Fig. 2.<sup>15</sup> The results show that in all models, the probability of children residing in Mexico changed significantly among undocumented and documented farm workers over time, with the 1997–1998 span continuing to be the year in which the probability of children residing in Mexico was the highest. The decline following 2001–2002 was significant and steep for both documented and undocumented workers. However, a steeper decline among the undocumented results in the narrowing of the documentation gap in the probability of children residing in Mexico; in Model 3, which accounts for settlement, the documentation gap during 2011–2012 is not statistically significant.

Figure 2 reveals that the alternate explanations (in Model 2) do not explain the time trend. In Model 1, the difference in predicted probabilities between the high point (1997–1998) and the end of the period (2011–2012) is .5 for undocumented workers and .17 for documented workers. Although the probabilities shift in Model 2, these differences are not explained; for the undocumented, the difference from 1997–1998 to 2011–2012 in the probability of children residing in Mexico remains .5; and for the documented, the difference in probabilities increases to .29, meaning that given similar composition of migration, fertility levels in Mexico, and violence in Mexico over time, the decline for documented workers would have been even steeper.

The results for Model 3 show that settlement explains a significant portion of the difference in probability of children residing in Mexico between documented and undocumented farm workers. (Note the upward jump in the probability of children residing in Mexico at all time points for the documented in Model 3.) Furthermore, settlement explains some of the time trend for the undocumented: controlling for settlement, the probability that children of undocumented farm workers reside in Mexico declines at all time points except for the last two. As a result, the difference

<sup>15</sup> Comparisons of logistic regression coefficients (or odds ratios) across models can be biased by unobserved heterogeneity, so we compare predicted probabilities instead (Mood 2010).

**Table 2** Odd ratios from logistic regression models of children residing in Mexico among Mexican farm workers in the United States

	(1)	(2)	(3)
Year (ref. = 1997–1998)			
1993–1994	0.419**	0.562	0.564
1995–1996	0.731	0.733	0.672
1999–2000	0.652	0.572*	0.725
2001–2002	0.561*	0.323***	0.533*
2003–2004	0.419**	0.221***	0.467**
2005–2006	0.369***	0.153***	0.398**
2007–2008	0.219***	0.089***	0.296**
2009–2010	0.144***	0.046***	0.201***
2011–2012	0.101***	0.037***	0.170***
Documented	0.155***	0.288***	0.540**
Documented × Year Interactions (ref. = Documented × 1997–1998)			
Documented × 1993–1994	1.806*	1.315	1.153
Documented × 1995–1996	1.134	0.882	1.039
Documented × 1999–2000	0.739	0.716	0.662
Documented × 2001–2002	0.630*	0.646	0.457**
Documented × 2003–2004	0.902	1.207	0.759
Documented × 2005–2006	0.886	0.991	0.600
Documented × 2007–2008	0.669	0.822	0.419*
Documented × 2009–2010	1.820	2.865*	1.195
Documented × 2011–2012	3.735**	3.705**	1.517
Age	1.016**	1.049***	1.050***
Education	0.934***	0.941***	0.966**
Wage	0.918***	0.899***	0.933***
Female		0.062***	0.059***
Indigenous		1.641***	1.619***
Region in Mexico (ref. = Historic)			
Border		1.047	1.058
Center		1.043	1.034
Periphery		2.349**	1.745*
Region in United States (ref. = East)			
Southeast		0.512**	0.652*
Midwest		0.249***	0.309***
Southwest		0.213***	0.295***
Northwest		0.256***	0.284***
California		0.321***	0.330***
Mexican GDP Growth	0.971	0.956*	0.963
U.S. GDP Growth	0.924	0.933	0.959
Job Growth in Leisure and Hospitality		1.001	1.002***
Mexican Total Fertility Rate		0.954***	0.996
Mexico Homicide Rate		0.848***	0.941***



**Table 2** (continued)

	(1)	(2)	(3)
Measures of Settlement			
Years in the United States (ref. = less than 2)			
2–4			0.216***
5–9			0.093***
10+			0.069***
Owns property in United States			0.047***
English proficient			0.421***
Number of Observations	17,288	17,288	17,288

*Note:* Coefficients are exponentiated.

*Source:* National Agricultural Workers Survey.

\* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$

in probabilities between the high and low points shrinks in half from .5 to .23, meaning that settlement—as measured by years in the United States, English language proficiency, and U.S. property ownership—explains 54 % of the decline in the probability of children residing in Mexico from 1997–1998 to 2011–2012 among undocumented farm workers. By contrast, settlement explains none of the time trend among the documented; the difference in probabilities between 1997–1998 and 2011–2012 for the documented returns to .18 for the documented in this model, similar to Model 1.

