Do Walmartians Ruled?
The political power of an *emerging middle class* in Mexico.

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The political power of an emerging middle class in Mexico.

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Abstract This paper questions if an increase in consumption of durable goods -such as electric appliances, associated in the media with an emerging middle class- could have aided the incumbent party to retain the Mexican presidency in 2006 -again, associated in the media with the backing of the economic model by voters. Important data limitations forced to employ indirect tests of these and to rely on correlations rather than causalities -with the associated identification problems. Nonetheless, it was not able to reject the hypothesis alluded. Though, in a tight election, a small effect could make the difference, and this analysis suggests that this very probably happened.

Keywords: voting, welfare, durable goods, Mexico, middle class.

JEL: D72, D12, D31.

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1 Introduction

In July 2006, Mexicans voted for a new President in the tightest election ever of their country. The strongest candidates came: first, from the PRD (Democratic Revolution Party), considered a center-left party, with some proclivity to state intervention in economic issues\(^1\); second, from the PAN (National Action Party), considered a center-right party, and typically pro-market; and third, from the PRI (Institutional Revolutionary Party), considered ambiguous in ideological terms, but typified as centrist\(^2\). The PRI, as political background, was the party that governed Mexico for 72 uninterrupted years, until the Elections of 2000, when the PAN legally overthrew it\(^3\), accomplishing its first Presidential period from December 1\(^{st}\), 2000 until November 30\(^{th}\), 2006. The PRD, although has never been in command of the Presidential Administration, it has been for the Mexico City Administration for the last 12 years. So, for the first time, the election was head up by parties considered, ten years earlier, as "opposition", leaving in a far third place, the PRI candidate.

In February 2006, when the campaigns started officially, the difference between the PRD’s and the PAN’s candidate was of around 9 points. By late June 2006, the month before the election, the gap reduced down to 3 points\(^4\), or a technical draw according with some national electoral surveys\(^5\). The Presidential Election’s winner, after some political and legal struggles, was the PAN’s candidate, but by less than 1% of the votes; slightly over the ones received by the PRD. The official figures were of 35.89% for the former and 35.31% for the latter; the PRI got only 22.26% of the votes\(^6,7\). This suggests that the election had a significant turnaround in the voter’s candidate preference. An important question is, if in spite of the political strategies, the economic rationale played a role in the final result. In case it did, a second question would be why.

While the PRD candidate’s offer represented more drastic changes in terms of the economic model, the PAN candidate’s was based on modifications of the existing one. The support of the principal candidates was clearly divided according by two variables: geographical zone and income group. The north and western parts of the country solidly supported the PAN’s candidate, while the central and southern parts of the country did support the PRD’s. In terms of income groups, the latter’s main support came from the working class people – not surprising after his campaign motto “The poor ones first”\(^*\); and the former’s support, in contrast, came from the upper income groups and people with higher

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\(^1\)In fact, it was a coalition named "Coalición por el Bien de Todos", also integrated by the PT (Labor Party) and Convergencia.

\(^2\)As well, it was a coalition named "Alianza por México", also integrated by the PVEM (Mexican Green Ecologist Party).

\(^3\)In coalition with the PVEM. But, in September 2001, the coalition was ended by these.


\(^7\)These figures ended slightly different after some electoral and legal disputes.
educational levels\textsuperscript{8,9}.

There is a popular notion among economists which establishes that stable macroeconomic conditions enhance welfare. The rationale behind is that stability enables a better planning, the existence of long term financial contracts, and a larger credit supply. On the same lines, the availability of credit, together with the liberalization of trade, would allow the consumption of a series of goods (including many durable goods) by middle income groups. Recently, an article published by The Economist concluded very similarly: "Faster growth, low inflation, expanding credit and liberal trade are helping to create a new middle class in Latin America\textsuperscript{10}”. These ideas produced some echo in the media. For example, less than one month before the election, an editorial from The Wall Street Journal (WSJ) suggested that it may be defined by people who bought durable goods in Wal-mart\textsuperscript{11}. The title of the paper is derived from it. The central thesis of the analysis was that PRD’s proposal could be attractive to them, because of the low growth rates of the Mexican economy and of its inherent inequality; but, on the other hand, the PAN’s model could also be preferred, because of the possibility of avoiding the recurrent crises that the previous generation faced. It is worth to remember that the transition from PRI to PAN, before mentioned, was the first presidential renewal that did not ended in an economic crisis since the 70s. Both a more egalitarian distribution and stability are attractive features to middle class voters, which political parties may tend to direct their plataforms at\textsuperscript{3333333} (Dixit and Londregan, 1998).

