

What Drives Undocumented Immigration? Policy, economic, and social factors in the US and Mexico *

Dana J Smith[†]

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Abstract

The political discourse on undocumented immigration to the United States often centers on place-specific policies, such as those that create “sanctuary cities” on the one hand, or that promote “self-deportation” on the other. How much effect do these policies actually have on migration flows? This paper combines data on economic, social, and policy factors in the US and Mexico and uses administrative data on migrant flows from the Mexican Consulate to estimate the separate and combined effects of a wide range of exogenous factors that a migrant faces. Using a fixed effects model that controls for Mexican state to US state pairs, I find that higher wages and lower unemployment attract new unauthorized immigrants to US states, while high homicide rates and high unemployment fuel outmigration from Mexico. I use an instrumental variable approach to test whether a more immigrant-friendly policy environment acts as a magnet for new immigrants, and find no evidence that it does.

Keywords: Immigration, Immigration Policy, Mexico, the United States
JEL Codes: J11, R23, F22

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[†]Cornell University Charles H. Dyson School of Applied Economics and Management, New York USA, DJS499@cornell.edu

1 Introduction

In 2017, more than 40 million immigrants lived in the United States, making it home to more immigrants than any other country in the world (Pew Research Center, 2019a). This includes more than 10 million undocumented immigrants. This paper uses administrative data on flows of undocumented immigrants from Mexico to evaluate diverse push and pull factors of unauthorized migration, with particular attention to the role of US state-level immigration policy in the migration decision.

US policymakers and citizens are starkly divided in their views about how to deal with undocumented immigration. While conservatives advocate for a wall along the southern border, progressives call for a path to citizenship and legal protections. Although the federal government dictates national immigration policy, state governments have broad scope to pass laws that affect both the likelihood of deportation and the attractiveness of the state to undocumented immigrants. For example, states can require employers to use an electronic employment verification program and impose harsh penalties for those who do not, which is intended to reduce demand for undocumented workers. In contrast, a state may decide to allow undocumented immigrants to obtain a driver's license, or allocate state resources to migrant health centers, which may make the state more attractive to undocumented immigrants.

These state-level policies are subjects of fierce debate, with widespread talk of "self-deportation" and "sanctuary cities" in recent election cycles. But how much influence do state-level policies actually have on immigration flows? The decision about whether and where to immigrate is a complex one, influenced by a variety of economic and social factors in both the sending and receiving destinations. It is an open question whether state-level policy changes are substantial enough, or salient enough for migrants, to influence the location choices of those traveling to the US without authorization.

The goals of this paper are (i) to test the causal effect of state-level immigration policies on state-to-state flows of undocumented immigrants from Mexico to the US, and (ii) to assess the relative importance of these state-level policies alongside various other exogenous economic and social

factors in the US and Mexico that have been shown to affect migration in prior work, including wages and other labor market conditions, and homicide rates.

Using administrative data on flows of undocumented immigrants from 2006 to 2013¹, I use a matched pairs fixed effect model that controls for time-invariant source and destination characteristics, including any network effects, that drive immigration from a particular Mexican state to a US state. Garip and Asad (2016) find that networks alone are important drivers of location choice; controlling for these effects using unique features of administrative data from the Mexican Consulate allows this research to more clearly assess the role of the other determinants. Network effects are often a confounding factor when trying to understand how policies and economic conditions influence undocumented immigration². I use a novel policy index, manually coded by legal scholars³, to account for the entire slate of state-level immigration laws, which can expand or restrict the rights of undocumented and other immigrants. Although it is not clear that these policy changes respond to year-to-year changes in the inflow of immigrants, I include an instrumental variable analysis that uses US prison rates unrelated to immigration detentions to address the potential endogeneity of the policy variable and cleanly estimate the impact of all the possible determinants of immigration considered here. Similar instruments have precedence in the literature and the first stage is very strong.

I have three main sets of findings. First, I find that economic factors in the US impact annual flows of undocumented immigrants after controlling for the important role of existing network connections. I show that higher US minimum wages drive undocumented immigration after controlling for the state-to-state effects. Lower lagged unemployment rates have a significant, positive impact on immigration flows.

Second, on the push factor side, I show that not just economic conditions, but also safety considerations are important factors of migration. High lagged unemployment and higher homicide rate significantly increase migration out of a Mexican state. Higher relative US to Mexican wages

¹released by the Mexican Consulate, analyzed and validated by Caballero et al. (2018)

²A selection on the migration networks literature include Massey (1988); Massey et al. (1994); Mahajan and Yang (2020); Orrenius and Zavodny (2009); Beaman (2012); Munshi (2003); Dolfin and Genicot (2010); Amuedo-Dorantes and Mundra (2007); Garip and Asad (2015)

³Monogan III (2013)

also increase migration. I observe changes in flows in response to changes economic conditions even within the year of the higher/lower wage, which reinforces the notion that cross-country networks are strong and facilitate the quick flow of information (Dolfin and Genicot, 2010; Garip and Asad, 2016).

Third, I find no evidence that a more expansive policy environment attracts addition undocumented immigrants. The impact of the policy index is negligible in both OLS and IV analysis. These findings are robust to specifications that allow for asymmetric responses to expansive and restrictive laws. This in line with observations made in a 2007 policy brief speculating on the magnet effect of policies on undocumented immigration (Yang and Wallace, 2007), which notes the scarcity of research on the topic of more liberal laws and settlement patterns.

In addition to these findings, I compare the relative magnitude of each of the main determinants. I find that a one standard deviation change in US lagged unemployment rate has the largest impact on immigration flows. Standard deviation changes in US economic factors generally have a larger effect than factors in Mexico. I find no evidence that a one standard deviation increase in policy environment generosity increases in migration. This is in contrast to the common narrative that policies designed to help local immigrant populations will attract more new immigrants. The full set of results is presented in Table 2.

The paper expands on our existing understanding of the push and pull factors of migration to the US. Broad papers in this field include Card and Lewis (2007) discussing the diffusion of Mexican immigrants in the 1990s, and Clark et al. (2007) discussing the explanations for U.S. migration in the latter half of the 20th century. Addressing more specific determinants of migration, Lessem (2018) shows that low Mexican wages act as a push factor for immigrants while stricter border enforcement reduces immigration flows. She finds that migration decisions are more sensitive to economic factors. Ashby et al. (2013) use a smaller sample of the Mexican Consulate data used in this study to show that immigrants are pulled towards states with higher Mexican immigrant populations, states closer to the border, and states with higher wages while Mendoza and Ashby (2019) also uses a paired fixed effect though with a shorter window of time and a focus on business cycle impacts. Also covering economic pull factors, Karemera et al. (2000) show the income of

the destination country is an important factor determining international migration. I speak to this literature directly, studying similar questions using administrative data that specifically covers undocumented Mexican immigrants and allows me to control for the impact of network effects. I also consider economic factors in tandem with crime and policy to compare relative effects.

Push factors, such as local crime (Parkins, 2010), violence (Clemens, 2017; Rios Contreras, 2014), or natural disasters (Mahajan and Yang, 2020), also impact immigration decisions. Chort and de la Rupelle (2016) study a variety of push factors in great detail finding that higher state GDP per capita at origin can increase out-migration, perhaps suggesting higher income migrants are better able to overcome credit constraints and finance moves. Interestingly, Chort and de la Rupelle (2016) find violence only has a positive impact on outmigration for border states, but their data begins earlier than the administrative data used in this analysis. They note that the rise in homicides after 2007 (see Calderón et al. (2015)) could soon lead to a consistent positive impact of violence on outmigration, which I find evidence of using data from this more recent period (2006 to 2013).

On the policy side, Allen et al. (2018) show that increased border wall construction impacted migration and harmed Mexican workers, while Hoekstra and Orozco-Aleman (2017) show that the very strict SB 1070 immigration law in Arizona reduced the flow of migration into Arizona. This work adds to the existing literature by also considering the role of laws that expand the rights of migrants, and looking at a variety of immigration-related laws, rather than one.

Other papers have looked at the economic impacts of state level policies on outcomes for immigrants already in the US. Orrenius and Zavodny (2015) find that E-verify mandates reduce wages for likely undocumented Mexican men but increase labor force participation among similar women and Ayromloo et al. (2020) find that E-Verify reduces formal sector employment but that there may be some spillover into smaller firms. Amuedo-Dorantes and Bansak (2012) also find that such verification programs decrease the likelihood of employment for unauthorized workers. East et al. (2023) similarly find that the Secure Communities program reduces employment for likely undocumented workers and there is a negative impact on US born workers. These paper focus on specific, sub-national, policies and how they impact undocumented workers already in these states. I build on this research to see if these state-level policies actually deter new immigrants

from entering these states. I also use a policy index to consider the multiple laws immigrants face simultaneously. The index is quite similar to the policy index created by Pham and Van (2014) and I use the same source for state-level policies but they include other local policies as well. They have also used this index to estimate the impact of the immigration policy climate on economic outcomes but again do not study how the policy climate could impact new arrivals (Pham and Van, 2010). The use of a policy index helps capture the full spectrum of laws an immigrant may face.

Policies may also be designed to attract immigrants (see Czaika and Parsons (2017)) though these policies are typically aimed at high-earning immigrants and this paper evaluates the determinants of migration for undocumented immigrants who tend to work low wage jobs. It is also critical to understand how generous policy impacts movement and settlement patterns. Others have considered whether generous welfare states increase immigration but Pena (2014), Giuletti (2014), and Ferwerda et al. (2023) do not find evidence that broader and more expansive welfare policies drive substantial migration within the US or immigration between OECD countries. This issue related to undocumented immigrants coming to the US was specifically brought up in debates leading to the 2020 Presidential election (Courteau, 2019). This paper contributes to our understanding of the impact of expansive policy environments on migration flows by looking specifically at undocumented immigration to the US from Mexico, a previously understudied question.

First person accounts and detailed qualitative data (Courteau (2019); Garip (2016); Urrea (2004, ch.2), among many others) show that economic conditions, as well as family reunification are common motivations for migration, while immigration policy can affect how one migrates and the likelihood of success, but, overall that there are many complex factors that influence the individual decision to migrate. This paper seeks to identify some common economic, social, and, in particular, political factors that together impact recent undocumented immigration from Mexico.

The rest of the paper proceeds as follows: section 2 describes the data and is followed by section 3 which covers the empirical model and a discussion on identification. Section 4 presents the results and discussion Section 5 concludes. A more detailed discussion of the data is found in Ap-

pendix A, details on the background and setting can be found in Appendix B and and discussion of the various robustness checks follows in subsequent Appendices.

2 Data

2.1 Empirical Framework

Like any immigrant, undocumented immigrants may move if there is an opportunity to earn higher expected wages in the destination relative to the home country, as predicted in Harris and Todaro (1970). The expected wage is determined by actual wages and the likelihood of getting the job so both wages and unemployment rate can effect immigration decisions. Increased migration can also impact unemployment rates in the destination country as well, making this variable potentially endogenous (Harris and Todaro, 1970). While the undocumented population is small relative to overall working population and various studies find immigration is unlikely to have an impact on the unemployment rate, lagged unemployment rates are used in most analysis (Longhi et al., 2006).

Beyond economics, political and societal characteristics of home and destination state will impact migration decisions (Karemera et al., 2000). Regarding Mexican home states, I use homicides per 1,000 people since local crime and violence is often a motivating factor for immigration (Clemens, 2017). In the U.S., the immigration policy environment affects the flow of immigration both by preventing and deterring immigrants. I use a state-level measure of immigration policy, described in section 2.3, to estimate the role US state policy may play in driving migration flows.

I use a matched pairs fixed effect that controls for unobserved factors that influence migration from Mexican state i to US state j . Identification comes from the wide spacial and temporal variation across US and Mexican states. Fixed effects for state to state pairs control for the critical, time invariant factors that influence migration, while year fixed effects control for changes at the US and Mexican national levels, as well as global factors, each year. Time varying characteristics such as state population and, for US states, percentage of immigrants overall, control for some

remaining possible confounding variation. Research from the gravity model literature highlights the use of state populations as “mass” variables and so I include those controls here (Karemera et al., 2000; Anderson, 2011; Borjas, 1989; Greenwood, 1975). The main specification will be an abstraction from the gravity model literature. Following Karemera et al. (2000), origin and destination economic and political factors impact migration flows between origin-destination pairs, while other factors can impact this migration in general such as transportation costs, often proxied by distance and in my empirical model captured by the pairwise fixed effect. For simplicity, the main results here are similar to a gravity model but the fixed effect controls and other key determinants are included in their standard form, rather than a log transformed form. Appendix D discusses the gravity model and Table D2 presents results from a gravity model estimation where log-transformed variables are used on both sides of the regression equation. These results confirm all main results.

My analysis examines how differences across Mexican and US states impact where undocumented immigrants settle but I do not identify whether a particular US state law, for example, impacted overall immigration from Mexico to the US, as these national level changes are absorbed the year fixed effect. Other work has studied how changes in federal policy impact immigration so I leave that goal aside in this work. Assessing whether a change in one state policy impacts overall migration from Mexico is an interesting question for future work. Any concerns that changes in one state are driving overall results are addressed in robustness checks excluding the US states with the largest Mexican populations (Appendix F), and the results are consistent with the main findings. Finally, within many states there can be substantial immigration policy variation (for example sanctuary cities). The data for this study does not include this within-state variation and so I leave studying the impact of these policies for future work.

2.2 Flows of Undocumented Immigrants

From a high of about 12 million in 2007, to about 10.5 million in 2017, undocumented immigrants make up an important minority of the US immigrant population (Pew Research Center, 2019a).

About half of all undocumented immigrants living in the US are originally from Mexico, though flows from countries farther south have grown in recent years (Pew Research Center, 2019a).

Undocumented immigration flows can be particularly difficult to measure. I use data released by the Mexican Consulate on Matrículas Consulares (MC). This data is available from the Mexican Consulate and the public tabulations of the Matrículas Consulares de Alta Seguridad data, compiled and validated in Caballero et al. (2018). The MC is an important form of identification available to Mexicans living abroad. It is a key form of identification for undocumented immigrants, and is accepted by a number of states for official purposes, such as establishing identity to receive a driver's license or open a bank account. The cards are issued by local consulate offices in the U.S., and cost \$30. Besides the paperwork and small fee, there is little downside to obtaining an MC, and the card is widely promoted by the Mexican government. Applicants do not need to provide information on their immigration status but they are not issued to individuals with criminal records or who are facing prosecution in Mexico (National Immigration Law Center, 2015).

The available data contains information on Mexican state of origin and U.S. state of destination and nearly all of these reflect new card issues rather than renewals (Caballero et al., 2018). According to Massey et al. (2010), it is generally accepted that most of these cards are issued to undocumented immigrants and are estimated to cover 75 to 80 percent of unauthorized Mexican immigrants in the US (Caballero et al., 2018). Mexican immigrants make up 51% of all undocumented immigrants in the US so this is a meaningful population to study (Capps et al., 2020). The data on Matrículas Consulares data I use covers the whole universe of cards issued.

For this work, the data is aggregated to state to state pairs so each observation is the number of cards issued to people from Mexican state i living in U.S. state j in each year of the sample period, 2006-2013. The data is available at the Mexican municipality to US state level but I aggregate to the state-to-state level as most of the push factor data I will use is only available at the municipality level during Census years, which given the period of my study would only be 2010. I am sacrificing more spatial variation for more temporal variation, especially since estimating the empirical model with only one year of data would be impossible.

