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The decline in Mexican Migration to the US: Why is Texas different?

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January 27, 2019

Introduction

Since 2008, net migration from Mexico to US has been stagnant or declining. However, there are some states where the number of Mexican foreign born continues to grow. As an example, between 2010 and 2016 California showed the largest decline in net Mexican migration while Texas showed the largest growth. Analysis of wage level differentials between states introduces an interesting paradox, as average wages in California are higher than in Texas. This clearly suggests that non-wage factors may explain the positive migration trend observed in Texas.

Migration theory has established at least four determinants of net migration. First, foreign-born Mexicans may be more attracted to migrate to states in the U.S. with a higher wage level or economic growth than the national average (Hicks, 1932; Sjaastad, 1962). More generally, favorable labor market conditions (lower unemployment, more demand for labor) may increase net Mexican migration towards a specific state (Harris and Todaro, 1970; Rendon and Cuecuecha, 2010). Second, some states may have lower costs of living, which may also generate an attraction of Mexican migrants from diverse origins (Graves, 2012). More generally, differences in prices of non-tradable goods and/or provision of public goods may influence migration decisions (Mueser and Graves, 2012; Cohen, Lai and Steindel, 2014). Thirdly, there may be non-economic reasons, not related to wages or costs

of living, like for example, differences in enforcement of U.S. immigration laws, that could attract more Mexican migrants to specific states (Orrenious and Zavodny, 2015, 2016). More generally, institutional factors may also affect labor markets generating market frictions and, in turn, attract or deter migrants (Harris and Todaro, 1970; Dahl, 2002; Shimer, 2007). Fourth and finally, according to Social Migrant Networks theory the existence of more migrants from specific places may lower costs of living, increase probabilities of employment or improve wages for specific migrants that belong to such specific network (Munshi, 2003; Massey et. al., 1987).

Differences in behavior between states and migrants will depend on how the four main determinants interact with individual characteristics of the foreign born Mexicans and how those factors change over time (Molloy, Smith and Wozniak, 2011). In particular, three elements can generate differences between states: first, changes in individual characteristics that are correlated with migration determinants within each group can change; second, migration incentives for specific groups can change; and third, changes in fundamental factors (i.e. wages, costs of living, etc.) for different groups can change.

Modeling net Mexican migration to the US faces different econometric challenges that arise from the dynamic nature of the migratory process and the undocumented nature of a large proportion of Mexican immigration. The dynamic nature of the immigration process implies that we may face spurious correlation, reverse causality, endogenous regression, endogenous sampling, truncated variables and omitted variable bias, as the main econometric challenges. The undocumented nature of a large proportion of the Mexican immigration also implies that measurement errors in the number of foreign-born Mexicans found in the US may affect the estimation.

The main objective of this paper is to present an empirical model that studies net Mexican migration by state, that includes different push and pull factors that have been established in the literature of internal migration in the US. At, the same time, the empirical model uses dynamic panel data set techniques that use instrumental variables to correct for the multiple econometric challenges faced by the estimation. Because of the importance of California as the top state with a foreign-born Mexican population in the year 2000, the entire empirical model is written with variable sets relative to California's levels. This helps the estimation in at least two dimensions: first, it eliminates the effect of average U.S. inflation in all nominal variables; second, it helps reduce potential heteroskedasticity in the data, by expressing all variables as fractions of California's values.

In this paper, we present evidence that growth in net Mexican migration towards Texas is not due to recent migrants; instead it is shown that Mexico born individuals arriving more than five years ago to other locations in the US and later on relocating inside Texas can explain the growing trend. Similarly, evidence is shown that trends vary by demographic groups defined by age, gender, education and time of arrival to the US. Specifically, it is shown that women's migration and migration of individuals above 60 years old are the only two demographic groups with an overall growth during the period analyzed.

The empirical models show evidence that push and pull factors vary in their degree of importance also by demographic group, although some common trends are identified. First, across all age groups a negative congestion effect of the amount of Mexicans in the US is found. Second, differences in costs of living relative to California are found to reduce net Mexican migration.

The paper also finds common effects for certain specific groups. For example, a greater wage relative to California increases net migration for men, and also for College educated men and women. The effect is not positive among all women. A larger number of green card holders have a positive increase net migration for men, but not for women or the college educated between both gender groups. A larger number of individuals 60 years and older increases net migration for men, but not for women, and for the college educated among both gender groups. A larger number of children below 15 years old is found to increase net migration for women but not for men or the college educated among both gender groups.

Finally, the paper analyzes the existence of a Texas effect. As stated earlier, specific Texas effects on net migration are found to vary by demographic groups. Positive Texas effects on net migration are found for living costs and for Mexicans with 60 years and older. These results suggest that social migrant networks are stronger in Texas and that the behavior in house values, relative to California, has attracted Mexicans towards Texas.

Negative Texas effects on net Mexican migration are found for the manufacturing sector in the cases of prime age men and women. Considering the growth observed in manufacturing in Texas, this may be related to immigration enforcement in that sector. A negative effect is also found in the retail and trade sector for young individuals, which is consistent with the decline in labor demand observed in Texas in that sector. A negative effect is also found between the c cost of electricity and the increase net migration of prime age men. Finally, a negative effect is also found in the case of relative wages of prime age, college educated, recently migrated women.

This paper is the first to study Mexican net migration in Texas. Previous papers have explained declines in the groups' US immigration. For example, Passel, Cohn and

Gonzalez-Barrera (2012) have argued that the decline in migration or reversal is due to higher rates of deportation, unemployment during the 2008 recession and/or increased family reunification in Mexico. Massey (2016) and Duran (2016) argue that a reduction in population growth in Mexico explains the decline in migration while Orrenious and Zavodny (2015, 2016) argue that greater efforts to reduce undocumented entry and employment are mainly responsible for the decline; Warren (2017) claims that increased planned returns to Mexico due to improved employment opportunities in the nation explain the decline; Cuecuecha (2018) claims that stronger job and wage growth in Mexico are the main determinants; and that a medium term trend of reduction in the US-Mexico wage differentials, as well as no further deteriorations of internal wage inequality in Mexico also help explain the declining Mexican-US immigration trend (Cuecuecha, Fuentes and McLeod, forthcoming).

We organize the analysis in four parts, as follows: The first part of analysis documents differences in Mexican net migration by migrants' length of residence in the US, education, gender and age cohort. The second part presents evidence that Mexican net migration differences across states can be explained by relative changes in wages, costs of living, and labor demand. The third section, presents an empirical model that demonstrates the importance of each of the analytical variables described above by different sub-populations of Mexicans living in the US. The last and fourth part presents the conclusions.

I. Mexican Net Migration: differences by states and different trends for specific sub-populations

Table 1 shows that while some states show a decline in the number of Mexicans, others show increments. Texas is the US state with the largest absolute increase between

2010-2015, since almost 92 thousand additional Mexicans are reported in the data[1]. In contrast, California is the US state with the largest absolute decline between 2010-2015, since the number of Mexicans declined by 30 thousand individuals.[2]

Table 1: Change in Mexican population in the US 2010-2015

States with highest absolute growth			*States with highest absolute decline*		
	%	(1000's)		%	(1000's)
Texas	3.6	92	California	-0.7	-30
Florida	6.1	17	Georgia	-9	-27
Oklahoma	9.4	10	New York	-8.3	-22
Colorado	4	9.4	Alabama	-26	-18
Wisconsin	8	7	Pennsylvania	-23	-15
Connecticut	34	6.8	New Mexico	-9	-14
Washington	2.3	5.4	North Carolina	-5	-13
Mississippi	23	4.7	New Jersey	-8.8	-12
Idaho	10	4.7	Arkansas	-16	-11
Maryland	11	4.3	Ohio	-19	-11

Source: See Note at the end of report for details.

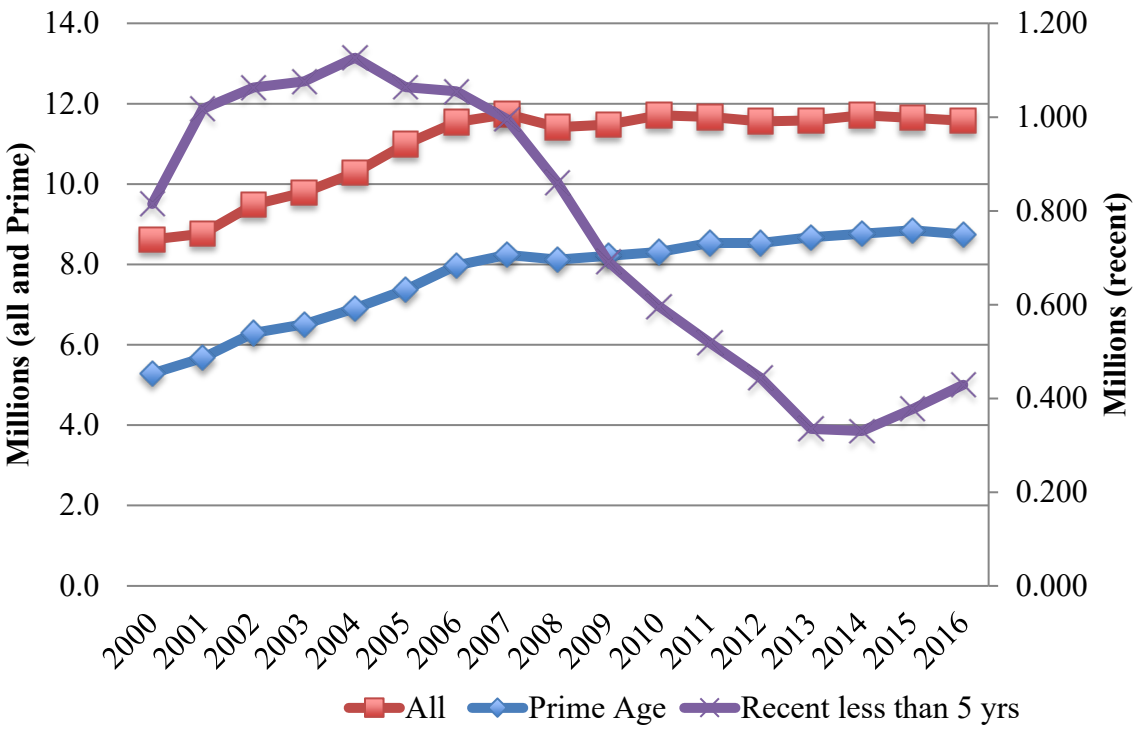
Figure 1 shows the entire population of Mexicans living in the US including individuals between 25 and 60 years or at referred to as "prime age" individuals, and those among immigrants arriving in the US during the last five years. The importance of the time

[1] Florida is the second state with the highest growth, followed by Oklahoma, Colorado, Wisconsin, Connecticut, Washington State, Mississippi, Idaho and Maryland.
[2] The US states that follow in descending order are Georgia, New York, Alabama, Pennsylvania, New Mexico, North Carolina, New Jersey, Arkansas and Ohio.

of entry to the US is demonstrated by the behavior of the recently migrated population, which is clearly different from the rest of the Mexican population in the US. The migration of recent cohorts started to decline since 2004, four years previous to the 2008 Recession. This decline prior to the economic crisis evidences that reductions in the entry flows is one of the main factors leading to the decline in the net Mexican migration to the US (Cuecuecha, 2018). Emerging research reveals that this decline is related to a reduction in the US-Mexico wage differentials observed during the same period; in addition, that the observed recent increase in immigration during the year 2015 and 2016 is also attributed to a short-run increase in the US-Mexico wage differential (Cuecuecha, Fuentes & McLeod, 2018).

Another important insight derived from Figure 1 is the difference in behavior between prime age Mexican individuals and the rest of the Mexican population. Prime age individuals show an increasing trend in immigration to the US with a slight decline only observed in 2016. This immigration pattern is very different from the immigration pattern of the entire Mexican population in the US and also from recent migrants.

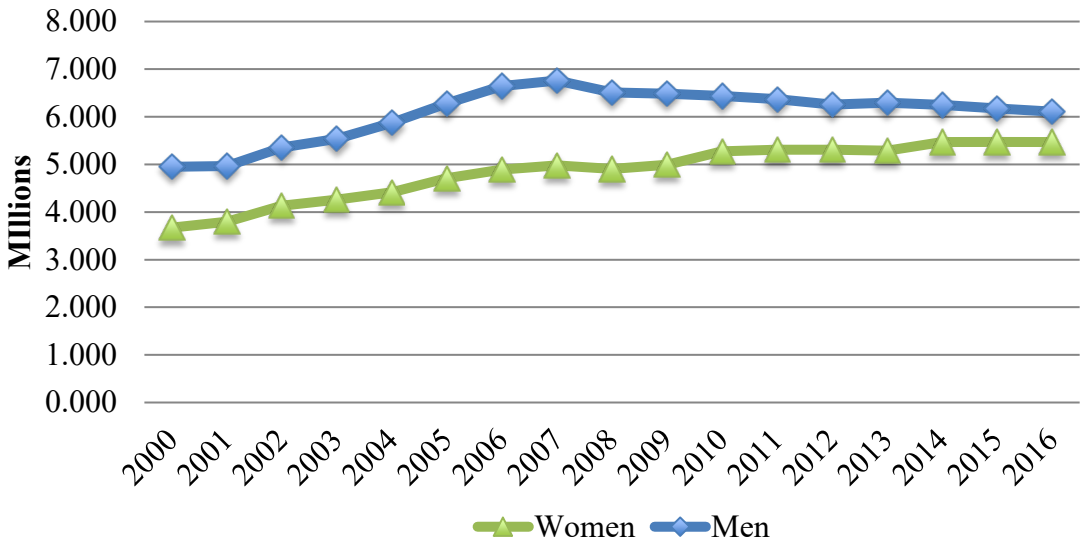
Figure 1: Mexican Migration to the US



See note at the end of report for details.

