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Mexican Migration Flows to the United States: The Impact of Business Cycles on Immigration to the United States

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Abstract[*]

Using Mexican consulate data on Mexican presence in US states, a panel data model is constructed from yearly data to analyze the effects of different determinants of migration flows. The determinants of migration flows analyzed are the US and Mexican state business cycles, home and host state populations, Mexican state crime rates, remittances received by Mexican states, and the nominal exchange rate. Fixed effects regressions suggest that stronger US economic activity attracts immigrants to a given US state while an expanding economy in the home state tends to decrease emigration. Higher remittances also tends to decrease emigration out of Mexico. Two stage least squares are used to deal with endogeneity between the measures of economic activity and immigration. These results also find evidence of a positive impact of US economic activity, but do not yield significant results with regard to Mexican economic activity on outward migration.

JEL: F22, J61, E32

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Mexican Migration Flows to the United States: The Impact of Business Cycles on Immigration to the United States

Although immigration flows have slowed down in recent years, Mexican immigration to the United States continues to be substantial, and the topic remains relevant for policy-makers, academics, and the public at large. In the United States, approximately 34 million people self-identify as Mexican (ACS Demographic and Housing Estimates, 2017). Passel and Cohn (2016) estimate that even though the share of undocumented Mexican immigrants has been declining, Mexican immigrants remain more than half of the total undocumented workers in the United States with approximately 5.8 million workers (approximately 52 percent of the total undocumented labor force). The authors attribute this decline to excess departures to arrivals from Mexican immigrants.

This study employs data from the *Matricula Consular de Alta Seguridad* (Consular Identification Card) issued by the Mexican Embassy and Consulates to Mexican immigrants in the United States[1] (Instituto de los Mexicanos en el Exterior, 2015). The Consular Identification Card, in its current form, has been issued since March 2002 (Bruno and Storrs, 2006). The purpose of this study is to analyze the impact of state-level fluctuations in economic activity in both the home and receiving states on migration flows from Mexico to the United States. The data are analyzed between the years 2011 and 2014 using fixed effects estimates to control for omitted time invariant factors and two stage least squares to deal with the endogeneity of the variables of interest with immigrant flows.

The structure of this study is as follows: Section 2 presents the relevant literature. Section 3 introduces, the econometric model employed in this analysis, the data in detail, expected signs,

[1] The *Matricula Consular de Alta Seguridad* is argued to be part of the consular activities allowed by the 1963 Vienna Convention on Consular Relations (United Nations, 1963).

and descriptive statistics. Section 4 describes and presents the empirical results. Lastly, Section 5 concludes the study and recommends future research.

Background

Undocumented workers from Mexico have played a historical role in US immigration. Although the high level of migration flows from Mexico to the United States seen in the last three decades are likely to subside due to decreases in the Mexican fertility rate, this period was one of the most significant migration episodes in the history of the two countries (Hanson & McIntosh, 2009). Massey et al. (2010) document Mexican immigration patterns to the United States through data obtained from the Consular Identification Card. These data can depict the US geography with the most undocumented Mexican workers. Massey et al. find that undocumented Mexican workers are coming to the United States from central Mexico instead of the 1980s and 1990s historical source of west-central Mexico. In the same analysis, Massey et al. find that Mexican immigrants' US destinations are also changing; places such as Atlanta, Charlotte, Las Vegas, and Minneapolis are becoming important Mexican immigrant destinations. While traditional immigrant receiving states such as California, Texas, and Illinois continue dominating in magnitude, they are losing overall migration flows. Villarreal (2014) finds that migration patterns' shifts can be, in part, attributed to changes in the US and Mexican economies across time. Villarreal uses as a clear example the United States Great Recession,[2] which affected unauthorized Mexican labor demand in industries such as construction. Moreover, Villarreal's

[2] The Great Recession was the longest post-WWII recession; it lasted from December 2007 to June 2009. The financial effects of this crisis were large; home prices fell approximately 30 percent on average, and the net worth of US households fell from a peak of close to $69 trillion to $55 trillion during this period (Rich, 2013). Other estimates conservatively measure the cost of the Great Recession to be at least between $6 trillion and $14 trillion (Atkison, Luttrell, & Rosenblum, 2013).

analysis suggests that the Great Recession affected the economically active, uneducated worker at a larger scale.

