POVERTY AND CLIENTELISM IN THE ELECTORAL CONTEXT IN MEXICO
FINAL PROJECT REPORT

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INTRODUCTION TO GIS
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Executive Summary

The present study investigates the effect of remittances and poverty on electoral competition. It specifically evaluates if municipalities where remittances represent a higher proportion of households’ income were less likely to be captured by parties in the 2012 Presidential election in Mexico. Furthermore, as a spatial component, it is also suggested that municipalities may not be completely independent among each other, and that they may be influenced by the political situation and dynamics of neighboring municipalities. This justified the use of a Geographically Weighted Regression. The results obtained indicate that with the present information and the defined specification we could not make robust assumptions about the effect of remittances on electoral behavior. It is highly likely that the estimates are biased due to omitted variables.
Introduction

Mexico is administratively divided into 31 States and a Federal District. Each State is subdivided into municipalities. As of 2010, when the last census was carried out, Mexico had 2,456 municipalities. Although there is no unique official regional division in the present analysis I divide the Mexican territory into 6 regions, containing the following States:

- North West: Baja California, Baja California Sur, Sinaloa, Sonora
- North East: Coahuila, Nuevo León, Tamaulipas, Chihuahua, Durango, Zacatecas, San Luis Potosí
- West: Aguascalientes, Colima, Guanajuato, Jalisco, Michoacán, Nayarit, Querétaro
- Center: DF, Estado de México, Hidalgo, Morelos, Puebla, Tlaxcala
- South: Guerrero, Oaxaca, Chiapas, Veracruz
- South East: Campeche, Quintana Roo, Tabasco, Yucatán

The previous division and administrative boundaries can be found in Map 1 and will serve as reference for the remainder of this study.

Although Mexico has been an independent country for more than 200 years, the democratic consolidation—characterized by electoral competition—is yet incipient and young. For 73 years, the country was ruled under one party (the Institutional Revolution Party, PRI). In 2000 the opposition’s right-wing party (National Action Party, PAN) gained power and governed for two consecutive administrations. However, in 2012, the PRI (in coalition with the Green Party) regained the presidency with approximately 38.2% of the total votes, a considerable margin from the second place (the left-wing Democratic Revolution Party, PRD with its coalition parties), who obtained 31.6% of the total votes. PAN only 25.4% of the total votes. The fourth contesting party (Nueva Alianza) did not obtain a high percentage of the vote share and will not be in the focus of this research.¹

This one party dominance for such an extended period of time was (and has been) possible and reinforced by the construction of extensive clientelistic networks. Clientelism is commonly defined as the use of public resources for private purposes. Historically in Mexico social assistance and anti-poverty programs have been utilized as instruments of pressure for political support, making disadvantaged populations more vulnerable to clientelist practices (Diaz-Cayeros, Estévez and Magaloni, 2012). Although there have been important policy innovations to secure social programs against clientelism though policy design (i.e. Progresa-Oportunidades program), such practices still remain (Diaz-Cayeros, Estévez and Magaloni, 2012).

A recent trend in the literature has been to understand other phenomena additional to the institutional innovations that reduce the dependence of less advantaged populations from direct public transfers. By reducing the dependence on public transfers to the individual (either in monetary or non-monetary form) it is hypothesized that vulnerability to political pressures and clientelist practices are reduced (Kurtz, 2004). In this line, remittances could be seen as a source of income which is exogenous from local politics and thus detach the welfare level of less advantaged populations to the political and electoral cycles. Furthermore, the amount of remittances that inflow into the country are significant and for some

¹ Percentages calculated with the Electoral Tribunal’s results (INE, 2013).
households a major source of income. By 2000, remittances already amounted to approximately 1.5 percentage points of Mexico’s GDP. Family remittances represented an approximated accumulated figure of 45 billion dollars in the 1990-2000 decade (Tuirán, 2002).

Due to the availability of information on migration and remittances, some authors have studied the impact of remittances in local politics and administration. For example, Tybursky (2012) provides evidence that remittances have mitigated corruption in states which on average receive larger sums of remittances. José Merino (2005) investigates remittances as a reservation wage which allows certain people the freedom to vote for opposition parties as they can bear the risk of momentarily forego from public transfers until the new party establishes new policies. Analyzing the elections held in 2006, Merino finds evidence of the influence of remittances on voting behavior. However, he suggests that this trend may not have significantly changed the electoral geography, as changes shifting votes for the opposition was divided between the two alternative parties, with the PRD shifting votes from PAN, rather than the PRI.