Figure 2 shows that gender is another important aspect to understand the net Mexican migration to the US. The immigration of Mexican women to the US does not show any declines for the period analyzed, except for a slight reduction between 2015 and 2016, when the total number of immigrants declined by .005 or from 5.471 to 5.466 million. Interestingly, although the net migration of men reached its maximum in 2007, at 6.760 million individuals, it has since continued to decline. This behavior has led scholars to claim that Mexican men's migration has ended but that a similar claim cannot be made for women (Cuecuecha, Fuentes, McLeod, 2018).

Figure 2: Gendered Mexican Migration to the US



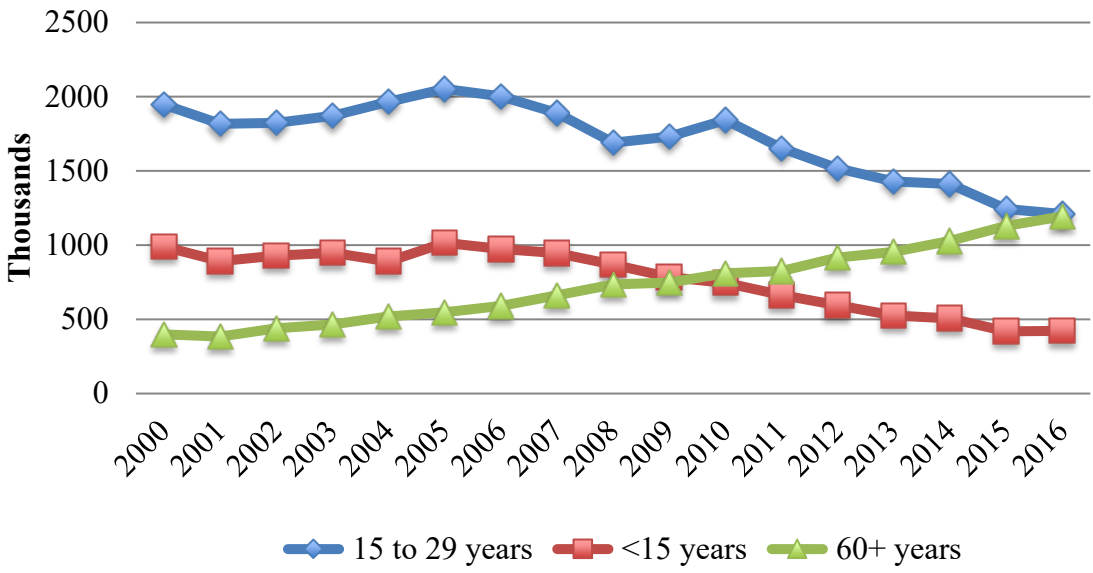
See note at the end of report for details.

Beyond the importance of gender in organizing the net migration of Mexicans in the US, Figure 3, below, confirms that age is another key explanatory variable in understanding distinctions in the immigration pattern of the US Mexican population. Foreign-born, young Mexicans, between 15 and 29 years old, reached their maximum immigration peak in 2005, when the population reached a total of 2.053 million. But by 2016, or 11 years later, the population had declined by 42%, or faced an equivalent reduction of 78 thousand individuals per year. The trend in foreign-born Mexican minors, or individuals below 15 years of age, is even more dramatic. In the same period, or between 2005 and 2016, the group observed a decline of 58%.

Figure 3 also illustrates the migrant behavior of individuals belonging to older age adults who are 60 years or older. This age group is the only one showing an increasing trend with no decline. The positive immigration of this group starts in 2000 at 398 thousand

individuals, reaching a total of 1.194 million individuals by 2016. This migration report is the first to document these distinct net migration behaviors by different age cohorts.

Figure 3: Migration of Mexican minors, young and older age adults



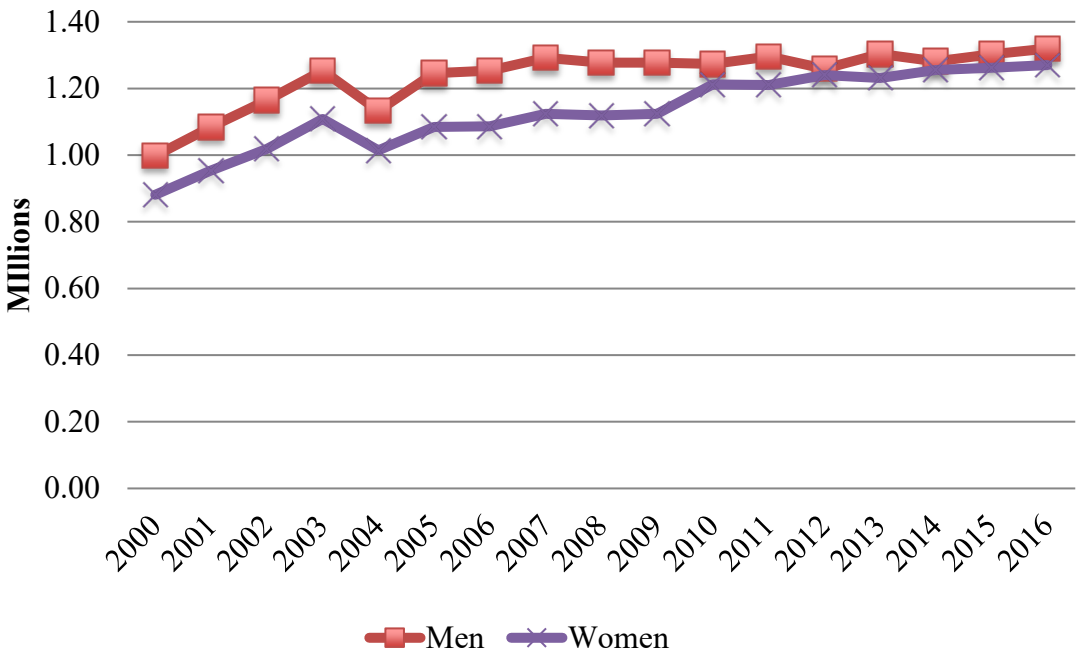
Source: See note on data at the end of the report for details.

I.1 Net Mexican Migration: The case of Texas

We now present the case of Texas and the significance of gender in organizing migration. As Figure 4 illustrates, unlike in other in other states, the immigration of Mexican men and women in Texas has shown increasing trends. Another key finding is that gender parity has been achieved in Texas, contrary to the pattern of male-led Mexican US immigration (Massey et. al 1987; Hondagneu-Sotelo 1994). Demographically, this is a new trend, as the number of Mexican men and women in Texas almost reached parity in 2016;

this trend is not observed on average for the entire US (Cuecuecha, Fuentes, McLeod, forthcoming).

Figure 4: Gendered Mexican Migration to Texas



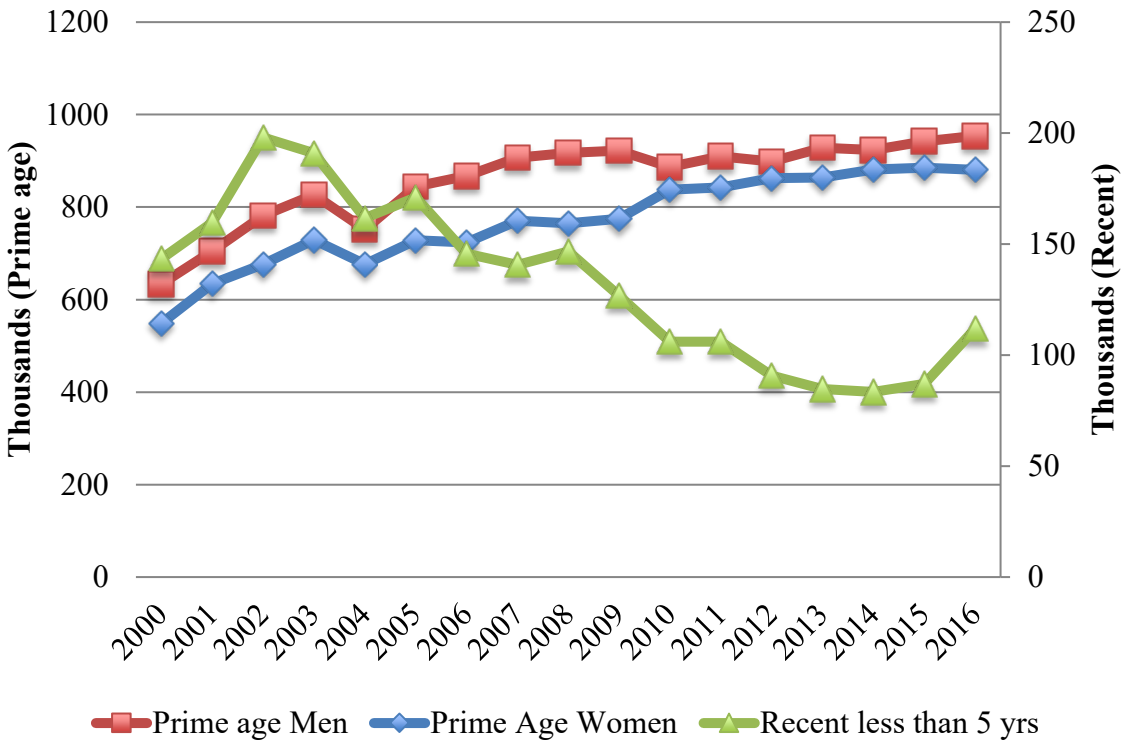
Source: see note at the end of report for details.

In terms of entry flow patterns for the entire Mexico-born population in Texas, Figure 5 shows an important decline since 2002. This immigration decline takes place two years prior to the maximum decline observed for the entire Mexico born population in the US, as explained earlier. Similar to the national trend, 2015 and 2016 show a departure from the medium term immigration trend, with increases in the number of Mexicans in the US. In addition, in 2016, the immigration of prime age Mexican individuals to Texas shows no decline for males but it does show a small decline for women. These trends lead us to

conclude that the Mexican immigration flows towards Texas is internal, or originating among individuals living in the US who migrate between states, and not directly from Mexico. This implies that to understand why Texas is attracting Mexicans from other US states, we need to study the pull immigration factors, and if these factors obey to shifts in labor market conditions, living costs conditions or other larger structural or group-specific factors. We also need to examine the individual characteristics of Mexicans attracted to Texas. In this research, we will focus in studying aggregate groups defined by gender, age and college education.[3]

[3] A study of individual characteristics of Mexico born individuals in Texas is left for future research.

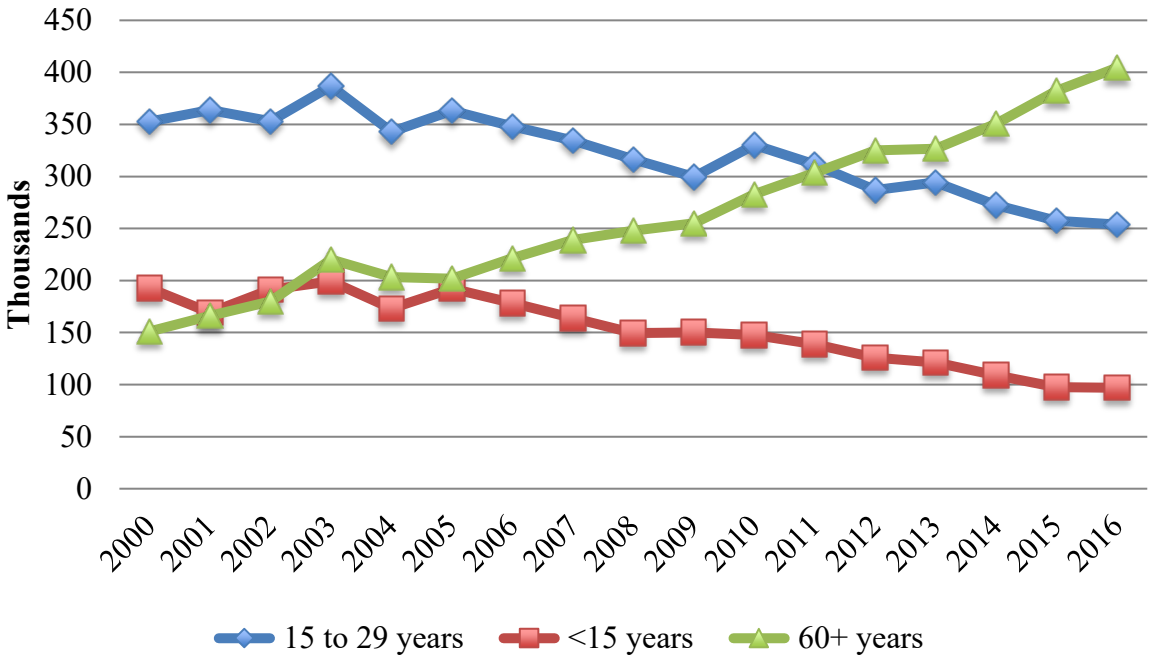
Figure 5: Prime Age Mexican and Recent Migrants in Texas



Source: See note at the end of report for details.