This study intends to validate the aforementioned hypotheses, expressed as follows: does the middle class people decided the Presidential election in Mexico? The quest is twofold: first, a definition of who compose the suspected middle class is needed; and later, the evaluation of their role in the election. The paper is organized in the following way: Section 2 sketches briefly the concept of middle class and its dynamics; in Section 3, a discussion of, both, the ideal data set and the available one is presented, with emphasis on the identification of effects; Section 4 includes the econometric specifications and their interpretation; and finally, Section 5 briefly concludes.

2 Conceptual Framework

Who are the middle class? While a first approach at the question may hint a trivial answer, a deeper analysis should provide a series of complex elements encompassed in the definition. When it is employed to refer to the middle income groups, then it is straightforward and statistical in nature (i.e. the middle class would be an interval around the median of the income distribution). Obviously, some technical problems emerge: the use of per capita or household income,

\textsuperscript{8}Consulta Mitofsky. "Análisis de la Elección. Encuesta de Salida". July 2\textsuperscript{nd}, 2006.
\textsuperscript{9}Institute of Marketing and Opinion. "Resultados de la Encuesta de Salida del IMO en la Elección Presidencial de México del 2 de julio de 2006. Perfiles de Votantes". July 2\textsuperscript{nd}, 2006.
\textsuperscript{10}“Adiós to poverty, hola to consumption” The Economist. August 16\textsuperscript{th}, 2007.
to adjust it by equivalent scales, considering the purchasing power at specific localities, etc. Nonetheless, if these kind of problems are not completely solved, at least they are very well understood (Deaton, 1997).

The definition that is typically used for middle class is more subjective in nature and refers to the achievement of certain living standards. It may be linked to specific behaviors/capacities, like having different types of capital (social, economic, or cultural), that could be represented in patterns of eating or varieties of leisure activities (Tomlinson, 2003). The definition may also vary through time: while having a car was exclusive for the rich at the beginning of the XX century in the developed countries, fifty years later it was a middle class characteristic in the same nations. It may also be linked to specific geographic areas/countries. An interesting question is if the middle income groups constitute the middle class, because in Latin America this is not normally the case: 
"[in Latin America] middle-income households are not middle class at all; they are actually rather poor" (Birdsall, 2002).

Given the difficulties of these definition, it is not surprising that few papers have been written discussing the effects of structural reforms in Latin America during the 90s on that mentioned group. To some extent, the root of the problem is that, as argued above, the middle class is associated to welfare levels rather than income. So, while a fair amount of studies consider the effects of the reforms in the region on both poverty and inequality, welfare dynamics remain considerably obscure (Birdsall, 2002; Lora and Panizza, 2002; Villarreal, 2006). The efforts to link the change in the economic model that occurred in Latin America with electoral outcomes are also very limited (Lora and Olivera, 2004).

Socioeconomic and macroeconomic variables, especially income for the former, play an important role in predicting the level of ownership of financial assets and durable goods, such as electric appliances (Soutar and Cornish-Ward, 1997)\textsuperscript{12}. Because, if a consumer perceives an increasing probability of financial distress, he will decrease his demand for durables and limit its purchases (Mishkin, 1978). So, acquiring durable goods for a family is not quite straightforward: both, the ability (i.e., not having uncovered basic needs and a relative high income) and stable macroeconomic conditions are associated to the desire of purchasing them\textsuperscript{13}.

For the purposes of this paper, middle class would be considered as those families that have improved their living standards, approaching this with the acquisition of durable goods, such as electric appliances. Obviously, just considering the possession of these goods does not necessarily reflect, nor divide, the sample, leaving exclusively the so-called Walmartians. Actually, it could be a characteristic for the middle, as for the upper class, creating a problem of identification. To deal with these, it would be focused to those families that,

\textsuperscript{12}The order for obtaining these appliances is also relevant, being as follows: refrigerators, washing machines, vacuum cleaner, other “white-goods”, other labor saving devices, and finally, luxury goods.