The card is typically issued by the nearest consulate to an individual living in the US. Though

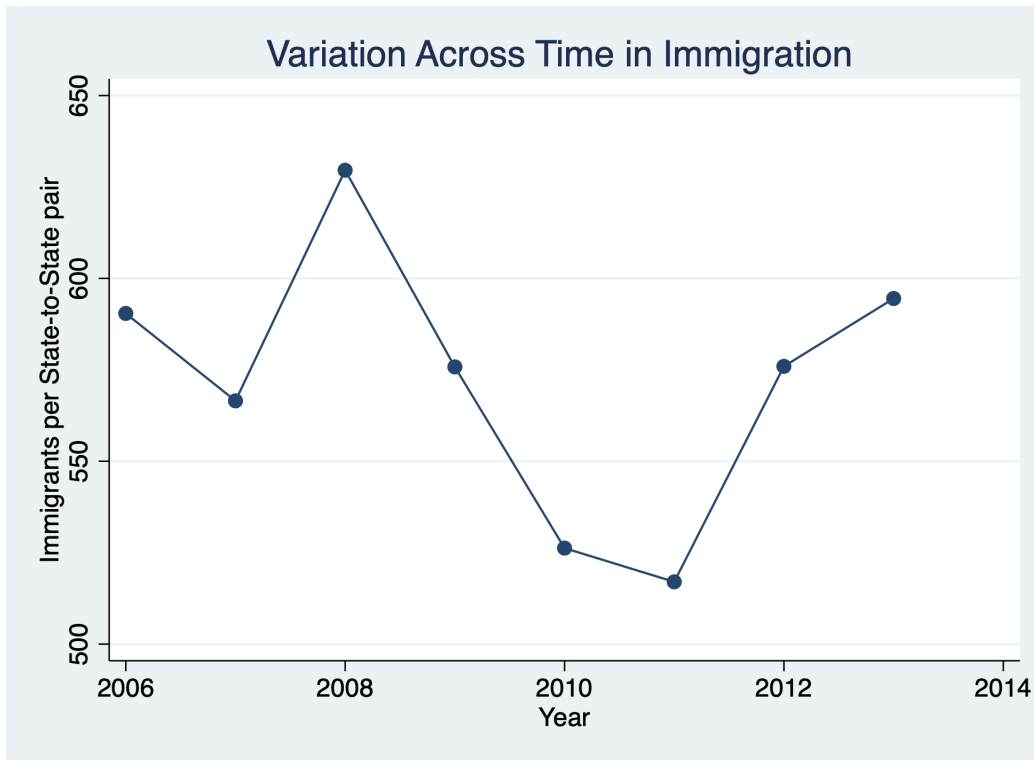
internal migration within the US is of course possible, migratory work is declining (USDA ERS, 2020), and the amount of moving between states after coming to the US is likely minimal compared to the size of the data set. The destination state is likely highly accurate at time of card issuance since one requirement is to proof of address in the local consulate's jurisdiction. The quality and representativeness of this data was verified by (Caballero et al., 2018), who compared this data closely with other, better-known surveys from Mexico and the US and find the Matrículas Consulares data set to be highly consistent with other information on undocumented migration between Mexico and the US. I use this data as it contains the best information on specific origin and destination of migrants whereas other sources, such as the American Community Survey only note if an immigrant came from Mexico.

There are 32 Mexican states and 50 U.S. states so overall there are 1600 observations in each year. Zeroes are included for pairs that have no migrants in a particular year to get a balanced annual data set. Of 12,800 yearly state-to-state pairs, 1,320, or about 10 percent, have no migrants in a particular year. This is primarily due to small states that are far from the border such as Vermont, Alaska, North Dakota and Rhode Island. This is a quite small number of observations with zero flows and all results will present effects on the intensive margin.

To show the variation of migration across time, Figure 1 presents the average size of the state-to-state migration flows in each year over the period of interest. Approximately 7 million MCs were issued between 2006 and 2013. There is a clear drop in new MCs after 2008, reflecting the impacts of the global recession and perhaps the Secure Fence Act.

Most migrants in the sample originated from Michoacán, a state in the southwest portion of Mexico. Primary destinations are in the US southwest, with California being the most popular destination by far. Other states such as North Carolina, Georgia, and Florida possibly attract migrants because of their large agricultural sectors. Data Appendix Table A2, Figure A3 and Figure A4 in Appendix A present the number of MCs issued across US and Mexican states.

Figure 1:



The number of Matrículas Consulares issued to people from Mexican state i to US state j is the measure of undocumented immigration used in this research. These counts by state to state pair are averaged across pairs in each year and plotted on the graph above. The left axis indicates the number of immigrants per pair. The general pattern shows immigration falling during and immediately after the Great Recession but increasing again during the recovery period, offering preliminary evidence that immigration is related to economic conditions.

2.3 Policy Index

In the U.S., the immigration policy environment varies substantially by state. Each year of the sample, over one hundred different new laws related to immigration are enacted in various states. I use a policy index to measure all the new laws added in a state and year, in contrast to prior research that has often considered one national law or particularly strict state law. This paper contributes to the literature by studying the impact of all new laws affecting immigration, including laws designed to expand the rights of immigrants. To my knowledge, this is one of the first papers

to empirically assess the impact of positive immigration laws on new inflows of undocumented immigrants to the United States. Razin et al. (2011) covers the relationship between immigration and the welfare state, though primarily focused in the European Union.

I create a policy index using an indexing procedure originally designed and used in Monogan III (2013). The index reflects all state laws pertaining to immigrants or immigration, as reported by the National Conference of State Legislators (NCSL). All immigration-related laws and resolutions passed by state governments from 2005 to 2011 are included in the original data set. These are then coded as being either pro-immigrant or anti-immigrant based on the language and intention of the laws. Next, with the help of "legal scholars and members of immigration policy think tanks" the laws are coded by scope on a four-point scale (Monogan III, 2013, p. 45). Laws receiving a scope score of 1 are "symbolic", 2 are "affecting a small group of immigrants, 3 are "affecting many immigrants in a substantial way", or 4 "directly affecting immigrants' ability to reside in a state" (Monogan III, 2013, p. 45). I extend this data set to include laws from 2012 and 2013, gathering them from the same NCSL publications and replicating Monogan's scoring methods to the best of my ability.

Examples of a symbolic law that would be scored a 1 may be the Florida 2010 law that "honors Edith Lowngard Loebenberg, a Holocaust survivor who fled Germany for New York City" (NCSL). An example of a law scored a 2 is Wyoming 2006, "allows a permanent resident card or internationally accepted passport to be used to rent a keg" (NCSL). Colorado 2006 "restricts public benefits from those who are not citizens or permanent residents; applicants must show a valid ID before receiving benefits, and the penalty for fraud could be 1.5 years jail and \$5000 fine" is scored a 3, and Oklahoma 2007 "requires the verification of employment eligibility using the electronic employment verfications system (EEVS) and provides for a discrimination cause of action for the discharge of a US citizen while retaining an unauthorized immigrant on payroll" is given a 4 (NCSL). Pro-immigrant laws in the sample include, for example, provisions for driver's licenses for immigrants unable to prove lawful status or appropriations for migrant health centers.

I then create three main indices, one for pro-immigration laws in a state and year, one for anti-immigration laws, and one that summarizes all such laws in a state and year. The main spec-

ifications use an index that includes just new immigration laws in each particular state and year, though I also include an analysis where the index is cumulative and covers all of a state's immigration laws starting from 2006 to the year in question. For all main specifications, I include only laws with a scope of 3 or 4 in the main specification since these are most likely to be widely known and have actual impacts on immigration decisions. I give these laws equal weight in the index though; essentially, I drop laws with scope 1 or 2 and then the remaining laws are each counted as one relevant law. To calculate the overall index, anti-immigrant laws are assigned the value -1 and pro-immigrant laws, 1. The overall index is then the sum of all pro- and anti-immigrant laws in a state and year that were originally assigned a scope of 3 or 4. Other research often uses counts like these to quantify a policy (Goodman, 2019). Most research is also concentrated on negative laws and thus only counts these in the index for a state's policies, for example, Monogan III (2013). The data appendix discusses the method for assigning scope in more detail and presents the spread of index values across all US states.

Additional analysis presented in Table 6 will take a different approach. Instead of assigning states an index that is equal to the count of all positive (or negative) laws in a year, I determine whether the net score is positive or negative and then assign states a "pro-foreign worker" index equal to the magnitude of the main index if the main index is net positive, and the same for "anti-foreign worker" states. Net zero states make up the third category. As a robustness check, I create similar indices using the exact same procedures but first, including laws scored a 2, and then three more indices that include all laws in the data set (Table E3). All indices created include laws that effect any immigrant and thus will cover legislation that is likely irrelevant to potential undocumented immigrants but it is important to characterize as much of the policy environment as possible because immigrants may respond to all sorts of laws in subtle ways.

Finally, I consider the possibility that certain types of laws, such as those that impact education or identification cards, impact immigrants differently. The NCSL categorizes laws into about sixteen categories (with some inconsistency as some years a law about dentist licensing might fall into License-other and in a different year License-healthcare) and I choose eight categories that are either most common or most likely to have an impact on undocumented immigrants (related to

benefits, education, employment, health, identification, law enforcement, miscellaneous, and omnibus). I exclude categories that almost never appear in the data on immigration laws, including legal services, trafficking, voting, handgun and other licenses⁴, and resolutions. I also combine the driver's license category with laws related to identification since these are often very similar laws. I create eight separate indices per US state per year, summarizing the laws in each of these categories. The indices are constructed similarly to the main index, for example, all education related laws in a state and year are scored -1 or 1 depending on their impact on immigrants' lives, and then these values are summed to create an index. I lose variation as the number of laws in a particular category is always lower than the total number of immigration laws in that state and year and many states may not have any law of a particular category in a given year. These results are available in Appendix G.

Figure 2 below shows the spatial variation in the main policy index. Averaged across all years of the data, California has the most liberal policy environment, while Arizona has the strictest. The index varies across time as well. Summary statistics regarding the policy environment are presented Appendix A.

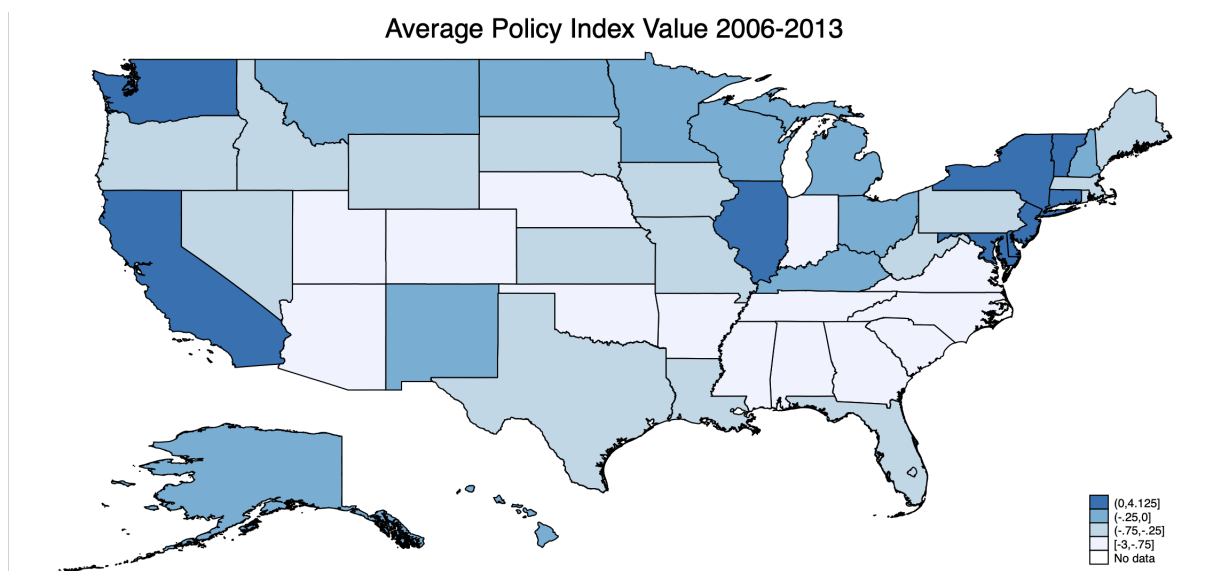
2.4 Economic and Social Factors in the US and Mexico

Data on US state economic conditions is gathered from the Bureau of Labor Statistics (BLS) from the Quarterly Census of Employment and Wages⁵ (QCEW). This analysis includes the state-level average annual data on unemployment rate, minimum wage, total average wages, construction wages, agricultural wages, and retail sector wages since these are common sectors for unauthorized workers. Employment in the agricultural sector is also over seventy percent immigrant

⁴These types of laws for the most part only appear in this data because the text of the law uses the word migrant or immigrant- for example "this law requires a valid license to own a dental practice, including those that provide dental services to medically underserved populations of migrant rural communities or homeless individuals." Trafficking laws are all listed as immigration policy even though they typically deal with just the penalties associated with trafficking someone against their will, which is illegal everywhere. While these laws definitely impact some migrants, such as the coyotes, this is a small portion of the immigrant population and there isn't much variation in these laws especially trafficking can be charged at the federal level.

⁵See U.S. Bureau of Labor Statistics (nd) for publicly available data https://data.bls.gov/cew/apps/data_views/data_views.htm#Tables

Figure 2: Variation in Policy Environment Across US States



The policy index summarizes relevant immigration laws in a state for each state in each year. Here, the policy index is averaged across years for each state. Pro-immigrant laws are given weight +1 while anti-immigrant laws are included in the index as -1, a more negative index value indicates a harsher immigration policy environment. See the data appendix for details on the variation in policy index across time. Darker shading reflects a more generous average policy environment over the time period.

(USDA ERS, 2020), so I include two more measures of farm wages: the Adverse Effect Wage Rate, which is the minimum farm wage for documented temporary workers who may compete with undocumented immigrants, and the average wages in crop production. The AEWR data is gathered from the USDA⁶ while the average crop wages are from the QCEW. All wages from the QCEW are reported as seasonally adjusted, average weekly wages while the AEWR is an hourly wage rate. More information on the variation of US economic variables is available in the Data Appendix.

I gather economic data for Mexican states from the Instituto Nacional de Estadística y Geografía (INEGI) and Secretaría del Trabajo y Provisión Social (STPS). Minimum wage, average daily earnings⁷, and unemployment rates⁸ are collected for each Mexican state and year. I also

⁶Available at <https://www.usda.gov/oce/labor/data.htm> as of June 2020, (USDA, 2020)

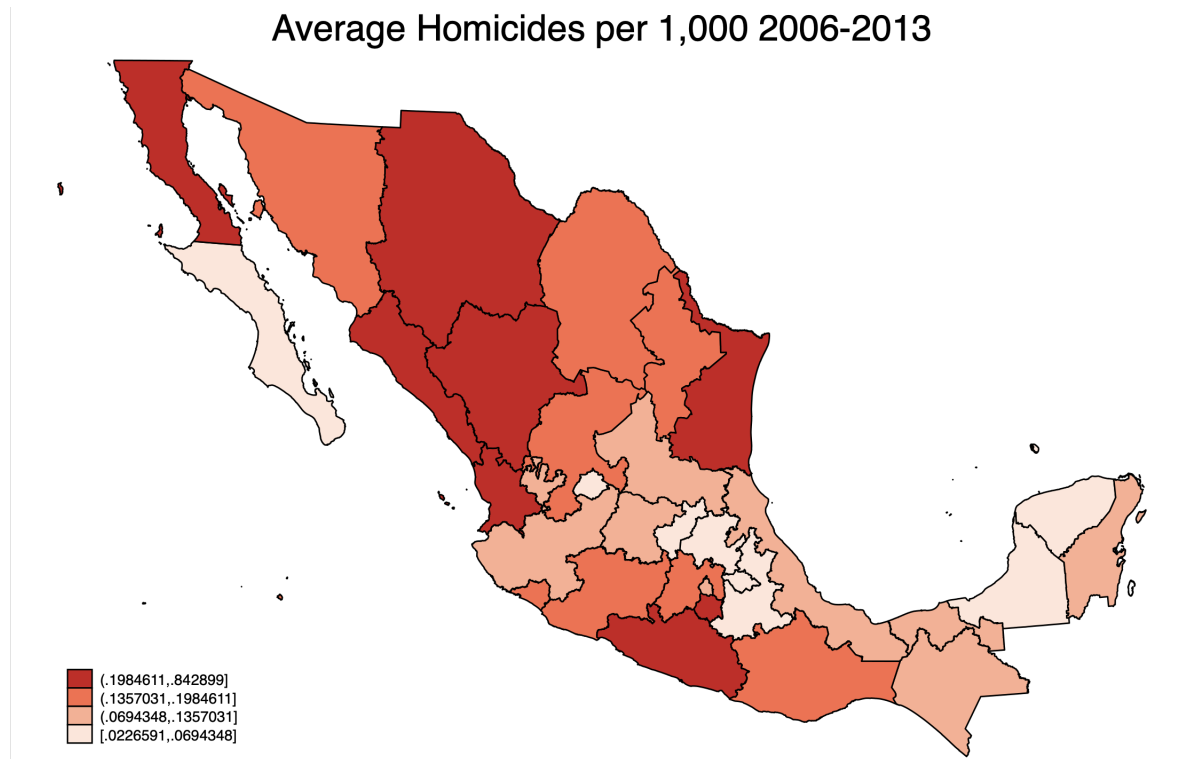
⁷Minimum wage and daily earnings from the STPS data available online at http://www.stps.gob.mx/gobmx/estadisticas/302_0057.htm?verinfo=2 as of June 2020.