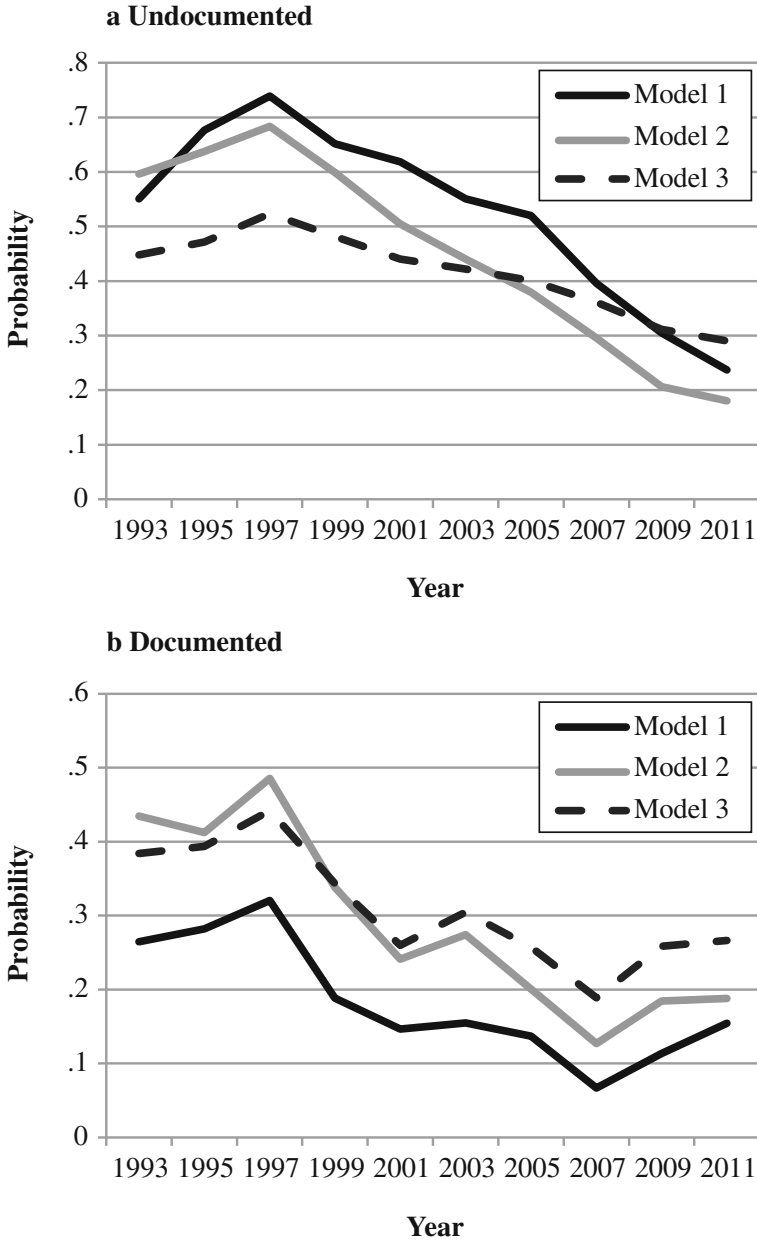
Table 3 reports the results from the 2SLS regressions of children residing in Mexico on annual changes in the size of the SWBP staff, which is instrumented in the first-stage regression. The results show that each additional 1,000 staff members employed in the SWBP decrease the likelihood of children residing in Mexico by 3.6 % among undocumented farm workers and by 1.6 % ( $-0.036 + 0.02$ ) among documented workers.<sup>16</sup> These effects are large. They imply that growth in the SWBP staff from 7,000 to 18,000—the real change observed from 1997–2012—would reduce the probability that Mexican farm workers' children reside in Mexico from .73 to .34 among undocumented workers, similar to the observed change over time.

As with our analysis of change over time, we find in Model 3 that settlement explains part of the effect of border control for the undocumented but not the documented. The coefficient for SWBP declines by one-third for the undocumented (from  $-0.036$  in Model 1 to  $-0.024$  in Model 3) but does not change for the documented (the effect in Model 3 is equal to  $-0.015 = -0.024 + 0.009$ , similar to Model 1).

## Discussion

This article documents a dramatic shift away from transnational family life among the immediate families of Mexican farm workers in the United States in the era of border

<sup>16</sup> We also estimated these models without survey weights but with standard errors clustered on year, and the results were similar.