\textsuperscript{13}For instance, it could mean that a particular household have surpassed the third and last poverty line defined by the Social Development Secretary (SEDESOL): the patrimonial line, where the family has enough income for dressing, food, transportation, and for household.
between elections (i.e., in the stability felt in Mexico), increased their ownership of these appliances. In other words, those who did not have them in 2000, but they did in 2006. The positive difference would be considered as an approach to the emerging middle class, and not necessarily the exact middle class. It is expected some proclivity in this group to favor "stability" instead of "change", and that these preferences should be reflected in their voting behavior.

3 The Data

According with the scope of the proposed analysis, some specific information is required. The ideal database would be a panel of the Mexican families, where it could be possible to track the evolution of their economic and sociodemographic characteristics between 2000 and 2006, including their participation in the 2006 political process. Specifically, it would be useful to know if a family in the referred period, acquired any electrical appliances or other durable goods, if they didn’t, or even, if they lose some of these. Also, their household income level, participation in government social programs, where they live in, and for whom they voted in the Presidential elections of 2006. With this information an inference of their welfare dynamics and its correlation with the families’ voting choices could be directly calculated.

Unfortunately, there are some technical limitations in the data available for the research. The first one is that voting is secret and it is not mandatory, and no one, not even the electoral authorities, know who voted for whom. The most disaggregated, available, and official information are the results by polls –or casilla- with the total and absolute votes for each candidate with the location where it was placed. In other words, this information could reveal the proportions of votes for each Party’s candidate at every casilla in Mexico. With these, at least, there could be made a direct association of the political preferences with the families living nearby and with their characteristics.

The second limitation is that INEGI –the federal institution in charged for the gathering and publication of statistical and geographical information- does not manage panel data for its biannual -and lately, annual- national household surveys, named ENIGH –National Income-Expenditure Household Survey-, randomly selecting the families every time. This precludes tracking a particular family’s characteristics change within the time range of 2000 and 2006.

The third limitation was to know the exact geographic location of the families surveyed in the ENIGH. Because of security and confidentiality purposes, this information is only available down to a municipality level. So, there could no be a direct match between these families’ characteristics with the casilla results reported by the IFE, but with the aggregated municipal results.

Consequently, the data employed in this study, merging the IFE’s and INEGI's data available, had the following characteristics: different households and family members information between 2000 and 2006, but with the information of which municipality they live in and the elections results for this same geographical location. Two possible econometric specifications emerge to test the
political preferences: the first uses the municipalities’ characteristics evolution along the years (aggregating the families’ changes of the ENIGH by geographical unit and comparing periods); an alternative one, obtaining the probability of a family seen in 2006 to match a 2000 family profile, that is “how a family seen in 2006 would have been in 2000”. Both would be explained in the following section.

4 Econometric Specification

The general model proposed for this research is presented as:

\[ VR_i = \beta_0 + \beta_1 EAEI + \beta_2 \Delta RI_i + \beta_3 MG_i + \beta_4 OP_i + \beta_5 PR_i + \beta_6 PRD_i + \beta_7 PAN_i + \varepsilon_i \]

Basically, it summarizes the correlation between political preferences and socio-economic variables. The construction of the variables and its meaning would be explained in the following paragraphs. It is worth noticing that the paper’s main thesis would be approached with two different methodologies, named: "Aggregated Municipal Characteristics" and "Probits pseudo-evolution". For each method, special remarks would be made so it could be clearly understood what were they seeking, which are their limitations, and how could their coefficients be interpreted.

4.1 Methodology 1: Aggregated Municipal Characteristics

4.1.1 Description

According with the name, the main intention behind this methodology is to find a correlation between the overall welfare evolution in a particular municipality and the official results of the Election of 2006. It is expected to spot a PAN’s candidate preference in a particular municipality, if they presented an increase in the possession of durable goods, such as the electric appliances or a house. These according with the arguments expressed in the Wall Street Journal article cited above, that associates the voting for the PAN’s candidate with the need of more economical stability, because it has given quantifiable benefits to the emerging middle class of Mexico. The contrary should occur in municipalities where durables acquisition or the housing market were slower. Other variables were used as controls.