Figure 6 shows the trends in Texas for the migration of Mexican minors, young individuals and older age adults. Similar trends to those discussed previously at national level are observed: Mexican young and minors' migration is on a clear declining trend, while older age adult Mexicans' net migration is on a rising trend. These trends, however, help to show that the increases in net migration to Texas is mainly internal, due to Mexican migrants moving inside the US, since the net migration of young individuals is on a clear declining trend.

Figure 6: Migration of Mexican minors, young and older age adults in Texas



Source: See note at the end of report for details.

II. Net Mexican Migration to the US, productivity, living costs, sectorial demand and immigration enforcement

II. 1 *Net Mexican Migration by US state: the role of productivity*

As explained in the Introduction, the net Mexican US migration presents variations by states. In this section, we present evidence that the positive immigration of Mexicans follows productivity, as predicted by traditional Migration Theorists (Hicks, 1932; Sjaastad, 1962). We start with an analysis of relative wages for California and for each state to explain the immigration flow of Mexicans. In Figure 7, for example, we analyze the distribution of the relative wage to California compared to the national wage for the years 2010 to 2016. We also compare the relative wage for the top 10 states with the largest

positive growth and largest decline in the Mexican population. As Figure 7 illustrates, the US's distribution of relative wages is clearly to the left of both distributions, which indicates that Mexicans are moving in and out of states with higher wages than average. Evidently, this indicates that other non-wage factors may be behind those changes in location. [4]

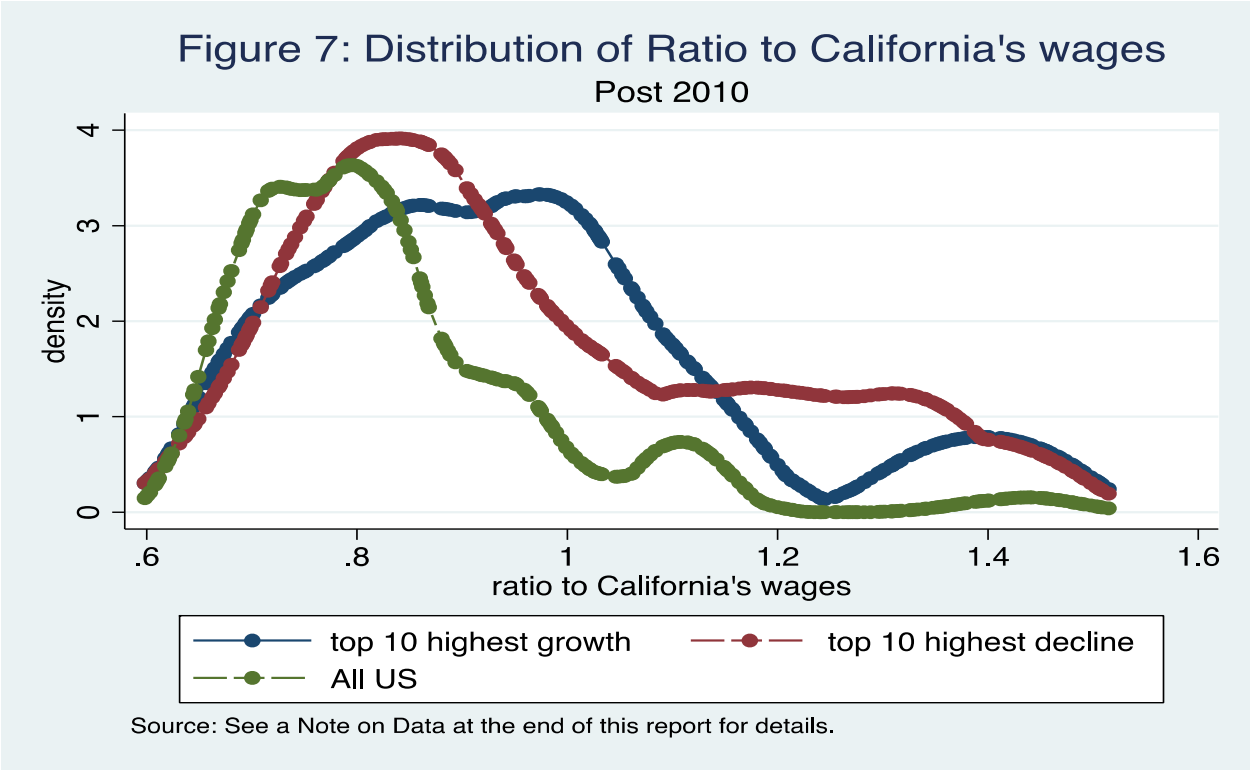
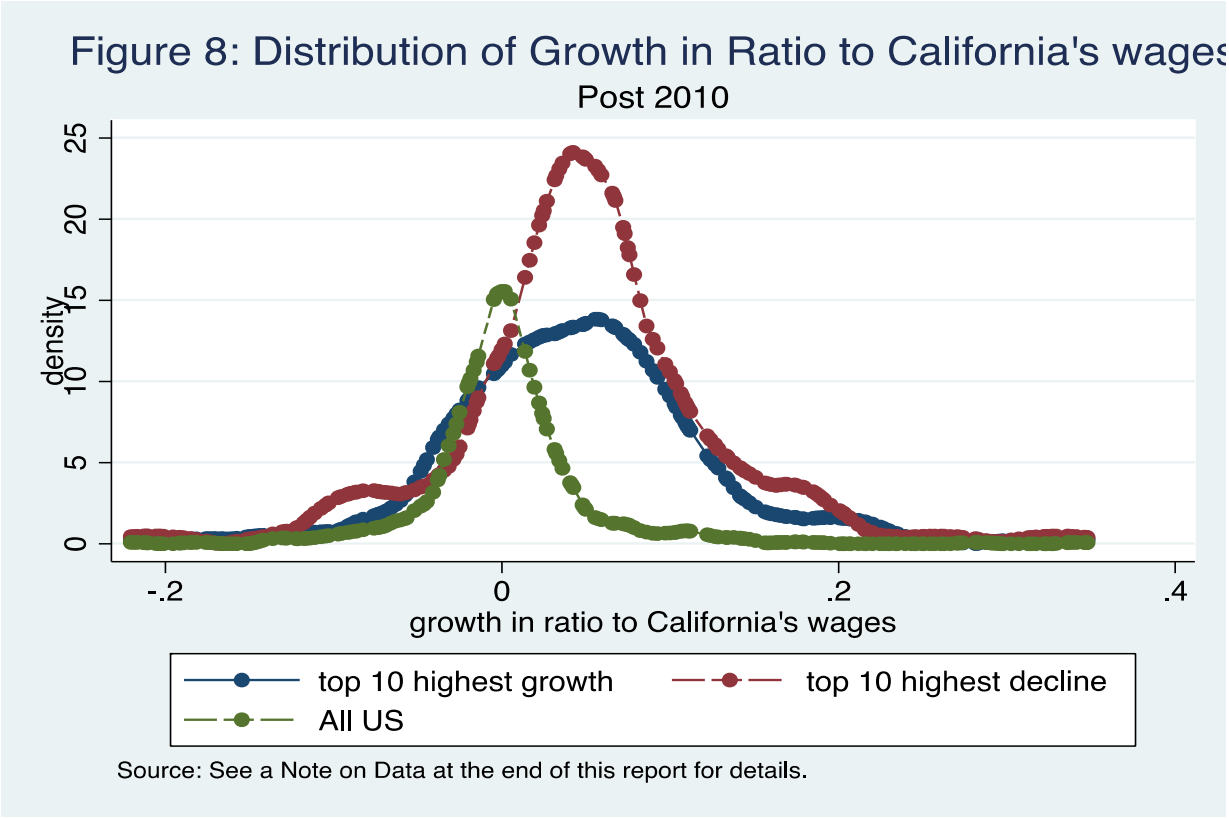


Figure 8 presents an analysis of the distribution of growth in productivity relative to California. To do so, we obtain the year-to-year growth in the relative wage to California.

[4] This is because California has average wages higher than Texas. Moreover, the analysis assumes that the Mexican population living in the US is small enough to not generate changes in relative US wages.

Figure 8 helps explain how the distribution of growth in relative wages for the entire US is to the left of the two distributions. This clearly indicates that Mexicans follow high levels of productivity and high growth in productivity. Interestingly, the distribution of growth in the top 10 states with largest decline in Mexican population shows more variation than the distribution in the top 10 states with largest growth. This indicates that the Mexican population is also looking for more stability and perhaps more predictability of wages.

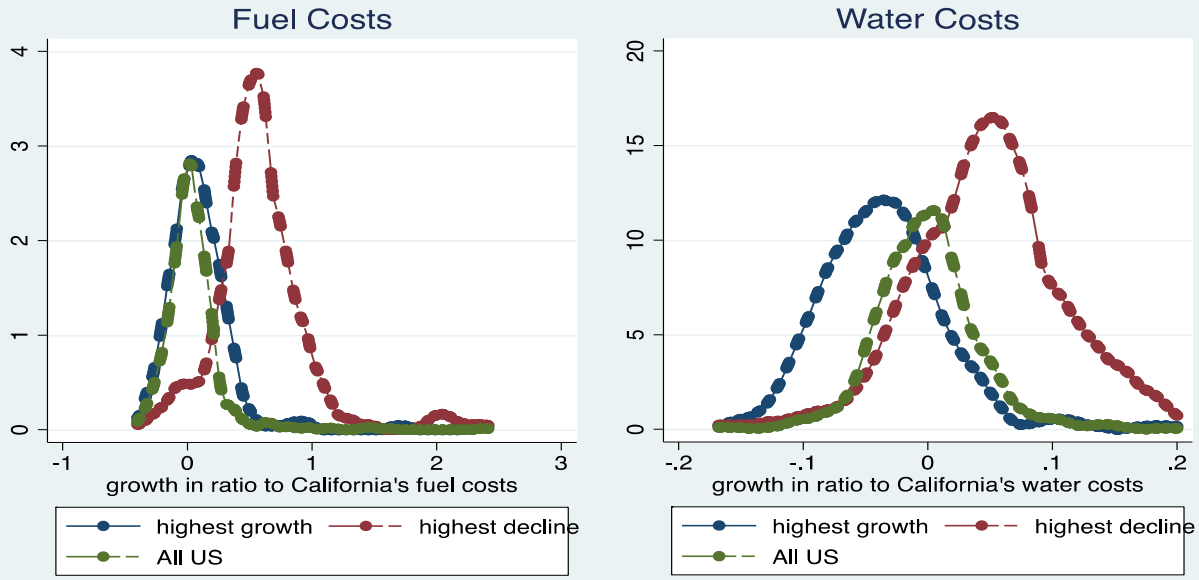


II. 2 Net Mexican Migration by US state: the role of costs of living

In this section we study the role of living costs in understanding the migration of Mexicans across states. Figure 9a shows the distribution of growth in two living costs relative to California: fuel and water costs. In both cases, the costs of living are growing

faster in the states with the largest decline in Mexican population than it is in the nation. These results imply that besides changes in productivity, Mexicans also take into account the costs of living (Mueser and Graves, 1995) like fuel and water costs.