Business Cycles and Wages

Economic literature suggests that the US business cycle affects inward migration flows. Jerome (1926) suggests there was a pro cyclical nature of European migration to the United States during the Nineteenth and early Twentieth centuries. US recessions seemed to be related to slower inward migration from European countries. Conversely, larger inflows of European immigrants were documented during times of expansion. Chiswick and Miller (2002) study the wages of foreign-born workers at the time of entrance; they suggest that wages are lower for the immigrants that entered at a time of high unemployment. However, these effects do not seem to be permanent and decrease with duration in the United States. Villarreal (2014) finds that the downturn, due to the Great Recession, partly explains the decrease in immigration from Mexico to the United States because there was a decline in labor demand from industrial sectors in the United States were these immigrant workers are traditionally hired.

Furthermore, there has been a long-run rising trend of employment rates and a falling trend of unemployment rates among the US immigrant population. However, immigrants' economic outcomes are, in the short-run, more strongly tied to the business cycle than those of the native workers because they tend to be less educated and overrepresented in sectors that are sensitive to cyclical economic movements (Orrenius & Zavodny, 2009). Using macroeconomic data from Mexico and the United States, Mandelman and Zlate (2012) estimate a two-country business cycle model of labor migration. They find that over the cycle, immigration increases with the expected stream of future wage gains. Additionally, it is suggested that increased economic activity along with decreasing income gaps and income volatility in the home

countries will continue to decrease net immigrant flows to the United States (Hanson, Liu, & McIntosh, 2017).

Hanson and Spilimbergo (1999) find that border enforcement responds to business cycle changes or changes in undocumented labor demand in the United States. The study concludes that as undocumented labor demand increases, border enforcement tends to decrease. Additionally, the study suggests that undocumented labor demand exists due to different industries relying on low-wage workers to keep production costs down. Thus, illegal immigration can be explained as a response to the increase in the demand for low-wage labor workers.

Other Determinants of Immigration from Mexico to the United States

Determinants of immigration such as distance, crime, climate, remittances, earnings, among others and the effects of migration on the host and home countries have been extensively studied in the past (Ambrosini and Peri, 2012; Ashby, Bueno, and Martinez Villareal, 2013; Borjas, 1987; Cañas, Orrenius, and Coronado, 2007; Chort and de la Rupelle, 2016; Cox-Edwards and Rodriguez-Oreggia, 2009; Hanson and McIntosh, 2010; Vargas and Huang, 2006). Recent research on the determinants of undocumented workers flows from Mexico to the United States supports that they tend to migrate to those states with higher Mexican immigrant populations, higher wages, smaller populations and shorter distances from the home to the host states (Ashby et al., 2013). Hanson and McIntosh (2010) use decennial emigration rates from Mexico to the United States obtained from the Mexican Census to study the effects that labor supply shocks have on emigration rates. Hanson and McIntosh suggest that labor supply shocks account for about a third of the observed migration from Mexico to the United States from 1977 to 2000. Moreover, a more recent study finds that traditional economic determinants, climatic,

and social factors such as crime contribute to shaping regional migration patterns in the short-run (Chort and de la Rupelle, 2016).

The relationship between the exchange rate and depreciations of the Mexican Peso to migration flows has been previously studied and found to be substantial. A depreciation of the Mexican Peso, defined as two or more standard deviation increases in the Mexican Peso to US Dollar exchange rate in the previous month, is associated with an increase in border apprehensions (Hanson and Spilimbergo, 1999). Keita (2016) finds that a real appreciation of the destination country's currency against the home country's currency is associated with an increase in migration flows. Keita argues that the purchasing power of the expected income influences the decision to migrate not only from the prospect of higher earnings in the destination country but also through the prospect of transferring some of the income back to the destination country through remittances.

Crime levels in the home state are more likely to push migrants to the United States. Rios Contreras (2014) documents the increased migration from the northern Mexican states, which experienced an increase in violent crimes due to the drug war in Mexico. Albuja (2014) documents that due to generalized violence in Mexico, many Mexicans sought asylum in the United States. Albuja states that municipalities that experienced violence had residents leave at a rate that is four to five times higher than a non-violent municipality with similar socio-economic status. However, Basu and Pearlman (2016) find little evidence of forced domestic Mexican migration due to drug-related violence. On the subject of international forced migration in Mexico, Basu and Pearlman find little evidence at the municipal level and stronger evidence at the state level. Furthermore, Chort and de la Rupelle (2016) find a small and negative significant relationship to migration flows when including all Mexican states. At the international level,

Bohra-Mishra and Massey (2011) document that in Nepal violence does not have a linear relationship to migration because low and moderate levels of violence reduced the probability of migration, while elevated levels of violence increased the likelihood of movement.