A variable for voting (dependent variable) was needed so it could reflect, both, direction and magnitude of the political preferences. The most straightforward option was to compute a ratio of the votes received by the two parties investigated in this study. The magnitudes of the voting results of other political parties are not considered\(^{14}\). In this case, the votes received by PRD in

\(^{14}\)Whether this fact may obscure important decisions (e.g. strategic voting), it will still remain subject for future research.
each municipality were divided by the votes received by PAN in the same location. Afterwards, the natural logarithm of the calculated ratio was obtained \([VR]\). Notice that this will produce a distribution around zero (in the case of a tie \(\ln(1) = 0\)), and treats the differences in both directions symmetrically \((\ln(a/b) = -\ln(b/a))\), facilitating the interpretation of the coefficients in the model.

Second, an index was needed in order to summarize the total change in the possession of the electric appliances in each municipality. Accordingly, it was computed the percentages of households, by geographical unit, that had at least one radio, stereo, TV, VHS, videogames console, computer, ventilator, refrigerator, blender, iron, washing machine, vacuum cleaner, and microwave\(^{15}\), for the year 2000 and 2006. So, two vectors were calculated with each, showing the percentage of household possessing specific appliances for the respective years. Later, the differences were taken between years producing a third vector (year 2006 vector minus year 2000 vector): a positive difference, should mean higher welfare; and vice versa. Finally, these differences were grouped in a index using principal components analysis; recognizing that acquiring (or losing) a refrigerator has a different weight than a blender, for instance. We employed the first three principal components and utilized them to calculate the predicted value of the index \([EAEI]\).

Third, the difference of the municipal average per capita real income \([\Delta RI]\) was also computed and used in the model as a control variable. It was included in order to capture the "income effect" for the acquisition of electric appliances. The proportion of households, by municipality, that are actually paying their houses \([MG]\) was included because of their vulnerability to macroeconomic distress and their expected need of more stability.

Fourth, the percentage of households in the municipalities that participate in each of the two flagship social programs of the Mexican government was computed: ProCampo \([PR]\) and Oportunidades \([OP]\). Participation was considered without the magnitude of the transfer. Procampo has been defined as "a hybrid program between compensation, welfare and adjustment, defined in the context of a political window of opportunity to compensate the losers of trade liberalization, but with a definite welfare twist toward the rural poor", (Sadoulet et al. 2001). Oportunidades is a Conditional Cash Transfers (CCT) linked to school attendance by children and medical check-ups (Berhman et al. 2005)\(^{17}\).

Fifth, two dummies: \(PRDg\) and \(PANg\) were built to indicate if the state's governor, where the municipality is located, is a member of PRD or PAN respectively (PRI's governors were dropped to avoid multicollinearity; interestingly, when it was used dropping one of the others, PRI's governors proved neutral on average). The intention is to separate geographical political inertia with the aforementioned economic rationale.

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\(^{15}\)While the list is not exhaustive (with respect to the list included at ENIGH), it is almost complete and represents by far the most expensive appliances.

\(^{16}\)In Mexican pesos of 2000.

\(^{17}\)All the averages were weighted with the "factor" variable, reported by INEGI, which means the inverse probability of a family surveyed of being selected.
Two caveats should be discussed before presenting the results of this first section. First, the variable "factor" was used to aggregate the municipal characteristics, knowing that its use is for national representativeness. But, with the absence of a "municipal expansion factor", and with the knowledge that a weight should be employed with the observations reported in the ENIGH, this variable was still used. Second, the IFE’s database includes every municipality in Mexico –being around 2,200- because it was a federal election; in contrast, the ENIGH includes only around 300 to 500 of them in every survey they make (it varies in each year reported). Moreover, there are important variations in the municipalities sampled, this is specially true for the smaller (in terms of population) municipalities, and to a lesser degree for bigger cities. In our study to see the evolution of a municipality, it should appear in the ENIGH 2000 and ENIGH 2006. This occurred with 224 municipalities, which will be used for this analysis. ENIGH is not designed to perform analysis at the municipal level. The validity of our procedure would depend upon the absence of any systematic bias.