⁸Unemployment rate data are from the STPS-INEGI and are available online at http://www.stps.gob.mx/gobmx/estadisticas/enoe_men.htm as of June 2020

include data on contemporary crime rates⁹, and specifically homicides¹⁰.

Figure 3 shows the average variation in homicide rate (homicides per 1000 people) across Mexican states.

Figure 3: Variation in Homicides Across MX States



Data on number of homicide per year in each Mexican state are transformed into a rate of homicides per 1000 people. This is then averaged across years of the sample and plotted for each state. There is substantial variation across states. See the data appendix for variation in the homicide rate across time.

I use state population in Mexico and the US, as well as the overall percentage of immigrants living in a US state, as further controls. More populous states may send or attract more migrants and controlling for the immigrant population can further account for the network effects impacting

⁹Crime statistics available from the Mexican Government at <https://www.gob.mx/sesnsp/acciones-y-programas/datos-abiertos-de-incidencia-delictiva?state=published> as of June 2020

¹⁰Homicides are counted as the number of deaths by homicide, available from INEGI at <https://www.inegi.org.mx/sistemas/olap/proyectos/bd/continuas/mortalidad/defuncioneshom.asp?s=est> as of June 2020

migration. US state population is also gathered gathered from the BLS while the data on Mexican state populations is released by the Mexican government¹¹. Proportion of foreign born, US state residents is calculated by the author using the Current Population Survey. The sample covers the years 2006 to 2013, and includes all fifty US states and all thirty-two Mexican states. I drop Washington D.C. as well as any US territories since state level annual immigration policy is not available for these areas. Table 1 presents summary statistics for key variables by year.

Table A2 and Table A3 present the summary statistics for all main dependent and independent variables in each state. Overall, there is significant variation across time and space. Variation is most limited for the Mexican minimum wage since it increases only very slightly each year and all spatial variation is across three groups encompassing multiple states each. While I include the minimum wage in Mexico in some of the analysis, there are issues interpreting the results due to the nature of the law. The minimum wage in Mexico rises as you move closer to the US border so the apparent effect could capture the residual effect of proximity to the border on immigration. While state-to-state pair fixed effects control for distance, the minimum wage can be different within a Mexican state so I cannot rule out that this may be picking up migrants from more northern municipios within a state. Mexican minimum wages are set in three broad zones (and then starting in 2012 just 2), covering multiple states with one wage level. Additionally, states can fall into more than one zone, with some municipios facing one minimum wage and others a different wage. For this analysis states are assigned the minimum wage that covers the majority of the municipios in the state, thus it may not be the actual minimum wage potential migrants face since I do not know which municipio they are in. Across the minimum wage three zones, the Mexican minimum wage does vary (increase) each year but the average increase is about 2 pesos per year or 9 US cents. Thus, I only cautiously include the minimum wage as an exogenous measure of potential earnings for Mexican immigrants.

¹¹Annual projections available from the Mexican Government at <https://datos.gob.mx/busca/dataset/proyecciones-de-la-poblacion-de-mexico-y-de-las-entidades-federativas-2016-2050> as of June 2020.

Table 1: Summary Statistics

Year	Matrículas Consulares (total)	US State Minimum Wage (mean)	MX State Minimum Wage (mean)	US State Unemployment Rate (mean)	MX State Unemployment Rate (mean)	
2006	944674	5.684	46.16	4.426	3.311	
2007	906442	6.419	47.97	4.348	3.351	
2008	1.007e+06	6.888	49.88	5.334	3.683	
2009	921286	7.383	52.30	8.478	5.307	
2010	842011	7.413	54.84	8.748	5.197	
2011	827244	7.447	57.08	8.122	5.153	
2012	921526	7.498	59.48	7.336	4.818	
2013	951208	7.530	61.91	6.730	4.838	
Year	MX Daily Salary (mean)	AEWR (mean)	Policy Index (mean)	Homicides per 1000 (mean)	Crimes per 1000 (mean)	Violent Crimes per 1000 (mean)
2006	186.9	8.601	-0.480	0.0896	14.53	2.841
2007	196.3	8.952	-0.260	0.0806	15.50	3.040
2008	207.2	9.240	-0.420	0.132	15.54	3.099
2009	217.4	9.660	-0.460	0.187	15.30	3.215
2010	226.3	9.858	-0.240	0.251	15.43	3.387
2011	236.6	10.01	-1.220	0.253	15.51	3.424
2012	247.1	10.19	-0.180	0.234	15.33	3.190
2013	257.6	10.50	0.320	0.198	14.89	2.933

The first column of the top panel shows the total number of immigrants as measured by Matrículas Consulares, in each year of the sample. The rest of the columns in the top and bottom panels show variables measured at the US or Mexican state level, averaged across all states. There is substantial variation in most variables across time. See the data appendix for the spread across space, and time and space.

3 Empirical Specification and Identification

3.1 Empirical Specification

The main empirical specification is

$$\log(Matr_{ijt}) = \alpha_0 + \beta_1 X_{it} + \beta_2 X_{jt} + \delta_t + \gamma_{ij} + \phi_{ij} Zero + \beta_3 Pop_{it} + \beta_4 Pop_{jt} + \epsilon_{ijt} \quad (1)$$

Where $Matr_{ijt}$ is the number of MCs in year t from Mexican state i who immigrated to US State j . X_{it} and X_{jt} are the push and pull factors for Mexican and US states, respectively. Thus, β_1 and β_2 represent the coefficients of interest. The specification includes the fixed effects for time (δ_t) and state-to-state pair (γ_{ij}). Each specification uses the natural log of the number of Matrículas Consulares issued in each year to individuals from Mexican state i to US state j . The specifications

also include controls for state population and percentage of foreign born residents as additional controls ($\beta_3 Pop_{jt}$). Given the adjustment (natural log) to the dependent variable, all specifications account for zeroes in the outcome variable by filling these observations with a positive value artificially and then using a dummy to control for these manual changes and thus capture the impact on the intensive margin. Fewer than ten percent of all observations (state-to-state by year pairs) have zero migrants and the results are robust to dropping the zero observations (Appendix D), assuaging concerns about using a log-linear model with a small number of zeroes. The log-linear model will help mitigate the overly influential effects of a few states as the data is right-skewed. Following the literature on pair-structured analysis, standard errors are clustered at the state-to-state pair.

I also include a model that uses a cumulative policy index to account for the fact that the fixed effects control for the policy environment in the state prior to the start of the study period but within the study period new laws are added and the whole environment may impact individual migration decisions in a given year. The cumulative index is equal to the index value from the current year, plus the sum of the index value from all previous years within the period (to 2006). The policy variable, included in X_{jt} , is equal to $\sum_{p=2006}^t I_{jp}$, where I_{jp} is the policy index for a given year, calculated as described in the previous section.

While characteristics at a more local level, such as county or city, likely have an even bigger impact on migration decisions, I am limited by available data. State level characteristics, especially regarding policies, are also an important factor and we can still draw critical conclusions from estimating these effects.

I follow this main analysis by breaking results down into push and pull factors. The goal of this analysis is to show that even when considered on their own, each of these variables is an important determinant of undocumented migration. An example of these empirical specifications below focuses on US economic conditions:

$$\log(Matr_{ijt}) = \alpha_0 + \beta_1 X_{jt} + \delta_t + \gamma_{ij} + \phi_{ij} Zero + \beta_3 Pop_{jt} + \epsilon_{ijt} \quad (2)$$

This specification is very similar to above but now X_{jt} would refer just to US economic conditions. When assessing just the US or Mexican factors, I still include pair fixed effects to control for network effects and the observations of the dependent variable are still state-to-state flows, so standard errors are clustered at the pair level. I also show in Table F2 that results are robust to using just US state and MX state fixed effects, rather than the pair fixed effect, and using a twoway clustered standard error at the US and MX state level, rather than clustering at the pair level. Subsequent specifications are identical except X will reflect policy environment in the US, then economic conditions in Mexico, and then societal conditions in Mexico. I run these sets of regressions first separately by country and independent variable group (economic, social, political), to clearly show these different impacts on undocumented immigration from Mexico. The analysis will walk through the various theoretical drivers to study each carefully on their own and then present their simultaneous impact. This also helps build our overall understanding since one may be concerned the main regression considering all push and pull factors together suffers from possible collinearity. This is unlikely in this setting since, while variables may be correlated, the conceptual framework supports the importance of each unique variable considered and there is a logical foundation for why they would together impact immigration decisions. Nonetheless, this paper presents factors one at a time first to highlight each of the factors of immigration studied with this administrative data set and paired fixed effect strategy.

The main analysis followed by estimating the individual pieces provides the broadest evidence of the correlations between various conditions and immigration inflows.

3.2 Identification

It is possible that there are underlying and unobservable characteristics influencing immigration flows outside of the economic and political factors of interest. First, national level policy changes are occurring throughout the period though these are not a concern upfront. These policies apply to all potential, undocumented Mexican immigrants to the US and are controlled for by a year

fixed effect. This assumption is reasonable given the relatively narrow category of migrant I am considering. Fixed characteristics of U.S. and Mexican states, that may be unobservable, which influence immigration flows are absorbed by state fixed effects. Finally, network effects likely play an important role¹². The Matrículas Consulares data helps alleviate that problem because it allows for the construction of pairwise fixed effects. This can control for the component of the network effect that is time invariant and due perhaps to a fixed demand for workers in certain sectors or with certain skills, the presence of more permanent immigrants who provide support, or family reunification.

The main exogenous economic determinant is the wage in the US, proxied by the state level minimum wage, as new, undocumented immigrants likely earn low wages (Hall et al., 2010; Borjas and Cassidy, 2019; Capps et al., 2007). Minimum wages are dictated by laws and often without much consideration for specific populations, especially undocumented immigrants. Other specifications include average wages across various sectors and the state median income. In Mexico, wages are measured by minimum wage, as well as average daily salary in the formal sector and GDP per capita. The number of undocumented immigrants from/to a particular state in a particular year is unlikely to have a direct impact on average wages as this is overall a small population relative to the size of these states and prior research (such as Card (1990); meta-analysis Peri (2014)) find little effect of migration on wages in host country. This same logic applies to measures of insecurity such as homicide rate in Mexican states. If anything, a decrease in population due to outmigration could increase wages in Mexico (by decreasing labor supply) and decrease wages in the US which would bias results towards zero since we would expect low Mexican and High US wages to increase migration and the small potential bias would work against that. To address this, main specifications use minimum wage as a proxy for earnings as this is more likely to be dictated by larger political forces and not changes in one particular population. The potential bias

¹²Immigrants are more likely to move to areas where many other migrants, especially those from the same area, have settled (Docquier et al., 2014). The success of earlier migrants is a signal to potential migrants that they may succeed in that destination. Networks also provide support and can help new immigrants get settled and find jobs (Munshi, 2003). People may also be moving towards family and friends who went earlier (Orrenius and Zavodny, 2009). These network effects may have the largest influence on immigration decisions and thus in naive analysis could be a serious confounding element to understanding how economics and politics influence migration decisions (Massey et al., 1994; Garip and Asad, 2015)

is similar for homicide rates; if out-migration decreases homicide rates by reducing the size of the population vulnerable to violence then results would be biased towards zero as lower homicide rates would appear correlated with higher migration. If, on the other hand, homicide rates mechanically increase when population decreases due to a shrink in the denominator this could bias results towards a stronger positive impact of homicide rates on migration. Though likely a minor impact, robustness checks presented in Table ?? confirm that results are consistent with lagged homicide rates as well.

Unemployment rates, which can indicate job availability, could potentially be endogenous if included contemporaneously (Harris and Todaro, 1970). Therefore, main results are presented with just wages, policy (instrumented), and homicide statistics as theory predicts these will exogenously impact immigration decisions. Job availability is still important for potential undocumented immigrants so specifications including lagged state unemployment rate are also included in the main results tables. Table D1 in Appendix D includes contemporaneous unemployment rate and results are the same.

Another potential concern is the time between arrival and actually receiving an MC as well as the potential for an immigrant to continue moving within the US after first arrival and receipt of the card. As Cadena and Kovak (2016) note, immigrants are more mobile than native-born populations and move away from areas with poor job market outcomes more frequently during the Great Recession. Internal movement is an important aspect of immigrant settlement patterns but further work on this is beyond the scope of this analysis. I focus on moves from Mexico to the US, which relies on a few key assumptions. First, that immigrants apply for a card in the place they actually settle, which seems reasonable given previously discussed details of the card, and while they may move again years later due to changes in economic conditions, this analysis focuses on first move to the US and the potential determinants of the decision at that time. Second, they reach this location the same year they leave Mexico since I am associating current year political, social and economic factors with migration choices. The cards in the data set are mostly new issues so it is unlikely many people in this data have been in the US for years and Caballero et al. (2018) confirm the patterns in this data are similar to those in other data sources. Also, results are robust to using

prior year data which helps manage some concerns about the timing of arrival and applying for the card. Second, other data sources, such as the American Community Survey include specific information on year of arrival but have other shortcomings such as only indicating if an immigrant is from Mexico which severely limits the quality of fixed effect analysis and limits the possibility of considering different push factors. I also considered using data from the Mexican Migration Project but this survey is only conducted in Mexico with reports on past US trips, and in certain, high-migration areas, which affects the types of immigrants covered in the data. Finally, I check rates of internal movement for Mexican immigrants in the US surveyed in ACS data from 2006 to 2013 and find that less than two percent of Mexicans surveyed in the US had moved internally across state lines within the past year. That increases to about 2.3% if I only include Mexicans who immigrated to the US in within four years before they were surveyed in the ACS (Ruggles et al., 2020). This is reassuring as it appears many immigrants to the US from Mexico, including recent immigrants, remain for some time in the same state, suggesting these are at least relatively permanent destination decisions. Overall, the strengths of the Matrículas Consulares data support its use even though certain assumptions are necessary.

Additionally, this research does not specifically focus on the impact of changes in ICE enforcement and deportations, which are determined by the federal government (and thus partially captured by annual fixed effects) but may be easier to carry out in certain states. It is possible that deportations increase alongside more generous new policies, for example if a state offsets strict enforcement with more generous laws for documented immigrants, which I discuss in Section 5. As a further check on this potential confounding influence, I use the TRAC database of ICE removals (Syracuse University, nd) to assess the relationship between the policy index and removals from all states and years. If a higher index (more generous environment) is associated with more deportations then this could potential confound results as immigrants may react to ICE enforcement but appear to be reacting to the policy environment. First, I find an unconditional correlation of just 0.039 between deportations and the policy index and I find no statistically significant or meaningful relationship between the index value and ICE removals (Table G2). This helps assuage any concerns that results are driven by other immigration enforcement.

Immigration policy environment is likely endogenous in this setting as laws may be designed precisely because of the undocumented immigration flows and since the measure of undocumented immigrants is the number of Matrículas Consulares issued. Some laws covered by the policy index specifically reference such cards, such as laws that allow MCs to be used to obtain a driver's license. Thus some states may have more card holders because of laws that reference the cards and application behavior may change over the course of the period due to new laws which change the incentive to apply for a card. Still, undocumented immigrants are present in every US state and MCs are consistently issued all throughout the country, whether or not a state recognizes them as valid identification, because of the other benefits these cards offer and their promotion by the Mexican government. To address these issues of endogeneity, I use an instrumental variable strategy. The instrument is the state prison population per 100,000 people¹³ as states with stricter law enforcement in general are likely to have strict immigration policy. The use of local law enforcement data to instrument for immigration policy was previously used in Ifft and Jodlowski (2016). First stage results and F-statistics (typically over 100) show this is a strong instrument for the policy index.