Remittances play a major role in immigration because they allow for the continued study of the relationship between immigrants in a host country and their country of origin. Mexican immigrants are a considerable part of the US population since immigration from Mexico grew substantially over a century (Massey et al., 2010). Therefore, it should be expected that throughout this period, remittances should have increased in volume (Cañas et al., 2007). In the Mexican case, about 2.5 million Mexicans migrated to the United States from 1997 to 2002, and 1.6 million sent remittances to their families (Cox-Edwards and Rodriguez-Oreggia, 2009). Remittances, in turn, can also affect immigration patterns. The effect of remittances on the home country have been studied, and in some cases, they have been studied as a development tool for the home country (Orrenius, Zavodny, Cañas, and Coronado, 2010). If this is the case, they can act, in the long-run, as a deterrent to migration as the economic and quality of life conditions improve in the home country. Remittances had a small positive effect on growth, decreased poverty and inequality (Acosta, Calderon, Fajnzylber, and Lopez, 2008). In the case of Mexico, it is observed that wages and school enrollment increased. However, remittances did not play a statistically significant role in these changes. Using remittances to El Salvador, Acosta, Lartey, and Mandelman (2009) find that remittances decreased the labor supply, and that remittances encourage growth in consumption services in the non-tradeable sectors of the economy. Limited evidence is found for changes in the Mexican labor force (Cox-Edwards and Rodriguez-Oreggia, 2009). A study that uses a business cycle model of the Unites States and Mexico documents that

remittances to Mexico are used as insurance to smooth consumption (Mandelman & Zlate, 2012).

Through several econometric techniques such as variance decomposition, impulse response functions and Granger causality tests derived from vector error correction models, results show that remittances have a higher response to host country macroeconomic conditions than those of the countries of origin. This study is conducted using data from different Latin American countries in which Mexico is included (Vargas and Huang, 2006). Other evidence supports remittances to be counter-cyclical with respect to output in the countries of origin for the nations studied, but they are found to be both, counter and pro-cyclical with respect to output in the host country depending on the case (Coronado, 2009).

Econometric Model

Table 1 displays the descriptive statistics for the variables used in this study. Equation 1 below shows the econometric model specification below:

$$\begin{aligned} Ln\,(migration_{ijt}) &= \beta_1 + \beta_2 Ln\,(statebci_{jt}) + \beta_3\, Ln\,(statebci_{it}) \\ &+ \beta_4\, Ln\,(statepop_{jt}) + \beta_5\, Ln\,(statepop_{it}) + \beta_6\, Ln\,(crime_{it}) \\ &+ \beta_7\, Ln\,(remittances_{it}) + \beta_8 Ln\,(fix_t) + T\mu + u \end{aligned} \quad (1)$$

The dependent variable employed in this analysis is Mexican state to US state immigration flows. Where $Ln\,(migration_{ijt})$ is the variable representing migration flows to US

states[3] (*j*) from Mexican states[4] (*i*) from 2011 through 2014 (*t*). This variable is proxied using the natural log of the number of Consular Identification Cards issued by the Mexican consulate from 2011 through 2014 in the United States. Massey et al. (2010) Ashby et al. (2013), and Bueno (2013) have used this measure in the past. Consular Identification Cards have the Mexican immigrants' full name, photograph, place of birth, date, signature, and US address. Moreover, the Consular Identification Card has a serial number, the issuing consulate's name, issuance and expiration dates. In the United States, some states, some municipalities, and some financial institutions accept the Consular Identification Card as an official identification document for Mexican citizens (Bruno and Storrs, 2006). Given that undocumented immigrants can use the Consular Identification Cards as means of identification with some mainstream financial institutions[5], it becomes easier for undocumented immigrants to remit money to the home country (O'Neil, 2003). Also, the Consular Identification

Card is a valid identification means to obtain a driver's license in some US states (The Pew Charitable Trusts, 2015). These benefits provide an incentive for undocumented workers to obtain the Consular Identification Card as means of identification in the United States. The variation of benefits between US states can derive in a measurement problem because incentives vary from state to state depending on how useful it will be for the Mexican immigrant to obtain the Consular Identification Card.