**Fig. 2** Predicted probability of children residing in Mexico among Mexican farm worker parents by year and legal status, across three models. Probabilities are derived from the estimates in Table 2. *Source:* National Agricultural Workers Survey

militarization. Whereas transnational family life—living in the United States with children and spouses in Mexico—was the norm among undocumented Mexican farm workers with children in the late 1990s, it was the exception by 2012. Our findings also show that investments in border patrol decrease the probability that Mexican farm workers’ children

**Table 3** Two-stage least-square regression of the likelihood of children residing in Mexico among Mexican farm workers in the United States

	(1)	(2)	(3)
Southwest Border Patrol ( $\times 1000$ )	-0.036***	-0.045***	-0.024***
Documented	-0.575***	-0.383***	-0.218***
Border Patrol $\times$ Documented	0.020***	0.020***	0.009**
Age	0.003**	0.007***	0.006***
Education	-0.013***	-0.008***	-0.004*
Wage	-0.004	-0.004***	-0.003
Mexican GDP Growth	-0.004	-0.003	-0.003
U.S. GDP Growth	-0.013*	-0.010*	-0.007*
Female		-0.348***	-0.301***
Indigenous		0.074***	0.064***
Region in Mexico (ref. = Historic)			
Border		0.011	0.008
Center		0.025	0.018
Periphery		0.152***	0.092**
Region in United States (ref. = East)			
Southeast		-0.101**	-0.068*
Midwest		-0.211***	-0.164***
Southwest		-0.224***	-0.172***
Northwest		-0.210***	-0.177***
California		-0.168***	-0.154***
Job Growth in Leisure and Hospitality		0.000	0.000**
Mexican Total Fertility Rate		-0.008***	-0.002
Mexico Homicide Rate		-0.028***	-0.012***
Measures of Settlement			
Years in the United States (ref. = less than 2)			
2-4			-0.196***
5-9			-0.318***
10+			-0.333***
Owns property in United States			-0.247***
English proficient			-0.076***
Constant	1.005***	2.177***	1.412***
Number of Observations	17,288	17,288	17,288
$R^2$	.171	.347	.417

Source: National Agricultural Workers Survey.

\* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$

reside in Mexico, a result that is robust to instrumental variable techniques. These findings are consistent with arguments made by leading scholars of Mexico-U.S. migration that the “prevention by deterrence” policy of border militarization has the unintended effect of increasing family reunification and formation north of the border (Massey et al. 2002).

Although documented Mexican farm workers ostensibly cross the border without effect from border militarization, they too experience a decline in transnational family life over this period. Shifts are smaller than among the undocumented, but the children of the documented are also less likely to reside in Mexico in years with more border control—perhaps because, as qualitative research suggests, border control and interior immigration enforcement have reduced the mobility of documented Latino immigrants. For example, Hagan et al. (2009:1823, emphasis added) reported, “[F]earing apprehension and deportation, undocumented *and legal* immigrants are afraid to leave home, drive their cars, or go out in public.” Hernández (2008) found that in the context of programs such as Secure Communities, which required collaboration between local law enforcement and federal immigration authorities, local law enforcement turned to racial profiling as a “common sense” strategy of identifying the undocumented and thereby target the documented as well. Some anti-immigration laws, such as Arizona’s SB 1070, criminalize association with undocumented persons (Hardy et al. 2012). The racialization and criminalization of Latinos that intensified in the era of border militarization may explain why documented farm workers follow a similar trend as the undocumented.

We found that settlement, as measured by length of time in the United States, English language ability, and property ownership in the United States, explains one-half of the time trend in changing transnational family structure among undocumented farm workers from Mexico. This is consistent with Massey’s (1986) theory of migrant settlement, which argues that as migrants spend more time in the United States, they form connections, and permanent settlement becomes more likely. However, the fact that the change is not fully accounted for by duration and connections, and that these measures of settlement explain none of the time trend among documented farm workers, suggests that the transnational family practices of more recently arrived and less-connected migrants have also changed over this period. This result may be because migrants choose to bring their children with them or start families in the United States in anticipation of the difficulty of living a transnational family life in the era of border militarization, consistent with Cornelius’ (1992) idea that settlement can be accelerated by changing structural conditions. Indeed, the documented have greater flexibility in changing their migration strategies at the outset because of their ability to sponsor family members for legal status in the United States.

We did not find support for three alternative explanations for changing transnational family practices among Mexican farm workers. Accounting for the changing composition of migrants (including feminization of migration, increasing migration of indigenous Mexicans, and diversifying geographic origins and destination), changing demographic context in Mexico, and rising violence in Mexico did not change the time trend or explain the effect of SWBP staff. However, our tests of these mechanisms were limited. We could not account for variation in demographic contexts or violence within Mexico because we did not have measures that varied both over time and space for the entire time period of migration in the NAWS data set. We could not precisely match exposure to violence with the period preceding the child’s migration because we did not know when the child migrated or whether the child was born in the United States, and the measure of violence that we used—the national homicide rate—does not capture variation across contexts in Mexico in exposure to violence (e.g., Arenas et al. 2010). Perhaps better tests of these explanations would account for a greater portion of the time trend.