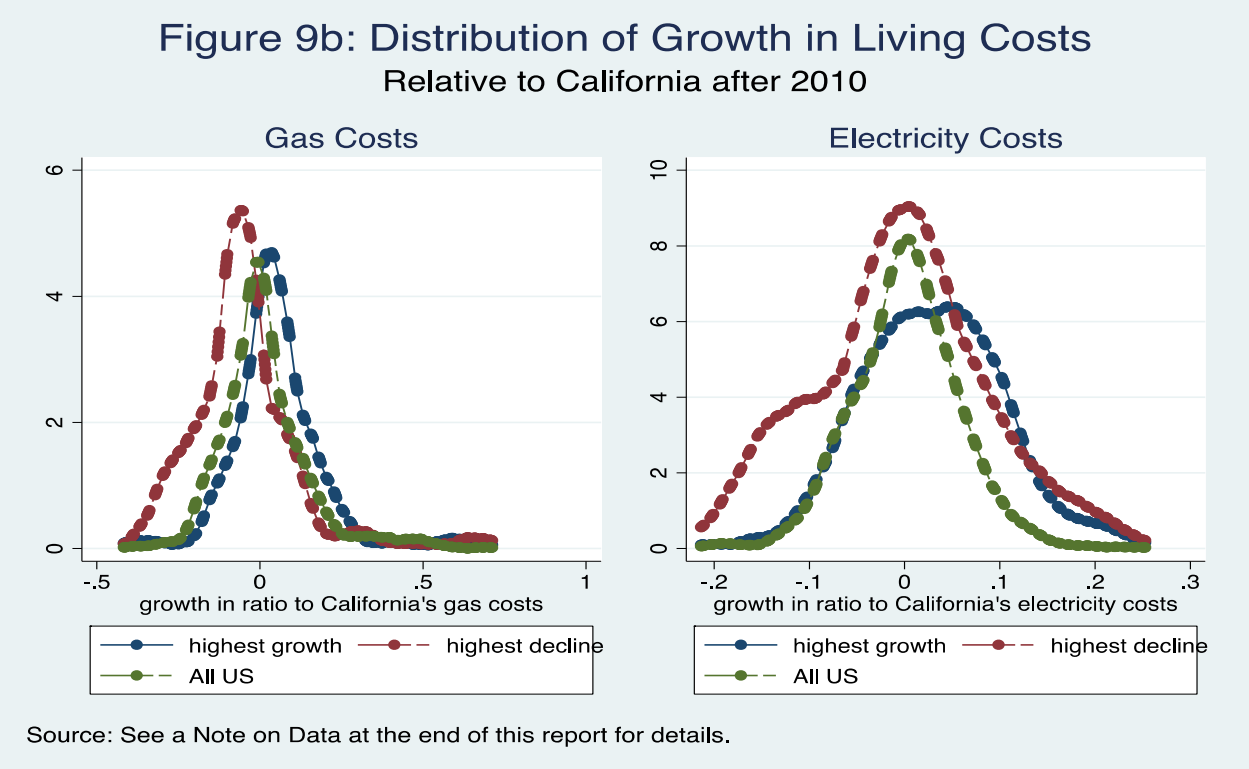
Figure 9a: Distribution of Growth in Living Costs
Relative to California after 2010



Source: See a Note on Data at the end of this report for details.

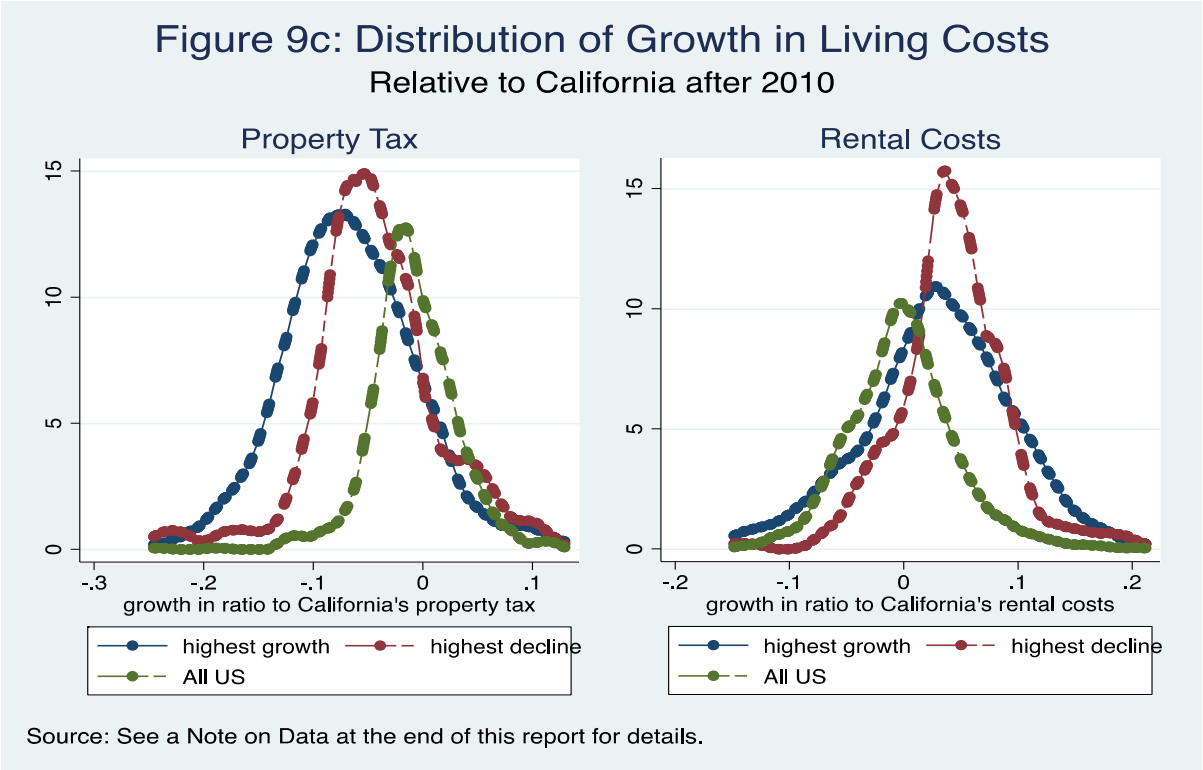
However, not all living costs show a similar pattern, since Figure 9b presents the distributions for electricity and gas costs relative to California. In the case of gas costs, cost increases are smaller in the states with the largest decline of Mexican immigrants. In the case of electricity costs, increases in these costs grow faster in states that receive the largest growth in Mexican population. These results may be related to the general productivity trend that may generate labor demand in the states that receive more Mexicans. If those

states are experiencing high demand from industries as well as from individuals moving into those areas, costs for households may also be growing. [5]



Source: See a Note on Data at the end of this report for details.

[5] This finding illustrates the need for econometric techniques that can take care of potential reverse causality or spurious correlation, since it is clear that the general productivity trend may be causing changes in the immigration flow and changes in living expenses.



Source: See a Note on Data at the end of this report for details.

Figure 9c presents the distribution of two elements that are also part of living costs: property taxes and rental costs. Property taxes may influence migration decisions in different ways: first, it is related to income tax law since if income tax allows deductions of property taxes, then states with higher property taxes become more attractive; second, with limitations to deductions, then states with higher property taxes become less attractive; third, even if individuals do not pay property taxes directly, they could indirectly pay property taxes if landowners translate those taxes into higher rental fees. Mexicans seem to be migrating to states that present negative growth in property taxes relative to California. In the case of rental costs, Mexicans seem to be migrating to states that show positive growth in rental costs relative to California. The first result is as expected by internal migration theory where the cost of public goods (i.e. taxes) can influence immigration

decisions (Mueser and Graves, 2012; Cohen, Lai and Steindel, 2014). The second result may be explained by a similar argument presented before where changes in productivity are moving labor demand and generating increases in rental costs.[6]

II.3 Net Mexican Migration by US state: the role of household income per capita and house values

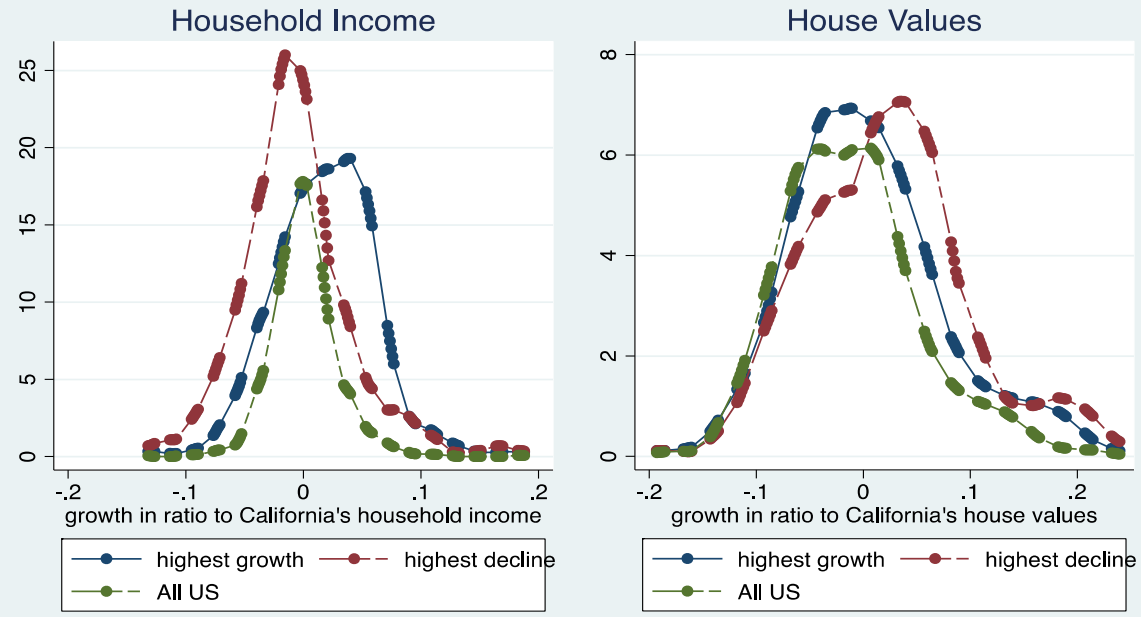
In this section we analyze how the growth in household income per capita and house values are related to the migration of Mexicans across states. Household income per capita is evidently also associated with increases in productivity. Consequently, states with higher income per capita may also be offering higher opportunities to migrants, not only those measured by better wages, but also those linked to better education, entertainment options and to open businesses. House values may be linked to higher wealth levels in a state, which may also be linked to a higher demand for construction and other household services, but it also may deter migrants from moving to those places if they want to become homeowners.

Figure 10 compares the distribution of household income per capita relative to California and the distribution of house values relative to California. It is clear that states with higher growth in household income per capita attract migrants, while states with highest growth in house values deter migration. The above results imply that Mexican migrants are moving across states to become homeowners, or that states with high demand for construction and household services attract more migrants.

[6] Once again, this finding reinforces the need for an econometric technique that can control for potential spurious correlation.

Figure 10: Distribution of Growth in Income and House Values

Relative to California after 2010

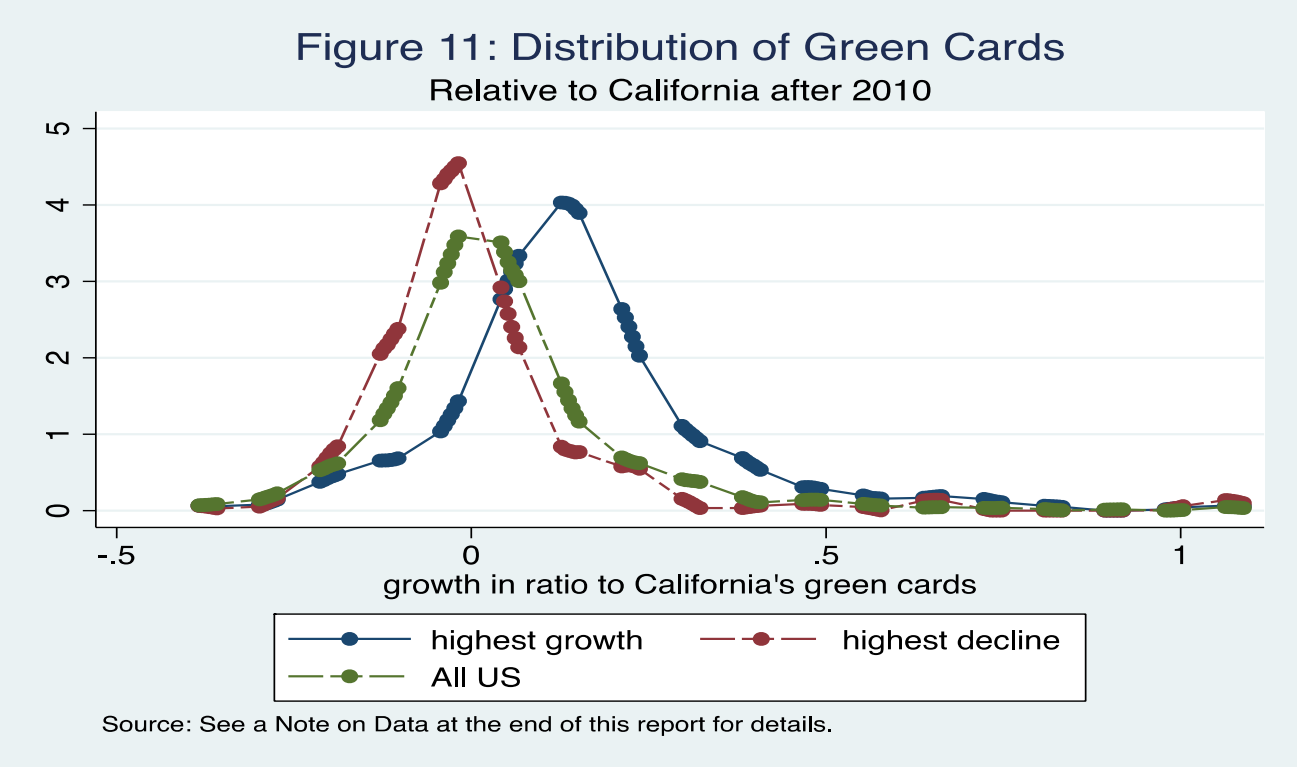


Source: See a Note on Data at the end of this report for details.