[3] The Consular Identification Card has Mexican immigrant data from all US states and the District of Columbia. However, the District of Columbia is not included in the analysis because not all the independent variables that correspond to the District of Columbia exist.
[4] The 32 Mexican states are included in the analysis.
[5] Bank of America, Citibank, HSBC, Chase, US Bank, and Wells Fargo accept the Consular Identification Cards as means of identification to open bank accounts (Consumer Action, 2007). However, this is a non-exhaustive list of banks that and financial institutions that accept the Consular Identification Card as means of identification.

The independent variable $Ln\ (statebci_{jt})$ is the broad measure of the US states (j) economic conditions from 2011 through 2014 (t). The variable is transformed to the natural log of the business cycle index (BCI). The data were obtained from the Federal Reserve Bank of Philadelphia. The US states BCIs include four indicators: non-farm payroll employment, the unemployment rate, average hours worked in manufacturing, and wages and salaries (Federal Reserve Bank of Philadelphia and Federal Reserve Bank of St. Louis, 2016). Therefore, this variable combines different measures of the broad economy to obtain one cohesive movement of the economic conditions. Additionally, this variable allows for comparisons between the growth of economies of different sizes (California being compared against New Mexico). Thus, this variable allows for the comparison across states' economic growth during the studied period. It is expected that immigrants react positively to an increase in economic activity in a given US state.

The independent variable $Ln\ (statebci_{it})$ is a measure of the broad economic conditions by Mexican state. Two different measures are considered in our regression analysis. The first is measured through a proxy, the Mexican states (i) average consumption of electricity per customer in megawatt hours in natural log form from 2011 to 2014 (Comision Federal de Electricidad, 2016). This variable is obtained by adding the total number of users of all the municipalities and the electric consumption in all municipalities by state. Then averaging the number of megawatt hours per user by state by year. Gomez and Rodriguez (2015) demonstrate that there is a causal relationship going from economic growth to electricity consumption in Mexico for the period of 1971 to 2011. Thus, electric consumption may shed additional light on overall (formal and informal) economic activity in Mexico by state. In addition to using electricity consumption, we use the log of real state GDP to measure fluctuations in Mexico as a

robustness test. It is expected that Mexicans are less likely to emigrate from their home state as economic activity increases.

The independent variable $Ln\ (statepop_{it})$ is the population by Mexican state (i) in natural log form from 2011 to 2014 (t). This variable is obtained from INEGI's Information Bank (Instituto Nacional de Estadistica y Geografia, 2016). The independent variable $Ln\ (crime_{it})$ measures violent crimes by Mexican state (i)[6] from 2011 to 2014 (t). This variable is measured by natural the log of violent crime rates obtained from Milenio[7] per hundred thousand residents. The independent variable $Ln\ (remittances_{it})$ is the US Dollar amount of remittances received by Mexican state (i) that originated in the United States from 2011 to 2014 (t) and published by Bank of Mexico (Banco de Mexico, 2016).

The independent variable $Ln\ (fix_t)$ is the exchange rate between the Mexican Peso and the US dollar obtained from Banco de Mexico. The variable is stated in nominal Mexican Pesos per US Dollar[8] (Banco de Mexico, 2016). The data was constructed by averaging the monthly average by year This measurement does not vary across states. The last term is u, with assumed traits of a stochastic error term with normal distribution and constant variance. The last vector T_t is a vector of time dummies included to control for time invariant omitted variables. We do not include a measure of distance since this variable is time invariant and is omitted by fixed effects.

[6] The number of observations for $lcrime_{it}$ is less than the other variables because there is no violent crime presented for Tlaxcala in 2011. $lcrime_{it}$ presents 6096 observations versus the usual 6,144. This is the only case of no violent crimes for any state during the period 2011 to 2016.
[7] Milenio is a national newspaper in Mexico. It is owned by Grupo Multimedios. Milenio kept a tally of homicides in Mexico. Milenio started counting this type of violent crimes in 2007.
[8] An increase in the variable's level denotes a depreciation of the Mexican Peso against the US Dollar. Conversely, a decrease in its level denotes an appreciation of the Mexican Peso against the US Dollar.