However, there are studies that suggest a contesting effect of remittances on voting behavior. Roy Germano (2013), through a qualitative survey of 767 households in the State of Michoacán, finds that people that receive higher remittances tend to have more economic stability and thus are less likely to mobilize against incumbents.

This broad literature review suggests that although there is indication that remittances have a positive effect on voting independence, the evidence is still somewhat ambiguous. Furthermore, the majority of the previously mentioned studies focus on statistical techniques using the spatial dimension and geographic representation merely as a descriptive tool. Although I will also use geographic representations for descriptive purposes, the aim of this study is to incorporate the spatial dimension into the analysis beyond descriptive representations.

Research question and hypothesis

Based on the previous literature the present study intends to investigate effect of remittances and poverty on electoral competition. The specific hypothesis to be evaluated relates to the following statement: municipalities where remittances represent a higher proportion of households’ income are less likely to be captured by parties. Furthermore, as a spatial component, it is also suggested that municipalities may not be completely independent among each other, and that they may be influenced by the political situation and dynamics of neighboring municipalities.

The paper will be organized as follows. In the following section I present the data and operationalization of the variables to be explored in this analysis. I also set the spatial statistical model that will be carried out for assessing the relationship between remittances and electoral capture. I will then proceed to present some geographic representation of the main findings of this study as well as the results from the spatial statistics analysis. A final section will outline the conclusion and limitations of the present study.
Data and Methodology

The information to carry out this analysis comes from different sources and requires some discussion before turning to the analysis section. The country, states and municipal shapefiles were obtained from the National Institute for Geography, Statistics and Informatics (INEGI). All shapefiles had the same DATUM and projection (ITRF 1992, North America Lambert Conformal Conic), so they did not need to be modified. However, these shapefiles do not contain any attribute information relevant for this analysis, so it had to be decanted into the shapefiles by joining the corresponding attributes tables.

However, the attributes defined for this analysis come from different sources and needed to be merged before joining them into the shapefiles. This was particularly challenging in the case of electoral information for two main reasons:

1. Electoral results did not contain an homologous identification code and municipalities regularly show discrepancies between data sources in terms of names (abbreviations) and special characters common in the Spanish language (i.e. inflections).
2. 27 municipalities were not contained in the electoral attributes table and were recorded as missing.
3. In 2 small municipalities in Oaxaca, no one voted, and thus showed a value of zero in all the electoral results.

The merge of the electoral information with the information from CONAPO was carefully checked and adjusted when necessary. For further details please refer to Appendix 1. Otherwise specified in the maps, all the attributes represented in the maps were classified using natural breaks and then manually rounded up or down to the closest meaningful integer.

Operationalization of variables of interest

In this sub-section I explain how the different variables that will be used in the present analysis were operationalized and calculated, as well as their broad interpretation for clarity purposes.

- **Electoral Capture.** Clientelist practices, due to their illegality, are not easy to track let alone measure. For this reason, I will use vote concentration (or lack of competition) as a proxy of electoral capture, measured by a Herfindahl-Hirschman Index. This index, commonly used in economics to measure market concentration, is constructed by the sum of the squared share of the votes each of the four candidates in the 2014 presidential election obtained in each municipality.\(^2\) A high score in the index thus implies that the electoral contest in a particular municipality was monopolized by one party; a low score represents electoral competition.

- **Remittances.** Remittances is one of the components of CONAPO’s Migration Intensity Index, which is calculated based on INEGI’s most recent Population Census (2010). Remittances in Mexico are measured by the money received from migrant family members that reside in the

United States. The measure of remittances reported in the Migration Intensity Index is presented as the municipal average of Households’ proportion of income coming from remittances.

- **Marginalization Index 2010.** This index is constructed by CONAPO with information from the Population Census of 2010. It is a summary measure that classifies municipalities according to their level of socio-economic deprivation, placing the majority of the population in a defined demarcation at vulnerability and risk of social exclusion. Deprivation is identified into four main dimensions and measured as follows:
  - The Education dimension is constructed by indicators of the percentage of adults (15 years of age or older) which are illiterate or without elementary.
  - The Housing dimension is constructed by the percentage of households without access to basic services such as sewage systems, electricity and water. It also considers two measures of household characteristics such as lack of any sort of flooring or with some sort of overcrowding.
  - The Income dimension is measured by the percentage of population the occupied population earning less than two minimum wages.
  - The Dispersion dimension is measured by the percentage of the population living in localities with less than 5,000 inhabitants (CONAPO, 2011).