To address the exclusion restriction, first note that the state prison population per 100,000 state residents itself is unlikely to directly affect the measure of immigration flows as most people are unaware of the specific number of incarcerated people in a state and are instead much more familiar with the relevant legal environment. One concern may be that the prison population reflects high US crimes rates which may impact immigration flows. First, I argue that, especially in the US with its severe sentencing procedures, the size of the prison population is heavily dependent on crimes that happened decades ago and large prison populations reflect the harshness of the legal environment, which is what I need to capture, because at any given moment the prison population will be larger if convicted individuals were given long sentences. Additionally, it is unlikely that immigrants are motivated to move towards states with higher crime as more immigration is associated with lowering crime rates and those with criminal records cannot obtain an MC (Adel-

¹³Data from Aiken, Joshua. Era of Mass Expansion: Why State Officials Should Fight Jail Growth. Table 4. Prison Policy Initiative. 2017. Available at https://www.prisonpolicy.org/reports/jailsovertime_table.4.html

man et al. (2017); Flagg (2019) for summary of various empirical reports). Immigrants may be deterred by higher crime rates in US states as well though the relevant crime rate for an immigration decision is likely more local rather than in the overall state. If anything, this would bias results upwards as people may move towards states that have low crime rates. Reassuringly, Foote (2015) finds only very small impacts of crime rates on net-migration in the US, with small and insignificant results regarding a decrease in in-migration to US metropolitan statistical areas in response to crime rates. Still, I include some specifications that control for US state crime rates as well; results are qualitatively unchanged. Further, this paper only considers enforcement as it relates to the laws written in that year (i.e. increased budgets, new task forces, but does not account for number of arrests or deportations). More intense police enforcement could lead to a higher prison rate and could be related to immigration enforcement though these are separate proceedings carried out by ICE. Undocumented immigrants may therefore be deterred from places with high prison rates if this is related to ICE activity. This would bias our results upwards. The size of a state's prison population per 100,000 residents likely only affects undocumented immigration, as measured by MCs issued, through its relationship with stricter immigration policy.

4 Results and Discussion

4.1 Main Results

The first set of results, presented in Table 2 identifies the main determinants on inflows of likely undocumented Mexican immigrants. This analysis simultaneously considers the economic and socio-political push and pull factors to understand how they jointly impact migration decisions. Table 2 considers the key factors including US unemployment rate and minimum wage, the instrumented main policy index, and the unemployment and homicide rates in Mexico. First stage results are presented in Appendix E, Table E1, but the K-P F statistic is generally very high, and is over 200 for main results. It is important to consider these together as a potential migrant faces these conditions simultaneously.

Columns 1 and 2 show all the main critical factors together; the Mexican minimum wage is excluded since the zone assignments of the minimum wage do not work well with this state-to-state analysis, as discussed above. Instead, I measure earnings in Mexico with the average daily wage for workers covered by social security programs. This is also not necessarily reflective of the actual earnings of a potential immigrant since fewer than half of all Mexican workers are actually covered by social security. Higher local wages in Mexico have the expected negative impact on out-migration but these findings are insignificant, perhaps because this is not a good measure of the actual earnings of those considering leaving Mexico.

Columns 1 and 2 includes a separate interaction of California as a destination with the policy index to see whether the policy environment in this state, which attracts the most undocumented immigrants and has consistently one of the most generous policy environments, has a unique impact on migration decisions. Columns 3 through 6 does not include this interaction. I find that policy has an insignificant impact on migration flows, including in California, but high homicide rates in Mexico push migration while high earnings in the US pull migrants. In column 3, there is a weakly significant but negative coefficient the policy index which suggests that, if anything, more generous environments attract fewer immigrants. A one unit increase in policy generosity towards immigrants, is associated with about 4% fewer immigrants to that state.

Columns 2 and 4 present the same analysis with a measure of relative average wages, calculated by dividing the US wage (in dollars per day) by the Mexican wage (in pesos per day), though in general this is not an ideal way to capture relative wages as the exchange rate and cost of living vary. The policy environment becomes marginally significant but still negative, suggesting that if anything the more generous environments attract fewer immigrants. Homicides remain a significant push factor, as does the economic variable, this time showing that higher US wages relative to Mexican wages leads to more migration.

Column 5 includes the lagged unemployment rates from the US and Mexico, showing that higher unemployment in the US shrinks flows while higher unemployment in Mexico increases flows, as expected. Column 6 is identical to column 5 except that this is an OLS regression and I do not instrument for the policy variable to show that all economic factors and homicide in Mexico

maintain their significant results and the policy index shows no significant impact on migration flows, though the positive coefficient may be due to the potential positive correlation between the index and the decision for an immigrant to go and get an MC. Additional examination into the policy index using both OLS and 2SLS analysis is present below in Table 6.

Table 3 converts the covariates used in the main specification into standardized units. US minimum wage and Mexican homicide rate maintain their significant impacts on migration decisions and lagged unemployment variables have the expected, significant results. Higher unemployment rates in the US lead to less migration while higher unemployment rates in Mexico lead to more migration out. Again the results are similar when using an OLS regression rather than instrumenting for the policy analysis.

Economic conditions in US states appear to play a bigger role in influencing migrants decisions. Column 6 shows that a one standard deviation increase in US wages increases immigration flow by more than any other determinant considered. Unemployment rate is the has the greatest impact on the Mexican side. Average daily salary of registered workers has the expected negative impact, showing that higher local wages are associated with less out-migration, but the result is insignificant.

I find that undocumented immigrants head to areas where more, better, jobs are available. As predicted, higher wages, measured by state minimum wage, attract potential migrants, though it is not necessarily the change in minimum wage law that is directly impacting immigration decisions but rather the lighthouse effect this wage standard can have for various low-paying jobs. Thus, it captures at least part of what immigrants likely expect to earn in jobs in the US, which influences migration decisions. New undocumented immigrants typically end up working in lower paying jobs since they tend to have less education than the native-born US and documented immigrant populations (Pew Research Center, 2019b) and are often restricted to jobs in certain low-wage sectors due to a variety of factors potentially including: immigration laws which make it difficult for undocumented workers to advance, uneven enforcement of immigration law, recruiting and network effects (or lack thereof in certain sectors) especially for new arrivals, the legacy of past worker migration programs, and fewer work opportunities in the home country thus lowering

Table 2: Main Results: Push and Pull Factors of Undocumented Immigration

	(1)	(2)	2SLS (3)	(4)	(5)	OLS (6)
	Ln(Matriculas Consulares)	Ln(Matriculas Consulares)	Ln(Matriculas Consulares)	Ln(Matriculas Consulares)	Ln(Matriculas Consulares)	Ln(Matriculas Consulares)
US State Policy Index	-0.0572 (0.0308)	-0.0669 (0.0330)	-0.0439 (0.0192)	-0.0453 (0.0193)	-0.0236 (0.0187)	0.00186 (0.00189)
CA x Policy Index	0.0492 (0.0302)	0.0496 (0.0318)				
MX state Homicide Rate (homicides/thousand)	0.140 (0.0376)	0.147 (0.0382)	0.140 (0.0375)	0.147 (0.0379)	0.110 (0.0373)	0.110 (0.0395)
US State Minimum Wage	0.106 (0.0151)		0.0934 (0.0141)		0.0733 (0.0136)	0.0753 (0.0147)
Relative Daily Wage (US/MX)		1.183 (0.261)		1.175 (0.259)		
Lagged US State Unemployment Rate (t-1)					-0.0679 (0.00636)	-0.0681 (0.00676)
Lagged MX State Unemployment Rate (t-1)					0.0267 (0.00837)	0.0267 (0.00888)
Observations	12800	12800	12800	12800	12800	12800
Pair FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Population Controls	Yes	Yes	Yes	Yes	Yes	Yes
Dummy for Zeroes	Yes	Yes	Yes	Yes	Yes	Yes

Standard errors in parentheses

All models control for state-to-state pair fixed effects and year fixed effects, as well as population, and foreign born population. The dependent variable in all specifications is the natural log of the number of new immigrants registered in the state pair and year. Columns 1 through 5 are the second stage results of 2SLS IV regression. Relative Daily Wage are calculated by dividing US weekly wages in all sectors by 5 days per week and then calculating the ratio over Mexican average daily wages in the formal sector. These variables are presented as USD/pesos. Column 6 presents OLS results. All models are estimated on a balanced panel of 12800 state-state pairs, covering 32 Mexican States to 50 US States from 2006 to 2013. Standard errors are clustered at the pair level.

one's reservation wages (Pfeffer and Parra, 2009; Orrenius and Zavodny, 2009; Martin and Calvin, 2010; Weisbrot et al., 2017). Higher state minimum wage laws may also lead employers to pay under the table, which could increase the number of undocumented immigrants hired as these workers have less power to bargain for higher wages or file minimum wage violation complaints. These results provide evidence that undocumented immigrants are economically motivated and seem to move to the US in search of better available job opportunities.

Undocumented immigrants are not just economically motivated. I find that homicide rates in

	2SLS (1) Ln(Matriculas Consulares)	OLS (2) Ln(Matriculas Consulares)
Standardized values of US Policy Index	-0.0324 (0.0367)	0.00419 (0.00375)
Standardized values of MX Homicide Rate	0.0233 (0.00794)	0.0233 (0.00843)
Standardized values of US Unemp. Rate (t-1)	-0.121 (0.0135)	-0.121 (0.0142)
Standardized values of US Min. Wage	0.0818 (0.0122)	0.0830 (0.0132)
Standardized values of MX Unemp. Rate (t-1)	0.0438 (0.0138)	0.0438 (0.0147)
Standardized values of MX Average Daily Salary	-0.0314 (0.0459)	-0.0314 (0.0492)
Observations	12800	12800
Pair FE	Yes	Yes
Year FE	Yes	Yes
Population Controls	Yes	Yes
Dummy for Zeroes	Yes	Yes

Standard errors in parentheses

All models control for state-to-state pair fixed effects and year fixed effects, as well as population, and foreign born population. The dependent variable in all specifications is the natural log of the number of new immigrants registered in the state pair and year. Column 1 presents the second stage results of 2SLS IV regression. Column 2 presents OLS results. All independent variables are standardized so the results are the impact of a one standard deviation change in the independent variable. All models are estimated on a balanced panel of 12800 state-state pairs, covering 32 Mexican States to 50 US States from 2006 to 2013. Standard errors are clustered at the pair level.

Table 3: Main Results with Standardized Values

Mexico consistently lead to an increase in out-migration. Areas of high crime may have weaker local economies but the homicide results are consistent when controlling for economic conditions in Mexico. These findings can suggest that violence has a direct impact as well, complicating the narrative that undocumented immigrants are just moving for jobs and are a wholly separate group than asylum seekers.

The policy environment in general has a weakly significant negative effect. Appendix E Table E3 shows the 2SLS results with other definitions of the policy index, one which includes just the

years 2006 to 2011, so the scope assignment was done by Monagan (2013) for all observations, and then one that includes laws with scope 2 through 4 and then another that includes all laws (still weighted the same). The results are all consistent with the findings presented here; there is no evidence that generous policy environments, at least at the state-level, attract more immigrants.

Table 4 uses the cumulative policy index described at the end of the empirical specification section. Column 1 is the OLS specification while columns 2 and 3 use the prison population instrument and columns 4 and 5 are the first stage of these estimations. The results are in line with previous findings, reiterating that a more expansive policy environment is not found to have an important or positive impact on inflows. Meanwhile, homicides and unemployment in Mexico continue to demonstrate an impact on out-migration, while higher wages and lower unemployment in the US attract more immigrants.

4.2 The Role of US Economic Conditions

Since I look at multiple potential determinants at once, it may be difficult to declare causation; the following analysis considers US and Mexican factors separately, and presents results when just considering economic factors, policy, or crime rates. The results suggest that many of these factors have a causal relationship with immigrant decisions and altogether there are strong correlations between all these factors and immigration decisions. This analysis will also consider variables capturing the strength of a US state's economy besides minimum wage and unemployment.

The next set of results, presented in Table 5, highlights just the economic factors in US states, that lead to higher inflows on likely undocumented Mexican immigrants.

This analysis builds from Columns 1 and 2, first looking just at the impact of the US state-level wages on immigration decisions. There is a strong positive relationship between wages and immigration inflows, which is consistent with the results in the main models. Results are qualitatively similar (and statistically significant) when using the natural log of the minimum wage as well (Table D2). Columns 3 through 5 use different measures of US potential earnings and the results are qualitatively similar. Average weekly wages in construction and retail have small, positive

Table 4: Main Results with Cumulative Index

	2nd Stage			1st Stage	
	(1) Ln(Matriculas Consulares)	(2) Ln(Matriculas Consulares)	(3) Ln(Matriculas Consulares)	(4) Cumulative Policy Index	(5) Cumulative Policy Index
Cumulative Policy Index (US State)	0.000241 (0.000856)	-0.0469 (0.0262)	-0.0204 (0.0237)		
MX state Homicide Rate (homicides/ thousand)	0.140 (0.0391)	0.145 (0.0398)	0.111 (0.0373)	0.115 (0.439)	0.0362 (0.441)
US State Minimum Wage	0.103 (0.0152)	0.0971 (0.0155)	0.0894 (0.0138)	0.00776 (0.134)	0.00381 (0.135)
Mexican State Average Daily Salary (pesos)	-0.00194 (0.00126)	-0.00133 (0.00127)	-0.000501 (0.00126)	0.0130 (0.0103)	0.0160 (0.0110)
Lagged US State Unemployment Rate (t-1)			-0.0514 (0.00579)		-0.0272 (0.0524)
Lagged MX State Unemployment Rate (t-1)			0.0281 (0.00853)		0.0698 (0.0790)
Prison occupants per 100,000 residents				-0.0123 (0.00296)	-0.0125 (0.00297)
Observations	12800	12800	12800	12800	12800
Pair FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Population Controls	Yes	Yes	Yes	Yes	Yes
Dummy for Zeroes	Yes	Yes	Yes	Yes	Yes

Standard errors in parentheses

All models control for state-to-state pair fixed effects and year fixed effects, as well as population, and foreign born population. The dependent variable in all specifications is the natural log of the number of new immigrants registered in the state pair and year. Column 1 presents OLS results, columns 2 and 3 are the second stage results of 2SLS IV regression, using a policy index variable that accumulates over the years of study (from 2006 to 2013). All models are estimated on a balanced panel of 12800 state-state pairs, covering 32 Mexican States to 50 US States from 2006 to 2013. Standard errors are clustered at the pair level.

impacts on immigration, while agricultural wages have a small negative effect. These results by sector are either insignificant or marginally significant, likely because they only impact the few immigrants who work in those fields. When not controlling for minimum wage, average wage in all sectors does have a negative impact on immigration flows but this could be picking up differences in cost of living and areas with higher costs of living likely deter new immigrants. This broad measure of US wages also likely doesn't reflect earnings of new undocumented immigrants, who are likely concentrated in low earning jobs, well.

Columns 6 and 7 introduce a one-year lag measure of state unemployment. The impact is

Table 5: US Economic Conditions and Immigration

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Ln(Matriculas Consulares)	Ln(Matriculas Consulares)	Ln(Matriculas Consulares)	Ln(Matriculas Consulares)	Ln(Matriculas Consulares)	Ln(Matriculas Consulares)	Ln(Matriculas Consulares)
US State Minimum Wage	0.103 (0.0153)		0.103 (0.0153)	0.103 (0.0158)		0.0918 (0.0148)	
US State Median Income in thousands of dollars		0.00565 (0.00171)					
Average Weekly Wage, all sectors (US state, thousands of dollars)			-0.0409 (0.430)		-3.381 (0.587)		
Average Weekly Wage, agriculture (US state, thousands of dollars)				-0.0928 (0.0700)	-0.0283 (0.0696)		
Average Weekly Wage, construction (US state, thousands of dollars)				0.498 (0.215)	1.252 (0.263)		
Average Weekly Wage, retail (US state, thousands of dollars)				1.823 (0.838)	4.436 (0.821)		
Lagged US State Unemployment Rate (t-1)						-0.0517 (0.00609)	-0.0545 (0.00614)
Lagged US State Minimum Wage (t-1)							0.0899 (0.0121)
Observations	12800	12800	12800	12800	12800	12800	12800
Pair FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Population Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Dummy for Zeroes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Standard errors in parentheses

All models control for state-to-state pair fixed effects and year fixed effects, as well as population, and foreign born population. The dependent variable in all specifications is the natural log of the number of new immigrants registered in the state pair and year. Column 1 shows the main specification where US wages are proxied by state minimum wage level. Subsequent columns add additional measures of US wages. Columns 6 and 7 show the effect of one-year lagged measures of unemployment rate and minimum wage. All models are estimated on a balanced panel of 12800 state-state pairs, covering 32 Mexican States to 50 US States from 2006 to 2013. Standard errors are clustered at the pair level.

negative and significant, as expected since higher unemployment rates are likely unattractive to potential migrants. Lagged minimum wage is also exhibits a strong, positive relationship with undocumented immigration. Appendix D presents similar results using measures of overall state employment and employment in the sectors specified as alternative measures of employment opportunities. The results are qualitatively similar.

Broadly, these results confirm the main results. Economic factors in the US have an impact on undocumented migration, with more people flowing towards areas with stronger economies. These results also show that the main results are not an artefact of having many controls.