II. 4 Net Mexican Migration by US state: the role of the enforcement of Immigration Law

In this section a measure of the enforcement of immigration law and Mexican immigration by state is explored. The information on the number of green cards granted per state is utilized as a way to measure how states vary in the opportunities they offer to immigrants to become permanent residents. Data comes from US Department of Homeland Security (2017). It is important to notice that while the requirements on green cards are set at the Federal level, the number of granted green cards vary by state according to different factors such as qualified family members that can bring other family members to the US; the number of employment or business opportunities than the state generates that can apply for a green card; and the number of non-government organizations that may help migrants to apply for humanitarian green cards.

Figure 11 shows a clear trend: Mexicans are migrating to states were green cards are being granted more than in California and are leaving states were green cards are granted less than in California. These trends may reflect states with stronger migrant networks than California or states that are generating jobs in categories were green cards are more easily granted. This second aspect is explored in further depth in our next section.



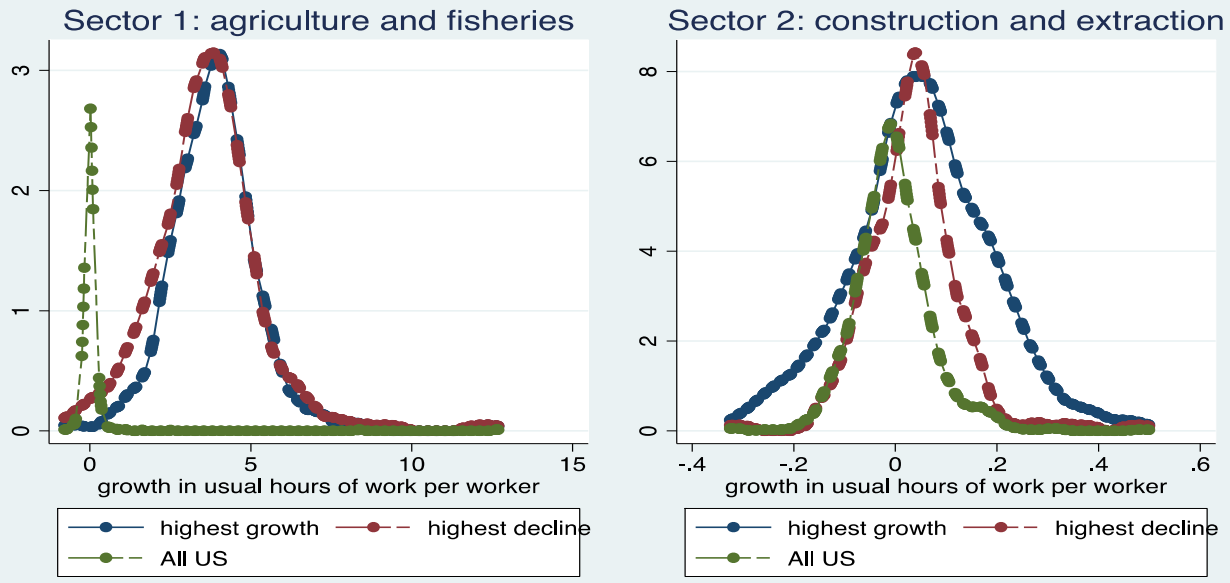
II.5 Net Mexican Migration by US state: the role of changes in usual hours of work per sector and state

In this section the role of sectorial labor demand is explored. To do so, the 1 digit NAICS industry classification is employed and the growth in usual hours of work per sector and state is analyzed.

Figure 12a shows the behavior in the agricultural sector and the behavior of the construction and extraction sector. Both sectors are important for states with the highest

increase in Mexicans and for the states with the highest declines in Mexicans. In the case of Agriculture, both growth distributions are displaced to the right of the total US distribution. This behavior may reflect individuals changing states looking for better wages or better living conditions. In the case of construction and extraction, the distribution of states that receive more Mexicans is the one more shifted to the right. It is clear that jobs in construction and extraction attract Mexican migrants. It is clear that this behavior may also reflect individuals shifting states looking for better wages or living conditions.

Figure 12a: Distribution of Growth in Usual Hours of Work per worker after 2010

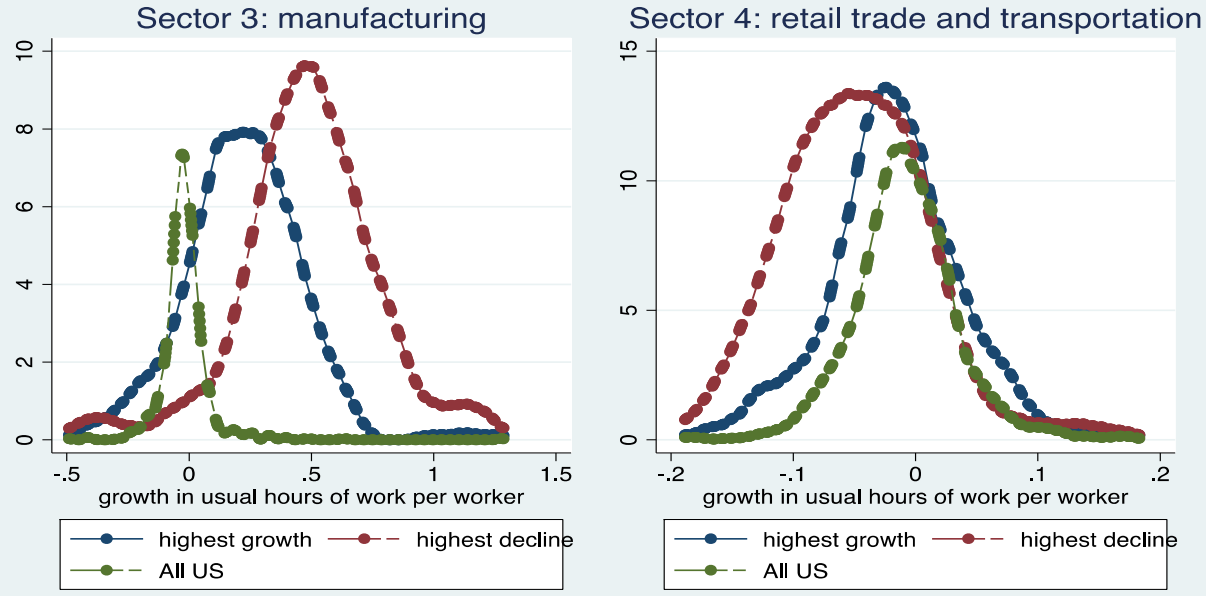


Source: See a Note on Data at the end of this report for details.

Table 12b shows the manufacturing sector, as well as the retail trade and transportation sector. Manufacturing is also important for states with the highest decline in Mexicans and the highest growth in Mexicans. Both distributions are to the right of the entire US distribution, with states with the largest decline showing the largest positive growth in working hours. This behavior is likely to be a result of the E-Verify program (Orrenious and Zavodny, 2015, 2016) since workers in the manufacturing sector are clearly

relatively easy to be verified by immigration authorities, it could also reflect individuals changing states looking for better wages and living conditions, since Mexicans are also attracted by states with medium levels of growth in working hours. In the case of the retail trade and transportation sector the states with the largest decline in Mexican immigration have a distribution that is centered in negative growth and to the left of the entire US distribution. This result indicates that the destruction of jobs in retail trade and transportation may explain why Mexicans are leaving those states.

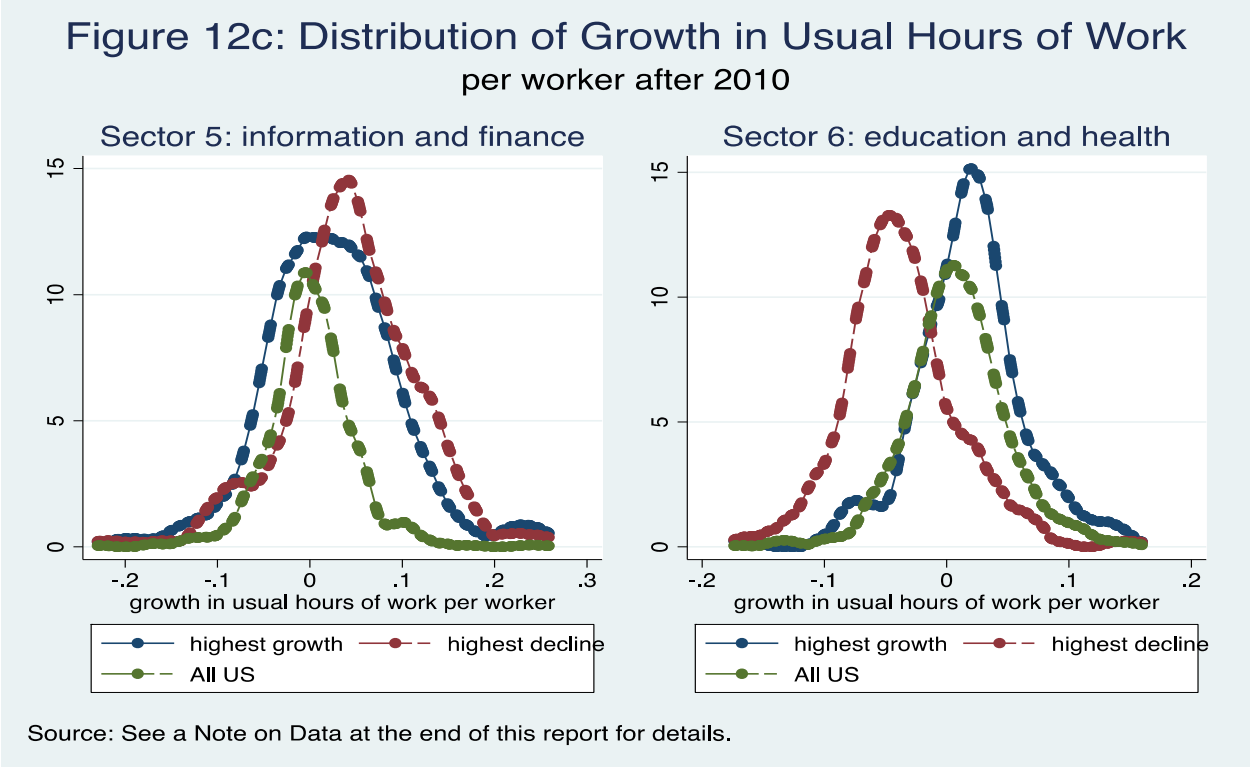
Figure 12b: Distribution of Growth in Usual Hours of Work per worker after 2010



Source: See a Note on Data at the end of this report for details.

Figure 12c shows the information and finance sector, which also appear to be important for both states with the highest decline and states with the highest growth. This may reflect changes for skilled Mexican migrants looking for better positions or for better living conditions, given that jobs in these industries may hire Mexicans with documents. The figure also shows the education and health sectors, where states with the highest

increase of Mexicans show positive rates of growth in employment hours. On the contrary, states with the largest declines in Mexicans show negative rates of growth. These movements also coincide with those that could be expected for skilled Mexican migrants.

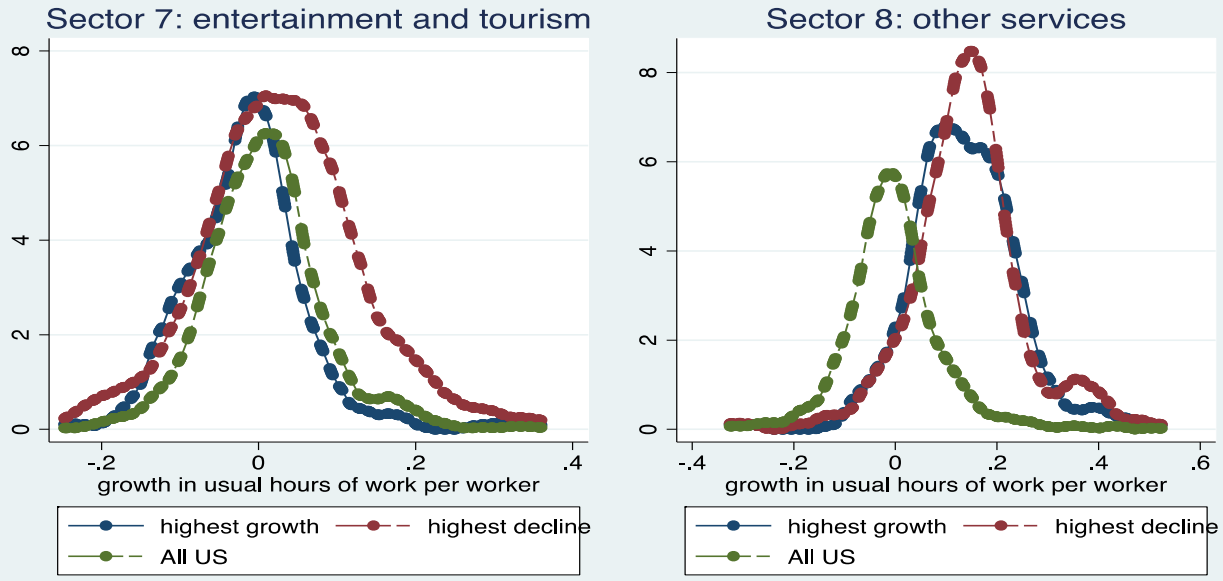


Source: See a Note on Data at the end of this report for details.