- **Population density.** The available information did not contain a measure of population density. Using the calculate geometry function in ArcGIS, I was able to obtain each municipalities area measured in square kilometers. Thus, the total population of each municipality was divided by its total area to obtain a population density measure.

**Geographic Weighted Regression Specification**

In order to carry out the Geographically Weighted Regression, I deleted all the municipalities that had missing values, as they were being recorded in the regression as zeros, having a distorting effect in the regression. I also deleted the two municipalities in Oaxaca where there was no participation. Having performed this final cleaning, I ran two separate regressions. In the first reduced specification I used remittances as the only regressor to understand the geographic correlation with electoral capture:

\[ Y_i = \beta_{0i} + \beta_{1i}Remittances + \varepsilon_i \]

where

- \( Y = \text{Electoral capture measured by Herfindahl-Hirschman’s Index} \)
- \( i = \text{Each municipality} \)
- \( \varepsilon = \text{error term} \)
- **Kernel type: adaptive**

However, it is expected that remittances cannot be the only predictor of electoral capture. As such, an additional specification considered additional control variables such as marginalization and rurality to account for vulnerability of the average population in the municipality. Rurality was considered an important control variable, as remittances are majorly sent to predominantly rural municipalities. Population density is highly correlated with rurality, so it was left out of the analysis due to colinearity.
between these two measures which could bias our estimates. The second specification then contains the control variables as follows:

\[ Y_i = \beta_0 + \beta_{1i} Remittances + \beta_{2i} Marginalization + \beta_{3i} Rurality + \epsilon_i \]

Findings

Basic demographic and socio-economic profile

Map 2 shows the population density in each municipality. As can be appreciated, with the exception of the metropolitan areas in the north, the population tends to be concentrated in the center and south of the country.

As we can observe in Map 3, municipalities with high marginalization indexes tend to be located in Guerrero, Oaxaca and Chiapas. The border region and the region surrounding the capital tend to have lower levels of marginalization. These areas concentrate the majority of Mexico’s economic activities.

I decided to decompose two of the four dimensions of the marginalization index to show that the index is more related with the low income dimension that with the rurality dimension. This is important, as it will allow us to use rurality into the geographic weighted regression without too much concern of perfect colinearity.

The main variable of interest is remittances, represented in Map 6. As we can observe, average remittances are not perfectly following the same geographic pattern as marginality. Municipalities with higher average of remittances as a proportion of households’ income are mainly located along the migration corridor. Another interesting thing to observe is that municipalities in the border with the US do not appear to be the highest receivers of remittances, but those located in the center of the country. Although the median proportion of income from remittances is 4%, the spread is considerable, with municipalities having up to 50% of average income from remittances. The categories displayed in this map were defined by natural breaks and then rounded up or down to a meaningful and rounded figure, which could aid with the visual representation of the information presented. It is important to note that the measure of remittances which I had available are not at the individual level, but a municipal average.

Electoral geography

Map 7 presents the electoral results of the 2012 presidential election at the municipal level. The PRI seemed to dominate the majority of the territory. However, they lost important territories in Nuevo León, Tamaulipas and Veracruz, where the PAN made significant advancements.

The PRD retained its presence in the south-east of the country, with the exception of Chiapas and gained substantial presence in the center region, particularly the states close to the capital, as well as Quintana
An interesting case is the State of Tabasco, where the PRD gained with a noteworthy margin from the other contesting candidates (as can be observed by the difference between the first and second place represented in map 9). This is an interesting case, as the presidential candidate for this party (Andres Manuel López Obrador) is originally from Tabasco. This sweeping results could also be explained by a major corruption scandal that emerged from the PRI governor from Tabasco during the presidential campaign.

