

Online Appendix 1

Comparing migration rates: EMIF and ENOE

The ENOE is a nationally representative survey conducted by INEGI that measures Mexico's labor force and its employment characteristics. It is conducted quarterly in approximately 120,000 households. Each household is interviewed five times at three-month intervals. One disadvantage of this survey is that it does not collect information on previous residence and, therefore, we can only track movements in and out of existing households. If the objective is to measure migration from Mexico to the U.S., we would only capture migrants if at least one family member stayed in the household. Migrants who did not leave anybody behind are unaccounted for.

Figure A1 shows the number of migrants captured by the ENOE and EMIF. As expected, the number of migrants from the ENOE are slightly below the number of migrants captured by EMIF since ENOE does not account for family migration. Table A1 shows the distribution by state of residence of migrants captured by the ENOE and the EMIF in 2010. We calculate a correlation coefficient of 0.8 when we compare the distributions using both sources of data. It is interesting to note the large differences in the proportion of individuals migrating from the states of Oaxaca and Tamaulipas captured by both datasets. In order to identify which dataset is providing a more accurate estimate, we use the Migration Intensity Index (MII) calculated by the National Council of Population (CONAPO) using data from the 2010 Census. The variables used to construct the index are the percentage of people living in the municipality in dwellings with at least one return migrant, in dwellings that receive remittances, in dwellings with a family member living in the U.S., and in dwellings with a circular migrant. The index assigns categories of "very low," "low," "medium," "high", and "very high" migration. According to the MMI, Oaxaca is considered a state

with a high level of migration, while Tamaulipas is considered a state with a medium level of migration. These categories suggest that the EMIF gives a better count of migrants from those states. Overall, the evidence supports that the EMIF is the more appropriate dataset for this study.

Finally, we compare migration rates obtained using the two datasets. ENOE is not conducted in all municipalities in Mexico; only 1,185, or 46 percent, of the municipalities included in the 2010 Mexican census were covered by ENOE. For that reason, we can only estimate migration rates at the state level. Table A2 shows a correlation of 0.73 between migration rates calculated using the ENOE and EMIF.

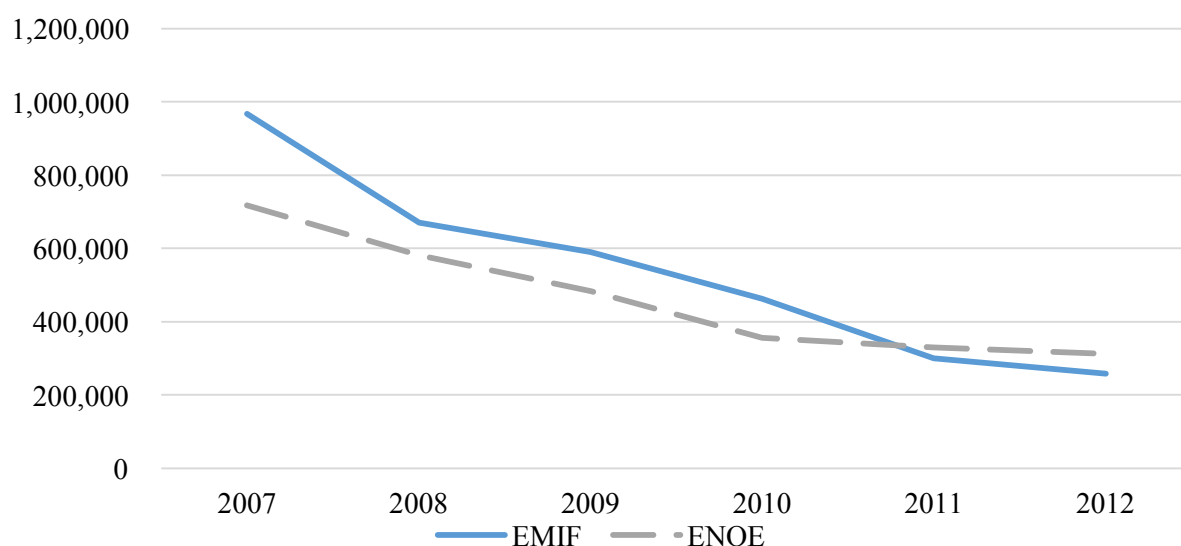


Figure A1
Number of Migrants: EMIF and ENOE

Notes: EMIF 2010 includes all migrants who report will enter the U.S. ENOE 2010 includes all migrants who migrated the previous period.