Results

Table 2 shows fixed effects estimations using electricity rates in Mexico as a measure of fluctuations in Mexico. The first two regressions do not control for year effects. In the second column remittances is dropped due to correlation with the business cycle in Mexico. The correlation with the US business cycle is quite low suggesting that remittances are sent during difficult times back in Mexico. The third and fourth columns control for year effects. A similar pattern is used in all of the regressions tables.

The two focal variables yield estimates consistent with expectations in sign and statistical significance. A 1 percent in improvement in US state business cycle is associated with around 1.7 percent increase in migration. Likewise, a 1 percent increase in business activity as measured by average electricity consumption is associated with a 0.5 percent reduction in migration. Year effects are likely to pick up much of the cyclical information we are trying to pick up with our focal variables and would be expected to dampen these results. We find this is the case. The estimated coefficient on US business cycle suggests an increase of around 0.86 percent when controlling for year effects. The expected sign is negative with regard to economic activity in the Mexican states, but the coefficients are smaller falling short of statistical significance at conventional levels. Ignoring statistical significance, the coefficients would suggest a much smaller reduction in migration of around 0.3 percent for a 1 percent increase in activity in Mexican state.

The exchange rate yields positive and statistically significant coefficients in all four specifications. These results suggests that for a 1 percent appreciation of the dollar against the peso, immigration increased between 0.81 and 1.4 percent. Mexican state and US state populations yield negative estimates suggesting that immigrants are attracted to less populated

states in the United States and are more likely migrate if they hail from low population Mexican states. The coefficient on remittances suggests that for every 1 percent increase in remittances received in a Mexican state, immigration will decrease by 0.08 percent. This impact appears to be quite small and just falls short of statistical significance at the 10 percent level (p-values are 0.11 and 0.106).

Table 3 shows the results using the log of Mexican real GDP at the state level as measures of economic fluctuations. The results for US state business cycles are not too different from the results in Table 2. The results for Mexican GDP on the other hand are quite different. Although the results yield the expected negative coefficient in three out of four specifications, the coefficients are quite small and statistically insignificant. The one coefficient that is positive is in column 4 which controls for year effects while omitting the remittances variable. This is possibly due to omitted variable bias. At the same time, remittances, which appear to be highly correlated with Mexican economic activity, yields higher coefficients between 0.08 and 0.1 which are statistically significant with p-values of 0.051 and 0.073.

Tables 4 and 5 treat for the endogeneity of the measures of economic activity and immigration. It makes economic sense that immigrants are attracted to states with better economic activity. At the same time it is plausible that an increase in the labor force in US states may lead to greater economic activity. Likewise, just as we might expect a reduction in economic activity in the home state to lead to an increase in outward migration it is also possible that a reduction in the labor force in Mexican states would decrease economic activity in the home state. Three instruments are included. The first variable is economic freedom in the US state eight years prior. The second variable is patents per capita in US states eight years prior. The final instrument is economic freedom in the Mexican state eight years prior. At the bottom

of the tables we report the results to underidentification tests using the Kleibergen-Paap LM test, the weak identification Kleibergen-Paap Wald F statistic as developed by Stock and Yogo (2002, 2005), and the Hansen J statistic with a null hypothesis of instrument validity, no correlation with the error term, and that these do not belong in the main equation. The tables also include rows indicating whether or not the relative IV bias and size distortion are less than 10 percent of OLS bias. Based on the three reported tests, the best estimates using electricity consumption in Table 4 is in the fourth column including year dummies and excluding remittances. The coefficient estimate for US business cycles is the same size and statistically significant, but it is much larger than any of the fixed effects regressions. An improvement in a US state economy of 1 percent would be associated with a 10 percent increase in immigration from a Mexican state. Electric consumption actually yields a positive coefficient in this specification, but it is statistically insignificant. These results are consistent with earlier findings that show that immigrants respond more to host-country fluctuations than these in the home country.

Conclusion

This study analyzes Mexican consulate data on Mexican immigration to US states using a panel data between 2011 and 2014. The determinants of migration flows analyzed are the US and Mexican state business cycles, home and host state populations, Mexican state crime rates, remittances received by Mexican states, and the nominal exchange rate.