We were unable to observe transnational family structures prior to 1993, the year in which border militarization began in earnest, because the NAWS began recording the location of dependent children in that year. Therefore, we could not assess the impact of this policy by comparing the transnational family structures of migrants before and after the policy was implemented. However, studies of Mexico-U.S. migration have suggested that circular migration and the particular form of transnational family life that goes with circular migration were the norm prior to the passage of IRCA in 1986, particularly among Mexican farm workers (Cornelius 1992; Massey et al. 1987; Roberts 1995).

Furthermore, we found an increase in transnational family life from 1993 to 1997, perhaps because the border enforcement buildup was not large enough to become effective until after 2000, as Bean and Lowell (2004) argued. Although Massey et al. (2002) argued that border militarization had transformed Mexico-U.S. migration patterns as early as 1998, they did not find evidence that the participation of children had changed during the 1993–1998 period. In later work examining trends in migration through 2012, Massey and colleagues found that the probability of return to Mexico among undocumented migrants began to decline after 1986, but the decline became much steeper in the late 1990s (Massey et al. 2015). Our results are consistent with these results and arguments.

Our findings are specific to Mexican-born farm workers in the United States, who account for a small portion of the total Mexican-born workforce in the United States (Hall and Greenman 2015). We might expect a less dramatic shift among migrants not employed in farm work given that the seasonal nature of farm work historically facilitated a circular migration pattern. Our results also exclude farm workers employed on temporary work visas (the H-2A), among whom transnational family life might be more common, insofar as the H-2A visa is designed for temporary migration spells. On the other hand, spouses and dependent children of H-2A visa holders may obtain an H-4 visa to accompany their family member to the United States. Understanding if and how the transnational family practices of other groups of Mexican immigrants and immigrants of other origins have changed in this period is a task for future research.

In his analysis of the social norms surrounding migration duration, Roberts (1995) suggested that temporary migrants defy the “socially prescribed duration” applied to immigrants in immigration law—the expectation that immigrants have a moral obligation to naturalize in order to fully enter the body politic of the receiving society. Complying with this expectation not only grants immigrants the formal benefits of citizenship but also engenders trust in others and allows for greater coordination of economic activities. Under these circumstances, temporary immigrants are distrusted and marginalized, even if their labor is highly demanded. Temporary immigrants also suffer from ambivalences regarding family roles and economic strategies imposed by the uncertainty of temporariness, which undermine the family as a source of support and cohesion. Roberts’ analysis predated the emergence of a large, permanent, undocumented population from Mexico in the era of border militarization. Applying his formulation to this population suggests a double disadvantage: a group that is socially expected to be temporary has become permanent, but as a matter of law fails to comply with the moral obligation of naturalization. The undocumented will be viewed as permanent outsiders, unworthy of the trust granted by naturalization, which is denied to them. Permanent, undocumented immigrants will continue to be disadvantaged on

the labor market, where the expectation of temporariness joins with undocumented status to structure the secondary labor market of insecure, poorly paid work. Within-group ambivalence about socially expected duration—temporary or permanent—may further undermine family and coethnic economic strategies (see also Dreby 2015). In other words, the historical legacy of immigration policies toward Mexico-U.S. migration, beginning with the Bracero Program and most recently encompassing border militarization, coupled with high demand for low-wage immigrant labor, creates conditions that undermine the well-being and integration of this population not only through the denial of legal membership but also through the harsh implications of noncompliance with socially expected durations of migration.

The implications of the growth in the population of children of undocumented migrants—both those who are themselves undocumented and those who are U.S.-born citizens—are not lost on researchers or policy makers. This population is the subject of substantial research documenting the injustices and harms faced by children who themselves or whose parents lack legal status (e.g., Bean et al. 2011; Gonzales 2011). This population is the focus of recent immigration policies, including DACA, DAPA, and the as-yet unpassed federal DREAM Act. Although these policies are important steps in the right direction, they are temporary and incomplete solutions to the underlying problem of undocumented migration, which was aggravated by the short-sighted policy focus on border militarization. In acknowledging that border militarization failed, we do not mean to imply that a return to the pre-1986 pattern of temporary and circular migration, when families were separated across international borders, is an ideal alternative to the present situation. Comprehensive immigration reform, including measures to provide permanent legal status to the undocumented population and new programs to provide sufficient legal avenues for migrants entering the United States, particularly those meeting the enormous U.S. demand for workers in agriculture and other low-wage sectors, would provide a permanent solution to this problem.

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