Table A1

Migrants from EMIF and ENOE by State 2010: Proportion of the Total Number of Migrants (Percent)

	EMIF	ENOE
Michoacán	14.7	11.4
Guanajuato	11.4	15.0
Jalisco	8.3	6.4
Oaxaca	6.7	1.4
Puebla	5.2	4.6
Guerrero	5.1	4.6
Zacatecas	3.6	2.7
Distrito Federal	3.4	3.2
México	3.2	6.0
San Luis Potosí	3.1	3.3
Querétaro	2.6	2.7
Tamaulipas	1.1	6.6
Other States	31.8	31.6
Total	100	100
Correlation Coefficient	0.8	

Notes: EMIF 2010 includes all migrants who report will enter the U.S. ENOE 2010 includes all migrants who migrated the previous period.

Table A2

Migrants from EMIF and ENOE by State 2010: Migration Rates by State

	EMIF	ENOE
Michoacán	2.58	1.80
Zacatecas	1.85	1.24
Guanajuato	1.68	1.99
Querétaro	1.24	1.17
Guerrero	1.20	0.97
San Luis Potosí	0.95	0.90
Colima	0.88	0.75
Jalisco	0.87	0.60
Puebla	0.72	0.57
Other States	0.52	0.50
Distrito Federal	0.23	0.20
México	0.16	0.27
Average	0.67	0.61
Correlation Coefficient	0.73	

Notes: EMIF 2010 includes all migrants who report will enter the U.S. ENOE 2010 includes all migrants who migrated the previous period.

Online Appendix 2: Additional Tables

Table A3*Effect of Elections on State and Municipal Public Finances: OLS Results 1999-2012*

	Dependent Variable:					
	Logarithm of Income			Logarithm of Federal Transfers		
	1999-2005	2006-2012	2007-2012	1999-2005	2006-2012	2007-2012
<i>Pre_Federal</i>	0.0893***	0.0755***	0.0726***	0.1339***	0.1317***	0.1316***
(Year before election)	(0.032)	(0.017)	(0.017)	(0.035)	(0.017)	(0.018)
<i>Federal</i>	-0.5192***	0.0920***	0.0879***	-0.7122***	0.1697***	0.1689***
(Campaign/election)	(0.096)	(0.029)	(0.028)	(0.097)	(0.028)	(0.031)
<i>Post_Federal</i>	-0.2193**	-0.1574***	-0.1583***	-0.3680***	-0.3176***	-0.3163***
(First year in office)	(0.102)	(0.024)	(0.023)	(0.093)	(0.021)	(0.022)
<i>Pre_State</i>	0.038	-0.0045	-0.0083	0.0413	0.0053	0.0083
(Year before election)	(0.069)	(0.021)	(0.022)	(0.067)	(0.016)	(0.018)
<i>State</i>	-0.0709	0.0046	-0.0003	-0.0539	0.0077	0.0058
(Campaign/election)	(0.090)	(0.022)	(0.026)	(0.085)	(0.021)	(0.025)
<i>Post_State</i>	0.0513	-0.0175	-0.0137	0.0817	-0.0176	-0.0145
(First year in office)	(0.058)	(0.015)	(0.015)	(0.062)	(0.013)	(0.011)
<i>Post_Municipal</i>	-0.0195	-0.0590**	-0.0637***	-0.007	-0.0527**	-0.0595***
(First year in office)	(0.024)	(0.026)	(0.023)	(0.021)	(0.020)	(0.016)
<i>Municipal</i>	0.0873	-0.0462	-0.0484	0.0772	-0.0387*	-0.0426**
(Campaign/election)	(0.053)	(0.032)	(0.032)	(0.049)	(0.020)	(0.019)
<i>Pre_Municipal</i>		-0.0282	-0.0343		-0.0342	-0.0454**
(Second year in office/Year before election)		(0.031)	(0.030)		(0.023)	(0.021)
Excluded variable:	Pre_Municipal Second year in office	Second year in office four year appointment		Pre_Municipal Second year in office	Second year in office four year appointment	
Observations	12,816	12,391	10,542	12,816	12,391	10,542
R-squared	0.9585	0.9865	0.9876	0.9521	0.9875	0.9884