Fixed effects regressions suggest that stronger US economic activity attracts immigrants to a given US state while an expanding economy in the home state tends to decrease emigration. Higher remittances also tends to decrease emigration out of Mexico. Two stage least squares are used to deal with endogeneity between the measures of economic activity and immigration. These results also show evidence of a positive impact of US economic activity, but do not yield

significant results with regard to Mexican economic activity on outward migration. Similar to previous studies, our analysis demonstrates much stronger immigrant response to host state macro economy than home state fluctuations in economic activity.

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Table 1. Descriptive Statistics

Variable	Mean	Std. Dev.	Min.	Max.
Ln (migration$_{ijt}$)	4.23	2.16	0.00	10.93
lstatebci$_{jt}$	5.10	0.14	4.75	5.47
Ln (statebci$_{jt}$) *(electric consumption)*	8.58	0.43	7.57	9.38
Ln (statebci$_{jt}$) (GDP)	12.66	0.79	11.2	14.68
Ln (statepop$_{jt}$ (1000's))	1.38	1.07	-0.92	3.45
Ln (statepop$_{it}$)	8.43	0.94	6.34	10.57
Ln (crime$_{it}$)	1.41	1.53	-3.39	4.59
Ln (remittances$_{it}$)	6.23	0.98	3.60	7.72
Ln (fix$_{t}$)	2.56	0.03	2.52	2.59

N=5,594

Table 2. Fixed Effects Regressions Using Average Electric Consumption for Mexican Economic Activity

Dependent Variable:	*Ln (migration$_{ijt}$)*			
Explanatory Variables:	*Coefficients (standard errors)*			
Ln (statebci$_{jt}$)	1.74***	1.7***	0.86*	0.86*
	(0.37)	(0.37)	(0.50)	(0.50)
Ln (statebci$_{it}$)	-0.48**	-0.52**	-0.29	-0.34
	(0.21)	(0.21)	(0.22)	(0.22)
Ln (statepop$_{jt}$ (1000's))	-2.608**	-2.588**	-2.687***	-2.687***
	(1.041)	(1.039)	(1.036)	(1.035)
Ln (statepop$_{it}$)	-0.73	-0.86	-2.21**	-2.32**
	(0.80)	(0.80)	(0.93)	(0.94)
Ln (crime$_{it}$)	0.01	0.01	-0.00	0.00
	(0.01)	(0.01)	(0.01)	(0.01)
Ln (remittances$_{it}$)	-0.08	-	-0.08	-
	(0.05)		(0.05)	
Ln (fix$_{t}$)	0.81***	0.82***	1.43***	1.35**
	(0.22)	(0.22)	(0.56)	(0.56)
Constant	25.65**	26.61**	39.54***	40.51***
	(9.28)	(9.30)	(10.40)	(10.42)
N	5,594	5,594	5,594	5,594
Year Dummies	N	N	Y	Y

Note: The sample includes observations in years 2011-14. Standard errors in parentheses are clustered by Mexican State and US state pairs. Statistical significance as follows: *** =1%, * =5%,*=10%.

Table 3. Fixed Effects Regressions Using Mexican State GDP As a Measure of Economic Activity

Dependent Variable: *Ln (migration$_{ijt}$)*

Explanatory Variables:	*Coefficients (standard errors)*			
Ln (statebci$_{jt}$)	1.85***	1.85***	0.860*	0.86*
	(0.39)	(0.39)	(0.50)	(0.50)
Ln (statebci$_{it}$)	-0.26	-0.19	-0.05	0.01
	(0.27)	(0.27)	(0.28)	(0.28)
Ln (statepop$_{jt}$ (1000's))	-2.63*	-2.62*	-2.69**	-2.69**
	(1.04)	(1.04)	(1.04)	(1.04)
Ln (statepop$_{it}$)	-0.65	-0.79	-2.27*	-2.41*
	(0.79)	(0.80)	(0.94)	(0.95)
Ln (crime$_{it}$)	0.01	0.01	-0.000	0.00
	(0.01)	(0.01)	(0.01)	(0.01)
Ln (remittances$_{it}$)	-0.1	-	-0.09	-
	(0.05)		(0.05)	
Ln (fix$_{t}$)	0.783***	0.77***	1.53**	1.49**
	(0.22)	(0.23)	(0.56)	(0.56)
Constant	24.02*	23.64*	38.00***	37.97***
	(9.47)	(9.46)	(10.49)	(10.50)
N	5594	5594	5594	5594
Year Dummies	N	N	Y	Y

Note: The sample includes observations in years 2011-14. Standard errors in parentheses are clustered by Mexican State and US state pairs. Statistical significance as follows: *** =1%, * =5%,*=10%.