4.3 Role of US Policy

Table 6 presents the results for the US state policy index. The first set of results shows the OLS specifications, which may be biased since immigrant communities can influence state political decisions and I am using the MC applications as the measure of undocumented immigrants. The final column presents the second stage results from an IV regression, using the prison population per 100,000 state residents to instrument for the policy index and for the index interacted with a state of California dummy. California is home the most undocumented immigrants and has one of the most liberal policy environments and we still see the relationship between policy and immigration flow is net negative, and probably not different from zero. The Kleibergen-Paap F statistic to test for weak identification is 76.881, well over various critical values. Columns 2 and 3 assign each state an index value calculated only by including laws that expand the rights of immigrants or restrict the rights of immigrants respectively. Columns 5 and 6 use a slightly different version of the index that also considered positive and negative environments separately by taking into account the fact that in any given year a state has some laws that expand immigrants' rights and some that restrict them. States are split up by whether their net policy index value is positive or negative, net zero states are excluded. Table G1 shows the results when considering indices constructed for different types of laws. The results are consistent with all main results presented here and there is no consistent evidence that a more generous immigration policy in any particular

category of laws attracts additional immigrants.

4.4 Discussion on All Pull Factors

The analysis in Table 7 considers all the important potential pull factors of immigration, using 2SLS estimation to again instrument for the policy index¹⁴. The main result in column (1) shows a weakly negative relationship between a more expansive immigration policy environment and new undocumented immigrants. A one dollar increase in state minimum wage, increases new arrivals by ten percent, and this result is highly statistically significant. Column 2 controls for US state violent crime rate and finds that higher US crimes rates decrease immigration into that area. The key point of this column though is to show that the main results are unchanged. One may worry that the exclusion restriction of the instrumental variable is violated if US prison population reflects contemporaneous crime rates and those directly influence migration. Controlling for this pathway confirms earlier results. Finally, columns 3 and 4 include the lagged unemployment rate. The policy index effect for California, included in Column 4, becomes slightly positive but is indistinguishable from zero.

Previous research (Allen et al., 2018; Caballero et al., 2018; Lessem, 2018) has shown that specific laws designed to deter immigration or more serious enforcement have the expected negative impacts on immigration flows, but this research shows that the general hostility or generosity towards immigrants of a state's policies has little impact on migration decisions, particularly outside of California. This is consistent with using a cumulative measure of the laws in each year (including laws from previous years that are still in effect). The main policy index, where states with laws aimed positively at immigrants have higher values, actually has a weakly significant, negative impact on immigration inflows. Examining this further is beyond the scope of this research at present but one concern may be residual endogeneity if states that have declining immigration rates and are intentionally trying to attract migrants with certain policies. Appendix F includes specifications that exclude states with typically low undocumented immigration flows like Vermont and

¹⁴First Stage Results available in Appendix E Table E2, first stage test statistics for weak identification for main specifications are typical over 200.

Table 6: US Policy Index

	OLS			2SLS		
	(1)	(2)	(3)	(4)	(5)	(6)
	Ln(Matriculas Consulares)	Ln(Matriculas Consulares)	Ln(Matriculas Consulares)	Ln(Matriculas Consulares)	Ln(Matriculas Consulares)	Ln(Matriculas Consulares)
US State Policy Index	0.00161 (0.00189)					-0.0931 (0.0332)
US State Policy Index (positive only)		0.00552 (0.00325)				
US State Policy Index (negative only)			-0.000418 (0.00232)			
Value of Policy Index if Net Positive				-0.000454 (0.00272)	-0.00432 (0.00443)	
Absolute Value of Policy Index if Net Negative				-0.00257 (0.00242)	-0.00291 (0.00244)	
State = CA x Value of Policy Index					0.00867 (0.00529)	
CA x Policy Index						0.0721 (0.0320)
Observations	12800	12800	12800	12800	12800	12800
Pair FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Population Controls	Yes	Yes	Yes	Yes	Yes	Yes
Dummy for Zeroes	Yes	Yes	Yes	Yes	Yes	Yes

Standard errors in parentheses

All models control for state-to-state pair fixed effects and year fixed effects, as well as population, and foreign born population. The dependent variable in all specifications is the natural log of the number of new immigrants registered in the state pair and year. Column 1 shows the main OLS specification where the independent variable of interest is the value of the policy index, constructed as described in Section 2.1. Subsequent models use variations on the index; either using only pro- or anti- immigrant legislation, separately considering the impact of a net positive and net negative policy environment, and interacting the policy variable with California, the state with the most undocumented immigrants and generally most progressive legal environment. Column six presents the second stage results from a 2SLS regression instrumenting the policy index with prison population per 100,000 residents. All models are estimated on a balanced panel of 12800 state-state pairs, covering 32 Mexican States to 50 US States from 2006 to 2013. Standard errors are clustered at the pair level.

Table 7: US Factors of Immigration (2SLS)

	(1)	(2)	(3)	(4)
	Ln(Matriculas Consulares)	Ln(Matriculas Consulares)	Ln(Matriculas Consulares)	Ln(Matriculas Consulares)
US State Policy Index	-0.0372 (0.0187)	-0.0439 (0.0193)	-0.0162 (0.0184)	-0.0310 (0.0297)
US State Minimum Wage	0.100 (0.0141)	0.0934 (0.0142)	0.0907 (0.0136)	0.0951 (0.0146)
Violent Crime rate per 100,000 residents		-0.000557 (0.000184)		
Lagged US State Unemployment Rate (t-1)			-0.0514 (0.00579)	-0.0529 (0.00578)
CA x Policy Index				0.0379 (0.0294)
Observations	12800	12800	12800	12800
Pair FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Population Controls	Yes	Yes	Yes	Yes
Dummy for Zeroes	Yes	Yes	Yes	Yes

Standard errors in parentheses

All models control for state-to-state pair fixed effects and year fixed effects, as well as population, and foreign born population. The dependent variable in all specifications is the natural log of the number of new immigrants registered in the state pair and year. Table presents second stage results from a 2SLS regression instrumenting the policy index with prison population per 100,000 residents. Column 1 is the main specification and subsequent columns add additional economic factors and an interaction of the policy variable with California. Column 2 controls for violent crime rate in the US state to address any concern about the exogeneity of the the instrument. First stage results are available in Appendix B. The F statistic for weak identification is over 230 for main models. All models are estimated on a balanced panel of 12800 state-state pairs, covering 32 Mexican States to 50 US States from 2006 to 2013. Standard errors are clustered at the pair level.

the results are highly consistent with the findings here.

It is possible that potential migrants may be more aware of extremely harsh laws since some of these are widely published (Hoekstra and Orozco-Aleman, 2017), or know of family's and friend's experiences with ICE raids. Thus, people may react to anti-immigrant legislation more than the less tangible pro-immigration legislation.

It may be that more expansive immigration policies are tied to stricter enforcement of the existing restrictive laws or anti-immigrant sentiments in the community, but this investigation is

reserved for future research. As a preliminary check, Table G2 demonstrates the relationship between ICE removals and the policy index and the relationship is statistically insignificant and actually negative (meaning the more generous environment is correlated with fewer deportations) when controlling for state and year fixed effects to account for changes in national policy and the fact that states with more immigrants naturally have more deportations. Even without any controls, the relationship is insignificant, offering supportive evidence that the main findings here are not driven by confounding differences in immigration enforcement activity. Another possibility is that pro-immigrant laws may become more common in places becoming more expensive, such as New England or the Mid-Atlantic region. Housing and cost of living in these areas may be prohibitively expensive for new immigrants and this underlying effect is not captured by the data. Cebula et al. (2013) find that immigrants are less likely to settle in areas with high costs of living.

Overall, these results suggest that undocumented immigrants are motivated by other factors and are not more likely to migrate towards states that add new laws that expand the rights of immigrants. This is closely related to the idea of a welfare magnet, where some hypothesize that a more generous welfare state will attract a large number of needy people, possibly overwhelming the system. This issue has come up in the US immigration law debate before, with some suggesting that immigrants use an outsize proportion of public assistance and will move towards states that provide more aid (Pena, 2014; Lowrey, 2019). This has led to state level efforts to explicitly prevent immigrants, especially undocumented immigrants, from receiving public benefits; many of those laws are captured in the policy index. But, Pena (2014) compares the propensity to locate in more generous areas of undocumented welfare users and non-users to native welfare users and non-users, and finds no evidence that migration patterns of undocumented immigrants in the US are driven by welfare generosity. The findings here could support a similar conclusion; while these laws are certainly important to immigrants already present, I find no evidence that more pro-immigrant legislation attracts greater flows of undocumented immigrants from Mexico.

4.5 Role of Mexican Economic Conditions

The analysis in Table 8 now moves to possible economic push factors, including the Mexican state-level minimum wage, and average daily salary. Significant outmigration from a state could mechanically impact the unemployment rate so again, main results do not consider unemployment rate, though I show specifications with lagged unemployment rate.

Columns 1 through 4 include different attempts to capture the earnings of potential leavers. In column 1, higher minimum wages in Mexico appear to have a potentially counterintuitive positive effect on outmigration but this may be due to mismeasurement and lack of variation in the data, which is discussed in the data section. In column 2 higher GDP also appears to have a positive (though not significant) impact on migration. This may be too blunt a measure to capture likely earnings. The positive coefficient may also reflect that undocumented immigrants are often selected from the middle of the income distribution as the poorest are not able to afford to migrate. Higher average daily salary, included in columns 3 and 4, has negative impact on out migration, but is also insignificant. The average daily salary only includes the earnings of workers registered with the Social Security agency in Mexico (Spanish acronym IMSS). Many potentially undocumented workers may be working in the uncovered sector, as informal employment was near 60% of all workers in 2011 (ILO FORLAC, 2014). This average wage variable may not reflect the actual earnings of potential migrants, which is then what impacts migration decisions. Columns 5 and 6 show that higher previous year unemployment in Mexico consistently leads to higher rates of outmigration.

Compared with the US results, the economic pull effects appear to have a greater impact on the migration decision than the economic conditions in Mexico, which is in line with Mendoza and Ashby (2019); Table 2 confirms this assumption using standardized units for all variables.

4.6 Role of Social Factors in Mexico

In the last part of this separated analysis, I look at potential social/political factors that may push migrants out of Mexico. Specifically, I consider crime rates and Table 9 summarizes these findings.

Table 8: Mexican Economic Factors

	(1)	(2)	(3)	(4)	(5)	(6)
	Ln(Matriculas Consulares)	Ln(Matriculas Consulares)	Ln(Matriculas Consulares)	Ln(Matriculas Consulares)	Ln(Matriculas Consulares)	Ln(Matriculas Consulares)
Mexican State Minimum Wage	0.0586 (0.0245)		0.0561 (0.0245)			
Mexican State GDP per capita (in millions of pesos)		0.0882 (0.238)		-0.128 (0.260)		
Mexican State Average Daily Salary (pesos)			-0.00194 (0.00128)	-0.00243 (0.00137)		
Lagged MX State Unemployment Rate (t-1)					0.0336 (0.00873)	0.0327 (0.00872)
Lagged MX State Daily Salary (t-1)						-0.000590 (0.00136)
Observations	12800	12800	12800	12800	12800	12800
Pair FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Population Controls	Yes	Yes	Yes	Yes	Yes	Yes
Dummy for Zeroes	Yes	Yes	Yes	Yes	Yes	Yes

Standard errors in parentheses

All models control for state-to-state pair fixed effects and year fixed effects, as well as population, and foreign born population. The dependent variable in all specifications is the natural log of the number of new immigrants registered in the state pair and year. Minimum wage and other measures of Mexican wages are used in columns 1 through 4. Columns 5 and 6 include one year lags of the unemployment rate. All models are estimated on a balanced panel of 12800 state-state pairs, covering 32 Mexican States to 50 US States from 2006 to 2013. Standard errors are clustered at the pair level.

Considering just these crime variables, there is strong evidence that an increase of one additional homicide per 1000 people, leads to a fourteen percent increase in MCs from that Mexican state. This result is in line with Clemens (2017) who studies a larger region and the result suggests that the line between refugee and economic migrant is often blurred¹⁵. Individuals in the data move not just in reaction to economic characteristics, but because of violence in their home state as well.

In terms of push factors, the local homicide rate increases migration out of Mexico (Columns 1 and 4), indicating that local violence pushes people out of their home state. Similarly, violent crime has a positive impact on out-migration (Column 3, though insignificant). Though insignificant, the coefficient on crime rate is consistently negative which may appear counterintuitive, but, especially when already controlling for the homicide rate, the overall crime rate measures not just crime incidence, but also policing. Thus, the (insignificant) negative effect of crime rate may reflect that having a stronger police presence mitigates the need to migrate. These results are important to understand all the factors that contribute to undocumented immigration and that the "choice" to migrate may depend on economic factors but is also influenced by a person's safety, and thus may be less a choice than a necessity.

5 Conclusion

This paper summarizes the key push and pull factors influencing undocumented immigration to the United States in the 21st Century. I consider both economic and sociopolitical factors in the US and Mexico and use a unique data set that includes information on both state of origin and state of destination, to control for the important network effects determining immigration decisions. This analysis also considers the whole environment of policies that impact undocumented immigrants in the US rather than examining the impact of just one particular law, as many previous studies have done. This also allows me to analyze the effect of pro-immigrant legislation on immigration flows, a previously understudied factor.

In line with prior work, I find that both economic and sociopolitical factors influence immigra-

¹⁵See Long (2013); Mahajan and Yang (2020); Nair (2017)

Table 9: **Social Factors in Mexico**

	(1)	(2)	(3)	(4)
	Ln(Matriculas Consulares)	Ln(Matriculas Consulares)	Ln(Matriculas Consulares)	Ln(Matriculas Consulares)
MX state Homicide Rate (homicides/thousand)	0.142 (0.0397)			0.150 (0.0402)
MX state Crime Rate (crimes/thousand)		-0.00146 (0.00206)		-0.00250 (0.00209)
MX state Violent Crime Rate (violent crimes/thousand)			0.00521 (0.00737)	
Observations	12800	12800	12800	12800
Pair FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Population Controls	Yes	Yes	Yes	Yes
Dummy for Zeroes	Yes	Yes	Yes	Yes

Standard errors in parentheses

All models control for state-to-state pair fixed effects and year fixed effects, as well as population, and foreign born population. The dependent variable in all specifications is the natural log of the number of new immigrants registered in the state pair and year. Main specifications study the impact of crime rates on outmigration. Column 4 includes both homicides and crimes. Homicides are included in both crime and violent crime measures. All models are estimated on a balanced panel of 12800 state-state pairs, covering 32 Mexican States to 50 US States from 2006 to 2013. Standard errors are clustered at the pair level.

tion decisions. Economic conditions appear to be stronger as pull factors than push factors, with immigrant inflows strongly increased by low unemployment rates in the US and high minimum wages. Violent crime, and in particular homicides, is a significant push factor for outmigration from Mexican states, though the local unemployment rate matters as well. The more limited results on the impact of economic factors in Mexico may be surprising but I find that, for a potential undocumented immigrant, the potential gains in the US have a greater impact than marginal changes in opportunities at home. Other papers (Ashby et al., 2013) have used relative wages rather than actual wages and Mendoza and Ashby (2019) also finds no substantial effects of Mexican economic conditions on outmigration. There is room for further research into this dynamic.

This paper also shows that it is important to consider different measures of a policy environment. Though one might expect that a more welcoming policy environment would attract undocumented immigrants, this does not appear to be the case outside of California. This is relevant

for policymakers who may be considering the potential influx of new unauthorized immigrants when drafting policy to help current immigrant residents. I find no evidence that a more pro-immigrant policy environment will increase inflows of new unauthorized immigrants in most US states. Further research could examine whether more narrowly defined categories of laws, such as laws related to employment or to education, have greater or smaller impacts on immigration decisions. Another question to consider is whether the policy index can be combined with other measures of immigrant acceptance into a state such as local attitudes towards immigrants or bilingual education for children.

By looking simultaneously at many factors that could influence migration decisions, and considering sociopolitical and economic conditions together, these results paint a more detailed picture of the factors that affect undocumented immigration from Mexico. These results have important implications for policymakers and highlight how demographics may change as economic and social conditions change. The use of the Matrículas Consulares data set highlights the importance of controlling for origin-destination pairs and the quality of data needed to study immigration flows. An important related question for further study is how the geo-political landscape and global economy affect the factors of immigration highlighted here, as wages and violence in both countries are rooted in larger scale forces ¹⁶. The findings also open up new questions into the specific impacts of immigration-related legislation and other, refined categories of laws, whether the findings would hold for documented immigration or immigration to and from other countries, and finally, the various ways policies and economic conditions interact to influence immigration.