Notes: Federal transfers include federal tax revenue shares (“participaciones”) and federal grants earmarked for mandated expenditures (“aportaciones”). We lost approximately 13 percent of the municipalities due to missing information. Standard errors are robust and clustered by state.

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A4

*Effect of Violence in the Probability of Migrating to the U.S.: IV Results Regional Analysis
Homicide Rate (Column 1 from Table 6)*

	Dependent variable:			
	Homicide rate *Northern	Homicide rate *Central	Homicide rate *Southern	Homicide rate *Western
<i>Pre_Municipal*Northern</i>	0.850*** (0.213)	-0.002 (0.008)	-0.021** (0.008)	-0.016 (0.009)
<i>Municipal*Southern</i>	-0.314*** (0.050)	-0.804*** (0.181)	-0.058*** (0.013)	-0.063*** (0.012)
<i>Post_Municipal*Southern</i>	-0.304*** (0.062)	-0.802*** (0.150)	-0.004 (0.016)	-0.01 (0.015)
<i>Pre_Municipal*Southern</i>	-0.386*** (0.052)	-0.681*** (0.152)	-0.062*** (0.015)	-0.046*** (0.012)
<i>Post_Municipal*Central</i>	-0.009 (0.021)	0.009 (0.006)	-0.087** (0.030)	0.015** (0.006)
<i>Post_Municipal*Western</i>	-0.082*** (0.016)	-0.011*** (0.005)	-0.023*** (0.005)	-0.246*** (0.075)
F-Statistic	12.04	6.71	12.40	11.89
Kleibergen-Paap Wald rk F statistic				8.46
Kleibergen-Paap rk LM statistic				49.07
Chi-sq(2) P-val				0.00
Hansen J statistic				3.04
Chi-sq(1) P-val				0.22

Second Stage Estimation	
Dependent variable: Migration rate	
Homicide rate*Central	0.0266** (0.012)
Homicide rate*Northern	0.0050** (0.002)
Homicide rate*Southern	0.0101*** (0.004)
Homicide rate*Western	-0.0156 (0.010)
Observations	12,090

Notes: Standard errors are robust and clustered by municipality.

***p<0.01, **p<0.05, *p<0.1.

Table A5

*Effect of Violence in the Probability of Migrating to the U.S.: IV Results Regional Analysis
Two-year Homicide Rate (Column 2 from Table 6)*

First Stage Estimation				
	Dependent variable: 2-year			
	Homicide rate *Northern	Homicide rate *Central	Homicide rate *Southern	Homicide rate *Western
Pre_Municipal*Northern	1.434*** (0.191)	-0.071*** (0.011)	-0.061*** (0.014)	0.016*** (-5.040)
Municipal*Southern	-0.322*** (0.082)	-0.098*** (0.022)	-1.084*** (0.240)	0.021*** (-4.530)
Post_Municipal*Southern	-0.329*** (0.074)	-0.052*** (0.020)	-0.851*** (0.151)	0.022** (-2.520)
Pre_Municipal*Southern	-0.444*** (0.074)	-0.164*** (0.021)	-0.939*** (0.194)	0.022*** (-6.380)
Pre_Municipal*Central	-0.055** (0.026)	0.094*** (0.034)	-0.073*** (0.012)	0.013*** (-4.320)
Municipal*Western	-0.054** (0.023)	-0.044*** (0.008)	-0.041*** (0.009)	0.107*** (4.380)
F-Statistic	15.93	20.82	12.14	12.8
Kleibergen-Paap Wald rk F statistic				6.58
Kleibergen-Paap rk LM statistic				38.042
Chi-sq(2) P-val				0.000
Hansen J statistic				5.024
Chi-sq(1) P-val				0.081
Second Stage Estimation				
Dependent variable: Migration rate				
Homicide rate*Central				0.0229** (0.010)
Homicide rate*Northern				0.0038*** (0.001)
Homicide rate*Southern				0.0049* (0.003)
Homicide rate*Western				-0.007 (0.005)
Observations				12,090