4.1.2 Results

The OLS\textsuperscript{18} regression specified above, draw out the following results\textsuperscript{19}:

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient (Std. Err.)</th>
<th>Beta</th>
</tr>
</thead>
<tbody>
<tr>
<td>EAEI</td>
<td>0.1905 (0.1811)</td>
<td>0.0663</td>
</tr>
<tr>
<td>RI</td>
<td>1.95e^{-5} (1.42e^{-5})</td>
<td>0.0857</td>
</tr>
<tr>
<td>MG</td>
<td>-1.2642* (0.7735)</td>
<td>-0.1026</td>
</tr>
<tr>
<td>OP</td>
<td>0.9643** (0.3716)</td>
<td>0.1940</td>
</tr>
<tr>
<td>PR</td>
<td>-2.6212** (1.0500)</td>
<td>-0.1787</td>
</tr>
<tr>
<td>PRD</td>
<td>0.6598** (0.1535)</td>
<td>0.2646</td>
</tr>
<tr>
<td>PAN</td>
<td>-0.5812** (0.1306)</td>
<td>-0.2725</td>
</tr>
<tr>
<td>$\beta_0$</td>
<td>-0.0705 (0.1491)</td>
<td></td>
</tr>
</tbody>
</table>

Table 1. Results Methodology 1

Note: Significant at: *10% and **1%

\textsuperscript{18}As technical note, there were no problems with heteroskedasticity nor endogeneity in the model.

\textsuperscript{19}The "beta" coefficients are the regression coefficients obtained by standardizing all variables to have a mean of 0 and a standard deviation of 1. This, somehow, tells the relative economical importance of the model’s coefficients.
The first coefficient \([EAEI]\) refers to the central question of this study. Notice that, while the positive sign of this variable should be interpreted as an improvement in the acquisition of durable goods, it was correlated with voting for PRD in the studied municipalities, although it was not statistical significant. A similar story happens with \([\Delta RIpc]\): its coefficient shows a positive sign, but the effect was neither statistically significant. To some extent both variables are uninformative: while the effects appear with opposite signs to the hypotheses presented, their huge standard errors limit possible inferences. In contrast, the coefficient of the \([MG]\) variable had a negative sign, and it was significant at 10%. This could represent, in general terms, that the municipalities that had a larger proportion of families that were paying their own houses, preferred the PAN’s candidate over the PRD’s.

The governmental programs, Oportunidades \([OP]\) and ProCampo \([PR]\), were noticeable divided between the candidates: the families benefitted from the former highly supported the PRD’s, and from the latter the PAN’s candidate. The result was, somehow, expected for the program Oportunidades, because it is intended to help the poorest Mexicans in the country, and the PRD’s campaign was highly oriented to them. More surprising was the result of ProCampo: it had a negative sign and it was significant at 1%. Given its presence at rural areas, it was not expected to to correlate with PAN’s votes.

The \([PRDg]\) and the \([PANg]\) were, as assumed, highly correlated with their respective parties’ presidential candidate. That is, having a PRD governor, means a big support of the families’ State to the PRD’s presidential candidate; equivalent with a PAN governor. A potential question for future work is what is identified with these correlations: political preferences, governors’ activism, etc.?

### 4.2 Methodology 2. Probits pseudo-evolution

#### 4.2.1 Description

In this section, the main intention was to look the same question from another angle. The basic idea is to simulate the existence of a partial panel (that accounts for appliances’ dynamics, leaving other things constant), driving the next question -besides of the paper’s hypothesis-: do families observed in the ENIGH of 2006, would have had, or not, specific electric appliances in 2000? While the methodology places some extra burden on the assumptions, we are able to work with the full sample avoiding the caveats of the previous section. Our identification strategy consists of two stages, in the first stage a probit auxiliary model is employed.

The first stage auxiliary probit model was:

\[
EA_i = \gamma_0 + \gamma_1 GL2_i + \gamma_2 GL3_i + \gamma_3 GLA_i + \gamma_4 RI_i + \gamma_5 L_i + \gamma_6 HS_i + \gamma_7 HO_i + \varepsilon_i
\]

The probit’s variables used were: quarterly real income \([RI]^{20}\), dummy for electric service in the household \([L]\), the household size \([HS]\), dummy for house-

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20 In Mexican pesos of 2000.
hold ownership -if they were paying their house or if they already own it- \([HO]\), and four\(^{21}\) dummies for each geographical layer \([GL]\). The ENIGH manages 4 different geographical layers, being: one, for those who have more than 100,000 of population; two, for those who have between 15,000 and 100,000; three, for those who have between 2,500 and 15,000; and four, for those localities who have less than 2,500. A probit was run for each appliance \([EA_i]\) cited above.