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¹⁶See Weisbrot et al. (2017); Dube et al. (2013); Dell (2015); Castañeda Dower and Pfitze (2015); Escalante-Gonzalbo (2009); Abou-Chadi (2016) for existing research into this question that relates to this case

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Appendix A: Data Appendix

All data covers all fifty US states and thirty-two Mexican states, from years 2006 to 2013. US economic data includes the state annual average unemployment, state median annual income, and state minimum wage, as reported by FRED. The unemployment rate is the average over the year and is not seasonally adjusted. Where the state minimum wage is below the federal minimum wage, I replace the state wage with the federal wage. Other data gathered from the Quarterly Census of Employment and Wages includes state total employment level for all sectors, agriculture, construction, and retail separately as well as the respective average weekly wages. No adjustments are made, except to drop observations from Washington D.C. and US territories as the policy data is not available for these areas from the NCSL.

Economic data from Mexico includes state, annual unemployment rate from STPS-INEGI, Encuesta Nacional de Ocupación y Empleo, and daily salary associated with insured workers by state, from the Instituto Mexicano del Seguro Social (IMSS). Mexican state minimum wages are gathered from the Secretaría de Trabajo y Previsión Social (STPS) though the minimum wage in Mexico is not always assigned at the state level. Instead, the federal government assigns the minimum wage by three zones (then 2 starting in late 2012). Some states fall into more than one zone. In this case, I assign the state minimum wage to be the most common minimum wage in the state. Detailed information on minimum wages by zone and where zones are can be found at <https://www.gob.mx/conasami/documentos/tabla-de-salarios-minimos-generales-y-profesionales-por-areas-geograficas>.

US policy index data is initially gathered from the National Conference of State Legislatures (NCSL) and then coded via Monogan's (2013) system.

“(4) Impacts residence: Laws designed to directly affect the number of foreign-born residents in a state, typically illegal immigrants. This category includes laws that either commission state and local authorities to enforce federal immigration law or specifically snub federal law by refusing to report immigration status to federal authorities. Also, laws that open or close a choke point, such as eligibility for driving licences or employability. Should driving licences be granted regardless of immigration status or should these be restricted? Can a worker or employer be severely punished, via jail or revocation of business licence, if an illegal immigrant is hired? Is the state recruiting outside workers? (3) Large-scale effect: Laws that create general incentives or disincentives for any immigrant who may enter a state. These include providing or restricting benefits for legal or illegal immigrants, including legislation regarding naturalisation programmes, worker's compensation coverage, retirement, higher education funding or bilingual provisions. This also includes smaller provisions in deportation, employment or licensing laws. Such smaller provisions may include requiring or restricting immigration status verification by employers, making small changes in ease of getting a driving licence, and screening arrested persons for immigration status. (2) Small-

scale effect: Laws that create incentives or disincentives, but which are likely to apply only to a small subgroup of potential immigrants, such as professionals from a specific field, those who may work for a public contractor, asylees or trafficking victims. These laws might speak to job eligibility or benefit eligibility for the people in these small groups, or may penalise non-immigrants whose behaviour on behalf of these groups is outlawed (i.e. employers of illegal immigrants, traffickers or smugglers). Also, laws related to matters less central to immigrants' lives, such as voting, professional licences, gun licences, property rights and specified immigrant protection (such as regulating matchmaking services or notarios) fit here. Implementing laws also belong here (i.e. delivering federal funds or developing protocols to deliver services). (1) Symbolic: Symbolic laws that make an issue statement to Congress, request another branch of government to take action, launch a study or task force, or affirm a principle (such as a commitment to cultural heritage, requesting that employers hire legal persons or declaring English as a state's official language). Many of these symbolic measures are joint resolutions." (Monogan III, 2013)

The main policy index I create is a simple sum of all laws coded a 3 or a 4, where laws deemed "welcoming" or pro-immigrant, are assigned value "1" and "hostile" laws are assigned "-1". The other two main indices are again a sum of all laws coded 3 or 4 but the positive only index just counts those listed as pro-immigrant and the negative only counts the hostile laws (in this case even the negative laws are coded as "1" rather than "-1" as in the main index). Additional indices used are constructed identically but include laws coded 2 and laws coded 2 and 1, respectively. Data Appendix Table 1 below shows the average annual main policy indices for each state.

Data on crime rates and homicide rates in Mexico gathered from INEGI. Violent crime includes any crime listed with typo or subtype "with violence," sexual crimes, and any crime listed as involving a weapon.

Table A1: Mean Annual Policy Indices

	Policy Index	Policy Index (positive only)	Policy Index (negative only-abs. value)
"Alabama"	-1.125	.125	1.25
"Alaska"	0	.125	.125
"Arizona"	-3	.875	3.875
"Arkansas"	-1.375	0	1.375
"California"	4.125	4.625	.5
"Colorado"	-1.375	1	2.375
"Connecticut"	.875	1	.125
"Delaware"	.25	.375	.125
"Florida"	-.25	.5	.75
"Georgia"	-2.625	.625	3.25
"Hawaii"	0	.5	.5
"Idaho"	-.5	.375	.875
"Illinois"	.75	2	1.25
"Indiana"	-.75	.5	1.25
"Iowa"	-.25	.5	.75
"Kansas"	-.625	.125	.75
"Kentucky"	0	.125	.125
"Louisiana"	-.625	.25	.875
"Maine"	-.25	.5	.75
"Maryland"	.625	.875	.25
"Massachusetts"	-.25	.25	.5
"Michigan"	0	1.125	1.125
"Minnesota"	0	.625	.625
"Mississippi"	-1	0	1
"Missouri"	-.625	.875	1.5
"Montana"	0	.25	.25
"Nebraska"	-1	.375	1.375
"Nevada"	-.25	.125	.375
"New Hampshire"	-.125	0	.125
"New Jersey"	.375	.5	.125
"New Mexico"	0	.25	.25
"New York"	.25	.5	.25
"North Carolina"	-.75	.125	.875
"North Dakota"	-.125	.25	.375
"Ohio"	0	.125	.125
"Oklahoma"	-1.5	.25	1.75
"Oregon"	-.25	.75	1
"Pennsylvania"	-.375	.25	.625
"Rhode Island"	-.25	0	.25
"South Carolina"	-2.75	.125	2.875
"South Dakota"	-.25	.125	.375
"Tennessee"	-1.25	.75	2
"Texas"	-.375	.375	.75
"Utah"	-1	1.625	2.625
"Vermont"	.125	.625	.5
"Virginia"	-.875	1.125	2
"Washington"	1	1.5	.5
"West Virginia"	-.625	0	.625
"Wisconsin"	0	.125	.125
"Wyoming"	-.375	0	.375

Table shows average value of main policy index, policy index counting only pro-immigration laws, and the policy index showing only anti-immigrant laws across all years in sample for each state.

Table A2: Mean Annual Summary Statistics by US States

State	Matrículas Consulares (total)	Minimum Wage (mean)	Unemployment Rate (mean)	AEWR (mean)	Policy Index (mean)
Alabama	48688	6.725	7.500	8.947	-1.125
Alaska	624	7.463	7.112	0	0
Arizona	214337	7.013	7.513	9.221	-3
Arkansas	34884	6.775	6.888	8.724	-1.375
California	2.607e+06	7.781	9	9.953	4.125
Colorado	162274	7.041	6.500	9.670	-1.375
Connecticut	15735	7.963	7.050	10.05	0.875
Delaware	11262	7.025	6.250	9.899	0.250
Florida	213667	7.134	7.588	9.154	-0.250
Georgia	227204	6.725	7.925	8.947	-2.625
Hawaii	1420	7.188	5.188	11.33	0
Idaho	26078	6.725	6.388	9.449	-0.500
Illinois	586582	7.625	8.012	10.45	0.750
Indiana	104202	6.725	7.662	10.45	-0.750
Iowa	25305	6.812	4.900	10.68	-0.250
Kansas	45299	6.725	5.588	10.65	-0.625
Kentucky	23777	6.725	7.950	9.225	0
Louisiana	16304	6.725	6.263	8.724	-0.625
Maine	310	7.188	6.625	10.05	-0.250
Maryland	27762	6.763	5.888	9.899	0.625
Massachusetts	4117	7.781	6.513	10.05	-0.250
Michigan	38277	7.031	9.575	10.37	0
Minnesota	57193	6.889	5.787	10.37	0
Mississippi	11748	6.725	8.325	8.724	-1
Missouri	30028	6.831	7.125	10.68	-0.625
Montana	277	6.894	5.575	9.449	0
Nebraska	35051	6.725	3.850	10.65	-1
Nevada	160786	7.175	9.225	9.670	-0.250
New Hampshire	1304	6.725	4.850	10.05	-0.125
New Jersey	107893	7.088	7.463	9.899	0.375
New Mexico	76758	6.881	6.200	9.221	0
New York	196595	7.162	6.987	10.05	0.250
North Carolina	225189	6.763	8.075	9.249	-0.750
North Dakota	183	6.725	3.362	10.65	-0.125
Ohio	29227	7.069	7.713	10.45	0
Oklahoma	42478	6.725	5.175	9.345	-1.500
Oregon	100819	8.287	8.137	10.40	-0.250
Pennsylvania	36594	6.850	6.737	9.899	-0.375
Rhode Island	1552	7.362	8.850	10.05	-0.250
South Carolina	62645	6.725	8.588	8.947	-2.750
South Dakota	1387	6.725	3.962	10.65	-0.250
Tennessee	62453	6.725	7.662	9.225	-1.250
Texas	1.351e+06	6.725	6.312	9.345	-0.375
Utah	97147	6.725	5.125	9.670	-1
Vermont	596	7.974	5	10.05	0.125
Virginia	40475	6.725	5.275	9.249	-0.875
Washington	83381	8.454	7.338	10.40	1
West Virginia	1078	6.725	6.575	9.225	-0.625
Wisconsin	66694	6.875	6.662	10.37	0
Wyoming	5900	6.725	4.700	9.449	-0.375

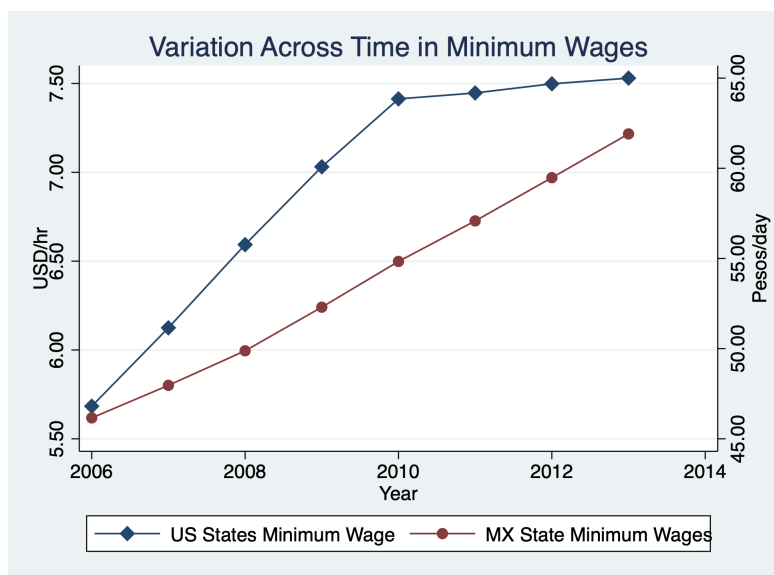
Column 1 shows the number of immigrants to each US state over the eight years of data, as measured by MCs. Subsequent columns show the mean across years for other relevant US variables to show the substantial variation across space.

Table A3: Mean Annual Summary Statistics by Mexican State

State	Matrículas Consulares (total)	Minimum Wage (mean)	Unemployment Rate (mean)	Daily Salary (mean)	Homicides per 1000 (mean)	Crimes per 1000 (mean)	Violent Crimes per 1000 (mean)
Aguascalientes	67711	53.31	6.005	218.8	0.0500	16.61	2.720
Baja California	75971	56.38	4.617	242.9	0.284	37.77	6.474
Baja California Sure	4416	56.38	4.423	229.5	0.0661	31.14	3.105
Campeche	11230	53.31	2.582	275.2	0.0672	2.165	0.532
Chiapas	105981	53.31	2.356	200.9	0.0707	5.328	1.274
Chihuahua	197852	53.31	5.705	222.2	0.843	18.74	3.251
Ciudad de México	464537	56.38	6.342	321.8	0.111	19.63	6.427
Coahuila	100815	53.31	6.200	225.4	0.168	15.91	3.032
Colima	50254	53.31	4.023	207.3	0.189	15.65	2.927
Durango	202964	53.31	5.264	182.3	0.404	12.29	2.346
Guanajuato	601135	53.31	5.084	200.0	0.0833	15.02	2.232
Guerrero	592775	53.31	1.858	206.9	0.487	9.065	2.346
Hidalgo	208257	53.31	4.332	206.8	0.0467	13.06	2.868
Jalisco	654476	53.31	4.538	239.3	0.131	11.06	2.125
México	379068	53.31	5.877	241.5	0.142	17.23	6.446
Michoacán	821698	53.31	3.309	207.9	0.186	8.188	1.390
Morelos	164774	53.31	3.578	236.1	0.207	25.44	6.565
Nayarit	111564	53.31	4.140	192.2	0.253	9.792	1.944
Nuevo León	133353	53.31	5.802	271.8	0.181	12.50	2.833
Oaxaca	452192	53.31	2.315	199.7	0.170	11.62	2.491
Puebla	480270	53.31	3.853	224.0	0.0681	11.89	2.868
Queretaro	77388	53.31	5.303	269.4	0.0477	11.37	1.884
Quintana Roo	5698	53.31	3.997	195.4	0.106	25.20	4.352
San Luis Potosí	260238	53.31	3.497	222.7	0.105	14.88	2.618
Sinaloa	136808	53.31	4.289	182.1	0.447	10.60	3.001
Sonora	70612	54.96	5.296	202.5	0.190	13.00	2.576
Tabasco	24765	53.31	5.546	212.6	0.0836	27.29	6.791
Tamaulipas	179935	54.96	6.096	224.8	0.212	15.03	3.453
Tlaxcala	54158	53.31	5.928	203.5	0.0556	5.420	1.160
Veracruz	332803	53.31	3.057	240.0	0.0810	9.126	2.009
Yucatán	26921	53.31	2.731	198.1	0.0227	26.79	4.223
Zacatecas	271098	53.31	4.685	198.9	0.140	9.345	2.257

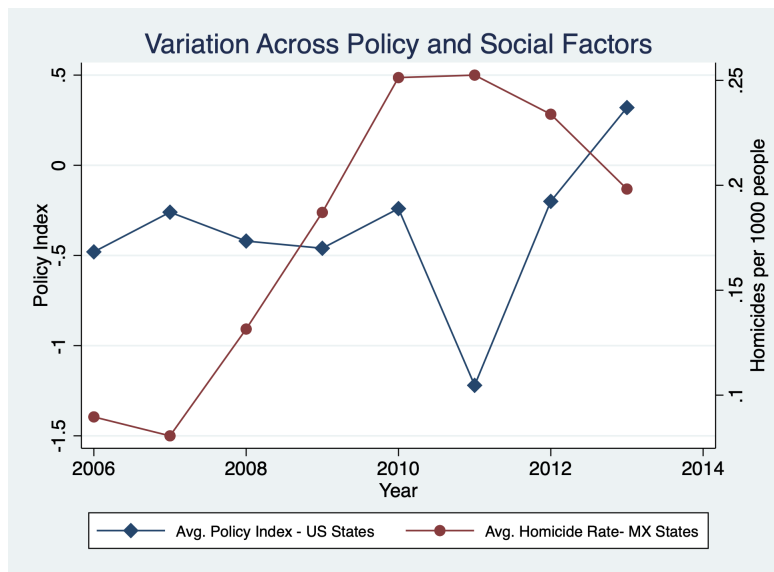
Column 1 shows the number of immigrants from each Mexican state over the eight years of data, as measured by MCs. Subsequent columns show the mean across years for other relevant MX variables to show the substantial variation across space, except in the case of the minimum wage which is discussed in the paper.