Notes: Standard errors are robust and clustered by municipality.

***p<0.01, **p<0.05, *p<0.1.

Table A6

*Effect of Violence in the Probability of Migrating to the U.S.: IV Results Regional Analysis
Three-year Homicide Rate (Column 3 from Table 6)*

First Stage Estimation				
	Dependent variable: 3-year			
	Homicide rate *Northern	Homicide rate *Central	Homicide rate *Southern	Homicide rate *Western
<i>Pre_Municipal*Northern</i>	2.189*** (0.205)	-0.087*** (0.010)	-0.059*** (0.013)	-0.101*** (0.015)
<i>Municipal*Southern</i>	-0.638*** (0.098)	-0.160*** (0.025)	-0.800*** (0.244)	-0.152*** (0.022)
<i>Post_Municipal*Southern</i>	-0.41*** (0.075)	-0.111*** (0.020)	-0.707*** (0.159)	-0.124*** (0.018)
<i>Pre_Municipal*Southern</i>	-0.729*** (0.088)	-0.214*** (0.024)	-0.635*** (0.190)	-0.192*** (0.024)
<i>Pre_Municipal*Central</i>	-0.198*** (0.022)	0.046 (0.030)	-0.053*** (0.011)	-0.078*** (0.013)
<i>Municipal*Western</i>	-0.132*** (0.022)	-0.051*** (0.008)	-0.041*** (0.010)	0.589*** (0.110)
F-Statistic	31.32	21.80	7.65	13.38
Kleibergen-Paap Wald rk F statistic				5.76
Kleibergen-Paap rk LM statistic				33.62
Chi-sq(2) P-val				0.000
Hansen J statistic				5.66
Chi-sq(1) P-val				0.06
Second Stage Estimation				
Dependent variable: Migration rate				
Homicide rate*Central				0.0281** (0.013)
Homicide rate*Northern				0.0025*** (0.001)
Homicide rate*Southern				0.0046 (0.004)
Homicide rate*Western				-0.0051 (0.004)
Observations				12,090

Notes: Standard errors are robust and clustered by municipality.

***p<0.01, **p<0.05, *p<0.1.

Table A7

Effect of Violence in the Probability of Migrating to the U.S.: IV Results Regional Analysis
Cumulative Homicide rate (Column 4 from Table 6)

First Stage Estimation				
	Dependent variable: Cumulative Homicide rate			
	Homicide rate *Northern	Homicide rate *Central	Homicide rate *Southern	Homicide rate *Western
<i>Pre_Municipal*Northern</i>	4.037*** (0.364)	-0.292*** (0.021)	-0.295*** (0.028)	-0.268*** (0.023)
<i>Municipal*Southern</i>	-0.845*** (0.115)	-0.325*** (0.042)	-0.492*** (0.180)	-0.215*** (0.033)
<i>Post_Municipal*Southern</i>	-0.494*** (0.085)	-0.213*** (0.028)	-0.791*** (0.161)	-0.149*** (0.020)
<i>Pre_Municipal*Southern</i>	-1.071*** (0.109)	-0.518*** (0.036)	-0.073 (0.151)	-0.4*** (0.033)
<i>Pre_Municipal*Central</i>	-0.393*** (0.041)	0.345*** (0.040)	-0.235*** (0.024)	-0.225*** (0.021)
<i>Municipal*Western</i>	-0.283*** (0.041)	-0.121*** (0.023)	-0.087*** (0.023)	0.253** (0.100)
F-Statistic	36.61	75.00	31.00	34.59
Kleibergen-Paap Wald rk F statistic				16.47
Kleibergen-Paap rk LM statistic				133.23
Chi-sq(2) P-val				0.000
Hansen J statistic				6.696
Chi-sq(1) P-val				0.153
Second Stage Estimation				
Dependent variable: Migration rate				
Homicide rate*Central				0.0310* (0.017)
Homicide rate*Northern				0.0014** (0.001)
Homicide rate*Southern				0.0018 (0.006)
Homicide rate*Western				-0.0059 (0.005)
Observations				12,090