Table 4. 2SLS Regressions Using Average Electric Consumption for Mexican Economic Activity

Dependent Variable: Ln ($migration_{ijt}$)				
Instruments: $Economic\ Freedom_{j,t-8}$, $Patents_{j,t-8}$, $Economic\ Freedom_{i,t-8}$				
Explanatory Variables:	*Coefficients (standard errors)*			
Ln ($statebci_{jt}$)	-0.32	-1.38	10.75***	10.67***
	(2.94)	(2.22)	(2.31)	(2.29)
Ln ($statebci_{it}$)	-2.74	-3.72*	1.96	0.683
	(2.69)	(2.01)	(1.68)	(1.35)
Ln ($statepop_{jt}$ (1000's))	-0.539	0.67	-13.02***	-12.93***
	(3.493)	(2.77)	(2.65)	(2.62)
Ln ($statepop_{it}$)	-0.315	0.06	-2.79**	-2.66**
	(1.27)	(1.18)	(0.99)	(0.97)
Ln ($crime_{it}$)	0.00	-0.002	0.00	0.003
	(0.01)	(0.01)	(0.01)	(0.01)
Ln ($remittances_{it}$)	-0.01	-	-0.14*	-
	(0.09)		(0.07)	
Ln (fix_t)	1.462	1.78*	-4.87**	-5.408**
	(0.91)	(0.70)	(1.80)	(1.745)
N	5,546	5,546	5,546	5,546
Year Dummies	N	N	Y	Y
Kleibergen-Paap LM (Null: Underidentified)	17.946***	32.88***	51.956***	76.857***
Weak Identification: Kleibergen-Paap Wald F	4.57	8.55	13.48	21.45
<10% Relative IV Bias	No	Yes	Yes	Yes
<10% Size Distortion	No	No	No	Yes
Hansen J (Null: Instruments are Valid)	7***	6.61***	2.718	3.604

Note: The sample includes observations in years 2011-14. Standard errors in parentheses are clustered by Mexican State and US state pairs. Statistical significance as follows: *** =1%, * =5%,*=10%.

Table 5. 2SLS Regressions Using Mexican State GDP As a Measure of Economic Activity
Dependent Variable: *Ln (migration$_{ijt}$)*

Instruments: *Economic Freedom$_{j,t-8}$, Patents$_{j,t-8}$, Economic Freedom$_{i,t-8}$*

Explanatory Variables	Coefficients (standard errors)			
Ln (statebci$_{jt}$)	-2.07**	2.16	10.61***	10.56***
	(0.70)	(2.90)	(2.29)	(2.38)
Ln (statebci$_{it}$)	-0.39***	-0.46	-0.88	-3.64
	(0.05)	(2.96)	(2.16)	(3.08)
Ln (statepop$_{jt}$ (1000's))	0.92***	-3.34	-12.8***	-12.72***
	(0.04)	(3.503)	(2.62)	(2.71)
Ln (statepop$_{it}$)	0.8***	-1.27	-2.16*	-1.79
	(0.07)	(1.33)	(1.02)	(1.10)
Ln (crime$_{it}$)	-0.03**	0.01	-0.01	-0.01
	(0.01)	(0.01)	(0.01)	(0.01)
Ln (remittances$_{it}$)	0.86***	-	-0.10	-
	(0.03)		(0.07)	
Ln (fix$_t$)	2.39**	0.74	-5.9**	-7.02**
Ln (statebci$_{jt}$)	(0.92)	(1.06)	(1.88)	(2.14)
	-0.73			
	(2.31)			
N	5,594	5,546	5,546	5,546
Year Dummies	N	N	Y	Y
Kleibergen-Paap LM (Null: Underidentified)	57.047***	19.839***	25.142***	52.897***
Weak Identification: Kleibergen-Paap Wald F	64.216***	4.982	13.237	6.359
<10% Relative IV Bias	Yes	No	Yes	No
<10% Size Distortion	Yes	No	No	No
Hansen J (Null: Instruments are Valid)	261.161***	10.717***	3.951	2.219

Note: The sample includes observations in years 2011-14. Standard errors in parentheses are clustered by Mexican State and US state pairs. Statistical significance as follows: *** =1%, * =5%,*=10%.