While the PAN seemed to retain electoral presence in certain of municipalities in states where they were the incumbent state administration (Jalisco and Guanajuato and Sonora), they lost support of Baja California and Baja California Sur, as well as Puebla and Morelos in the center region.
Map 1. Mexico's Administrative Division by State and Region

North West: Baja California, Baja California Sur, Sinaloa, Sonora
North East: Coahuila, Nuevo León, Tamaulipas, Chihuahua, Durango, Zacatecas, San Luis Potosí
West: Aguascalientes, Colima, Guanajuato, Jalisco, Michoacán, Nayarit, Querétaro
Center: DF, Estado de México, Hidalgo, Morelos, Puebla, Tlaxcala
South: Guerrero, Oaxaca, Chiapas, Veracruz
South East: Campeche, Quintana Roo, Tabasco, Yucatán

By Ilse Oehler | Fall 2014
Source: INEGI, 2010
DATUM:ITRF 1992, North America Lambert Conformal Conic

Population density breaks calculated in five quantiles and rounded up or down accordingly. Area calculated with GIS in Sq Km.

By Ilse Oehler | Fall, 2014
DATUM: ITRF 1992, North America Lambert Conformal Conic
Map 3. Marginalization Index 2010

CONAPO’s Marginalization Index 2010 is a summary measure that classifies municipalities according to their level of socio-economic deprivation, placing the majority of its population at vulnerability and risk of social exclusion. It is constructed based on four dimensions: Education, Housing characteristics, Income and Dispersion.

By: Ilse Oehler | Fall 2014
Map 4. Low Income Dimension
% of occupied people earning less than two minimum wages
Source: Migration Index, CONAPO, 2010.
DATUM: ITRF 1992, North America Lambert Conformal Conic

Map 5. Dispersion Dimension (Rurality)
% of population living in localities of less than 5,000 inhabitants
Source: Migration Index, CONAPO, 2010.
DATUM: ITRF 1992, North America Lambert Conformal Conic
Map 6. Average Remittances as a Percentage of Household Income

Remittance categories defined by natural breaks and rounded up or down accordingly.

Source: Migration Index, CONAPO, 2010.
DATUM: HRF 1992, North America Lambert Conformal Conic

7% Mean
4% Median
VOTING TURNOUT, ALL MUNICIPALITIES BY MARGINALIZATION INDEX

- Very High: 62.76%
- High: 65.12%
- Medium: 65.57%
- Low: 65.25%
- Very Low: 63.39%

VOTING TURNOUT, HIGH REMITTANCE MUNICIPALITIES BY MARGINALIZATION INDEX

- Very High: 57.06%
- High: 60.58%
- Medium: 61.94%
- Low: 62.66%
- Very Low: 61.65%
Map 9. Winner Party and Vote Differential From Second Place

Note: In Veracruz the differential was almost zero.

By Ilse Oehler | Fall 2014
Source: INE, 2012 Presidential Election, Electoral Tribunal’s Results.
DATUM: ITRF 1992, North America Lambert Conformal Conic
Spatial Analysis

The Herfindahl-Hirschman Index represented in Map 10 categorizes municipalities according to the concentration of votes. Higher indexes imply that votes were concentrated in one party, which I define as electoral capture for the purposes of this analysis. A low index signifies that there was electoral competition. I wanted to explain how much remittances have an effect on a municipality showing high concentration of votes or not. As explained earlier, this analysis was carried out using a Geographically Weighted Regression, considering the possible effects of the dynamics of neighboring units.

Map 11 presents the results of the reduced specification to observe the effect of remittances on electoral capture. The map represents the coefficient of remittances on electoral capture in a black-grey scale. Municipalities shaded in black represent those municipalities where remittances appeared to have a positive relationship with electoral capture, which is contrary to what I hypothesized. Municipalities shaded in grey represent those where remittances appeared to have a negative impact on electoral capture, in accordance to my expectation. However, the effect seems to be considerably mild in magnitude, with the effect being close to zero in both cases.

Analyzing the residuals, however, offers an interesting trend. Municipalities outlined in yellow (less than -1.5 standard residuals) represent those where capture was lower than the average conditional on remittances. This implies that in these municipalities remittances had a stronger impact on electoral competition than the average. The municipalities outlined in purple (more than 1.5 standard errors) represent those where the capture was higher than the average conditional on remittances. In this case, remittances had a stronger impact than the average, but in the completely opposite direction (capture).

The results presented in Map 12 have the same interpretation than for Map 11, but also accounting for the effect of out other explanatory variables: marginalization and rurality. As we can observe, the effect of remittances on electoral capture remains for some municipalities when controlling for other factors, but disappears in others. It is important to note that both specifications did not yield high R squares, which implies that the model does not accurately explain a significant variation in electoral capture. Furthermore, it is highly likely that the estimates are biased due to omitted variables that could explain the variations in our capture measure. These results indicate that with the present information and the defined specification we could not make robust assumptions about the effect of remittances on electoral behavior.