Figure A1: Average Minimum Wages over Times



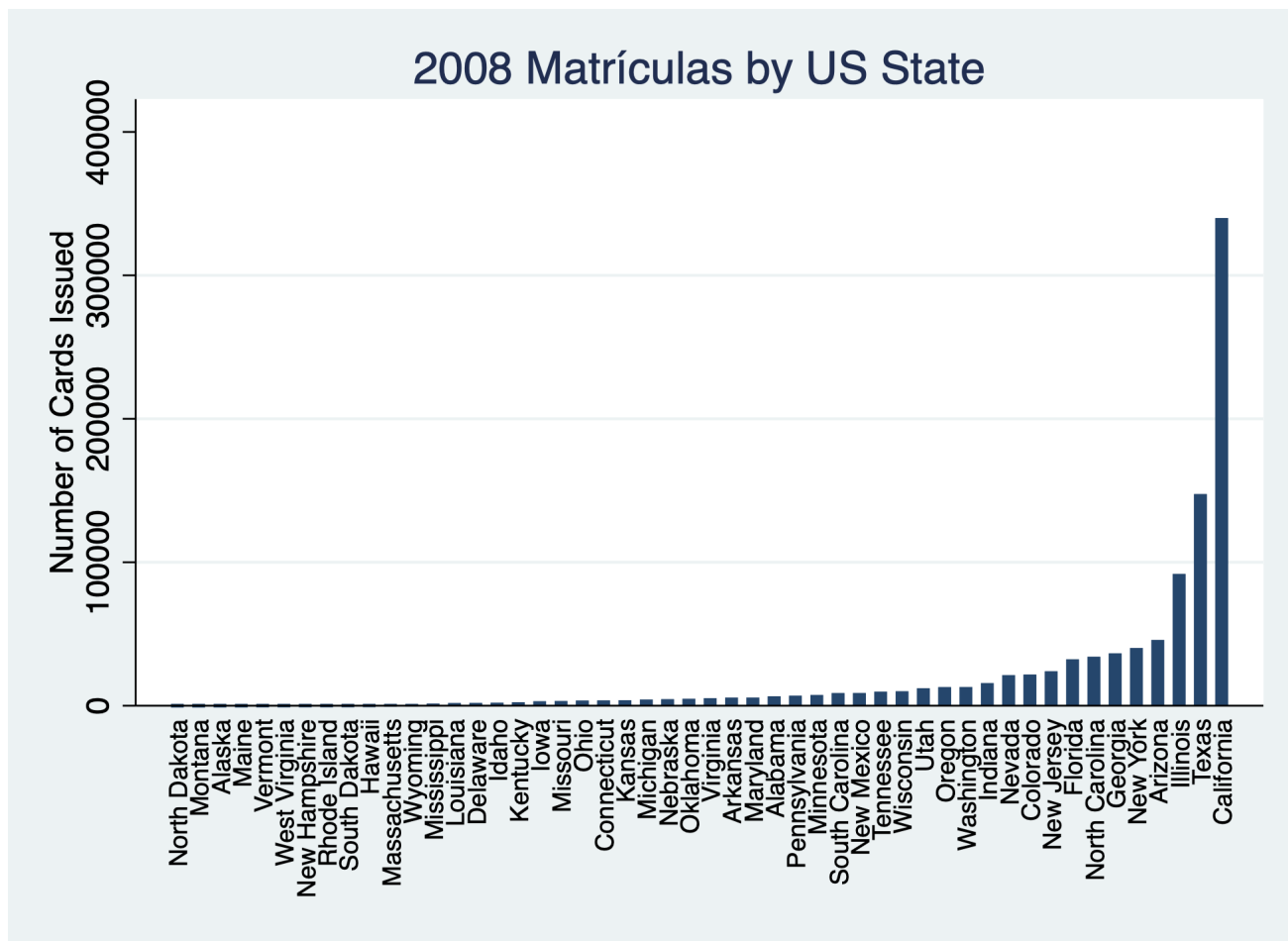
Plot shows average state minimum wages as they vary across time. US hourly minimum wage rate is on the left axis in USD, Mexican daily minimum wage rate is on the right axis in pesos.

Figure A2: Average Policy Index and Homicide Rate Over Time



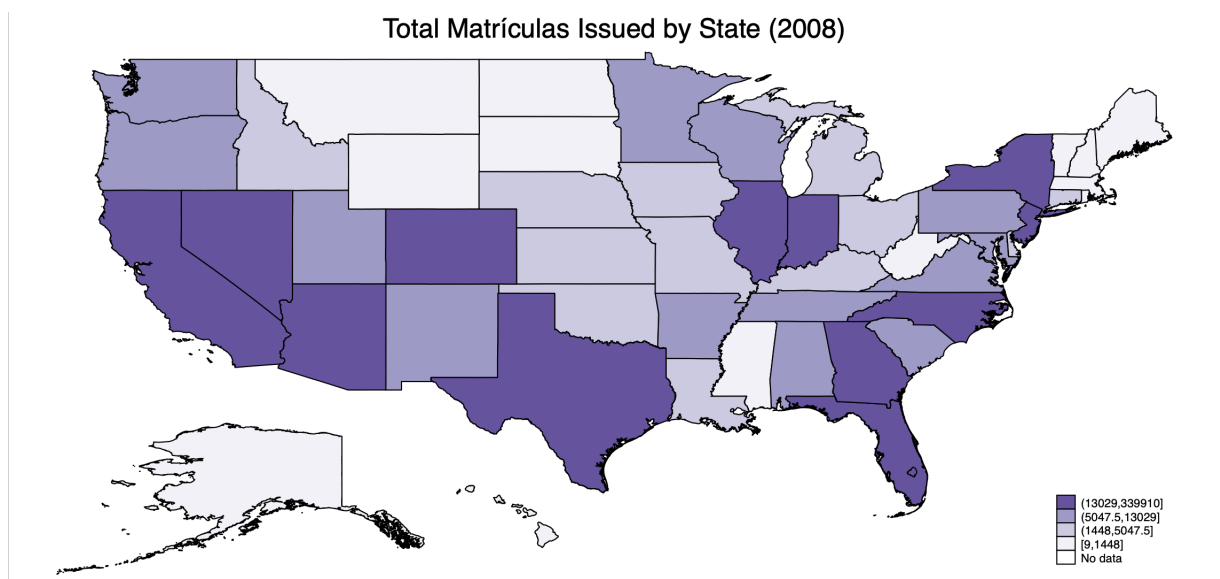
Plot shows average US state Policy Index as it varies across time. Plot also includes the average MX state homicide rate as it varies over time. US policy index is measured on the left axis, Mexican average homicide rate is on the right axis.

Figure A3: Distribution of Immigrants Across US States in 2008



Plot shows the number of MCs issued in each US state in the year 2008, the peak of undocumented immigration in this time frame. The skewness of the distribution is reflected in all years and evident in other measures of the US undocumented immigration population. Almost every state has at least a few new undocumented immigrants a year.

Figure A4: Distribution of Immigrants Across US States in 2008



Map shows same data as above.

Appendix B: Background and Setting

In the US, the federal government grants visas and citizenship, polices the national borders, and sets a variety of laws related to immigration. In recent years, federal immigration law has included policies such as Deferred Action for Childhood Arrivals, which granted a form of valid status to certain undocumented immigrants, and the Secure Fence Act of 2006 which expanded the fencing at the US-Mexico border. While unable to violate federal law, state governments retain substantial power to set their own immigrant-related laws. These state laws can impact the day-to-day lives of immigrants, including undocumented individuals, living and working in different states. State-level policies can range from relatively symbolic resolutions, such as declaring March Irish-American History Month (e.g. Louisiana SR 353), to significant laws such as those that deny (e.g. Idaho's SB 538) or grant (e.g. California's AB 60) driver's licenses to people without formal immigration status. The policy differences across states may make it harder (or easier) to live as an immigrant in a particular state.

It is also not the case that a few, very active states are the only ones forming immigration related policies. Between 2006 and 2013 state governments passed over 2,290 immigrant-related policies, according to the National Council of State Legislatures. Every state enacted at least five policies during this period, with Washington state passing the fewest (5) and Texas passing the most (201).

Many of these laws aim to expand the rights of immigrants, while other laws restrict the rights of immigrants. While state policies can follow a particular pattern, like in California where the vast majority of state-level immigration-related laws seek to expand the rights of immigrants, many states have a variety of different types of laws on the books. For example, in 2006 Colorado enacted two new immigration related laws: the first provided that unauthorized immigrants should receive testing and treatment for communicable diseases or in the event of a pandemic but the second restricted eligibility for public benefits, requiring applicants to provide valid US ID and created new penalties for fraud. Not every law is as expansive as California's SB 75, which expanded Medi-Cal coverage to all eligible children, regardless of immigration status, or as harsh as Arizona's SB 1070, which would have enabled law enforcement officers to require people to

provide proof of immigration status where there is “reasonable suspicion” the individual may be undocumented¹⁷.

This paper uses the variation in state-level policy environments to assess one of the main research questions: do policy environments that tend to expand the rights of current immigrants (i.e. are “more generous”) attract additional undocumented immigrants?

Additionally, the 2006 to 2013 period covers the Great Recession and the beginning of the recovery period, which affected employment and earnings in the US and Mexico (Villareal, 2010; Freije, 2014). States in both countries were impacted quite differently (Hacker et al., 2012; Cypher, 2010; Villareal, 2010; Mejía-Reyes and Díaz-Carreño, 2014), meaning US states had not only different policy environments but varying economic conditions as well. Similarly, varying economic conditions across Mexico could impact potential migrants in different states.

Finally, in 2006, Mexican President Felipe Calderón authorized the “decapitation strategy” that targeted the heads of large drug cartels in Mexico (Guerrero, 2013; Calderón et al., 2015). Calderón et al. (2015) find that this aggressive strategy led to increased violence among those involved in drug trafficking and an increase in homicides in the general population. The authors argue this trend could be due to within-cartel struggles for leadership, increased inter-cartel violence, upsetting the chain of command and reducing the control leaders had over subordinates, and/or attacks on the government officials themselves (Calderón et al., 2015). The majority of the federal government’s operations look place in just nine states: Michoacán, Baja California, Guerrero, Nuevo León, Tamaulipas, Chihuahua, Durango, Sinaloa and Veracruz (Guerrero, 2013). Calderón et al. (2015) note that operations often targeted states that were along the trafficking corridor and violence escalated most in these areas. This has lead to varying levels of homicides across time and space in Mexico during the period of study. The paper assesses the potential role of violence as a push factor of immigration.

It’s undeniable there are many factors that could influence the decision to migrate. At any given moment, political and economic conditions are wide-ranging and tumultuous, and no change

¹⁷SB 75 is not included in the analysis here as it was passed after 2013. SB 1070 is included although various provisions were never fully implemented due to court challenges and some provisions were eventually struck down by the Supreme Court.

occurs in a vacuum. This paper studies an important period to analyze the role each of these factors may play when potential undocumented immigrants decide to migrate.

Appendix C: Robustness Checks

The results are robust to many specifications, as shown in numerous tables above, but they are also robust to using the number of MCs as the dependent variable rather than the natural log. The results are also robust to using a log-log specification to estimate the elasticity of the immigrants' response. Results are also consistent using the data from the year prior for homicide rate, US and Mexican wages, as well as unemployment rate. These results are all presented in Appendix D and F for the US and Mexico, respectively. Table E3 of Appendix E, shows the results are essentially unchanged (if anything the result becomes more negative) when I use policy indices including more laws that are considered lesser in scope and thus would have less impact on immigration. The process for assigning scope is outlined in section 2 and discussed in more detail in Appendix A.

There could be concerns that results are driven by the very high and very low rates of migration out of and to a few states. The log specification helps more evenly weight observations but there still may be concern about California which has by far the most undocumented immigrants from Mexico, or that the results are affected by a large number of zero observations. First, only 10% of observations are zeroes, reflecting no migrants from Mexican state i to US state j in that year. Nonetheless, Table F1 in Appendix F shows the results are robust to dropping all observations from California, dropping observations from the three states with the most undocumented immigrants- California, Texas, and Illinois, and dropping observations from the most and least popular US states by dropping observations with fewer than 6 MCs (column 3).

Similarly, results are robust to dropping the Mexican states with the most (Michoacán) and fewest (Baja California Sur, Campeche, and Quintana Roo) outmigrants. See Table F1 in Appendix F for precise results.

Another concern may be that the population of Matrícula Consulares recipients is not reflec-

tive of the undocumented population from Mexico as a whole. The results are internally robust regardless and the sample covers approximately three-quarters of the undocumented Mexican population (Caballero et al., 2018). The distribution of immigrants by US state in Appendix A, A3 is quite similar to estimations from the Department of Homeland Security using immigration enforcement data and estimations from the Migration Policy Institute using the American Community survey. Additionally, the Matrícula is the only government issued form of identification many undocumented immigrants have access to and the Mexican government advertises them widely. Consular registration has existed for decades and the Matrículas Consulares have been available in their current form since the early 2000s (O'Neill, 2003). The Mexican consulate strongly advocates for their use, especially for those without a passport.

The cards also have many uses that are unrelated to any particular US state such as opening bank accounts at private banking institutions, certain airlines have accepted them (though this is less common in recent years), and registering children for school (O'Neill, 2003). Many states and even more local governments recognize them as valid forms of identification for various purposes, such as getting a library card or driver's license, but they are not sufficient for proof of immigration status so there is no benefit to obtaining a card in order to participate in a federal or state program such as Medicaid, if one is an undocumented immigrant and excluded from these programs. Finally, the card's main purpose is for the Mexican government to identify and track all of its citizens living abroad to provide services and understand the diaspora population, and to provide people with the ability to identify themselves, which the Mexican government views as a basic human right (O'Neill, 2003). Therefore, actually applying for a Matrícula is unlikely to be driven by a US state specific characteristic and the data is a valid reflection of the immigration inflows.

The undocumented population is small enough to have little impact on the economic conditions in the whole state but for policies specifically designed to target undocumented migrants, changes in trends in immigration may influence changes in policies. The state fixed effect will control for the fact that some states are generally friendlier to immigrants than others but there would be an endogeneity issue if changing immigration trends during the period were influenc-

ing changes in policy. For example, if the immigrant population becomes generally larger and poorer during the period, and for that reason California enacts new laws designed to help, then the immigration trend is causing the policy trend and not the other way around. To address this, first there are no obvious reversals in attitudes in any state during the period. States that tend to have lower and negative scores in the policy index, have low scores throughout the whole period and vice versa. The results are also robust to different constructions of the index (Table E3 , Table G1). Finally, since this research is primarily focused on undocumented immigration flows, a change in the immigration flow cannot directly influence state policy in a short period through voting. To further assuage any doubts, the main results use exogenous instrumental variables for immigration policy.

Appendix D: Other Measure of US Economic Conditions

The gravity model of migration developed out of the gravity model for trade, which draws from Newton’s law of gravity (Bergstrand, 1985; Anderson, 2011). The model estimates immigration flows as supply or push factors including the overall size of the sending country population, and demand or pull factors, also including population (Karemera et al., 2000). Factors that restrict migration are also included giving the final equation the form of

$$F_{ij} = \frac{a_0 S_i^{\beta_1} D_j^{\beta_2}}{R_{ij}^{\beta_3}} \quad (3)$$

This is then estimable by taking the log of each side and estimating the various β parameters.

$$\ln(F_{ij}) = \alpha_0 + \beta_1 \ln(S_i) + \beta_2 \ln(D_j) - \beta_3 \ln(R_{ij}) \quad (4)$$

Where F_{ij} is the flow of migrants from i to j , S_i are push factors that may increase out-migration while D_j are pull factors in the destination, while R_{ij} are other factors that aid or restrict migration such as transportation costs.