Figure 12d presents the sector of entertainment and tourism, where the states with the highest decline in Mexicans show positive growth. This may also reflect the effect of E-Verify perhaps because these are highly visible occupations. The figure also presents the other services sector, which is important for both high decline states and high growth states. These changes may also reflect individuals looking for better living conditions or better wages.

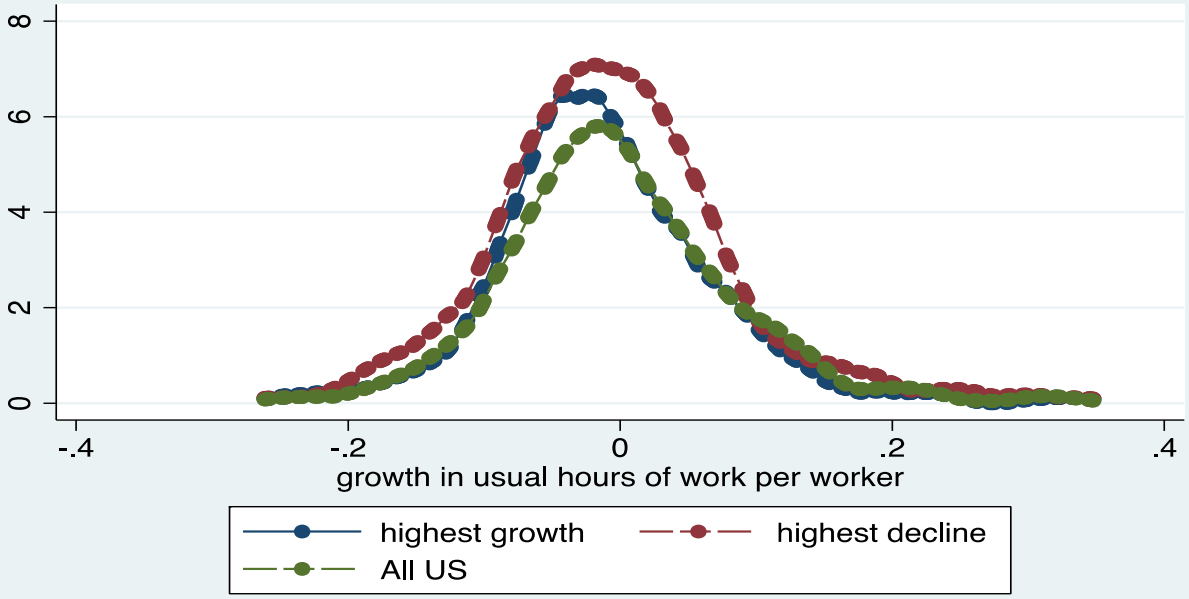
Finally, Figure 12e presents jobs in the public sector. This sector shows almost no response to the positive or negative growth of Mexicans, except for a positive accumulation of mass to the right of the US distribution for those states with highest decline in Mexicans. This may reflect an increase in public sector jobs that enforce immigration law.

Figure 12d: Distribution of Growth in Usual Hours of Work per worker after 2010



Source: See a Note on Data at the end of this report for details.

Figure 12e: Distribution of Growth in Usual Hours of Work per worker after 2010 in Public sector



Source: See a Note on Data at the end of this report for details.

II.6 Net Mexican Migration by US state: the case of Texas

In this section we present an analysis showing where the average of Texas is located relative to other states with regard to the different factors that have been explored. Table 2 shows that the differences found in growth between Texas and other states are not statistically significant in the sample analyzed. These results may be due to the fact that the data has been obtained at the state level and that comparisons are based on these aggregate data. However, we still comment on the differences in average values between the US and Texas, keeping in mind that the differences are not statistically significant. These differences, however, will help understand the signs of the Texas effect that is studied later on in section III of this research report.

Table 2 shows that Texas' relative wage to California shows a negative decline during the 2010-2016 period, this is below the average growth observed in the US. Texas's relative household income to California also shows a negative growth, similarly to the average of the US. Texas's house values have shown also a decline versus those of California, however this decline is less strong as that observed in the average US. This trend has two implications: firstly, as far as demand for construction and household services is concerned, it implies that demand for those services is stronger in Texas than in the average US; secondly, as far as a destination for homeowners is concerned, showing price increases below of California's implies that Texas is attractive for Mexicans migrating out of California, and yet it is not necessarily the market with lowest house prices, since the average house value in the US has declined more than in Texas, relative to California. The three factors (relative wages, household income and house values) do not seem to have

generated incentives for Mexican migrants; however, this can only be claimed with a proper econometric model, which will do in our next section.

With regard to living costs, there are four living costs that move in a direction that could have attracted migrants because they show a growth that is below that observed for the average US. They are: relative costs in fuel, water, electricity and rents.

In the case of sectorial demand, it is found that three sectors (manufacturing, education and health, other services) grew faster than the average US and one sector decline less than the rest of the US (public administration). These four sectors show a behavior that could attract Mexican migrants.

Table 2. Values for Growth in different factors related to Migration in the US and Texas

	US	Texas	Growth in Texas relative to US	Factor for higher migration than the US
Relative wage	0.002	-0.005	Below	No
	[0.012]	[0.020]		
Relative household income	-0.004	-0.004	Same	No
	[0.028]	[0.019]		
Relative house values	-0.013	-0.002	Above	No, for home ownership
	[0.025]	[0.013]		Yes for demand of construction workers
Relative cost of fuel	-0.013	-0.028	Below	Yes
	[0.025]	[0.080]		
Relative cost of water	0.002	-0.001	Below	Yes
	[0.025]	[0.034]		
Relative cost of gas	-0.029	-0.025	Same	No
	[0.132]	[0.091]		

Relative cost of electricity	-0.012	-0.050	Below	Yes
	[0.062]	[0.091]		
Relative rental costs	0.001	-0.050	Below	Yes
	[0.017]	[0.091]		
Relative property taxes	-0.004	0.008	Above	No
	[0.019]	[0.005]		
Relative green cards	0.001	0.0001	Below	No
	[0.011]	[0.003]		
Growth in agriculture	0.058	0.012	Below	No
	[0.819]	[0.018]		
Growth in construction	-0.007	-0.060	Same	No
	[0.065]	[0.056]		
Growth in manufacturing	-0.002	0.010	Above	Yes
	[0.079]	[0.040]		
Growth in retail trade	-0.001	-0.021	Below	No
	[0.042]	[0.027]		
Growth in technology and finance	0.002	0.0003	Below	No
	[0.045]	[0.021]		
Growth in education and health	-0.001	0.001	Above	Yes
	[0.039]	[0.020]		
Growth in entertainment	0.006	0.0003	Below	No
	[0.068]	[0.023]		
Growth in other services	-0.003	0.007	Above	Yes
	[0.089]	[0.028]		
Growth in public administration	-0.017	-0.001	Above	Yes
	[0.084]	[0.040]		

Source: See Note on data at the end of this report for details. All differences between US average and Texas are not statistically significant.

III. An empirical model to explain net Mexican migration by US state

In this section, an empirical model is presented that will allow us to estimate impacts for the different variables that have been introduced in the research project. The equation takes the following form:

$$Y_t = X_t B_0 + Y_{t-1} B_1 + Y_{t-2} B_2 + V_t$$

Where:

$$Y_t: net\ mexican\ migration$$

$$X_t: matrix\ of\ control\ variables$$

$$Y_{t-j}: the\ jth\ lag\ of\ net\ mexican\ migration$$

$$V_t: unobserved\ errors$$

The model takes the form of a dynamic panel data (Arellano and Bond, 1991), where fixed or random panel effects cannot obtain unbiased estimates. Consequently, a dynamic panel model is used following Arellano and Bover (1995). Their technique consists in using a Generalized Method of Moments approach (GMM) using instruments that are based on lagged level values and lagged differences. Moreover, the Arellano and Bover approach allow the estimation of systems rather than equations. The model selection requires testing for the validity of the instruments implemented as well as for the validity of the implicit assumption on the dynamic structure of the entire model. On the basis of these two tests, we selected the different models that are implemented in this research report.

Models were estimated for different demographic groups, each one of them is calculated as ratio of the entire US population, the logarithm of the ratio is calculated and it is studied in first difference. Following the results from the tests of suitability of instruments and the existence or not of autocorrelation of order 2, different models were implemented. Table 3 show that in eight demographic groups a 3-equation system was

required to model the migration of that specific demographic group. In four cases only one equation was needed, while in one case 4 equations were needed and in other case 2 equations were needed. The specific variables included will be discussed as the full results are explained.

Table 3. Model selection by demographic group

	Type of model	Equations in system
All	System	3
Prime Age	System	3
Young	System	3
Recently migrated	System	3
Prime Age Men	System	3
Young Men	System	2
Men Recently migrated	System	3
Prime Age Women	System	4
Young Woman	System	3
Woman Recently migrated	System	3
College, prime age men	Single equation	1
College, prime age women	Single equation	1
College, prime age men, recently migrated	Single equation	1
College, prime age women, recently migrated	Single equation	1

Source: own calculations, full model reports follow in Tables 4, 5 and 6.

The matrix of control variables is formed by the following variables that are presented classified depending on the argument utilized to include them in the model.

Variables related to productivity:

1. The first difference of the average wage by state relative to California's average wage. This variable is usually included in migration models to represent differences in average productivity between destination and origin locations. In our case, it represents differences in average productivity between different potential destinations relative to the State with the largest population of Mexicans in 2000.

2. The first difference of the average household income per capita by state relative to California's average household income per capita. This variable is included to capture other ways in which productivity may attract migrants, for example through more employment opportunities, better schools or in general different amenities that are linked to higher income per capita.

Variables related to living costs. In all cases, they are related to self-explanatory concepts that are included in the cost of living:

1. The first difference of the average house values by state relative to California's average house values. This variable pretends to capture two aspects that are important for Mexican migrants: first, larger productivity in a State may be linked to higher house values which may attract individuals that work in construction or household services, two sectors that are important for Mexican migrants; second, migrants may also want to move to become homeowners. This variable, then shares elements of productivity and of living costs.
2. The first difference of the average fuel costs by state relative to California's average fuel costs.
3. The first difference of the average water costs by state relative to California's average water costs.
4. The first difference of the average gas costs by state relative to California's average gas costs.
5. The first difference of the average electricity costs by state relative to California's average electric costs.
6. The first difference of the average rental costs by state relative to California's average rental costs.

7. The first difference of the average property tax by state relative to California's average property tax.

Variables related to sectorial labor demand:

1. The growth in average hours per employee in sector 1: agriculture
2. The growth in average hours per employee in sector 2: construction and extraction
3. The growth in average hours per employee in sector 3: manufacturing
4. The growth in average hours per employee in sector 4: retail trade and transportation
5. The growth in average hours per employee in sector 5: information and finance
6. The growth in average hours per employee in sector 6: education and health
7. The growth in average hours per employee in sector 7: entertainment and tourism
8. The growth in average hours per employee in sector 8: other services
9. The growth in average hours per employee in sector 9: public administration

Variable related to immigration enforcement:

The first difference of the logarithm of the number of lawfully permanent residents per state.

The Arellano-Bover (1995) methodology allows using different instruments for equations in levels and equations in first difference. We only include as instruments for equations in first difference lagged values of the sectorial demand variables. In the case of equations in levels we include as instruments differenced values of the sectorial demand variables and lagged values of the relative wage; the relative household income per capita and the relative house values.

Table 4 shows the results for demographic aggregate groups that are studied without separating between men and women. It shows results for all the Mexicans living in the US, the prime age, the young and the recently migrated Mexicans. In the four cases the results of a dynamic system estimation are shown, each one of them with three variables included in the system: those were the Mexican group studied, the third age Mexicans, and the green cards relative to California. Each one of the variables mentioned is studied in first difference and in logs units. The system estimated in all cases includes two lagged values of the first difference. In all cases, we only report the equation for the Mexican group studied.

Column 1 in Table 4 presents the results for all the Mexicans living in the US. It shows that the Migrant Social Network effect has two components: the first one is negative showing evidence of a possible network congestion effect since both lags of the difference of the Mexican group analyzed have negative signs; the second one is positive, this effect appears in the signs of the first difference of the log of third age Mexicans, as well as on the two lags of the first difference. This effect predicted by the Migrant Social Network Theory claims that previous migrants help new migrants find better jobs and reduce migratory costs (Munshi, 2003). Table 4 also shows that lagged valued of green cards increase the number of Mexicans in the US, this effect, however, may reflect that States with higher demand for employees will easy conditions to extend green cards, which will attract migrants.

Column1 in Table 4 also shows that States whose productivity increases or catches up to California's attract more Mexicans. The table also shows that, conditioning on the wage, if household income increases less Mexican immigrants are attracted to those States. This may be interpreted as showing that certain costs of living, not included in the ones we are controlling for, may be raising in those states. Table 4 also shows expected signs for water costs, gas costs and property taxes, since as they increase relative to California's they

will deter Mexicans. Fuel and electricity costs are found with positive signs, perhaps showing that demand for electricity and fuel in states with high sectorial demand will increase costs for households. If Mexicans follow sectorial demand we capture such correlation in the data. Column 1 also reports that the model does not have autocorrelation of order 2, which is important to avoid biases in the estimation, and also the model reports that instruments are valid. All models presented in this report approved these tests.