Conclusions and final considerations

The present study investigated the effect of remittances and poverty on electoral competition. It offered interesting insights about the electoral geography of the 2012 Presidential election in Mexico. However, the results obtained with respect of the effect of remittances on electoral capture were not promising. With the present information and the defined specification we could not make robust assumptions about the effect of remittances on electoral behavior. It is highly likely that the estimates are biased due to omitted variables.
Map 10. Electoral Capture (Herfindahl Index)
Herfindahl Index measures voting concentration by summing each candidate's squared share of the vote.

By Ilse Oehler | Fall 2014
Source: INE, 2012 Presidential Election Results.
DATUM: RRF 1982, North America Lambert Conformal Conic
Map 11. Geographic Weighted Regression without controls
Remittances as estimator of electoral capture without controls. Higher residuals imply that the model would have predicted lower concentration of votes. Lower residuals imply that the model would have predicted higher concentration.

By Ilse Oehler | Fall 2014
DATUM: ITRF 1992, North America Lambert Conformal Conic

R Sq. 35.4%
Adj R sq. 27.5%

[Map showing remittances coefficients and standard residuals]
Map 12. Geographical Weighted Regression with Controls

Remittances, Marginalization and Rurality as estimators of electoral capture. Holding marginalization and rurality constant, higher residuals imply that the model would have predicted lower concentration of votes. Lower residuals imply that the model would have predicted higher concentration.

By Ilse Oehler | Fall 2014
DATUM: ITRF 1992, North America Lambert Conformal Conic

R Sq. 33.7%
Adj R sq. 27.4%
References

Data sources


Bibliography


Appendix: Data acquisition and management

Creating regional Clip shapefiles.

In order to present the information of this research in a more clear way, I constructed a regional division with the following criteria:

North West: Baja California, Baja California Sur, Sinaloa, Sonora
North East: Coahuila, Nuevo León, Tamaulipas, Chihuahua, Durango, Zacatecas, San Luis Potosí
West: Aguascalientes, Colima, Guanajuato, Jalisco, Michoacán, Nayarit, Querétaro
Center: DF, Estado de México, Hidalgo, Morelos, Puebla, Tlaxcala
South: Guerrero, Oaxaca, Chiapas, Veracruz
South East: Campeche, Quintana Roo, Tabasco, Yucatán

1. Selected the States for each region and created a separate shapefile with Geoprocessing dissolve.
2. Then opened each regions’ individual shapefile and merged them into a single shapefile using Geoprocessing merge to obtain only the regional boundaries.
3. Then, edited the attribute table inputting the name of each region.

Attribute data acquisition, merge and joins into shapefile

Originally, I thought of using electoral results at the precinct level but the precision of the electoral precinct shapefiles did not coincide with the municipal shapefiles. Furthermore, some municipal boundaries crossed state lines according to the electoral precinct shapefiles, which cannot be correct and thus render the overlap of these sources of information useless for the present analysis. The two mentioned data came from official sources, and I have not found the reason for this discrepancy between administrative boundaries.

Due to this caveat, I decided to focus the present analysis at the municipal level. This decision however, did not come without challenges. There have been changes in municipal boundaries, so there are slight discrepancies from one data source from the other. Thus, combining the information from the different data sources required careful attention and some tests of validation that the merge was performed correctly.

All the special characters in municipalities’ names were removed, as they were creating conflict with the matching: vocals with accents, ñ and ü.

1. I created a unique numerical identifier for each municipality in the original shapefile composed by the state number in the first two digits of the ID and then concatenated the municipal number in the next 3 digits to coincide with CONAPO and another identifier concatenating the state number and the municipal name to merge with the electoral results.
2. This ID coincided with CONAPO’s identifier.