Various advances have been made using this model to estimate migration flows (Karemera

Table D1: US Unemployment Rate by Gender and Race

	(1)	(2)	(3)	(4)	(5)
	Ln(Matriculas Consulares)	Ln(Matriculas Consulares)	Ln(Matriculas Consulares)	Ln(Matriculas Consulares)	Ln(Matriculas Consulares)
Unemployment Rate (US state)	-0.0372 (0.00597)				
Total Level of Employment (US state, thousands people)		0.000424 (0.0000292)			
Level of Agricultural Employment (US state, thousands)			-0.00281 (0.00192)		
Level of Construction Employment (US state, thousands)				0.00284 (0.000212)	
Level of Retail Employment (US state, thousands)					0.00394 (0.000274)
Observations	12800	12800	12800	12800	12800
Pair FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Population Controls	Yes	Yes	Yes	Yes	Yes
Dummy for Zeroes	Yes	Yes	Yes	Yes	Yes

Standard errors in parentheses

All models control for state-to-state pair fixed effects and year fixed effects, as well as population, and foreign born population. The dependent variable in all specifications is the natural log of the number of new immigrants registered in the state pair and year. Column 1 uses the contemporaneous, rather than lagged unemployment rate as the main covariate while columns 2 through 5 use the level of employment in all industries and three industries with high immigrant employment. All models are estimated on a balanced panel of 12800 state-state pairs, covering 32 Mexican States to 50 US States from 2006 to 2013. Standard errors are clustered at the pair level.

et al., 2000). Below Table D2 shows a basic model similar to Borjas (1989) for the US economic pull factors and the main results are confirmed. In the example model, push factors (S_i) include population and unobservables captured by fixed effects, joint factors captured by R_{ij} would mainly be distanced, captured by the pair fixed effect, and the factors of interest are economic pull factors. I present this as a robustness check to demonstrate key results of this paper are consistent with other empirical methodologies though the main paper takes a simpler approach that doesn't transform push and pull factors and thus coefficients represent the percent increase in migration given a unit change in a determinant variable rather than an elasticity. Main models are estimated using OLS with appropriate fixed effects and instrumental variables to address potential endogeneity but theoretically represent the same idea as in the gravity model literature, that both push and pull factors, as well as joint factors such as transportation costs proxied by distance, impact

migration flows.

Table D2: Alternate Empirical Models

	(1) Ln(Matriculas Consulares)	(2) Matriculas Consulares	(3) Ln(Matriculas Consulares)	(4) Ln(Matriculas Consulares)
Ln(Lagged US State Unemployment Rate)	-0.418 (0.0522)			
Ln(US State Minimum Wage)	0.642 (0.0977)			
Lagged US State Unemployment Rate (t-1)		-58.85 (10.68)	-0.0551 (0.00618)	-0.0522 (0.00608)
US State Minimum Wage		70.21 (18.04)		0.0941 (0.0150)
US State Adverse Effect Wage Rate (H2A)			0.00309 (0.0185)	-0.0174 (0.0183)
Observations	12800	12800	12800	12800
Pair FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Population Controls	Yes	Yes	Yes	Yes
Dummy for Zeroes	Yes	Yes	Yes	Yes

Standard errors in parentheses

All models control for state-to-state pair fixed effects and year fixed effects, as well as population, and foreign born population. The dependent variable in all specifications except column 2 is the natural log of the number of new immigrants registered in the state pair and year. Column 1 presents the gravity model version of the main US economic factor specification. Column 2 uses the number of registered immigrants as the dependent variable. Columns 3 and 4 include an additional control for the Adverse Effect Wage Rate, the mandated minimum payment for H2-A workers. All models are estimated on a balanced panel of 12800 state-state pairs, covering 32 Mexican States to 50 US States from 2006 to 2013. Standard errors are clustered at the pair level.

Table D3: Contemporaneous Unemployment Rate by Group

	(1)	(2)
	Ln(Matriculas Consulares)	Ln(Matriculas Consulares)
US State Unemployment Rate, men	-0.00131 (0.00571)	
US State Unemployment Rate, women	-0.0374 (0.00794)	
US State Unemployment Rate, white individuals		-0.0809 (0.00792)
US State Unemployment Rate, Black individuals		0.00210 (0.00196)
US State Unemployment Rate, Hispanic/Latino/a/x individuals		0.00688 (0.00280)
Observations	12800	10400
Pair FE	Yes	Yes
Year FE	Yes	Yes
Population Controls	Yes	Yes
Dummy for Zeroes	Yes	Yes

Standard errors in parentheses

All models control for state-to-state pair fixed effects and year fixed effects, as well as population, and foreign born population. The dependent variable in all specifications is the natural log of the number of new immigrants registered in the state pair and year. Column 1 separates unemployment rate by gender while column 2 separates unemployment rate by race and ethnicity. Black and white unemployment rates include hispanic and non-hispanic members of the category. All models are estimated on a balanced panel of 12800 state-state pairs, covering 32 Mexican States to 50 US States from 2006 to 2013. Standard errors are clustered at the pair level.

Appendix E: Other US Policy Definitions and First Stage Results

Table E1: First Stage Results, Main Results (Table 2 and Column 1 Table 3)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Policy Index	CA x Policy Index	Policy Index	CA x Policy Index	Policy Index	Policy Index	Policy Index	Standardized values of
Prison occupants per 100,000 residents	-0.0103 (0.000759)	-0.000548 (0.000101)	-0.0156 (0.00103)	-0.00969 (0.000758)	-0.000400 (0.0000757)	-0.0153 (0.00104)	-0.0158 (0.00106)	-0.00788 (0.000528)
CA x prison rate	-0.0632 (0.000846)	-0.0695 (0.000371)	-0.0619 (0.000781)		-0.0691 (0.000321)			
MX state Homicide Rate (homicides/thousand)	0.000238 (0.129)	-0.00000636 (0.0518)	0.000279 (0.130)	0.00336 (0.128)	0.00157 (0.0520)	0.00205 (0.130)	0.000530 (0.137)	
US State Minimum Wage	0.235 (0.0434)	0.0691 (0.0121)	0.0983 (0.0430)				0.0891 (0.0439)	
Mexican State Avg. Daily Salary (pesos)	0.0000110 (0.00261)	-0.000000294 (0.000334)	0.0000129 (0.00302)				0.00000125 (0.00322)	
Relative Daily Wage (US/MX)				0.678 (0.571)	0.343 (0.0908)	0.386 (0.641)		
Lagged US State Unemployment Rate							-0.0343 (0.0189)	
Lagged MX State Unemployment Rate							-0.000248 (0.0281)	
Standardized values of MX Homicide Rate								0.0000559 (0.0145)
Standardized values of Lagged US Unemp.								-0.0380 (0.0214)
Standardized values of US Minimum Wage								0.0410 (0.0189)
Standardized values of Lagged MX Unemp.								-0.000202 (0.0230)
Standardized values of MX Avg. Daily Salary								0.0000235 (0.0610)
Observations	12800	12800	12800	12800	12800	12800	12800	12800
F	83.10	83.10	229.7	75.87	75.87	217.2	221.1	222.9
Pair FE	Y	Y	Y	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	Y	Y	Y	Y	Y
Population Controls	Y	Y	Y	Y	Y	Y	Y	Y
Dummy for Zeroes	Y	Y	Y	Y	Y	Y	Y	Y

Standard errors in parentheses

All models control for state-to-state pair fixed effects and year fixed effects, as well as population, and foreign born population. All models are estimated on a balanced panel of 12800 state-state pairs, covering 32 Mexican States to 50 US States from 2006 to 2013. Standard errors are clustered at the pair level.

Table E2: First Stage Results

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Policy Index	CA x Policy Index	Policy Index	Policy Index	Policy Index	Policy Index	CA x Policy Index
Prison occupants per 100,000 residents	-0.00955 (0.000746)	-0.000330 (0.0000634)	-0.0156 (0.00101)	-0.0156 (0.00103)	-0.0158 (0.00106)	-0.0108 (0.000823)	-0.000782 (0.000142)
CA x prison rate	-0.0618 (0.000779)	-0.0691 (0.000316)				-0.0649 (0.00107)	-0.0703 (0.000488)
US State Minimum Wage			0.0959 (0.0416)	0.0983 (0.0430)	0.0911 (0.0421)	0.224 (0.0442)	0.0639 (0.0113)
Violent Crime per 100,000 residents				0.000176 (0.000416)			
Lagged US State Unemployment Rate (t-1)					-0.0324 (0.0183)	-0.101 (0.0219)	-0.0470 (0.00821)
Observations	12800	12800	12800	12800	12800	12800	12800
F	76.88	76.88	235.5	229.7	223.0	77.27	77.27
Pair FE	Y	Y	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	Y	Y	Y	Y
Population Controls	Y	Y	Y	Y	Y	Y	Y
Dummy for Zeroes	Y	Y	Y	Y	Y	Y	Y

Standard errors in parentheses

All models control for state-to-state pair fixed effects and year fixed effects, as well as population, and foreign born population. All models are estimated on a balanced panel of 12800 state-state pairs, covering 32 Mexican States to 50 US States from 2006 to 2013. Standard errors are clustered at the pair level.

Table E3: First and Second Stage Results for Alternate Policy Index Constructions

	(1) Policy Index	(2) Policy Index, includes scope = 2	(3) Policy Index, includes all scope	(4) Ln(Matriculas Consulares)	(5) Ln(Matriculas Consulares)	(6) Ln(Matriculas Consulares)
Prison occupants per 100,000 residents	-0.00970 (0.00107)	-0.00601 (0.00125)	-0.00533 (0.00154)			
US State Policy Index				-0.0535 (0.0369)		
Policy Index, includes scope = 2					-0.156 (0.0583)	
Policy Index, includes all scope						-0.176 (0.0750)
Observations	9600	12800	12800	9600	12800	12800
F	81.61	23.17	11.98			
Pair FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Population Controls	Yes	Yes	Yes	Yes	Yes	Yes
Dummy for Zeroes	Yes	Yes	Yes	Yes	Yes	Yes

Standard errors in parentheses

All models control for state-to-state pair fixed effects and year fixed effects, as well as population, and foreign born population. Columns 1 through 3 show first stage results for the second stage results in columns 4 through 6. Column 4 includes just data from the years 2006 to 2011, the original Monogan III (2013) data. Column 5 constructs the index including laws with scope two in addition to those scored three and four. Column 6 includes laws of all scope. See Appendix A for description of the laws in each scope category. All models are estimated on a balanced panel of 12800 state-state pairs, covering 32 Mexican States to 50 US States from 2006 to 2013. Standard errors are clustered at the pair level.

Appendix F: Drop Influential Observations

Table F1: Main Results Excluding Influential US and MX States

	(1) Ln(Matriculas Consulares)	(2) Ln(Matriculas Consulares)	(3) Ln(Matriculas Consulares)	(4) Ln(Matriculas Consulares)	(5) Ln(Matriculas Consulares)	(6) Ln(Matriculas Consulares)
US State Policy Index	-0.0326 (0.0186)	-0.0356 (0.0295)	-0.0669 (0.0327)	-0.0774 (0.0383)	-0.0146 (0.0186)	-0.0164 (0.0194)
MX state Homicide Rate (homicides/thousand)	0.123 (0.0378)	0.111 (0.0380)	0.117 (0.0399)	0.0901 (0.0446)	0.116 (0.0378)	0.107 (0.0381)
Unemployment Rate (US state)	-0.0311 (0.00618)					
US State Minimum Wage	0.0965 (0.0139)	0.0937 (0.0147)	0.103 (0.0160)	0.105 (0.0180)	0.0895 (0.0137)	0.0839 (0.0144)
Mexican State Unemployment Rate	0.0171 (0.00793)					
Lagged US State Unemployment Rate (t-1)		-0.0514 (0.00590)	-0.0492 (0.00622)	-0.0705 (0.00663)	-0.0519 (0.00587)	-0.0522 (0.00610)
Lagged MX State Unemployment Rate (t-1)		0.0292 (0.00828)	0.0292 (0.00873)	0.0304 (0.00983)	0.0275 (0.00814)	0.0303 (0.00844)
MX state Crime Rate (crimes/ thousand)					-0.00193 (0.00190)	-0.00195 (0.00202)
Observations	12800	12544	12032	8714	12400	11200
Pair FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Population Controls	Yes	Yes	Yes	Yes	Yes	Yes
Dummy for Zeroes	Yes	Yes	Yes	Yes	Yes	Yes

Standard errors in parentheses

All specifications include fixed effects for state-to-state pair and year, as well as controls for state specific characteristics of the population. Column 1 presents the main specification using contemporaneous rather than lagged unemployment rate for both the US and Mexican states. Column 2 excludes observations from California; column 3 excludes observations from CA, TX, IL; column 4 excludes CA, TX, IL and ND, AK, VT. Column 5 drops observations from Michoacán; column 6 drops observations from Michoacán and Baja California Sur, Quitana Roo, Campeche. Standard errors are clustered at the pair level.

	(1)	(2)
	Ln(Matriculas Consulares)	Ln(Matriculas Consulares)
Standardized values of US Policy Index	-0.0290 (0.162)	0.00456 (0.0130)
Standardized values of MX Homicide Rate	0.0220 (0.00776)	0.0219 (0.00964)
Standardized values of US Unemp. Rate (t-1)	-0.127 (0.0561)	-0.128 (0.0545)
Standardized values of US Min. Wage	0.0846 (0.0503)	0.0857 (0.0523)
Standardized values of MX Unemp. Rate (t-1)	0.0487 (0.0191)	0.0487 (0.0201)
Standardized values of MX Avg. Daily Salary	-0.0319 (0.00898)	-0.0319 (0.0196)
Observations	12800	12800
Pair FE	No	No
Year FE	Yes	Yes
Population Controls	Yes	Yes
Dummy for Zeroes	Yes	Yes

Standard errors in parentheses

Standard errors are two way clustered

Table F2: Main Results without Pair Fixed Effect

Appendix G: Index by Category of Laws

Some NCSL categories of laws were excluded because there were very few in the whole sample (for example only three laws related to "legal services"). I again include only laws with a scope score of 3 or 4 as the other laws are mostly symbolic.

An example of a law related to benefits is: a law prohibiting an immigrant who cannot verify their legal status from receiving temporary homeless shelter relief.

An example of a law related to education is: a law allowing undocumented students to qualify for in-state tuition.

An example of a law related to employment is: a law forbidding employers from knowingly hiring undocumented immigrants.

An example of a law related to health is: a law appropriating significant funds for migrant health clinics.

An example of a law related to law enforcement is: a law requiring jail administrators to determine legal residency of anyone confined for a felony or impaired driving.

An example of a law related to identification is: a law adopting REAL ID standards, thus requiring proof of citizenship for a driver's license.

I also include omnibus and miscellaneous laws as omnibus laws may contain provisions that are highly relevant to immigrants' daily lives and miscellaneous is a frequent category.

Similar to main results, the OLS shows generosity for some types of laws may be associated with higher in-migration, though there are many categories that still show negative coefficients. The same endogeneity concerns apply here so I run the 2SLS specification on a selection of types of laws (additional results for all categories and first stage results available upon request. The instrument remains valid when considering just one type of law, though the F statistic drops below 100 for a few specifications). As before, the sign becomes negative in all cases and is marginally significant or insignificant. The magnitude of the coefficient does become larger but there are many more zeroes for each index since while most states have new immigration related laws each

year, in any given category that number is more likely to be zero.

Table G1: **Consider Types of Laws Separately**

	OLS		Second Stage 2SLS		
	(1) Ln(Matriculas Consulares)	(2) Ln(Matriculas Consulares)	(3) Ln(Matriculas Consulares)	(4) Ln(Matriculas Consulares)	(5) Ln(Matriculas Consulares)
Benefits	-0.00685 (0.00861)				
Education	0.0660 (0.0110)	-0.218 (0.0709)			
Employment	-0.00846 (0.00688)		-0.400 (0.126)		
Health	0.0419 (0.0104)				
Law Enforcement	0.0150 (0.00716)			-0.352 (0.122)	
Identification	-0.0344 (0.00702)				-2.513 (1.814)
Omnibus	-0.00159 (0.00304)				
Miscellaneous	-0.0439 (0.0148)				
Observations	12800	12800	12800	12800	12800
Pair FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Population Controls	Yes	Yes	Yes	Yes	Yes
Dummy for Zeroes	Yes	Yes	Yes	Yes	Yes

Standard errors in parentheses

All specifications include fixed effects for state-to-state pair and year, as well as controls for state specific characteristics of the population. Column 1 enters each index into the OLS model to demonstrate relative importance of these categories of laws. Columns 2 through 5 are the second stage results of 2SLS estimation with US state prison rate as the instrument. Standard errors are clustered at the pair level.

	(1)	(2)
	ICE Removals	ICE Removals
Policy Index	-76.94 (223.7)	531.6 (683.2)
Observations	400	400
Year FE	Yes	No
State FE	Yes	No

Standard errors in parentheses

Coefficients represent the relationship (not causal) between the main Policy Index and the number of ICE removals for each state-year observation for all fifty states for the years 2006 to 2013. Column 1 includes year fixed effects to account for changes that impact all states such as new federal laws or guidelines, and state fixed effects to account for inherent differences in the number of deportations in each state (i.e. states with more immigrants will typically have more deportations). Column includes no controls to show the basic correlation between these variables.

Table G2: Relationship Between Policy Index and Deportations