Column 2 in Table 4 presents results for prime age Mexicans, which are qualitatively similar to those discussed before, except because for prime age Mexicans the household income variable is not significant.

Column 3 in Table 4 presents results for young Mexicans and Column 4 presents results for recently migrated Mexicans. These two demographic groups presents some important differences with respect to the other two groups: first, the positive effect of the older age adults is not found on them, probably showing that young or recently migrated individuals may lack a network with family members that will reduce migration costs for them; second, the relative wage is not statistically significant which probably shows that their movements respond to the availability of jobs and not necessarily to better wages; third, in the case of recently migrated they also do not have the positive effect of green cards, probably showing how limited their social network is in the US and only living costs are important for them negatively affecting their migration dynamics.

Table 4. Models for Net Mexican Migration by state and indicated demographic group. All models control for sectorial labor demand. 2000-2016.

Age group	All	Prime Age	Young	All
Migration time	All	All	All	Recent
L1.D.Log of Mexican group	-0.642***	-0.677***	-0.601***	-0.448***
	[0.048]	[0.047]	[0.049]	[0.052]
L1.D.Log of Mexican group	-0.478***	-0.467***	-0.302***	-0.095**

	[0.048]	[0.046]	[0.043]	[0.046]
D. Log of older age adults	0.113***	0.123***	0.033	0.004
	[0.023]	[0.024]	[0.026]	[0.049]
L1. D. Log of older age adults	0.091***	0.088***	-0.024	-0.055
	[0.024]	[0.026]	[0.029]	[0.052]
L2. D. Log of older age adults	0.066***	0.050**	0.031	0.012
	[0.019]	[0.020]	[0.022]	[0.041]
D. Log of green cards relative to California	0.527	0.630	0.182	0.350
	[0.583]	[0.573]	[0.627]	[1.118]
L1.D.Log of green cards relative to California	1.569***	1.733***	1.257**	-0.289
	[0.493]	[0.528]	[0.580]	[1.033]
L2.D.Log of green cards relative to California	1.036**	1.203**	0.291	-0.026
	[0.489]	[0.516]	[0.563]	[1.005]
D. Wage relative to California	2.057***	2.556***	-0.426	1.934
	[0.798]	[0.848]	[0.974]	[1.715]
D.Household income relative to California	-4.43E-05***	-2.35E-05	-4.59E-05**	-1.75E-05
	[1.66E-05]	[1.87E-05]	[2.08E-05]	[3.70E-05]
D. House value relative to California	0.149	0.585	-0.536	-1.461*
	[0.344]	[0.386]	[0.423]	[0.767]
D. Fuel cost relative to California	0.019**	0.029***	0.007	0.003
	[0.009]	[0.010]	[0.011]	[0.019]
D. Water cost relative to California	-1.483***	-1.857***	-1.601***	-0.836
	[0.390]	[0.416]	[0.456]	[0.834]
D. Gas cost relative to California	-0.274***	-0.232**	-0.249**	-0.558***
	[0.092]	[0.099]	[0.109]	[0.196]
D. Electricity cost relative to California	0.394**	0.430**	0.426**	0.085
	[0.176]	[0.187]	[0.205]	[0.366]
D. Rental cost relative to California	0.539	0.272	1.604***	1.764
	[0.531]	[0.560]	[0.616]	[1.132]

D. Property tax relative to California	-1.622***	-1.436**	-0.696	-1.583
	[0.547]	[0.579]	[0.639]	[1.123]
N	435	435	431	435
Wald chi(2)	1163***	439***	307***	164***
Sargan Test	342	357	314	335
AR(2) Arellano Bond Test	-.805	-1.55	.45	-.07

Notes: *Significant at 10%, **Significant at 5%, ***Significant at 1%. D refers to a first difference operator. L1 refers to first lag operator. L2 refers to a second lag operator.

Table 5 presents results for prime age, young and recently migrated Mexican men[7]. These three demographic required dynamic system estimation, however, the model for prime age and recently migrated included three equations, while the model for young Mexicans only admitted two equations. The model for prime age male Mexicans is quite similar to the model presented for prime age Mexicans. We find evidence of a congestion effect as well as a positive effect on the number of older age adults. We also find a positive effect in the number of lagged valued of green cards. The wage relative to California is also found positively related to migration. Only water costs and property tax are found to be statistically significant and negatively related to migration. The above implies that as we better define the demographic group studied, some abnormal results disappeared.

The second column of Table 5 presents the model for young Mexicans, which only admitted equations for the own demographic group and for green cards. It is found also the congestion effect on migrants of similar demographic group and also a positive effect on the number of lagged green cards. The relative wage is not statistically significant and costs of living are found negatively related to migration: house values, fuel, water and electricity costs are all found negatively affecting the immigration of this young age group.

[7] Results for all Mexicans men were very similar to those presented for prime age Mexicans and because of that we only discuss the latter.

The third column of Table 5 presents the model for recently migrated Mexicans. This model admitted three equations. It shows the negative congestion effect on the own Mexican group, and it shows a negative sign on the lag of older age adults. This finding probably indicates that recently migrated Mexicans move to states with few older age adult Mexicans. It finds a positive effect of the relative wage and negative signs for living costs, like house values, gas costs and property taxes. It is found a positive sign on rental costs, signaling that recently migrated Mexicans move to states with high demand for rental property.

Table 5. Models for Men's Net Mexican Migration by state and indicated demographic group. All models control for sectorial labor demand. 2000-2016.

Age group	Prime Age	Young	All
Migration group	All	All	Recent
L1.D.Log of Mexican group	-0.527***	-0.717***	-0.534***
	[0.046]	[0.049]	[0.052]
L1.D.Log of Mexican group	-0.348***	-0.474***	-0.266***
	[0.044]	[0.043]	[0.048]
D. Log of older age adults	0.131***		0.029
	[0.027]		[0.062]
L1. D. Log of older age adults	0.111***		-0.182***
	[0.030]		[0.066]
L2. D. Log of older age adults	0.075***		-0.020
	[0.024]		[0.050]
D. Log of green cards relative to California	0.864	3.280**	0.690
	[0.669]	[0.627]	[1.367]
L1.D.Log of green cards relative to California	1.404**	0.822	-0.215
	[0.617]	[0.580]	[1.261]
L2.D.Log of green cards relative to California	1.381**	1.164	0.314
	[0.601]	[0.563]	[1.224]
D. Wage relative to California	2.394**	-0.640	4.195**
	[1.008]	[1.599]	[2.155]
D.Household income relative to California	-3.03E-05	-2.26E-05	3.73E-05

	[2.18E-05]	[3.16E-05]	[4.61E-05]
D. House value relative to California	0.463	-1.550**	-1.857**
	[0.452]	[0.739]	[0.932]
D. Fuel cost relative to California	0.015	-0.028*	-0.014
	[0.011]	[0.016]	[0.026]
D. Water cost relative to California	-1.826***	-1.396*	0.508
	[0.485]	[0.821]	[1.073]
D. Gas cost relative to California	-0.151	-0.276	-0.541**
	[0.117]	[0.195]	[0.240]
D. Electricity cost relative to California	0.152	-1.047***	-0.033
	[0.217]	[0.398]	[0.456]
D. Rental cost relative to California	0.662	0.197	2.577*
	[0.651]	[1.110]	[1.396]
D. Property tax relative to California	-1.192*	0.186	-3.329**
	[0.676]	[1.052]	[1.400]
N	435	524	417
Wald chi(2)	322***	296***	245***
Sargan Test	346	337	324
AR(2) Arellano Bond Test	-1.23	-.72	.32

Notes: *Significant at 10%, **Significant at 5%, ***Significant at 1%. D refers to a first difference operator. L1 refers to first lag operator. L2 refers to a second lag operator.

Table 6 presents results for prime age, young, and recently migrated Mexican women.[8]These demographic groups required 4 or three system equations. In the case of prime age women, the four equations included the own demographic group, the first difference of Mexican minors, the first difference of older age adults and the difference in green cards. The negative congestion effect is also found. Positive effects are found for lagged values of Mexican minors, as well as for lagged valued of older age adults and

[8] Results for all Mexican women were very similar to those shown for prime age women. Because of that we only show the latter.

lagged values of green cards. No significant effect is found for the relative wage. A negative sign is found for water and gas costs. A positive effect is found for electricity costs. This positive sign may indicate that women's migration is higher for states where demand for electricity is higher.

Column 2 of Table 6 presents results for young women; this demographic group admitted three equations excluding the one for older age adults. It is found a negative congestion effect on the own group, and positive effects on lagged values of minor's migration. The relative wage is not statistically significant. A positive sign is found on house values, probably showing that Mexican's women migrate where house values are higher and demand for household services is higher. A positive sign is also found in electricity costs, probably also showing that Women migrate more to states with higher demand for electricity.

Column 3 in Table 6 presents the model for recently migrated women. The demographic group admitted only three equations, excluding also the one for older age adults. A negative congestion effect is also found on lagged values of its own migration, a positive effect is found on lagged values of Mexican minor's migration. A positive sign is found in water costs. This probably shows that recently migrated Mexican women migrate to states were water costs are higher.

Table 6. Models for Women's Net Mexican Migration by state and indicated demographic group. All models control for sectorial labor demand. 2000-2016.

Age group	Prime	Young	All
Migration group	All	All	Recent
L1.D.Log of mexican group	-0.553***	-0.648***	-0.610***
	[0.059]	[0.050]	[0.053]
L2.D.Log of mexican group	-0.260***	-0.349***	-0.346***

	[0.055]	[0.053]	[0.053]
D.Log of Mexican minors	0.090***	0.259***	0.381***
	[0.023]	[0.038]	[0.061]
L1. D.Log of Mexican minors	0.018	0.119***	0.229***
	[0.028]	[0.047]	[0.066]
L2. D.Log of Mexican minors	0.067***	-0.046	0.238***
	[0.025]	[0.038]	[0.058]
D.Log of older age adults	0.063***		
	[0.023]		
L1. D.Log of older age adults	0.021		
	[0.025]		
L2. D.Log of older age adults	0.032*		
	[0.019]		
D. Log of green cards relative to California	-0.166	0.429	1.200
	[0.479]	[1.018]	[1.362]
L1. D. Log of green cards relative to California	1.411***	1.207	-0.378
	[0.444]	[0.911]	[1.219]
L2. D. Log of green cards relative to California	0.355	0.066	-0.788
	[0.431]	[0.880]	[1.167]
D. relative wage	1.083	-1.818	-0.758
	[0.751]	[1.327]	[1.970]
D. relative household income per capita	-1.65E-05	1.17E-05	-4.66E-06
	[1.68E-05]	[2.79E-05]	[3.99E-05]
D. relative house value	0.027	0.997*	0.914
	[0.334]	[0.590]	[0.900]
D. relative fuel costs	0.009	-0.027	-0.012
	[0.010]	[0.020]	[0.027]
D. relative water costs	-1.200***	-1.602	2.205**
	[0.399]	[0.781]	[1.110]
D. relative gas costs	-0.240***	-0.066	-0.302
	[0.088]	[0.167]	[0.233]
D. relative electricity costs	0.371**	0.885***	-0.325
	[0.173]	[0.326]	[0.450]

D. relative rental costs	0.616	1.453	0.728
	[0.544]	[0.940]	[1.432]
D. relative property tax	-0.515	-0.979	0.825
	[0.511]	[0.922]	[1.264]
N	410	456	440
Wald	260***	492***	327***
Sargan	331	367	321
AR(2) Arellano-Bond	-1.08	.62	-1.02

Notes: *Significant at 10%, **Significant at 5%, ***Significant at 1%. D refers to a first difference operator. L1 refers to first lag operator. L2 refers to a second lag operator.

Table 7 shows results for college educated Mexicans, divided by prime age men, prime age women, recently migrated prime age men, and recently migrated prime age women. Each demographic group admitted only one equation, the one related to the own migration group. In all four cases, it is reported the negative congestion effect.

Column 1 shows the migration of prime age college educated men. The relative wage is reported positive and statistically significant, as well as household income. A negative effect is found for electricity costs and property taxes. A positive effect is found for rental costs, showing that Mexican prime age college educated men migrate to states with higher rental costs.

Column 2, shows the migration for college educated prime age women. No positive effect is found for relative wage. A negative sign is reported for fuel costs and property taxes. Positive effects are reported for gas and electricity costs. These two final results may show that college educated prime age women migrate to states with higher demand for gas and electricity.

Column 3 shows results for prime age recently migrated college educated men. A positive sign is found for house values and rental costs, probably showing that recently migrated prime age college educated men migrate for states with higher house values and

rental costs. No significant effect is found for relative wages showing that their migration follows the availability of jobs.

Column 4 shows results prime age recently migrated college-educated women. A positive sign in the relative wage is reported. A negative sign is reported in household income, probably showing that Mexican women that are recently migrated and college educated move to States with lower household income. A positive sign is also reported in gas costs. Which also may show that college educated recently migrated women move to States with high demand for gas.