- However, the construction of this ID did not work for the electoral results data, as some municipalities share the same name in different states, as the case of Aldama, which you find in both Chihuahua and Chiapas. The concatenated ID between state and municipal name helped address this problem.
- In order to test that the merge was performed correctly, I used Excel’s logic commands to make sure that each row contained information from the same unit of analysis after the merge. A value “true” was displayed if the merge is consistent, and a value “false” if it was not or the corresponding municipality was missing in one of the databases.
- After performing the previous analysis, problems still were identified for 26 municipalities which I explain as follows:
  - 3 municipalities had inconsistencies in municipal names: the municipality General Simon Bolivar, Durango was recorded as Simon Bolivar in the IFE file; Villa Comalititlan, Chiapas and Cuatro Cienagas, Coahuila did not have a space between the two names in the IFE file. These discrepancies were corrected manually by inputting missing values where needed.
  - 26 municipalities were not contained in the IFE file:
    - Maravilla Tenejapa, Chiapas
    - Santiago el Pinar, Chiapas
    - San Andres Duraznal, Chiapas
    - Montecristo de Guerrero, Chiapas
    - Marquez de Comillas, Chiapas
    - Benemerito de las Americas, Chiapas
    - Aldama, Chiapas
    - Villa Corzo, Chiapas
    - Heroica Ciudad de Juchitan de Zaragoza, Oaxaca
    - San Pedro Mixtepec Dto. 22 and Dto. 26, Oaxaca
    - San Juan Mixtepec Dto. 26 and Dto. 08, Oaxaca
    - San Mateo Yucutindo, Oaxaca
    - San Pedro Totolapam, Oaxaca
    - Cosamaloapan de Carpio, Veracruz
    - Ozuluama de Mascarenas, Veracruz
    - Zontecomatlan de López y Fuentes, Veracruz
    - Yauhquemehcan, Tlaxcala
    - Ziltlaltepec de Trinidad de Sanchez Santos, Tlaxcala
    - Atltzayanca, Tlaxcala
    - Guemex, Tamaulipas
    - Calakmul, Campeche
    - Tulum, Quintana Roo

In 2 Municipalities, although contained in the Electoral attributes table, the population did not vote.

- San Miguel de las Piedras, Oaxaca
- San Pedro Teozacoalco, Oaxaca
Electoral Results by Candidate at the Municipal Level

The information on electoral results were extracted at the municipal level using the final count reported by the Electoral Judicial Tribunal. This information did not allow extracting results by candidate, but by Party and Coalitions. So, the results had to be summed manually. There are minor discrepancies on the aggregated numbers by state and the ones computed for the present analysis. The discrepancies were minor as reported in the following table:

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</tr>
<tr>
<td>San Luis Potosí</td>
<td>0.03%</td>
<td>0.01%</td>
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</tr>
<tr>
<td>Sinaloa</td>
<td>0.02%</td>
<td>0.01%</td>
<td>0.02%</td>
<td>0.00%</td>
</tr>
<tr>
<td>Sonora</td>
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<td>0.01%</td>
<td>0.03%</td>
<td>0.00%</td>
</tr>
<tr>
<td>Tabasco</td>
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<tr>
<td>Tamaulipas</td>
<td>0.28%</td>
<td>0.44%</td>
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<td>0.01%</td>
</tr>
<tr>
<td>Tlaxcala</td>
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<td>1.84%</td>
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<tr>
<td>Veracruz</td>
<td>0.46%</td>
<td>0.47%</td>
<td>0.30%</td>
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<tr>
<td>Yucatán</td>
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<tr>
<td>Zacatecas</td>
<td>0.04%</td>
<td>0.03%</td>
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</tr>
</tbody>
</table>

Winner party per municipality

In order to codify winner party per municipality:
1. Divided number of votes per party by the total number of votes per municipality. This share of votes was also used to construct the Hefindahl-Hirschman Index.
2. Create a variable containing the percentage of votes obtained by winning candidate for each municipality (candidate with the highest percentage of votes).
3. Creating four categorical variables for each party to identify with a value of 1 if that party obtained the maximum number of votes in that municipality.
4. Creating a single variable identifying the winning party in each municipality and assigning a 1 if it was the PRI, 2 if it was PAN, PRD, and 4 if other.

**Electoral results by state and differences between first and second place**
1. Divided number of votes per party by the total number of votes.
2. Create a variable containing the percentage of votes obtained by winning candidate for each state (candidate with the highest percentage of votes).
3. Create a variable containing the percentage of votes obtained by second place candidate for each state.
4. Create a variable with the difference between first and second place.

**Attributes classification method**
- Otherwise specified in the maps, all the attributes represented in the maps were classified using natural breaks and then manually rounded up or down to the closest meaningful integer.
- **Population density:** Represented into 5 categories by quantiles, and then rounded up or down manually to the closest meaningful round number.