Notes: Standard errors are robust and clustered by municipality. Regressions include year and municipality fixed effects. One interesting characteristic of the Mexican drug cartels is that most of them have an important presence in different regions of Mexico. When elections occur in a given region, criminal groups might concentrate their efforts and increase their presence in that specific area in order to influence elections. Moreover, we find that there is an important

correlation between elections across regions. For example, in 2010, while 81 percent of the municipalities from Southern Mexico had elections, only 16 percent of the municipalities in Western Mexico had one. In 2009, 47 percent of the municipalities in Northern Mexico had an election, and only 5 percent in Southern Mexico. If we calculate correlations over time we find, for example, a negative correlation of 94 percent between election years in Northern Mexico and the year after an election in Southern Mexico. The spread presence of cartels across the country and the correlation between election dates across regions can explain why the dummy variables indicating election year, year after election, and year prior elections in other regions are also informative. For example, if there is a negative correlation between elections Northern and Southern Mexico, the negative sign associated with the coefficient for elections in Southern Mexico might indicate that, in the absence of elections in Southern Mexico, criminal groups focus their efforts in Northern Mexico increasing the violence there.

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A8

Effect of Violence in the Probability of Migrating to the U.S.: IV Results: Regional Analysis including Transit Violence Indices

First Stage Estimation				
	(1)	(2)	(3)	(4)
	Homicide rate	Dependent variable:		Cumulative
		2 year Homicide rate	3 year Homicide rate	Homicide rate
F-statistic Homicide rate North	10.44	11.22	16.79	27.75
F-statistic Homicide rate Central	12.11	16.85	17.34	68.23
F-statistic Homicide rate South	5.93	8.48	8.10	23.14
F-statistic Homicide rate Western	9.01	8.53	12.09	23.07
Kleibergen-Paap Wald rk F-statistic	7.80	7.25	8.32	17.15
Kleibergen-Paap rk LM stat	67.054	62.393	58.583	131.546
Chi-sq(2) P-val	0.000	0.000	0.000	0.000
Hansen J Statistic	7.877	11.019	12.718	6.813
Chi-sq(2) P-val	0.1632	0.051	0.0127	0.1461
Second Stage Estimation				
	Homicide rate	2 year Homicide rate	3 year Homicide rate	Cumulative Homicide rate
Dependent variable: Migration rate				
Homicide rate*Central	0.0269** (0.012)	0.0296*** (0.009)	0.0357** (0.014)	0.0094*** (0.002)
Homicide rate*Northern	0.0031 (0.002)	0.0046*** (0.002)	0.0038*** (0.001)	0.0031*** (0.001)
Homicide rate*Southern	0.0110*** (0.004)	0.0019 (0.003)	-0.0025 (0.006)	0.0046* (0.003)
Homicide rate*Western	-0.0158 (0.010)	0.0005 (0.004)	-0.0006 (0.003)	0.0046 (0.005)
Index Violence within state	-0.0053 (0.011)	-0.0150* (0.008)	-0.0110* (0.006)	-0.0112** (0.006)
Index Violence across states	0.0000 (0.001)	-0.0021** (0.001)	-0.0026** (0.001)	-0.0014** (0.001)
Index across*Index within	-0.0017 (0.002)	0.0014* (0.001)	0.0012 (0.001)	0.0003 (0.000)
Observations	12,090	12,090	12,090	12,090

Notes: Standard errors are robust and clustered by municipality. Regressions include year and municipality fixed effects.