Table 7. Models for College educated Mexicans' Net Migration by state and indicated demographic group. All models control for sectorial labor demand. 2000-2016.

Age Group	Prime	Prime	Prime	Prime
Gender	Male	Female	Male	Female
Migration	All	All	Recent	Recent
L1.D. log of Mexican group	-0.549***	-0.687***	-0.619***	-0.539***
	[0.043]	[0.044]	[0.061]	[0.056]
L2.D. log of Mexican group	-0.398***	-0.241***	-0.331***	-0.248***
	[0.039]	[0.042]	[0.059]	[0.051]
D. relative wage	2.891*	2.014	7.375	10.123***
	[1.743]	[1.603]	[4.636]	[3.760]
D. relative household income per capita	7.52E-05**	4.49E-06	3.03E-05	-1.64E-04**
	[3.43E-05]	[3.12E-05]	[9.11E-05]	[8.14E-05]
D. relative house value	-0.780	-0.395	2.983*	-1.799
	[0.739]	[0.710]	[1.789]	[1.564]
D. relative fuel costs	-0.001	-0.054***	-0.024	-0.041
	[0.019]	[0.016]	[0.048]	[0.043]
D. relative water costs	-0.571	0.705	-1.865	0.795
	[0.935]	[0.821]	[2.235]	[1.916]
D. relative gas costs	-0.169	0.436**	-0.382	0.747*

	[0.203]	[0.189]	[0.481]	[0.418]
D. relative electricity costs	-1.331***	0.721*	0.535	1.068
	[0.435]	[0.389]	[0.870]	[0.798]
D. relative rental costs	3.590***	0.454	6.479**	-0.030
	[1.240]	[1.060]	[3.123]	[2.732]
D. relative property tax	-2.194**	-2.740***	0.529	1.361
	[1.113]	[0.999]	[2.619]	[2.347]
N	469	474	294	282
Wald	306***	323***	181***	152***
Sargan	388	396	294	296
AR(2) Arellano Bond	0.64	-.97	.88	.99

Notes: *Significant at 10%, **Significant at 5%, ***Significant at 1%. D refers to a first difference operator. L1 refers to first lag operator. L2 refers to a second lag operator.

III. 1 An empirical model to explain net Mexican migration by US state: the case of Texas

In this section, Texas specific effects are introduced for each demographic group in order to investigate if there are differences between the rest of the states and Texas with regard to their dynamic model of migration. Because in our panel setting we have 16 years per state, introducing interaction terms between a dummy variable for Texas and each of the control variables is not feasible. Because of that, we introduced interactions for subsets of control variables. The subsets were arranged by productivity (relative wage and relative household income), by living costs (relative house value, gas costs, electricity costs, fuel costs, rental costs and property taxes), by sectorial demand (agriculture, construction, manufacturing, retail trade, technology and finance, education and health, entertainment and tourism, other services, and public administration), by immigration enforcement (green cards) and by network effects (own Mexican demographic group, older age adults, Mexican minors).

Table 8 reports all these 70 experiments run in the different demographic groups. There was no specific effect for green cards in any of the experiment. There was only one case of productivity related variable found. It was the case of the relative wage for prime age college educated recently migrated women. Table 9 shows that the impact found is negative. This implies that changes in Texas and relative wages have deterred the migration of college-educated women.

Table 8 shows that there were two demographic groups that report two cases of statistically significant living costs: they were prime age individuals and prime age men. Table 9 shows that in the case of relative house values it is found a positive effect. These results imply that house values in Texas have attracted more Mexican migrants. This result confirm what was found in section II.6 where it is reported that Texas had during the 2010-2016 period a decline in house values less strong than that observed in the average US, relative to California's house prices, indicating a stronger demand for construction and household services than in the average US. Now, the result also implies that for an average Mexican considering moving out of California, a movement towards Texas would imply to acquire a house at a better price. In other words, Texas offered incentives both for those looking for lower living costs and also for those working in the construction sector or household services. In the case of electricity costs, it is found a negative sign. This result implies that the evolution of electrical costs have deterred Mexican migrants.

Table 8 also reports that in the case of sectorial demand, four demographic groups show a statistically significant effect. In the case of prime age individuals, prime age men and prime age women the manufacturing sector shows a negative sign, as shown in Table 9. These results imply that the evolution of the manufacturing sector in Texas has deterred Mexicans from migrating to the state. This result show evidence of the importance of E-

Verify because the analysis in section II.6 showed that labor demand for manufacturing rose in Texas during the 2010-2016 period, and yet this sector deterred Mexicans from migrating into Texas.

Table 9 shows that in the case of young individuals a negative sign is obtained in the retail trade sector, which implies that the evolution of the retail trade sector in Texas has deterred the migration of young Mexicans. This result confirms what was found in section II.6 where the decline in retail trade jobs in Texas was stronger than in the rest of US.

Table 8 reports that in the case of specific effects related to migrant networks, a positive effect is found among the prime age individuals related to the migration of older age adults (see Table 9). This result suggests that migrant networks in Texas are stronger than in other states and help attract Mexicans.

Table 8. Empirical models for Texas specific interaction effect.

	Relative to productivity	**Relative to living costs**	**Relative to sectorial demand**	**Relative to migrant networks**
All	N.S.	N.S.	N.S.	**Significant, third age Mexicans**
Prime Age	N.S.	**Significant Electricity costs**	**Significant Manufacturing**	N.S.
Young	N.S.	N.S.	**Significant retail trade**	N.S.
Recently migrated	N.S.	N.S.	N.S.	N.S.
Prime Age Men	N.S.	**Significant Electricity costs**	**Significant manufacturing**	N.S.
Young Men	N.S.	N.S.	N.S.	N.S.
Men Recently migrated	N.S.	N.S.	N.S.	N.S.
Prime Age Women	N.S.	N.S.	**Significant manufacturing**	N.S.

Young Woman	N.S.	N.S.	N.S.	N.S.
Woman Recently migrated	N.S.	N.S.	N.S.	N.S.
Prime Age College Educated Men	N.S.	N.S.	N.S.	N.S.
Prime Age College Educated Women	N.S.	N.S.	N.S.	N.S.
Prime Age College Educated Recently migrated Men	N.S.	N.S.	N.S.	N.S.
Prime Age College Educated Recently migrated Women	**Significant (relative wage)**	N.S.	N.S.	N.S.

Note: Specific effects were also estimated for green cards, but none of the estimations was statistically significant.

Table 9. Texas Interaction Effects for Specific Demographic groups and variables indicated

Demographic group/Effect found	Coefficient	SE
Prime age individuals		
Texas*manufacturing	-9.79*	5.81
Texas*relative house value	5.63*	3.47
Texas*relative electricity costs	-2.89*	1.58
Texas*third age mexicans	3.30*	2.02
Young individuals		
Texas*retail trade & transportation	-29.04*	17.78
Prime age Men		
Texas*relative house value	6.50*	4.06
Texas*manufacturing	-11.16*	6.84
Texas*relative electricity costs	-3.22*	1.85
Prime age Women		
Texas*manufacturing	-10.08**	4.93
Prime age, college educated, recently migrated women		
Texas*relative wage	-29.64*	16.67

Source: Own calculations with models based on those shown in Tables 5, 6 and 7.

IV. Conclusion

The objective of this paper is to explain the differences observed in the number of Mexicans arriving to Texas versus the observed declining trend in the US. Our analysis first demonstrated that the declining trend is not found in all demographic groups. Specifically, it finds that women and older age adults are the only two demographic groups showing increases, while all other groups show declines. Similarly, it is found that in Texas the increase can be explained by the migration of Mexicans that are not recent migrant, and that migrated first to other US states and later on relocated to Texas.

A model that includes indicators for productivity, living costs, sectorial labor demand, immigration enforcement and migrant networks can explain the migration of Mexicans between states. The model needs to be adjusted by demographic group, which depends on age, time of stay in the US, education and gender.

An important difference is found between college educated and non-college educated Mexican migrants. For college educated Mexicans, only single equations models are needed. In general, they show a positive response to increases in wages, negative responses to living costs, and show no response to changes in the number of green cards. With regard to migrant networks, they show the existence of a negative congestion effect, and they show no positive effects with respect to other demographic groups. These results are found in all college educated individuals.

For models including non-college educated Mexicans, it was always necessary to estimate system equations including lagged values of green cards and another Mexican

demographic group, which in the case of men was third age Mexicans, and in the case of women was usually Mexican children. In the case of prime age women, it was necessary to include green cards, third age individuals and children to get a model that conforms to the Arellano-Bond (1991) assumption of no autocorrelation of order 2.

In the case of men including non-college educated individuals, a positive effect is found for productivity, negative effects are found for living costs, a negative congestion effect is found on members of the own demographic group, and positive effects are found for third age Mexicans as well as for green cards.

In the case of women including non-college educated individuals, no effect is found for productivity, negative effects are found for living costs, a negative congestion effect is found on members of the own demographic group, and positive effects are found for Mexican children as well as for green cards.

The analysis looks for a specific Texas effect, which is found only for some demographic groups and for certain control variables. A positive effect is found for older age adult Mexicans, showing that migrant networks are stronger than in the rest of the US. A positive sign is also found in the value of houses, showing that demand for construction and household services as well as the possibility of becoming homeowners, is attracting Mexicans to Texas. These positive effects are found in the equations for prime age individuals in general and prime age men in particular.

A negative Texas specific effect is found for electricity costs, showing that the evolution of those costs is deterring Mexicans from migrating to Texas. This effect is found in the equations of prime age individuals and prime age men.

A negative Texas specific effect is also found for the manufacturing sector, despite the fact that the manufacturing sector grew above the US average in the period. This may

indicate the importance of E-Verify in jobs for that industry, since E-Verify deters undocumented migrants from obtaining jobs (Orrenious and Zavodny, 2015, 2016). This effect was found in the equations of prime age individuals, prime age men and prime age women.

A negative Texas effect was also found in the retail trade industry, which goes in line with the fact that during 2010-2016 jobs in retail trade declined more in Texas than in the average US. This negative effect is found in the equation of young individuals.

Finally, a negative Texas effect is found in relative wages in the equation of recently migrated college educated women. This may signal some type of labor market discrimination or another labor market aspect. This is not explored further in this research.

Taking into consideration that in general the results show that Mexicans do follow productivity and look for states with productivity levels not so far from those of California, and that Mexican migrants also respond to lower living costs relative to California, and that the Texas effect seems to be positively related to stronger migrant networks and an interaction with house values, we can conclude that Texas attracts Mexicans because it provides them with a place with productivity lower than California's but not so far from it, compensating for that with lower living costs and stronger migrant networks. The growth observed, however, is in danger because of the application of E-verify since there is evidence that Mexicans are being deterred from entering in sectors with growing labor demand.

Our analysis also allows us to give a forecast about future movements of Mexicans into Texas and the US. All models coincide in signaling a strong negative congestion effect, which would predict further reductions in the number of Mexicans arriving to the US. However, the positive signs observed in the migration of older age adults, signals a factor

that works in the opposite direction. It is clear that the dynamic system may be going towards an equilibrium that will likely have a lower level of migrants than the observed right now. In other words, our models predict that under current conditions Texas will more likely joint the US trend of a decline in the number of Mexicans in the medium term. The speed at which this decline will occur may depend on how much time pass before the differences in living costs between Texas and California disappears.

Our model also helps us to observe that Mexicans migrants are moving following productivity which should be the long-run objective since it implies that human resources are getting matched rightly to jobs and employers' demand. This is observed in prime age men, college educated and non-college educated, which implies that, on average, Mexican immigrants in the US are well matched to specific labor markets. However, the fact that in our models prime age women, and non-college educated women do not seem to follow productivity implies that immigration law needs to be rethought with a focus on allowing the US economy to achieve the best labor market matches. This translates to helping recent migrants to adjust and acquire their best labor market matches in the US economy.

V. A Note on Data

Data analyzed in this research comes from different sources. Data on the absolute number of Mexican immigrants in the U.S. is obtained from the decennial census for the period 2000 to 2010 (U.S. Census Bureau, 2011; 2016). Annual data on the total number of Mexicans living in the U.S. is estimated from the Integrated Public Use Microdata Series (IPUMS), which collects census and survey data worldwide for research and analysis (2016). For the period 2000 to 2016, IPUMS recorded the number of individuals who claim to be born in Mexico in the CPS (The Current Population Survey's Microdata Series

is a joint effort of monthly data collection between the U.S. Bureau of Labor Statistics and Census Bureau. See https://www.census.gov/programs-surveys/cps/data-detail.html). The data from IPUMS is compared against the census data in order to control for potential undercount in the CPS, a problem established by Passel and Cohn (2009). Data on household incomes, expenditures in gas, fuel, rents, property taxes, electricity, water, usual hours of work per sector comes also from the CPS (IPUMS, 2016a). Wages come from County Business Patterns, a survey that is carried out by the census bureau (U.S. Census Bureau, 2018). All nominal variables were transformed to real values using data on the U.S. price index comes from Federal Reserve Bank of St. Louis (2017). Data on green cards is obtained from US Department of Homeland Security (2017), which estimates the lawfully permanent resident in each US state.

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