***p<0.01, **p<0.05, *p<0.1.

Table A9*Migration Rates, Index across States and Index within State 2007 - 2012*

	Migration Rate	2-Year Homicide Rate	Index Across States (2Y)	Index Within State (2Y)
2007	0.0306	1.8877	1.6228	0.2399
2012	0.0066	4.5034	5.3420	0.5299
Average 2007-2012	0.015	3.209	3.327	0.391
Change 2007-2012	-0.024	2.616	3.719	0.290

Notes: The index within state and across states are calculated using the two-year homicide rate.

Table A10*Effect of Electoral Cycles on the Probability of Migrating to the U.S.*

	(1) 1999-2005	(2) 2006-2012	(3) 2007-2012
Dependent variable: Migration Rate			
<i>Municipal</i> (Campaign/election)	-0.0015 (0.001)	-0.0086 (0.006)	-0.0078* (0.004)
<i>Post_Municipal</i> (First year in office)	-0.0005 (0.001)	-0.0099* (0.006)	-0.0097** (0.005)
<i>Pre_Municipal</i> (Second year in office)		-0.0068 (0.005)	-0.0064 (0.004)
Excluded variable	Pre-municipal	Second year in office of a four year appointment	
Observations	14,105	14,105	12,090
R-squared	0.2391	0.3133	0.3098

Notes: Standard errors are robust and clustered by state. Regressions include fixed effects by municipality and year.

***p<0.01, **p<0.05, *p<0.1.

Table A11
Perception of Public Safety and Losses due to Crime by Region

	(1)	(2)	(3)	(4)
	Feel unsafe in your municipality	Feel unsafe in your State	Feel unsafe traveling along the roads	Stopped traveling to other states due to violence along the roads
Dependent variable:				
Homicide rate*Northern	0.0081*** (0.000)	0.0055*** (0.000)	0.0018*** (0.000)	0.0001 (0.000)
Homicide rate*Southern	0.0117*** (0.001)	-0.0019*** (0.001)	0.0046*** (0.001)	0.0022*** (0.000)
Homicide rate*Central	0.0453*** (0.001)	0.0345*** (0.001)	-0.0016* (0.001)	0.0059*** (0.001)
Homicide rate*Western	0.0169*** (0.001)	0.0070*** (0.001)	0.0061*** (0.001)	0.0108*** (0.001)
Index_Within_State*Northern	-0.0149*** 0.0012	0.0096*** 0.0012	0.0057*** 0.0012	-0.0116*** 0.0009
Index_Within_State*Southern	0.0482*** 0.0021	0.1039*** 0.0021	0.0280*** 0.0021	0.0363*** 0.0015
Index_Within_State*Central	0.1190*** 0.0076	0.2438*** 0.007	0.2048*** 0.0079	0.0414*** 0.0058
Index_Within_State*Western	-0.0326*** (0.009)	0.1473*** (0.009)	0.2039*** (0.009)	0.0985*** (0.008)
Index_Across_State*Northern	0.0034*** 0.0002	0.0018*** 0.0002	0.0020*** 0.0002	0.0040*** 0.0002
Index_Across_State*Southern	0.0789*** 0.0024	0.0421*** 0.0024	0.0875*** 0.0024	0.0902*** 0.0016
Index_Across_State*Central	0.0181*** 0.0015	0.0441*** 0.0014	0.0092*** 0.0015	0.0225*** 0.0012
Index_Across_State*Western	-0.0011 0.0027	0.0257*** 0.0025	-0.0038 0.0027	-0.0208*** 0.002
Observations	413,882	413,882	413,882	413,882
R-squared	0.0743	0.0813	0.0246	0.0551

Notes: Regressions include year fixed effects and standard errors are robust.

***p<0.01, **p<0.05, *p<0.1.