The algorithm followed was: first, with the families surveyed in the ENIGH of 2000 and using the above specification, we estimated the probits and kept the parameters. The parameters were further employed to predict possession of each appliance using the ENIGH 2006 (with income in real terms). Two vectors are generated: actual possession of each electric appliance according to ENIGH 2006 \([v1]\), and the predicted values\([v2]\). A third vector for each appliance is calculated as \(v3 = v1 - v2\). The main purpose of these new vectors \([v3’s]\) is to capture the acquisition of appliances isolated from an income effect -i.e. mainly through price effects and other unobservable that may had potentially enhanced availability. An index \(EAEI\) was built with principal components similarly to the previous section. In the second stage of this methodology, an analogous OLS to the previous one is estimated. All the variables are the same with the exception of income, being now the level and not the difference. The other important variation is that now every observation is at the household level (and the regression can be weighted with the expansion factors in the standard way).

With this methodology it is recognized that the probability of having any of the electric appliances may have evolved and changed during the last presidential period and that this may be correlated to the votes received by the incumbent. A major advantage of this procedure is that the analysis could be made by family, and not by municipality, including the full sample. Its basic caveat, as with any two stage model (with stages estimated separately), is that possible statistical noise of the first stage is carried over.

4.2.2 Results

The OLS regression of the second methodology, draw out the following results:

\(^{21}\)Only three were used to avoid multicollinearity.
<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient (Std. Err.)</th>
<th>Beta</th>
</tr>
</thead>
<tbody>
<tr>
<td>EAEI</td>
<td>-0.0980** (0.0099)</td>
<td>-0.0826</td>
</tr>
<tr>
<td>RI</td>
<td>-9.64e-7*** (2.42e-7)</td>
<td>-0.0363</td>
</tr>
<tr>
<td>MG</td>
<td>-0.0986** (0.8022)</td>
<td>-0.0198</td>
</tr>
<tr>
<td>OP</td>
<td>0.2172** (0.0282)</td>
<td>0.0742</td>
</tr>
<tr>
<td>PR</td>
<td>-0.0085 (0.0495)</td>
<td>-0.0016</td>
</tr>
<tr>
<td>PRD</td>
<td>0.8260** (0.0173)</td>
<td>0.3282</td>
</tr>
<tr>
<td>PAN</td>
<td>-0.8022** (0.0184)</td>
<td>-0.3408</td>
</tr>
<tr>
<td>$\beta_0$</td>
<td>0.1687** (0.0192)</td>
<td></td>
</tr>
</tbody>
</table>

Table 2. Results Methodology 2

Note: **Significant at 1%

With this approach, the central variable of this study [EAEI] was statistically significant and it had a negative sign, suggesting a possible correlation between "availability" of appliances and voting for PAN. When using income, instead of its difference, the variable correlates with voting for PAN, as electoral surveys cited at the beginning of this paper suggested.

The variable MG, those families that were paying their houses, preserved the same coefficient sign and gained statistical significance, however, its economic importance decreased. The same economic rationale could be inferred, as previously: families with periodical and long-term payments would play conservative.

The governmental programs of Oportunidades [OP] and ProCampo [PR] conserved the same coefficient sign, but the latter lost statistical significance. Both of them had a considerable reduction, in absolute terms, of their coefficient. In other words, they lose economical importance in the regression.

The PRD and the PAN dummies, as in the methodology before, were significant and they revealed the same: the governor’s party influenced in the political preference of the families. While the specific effects within these variables are not identified, it is certain that the political inertia at the state level plays a major role.

5 Conclusions

The Mexican 2006 Presidential Election results were very tight and, at the end, the difference between the winner candidate (incumbent party: PAN) from
the PRD’s candidate was about half percentage point above. This research questioned to what extent the increase in availability of durable goods/electrical appliances could have influenced the electoral result. The underlying issue was the relation between welfare enhancement, the actual economic model of the country, and its popularity. Despite severe data limitations, an econometric model was proposed and tested with two different specifications.

The first approach consisted in comparing the variables at an aggregated municipal level. The central variable of this study (a built index measuring the evolution in possession of electric appliances during the last six years) was not statistical significant. The same result holds for the change in household real income averaged at the municipal level. On the other hand, the rest of the variables in the econometric model showed very significant, including paying a mortgage, participating in ProCampo and a PAN governor in favor for the PAN. Participating in Oportunidades and PRD governor favored the PRD vote. The basic limitations of the first specification is the employment of data whose survey was not explicitly designed for municipal analysis, and not a complete coincidence of municipalities between samples.

In the second approach, a partial pseudo panel is constructed to compare possession of the electrical appliances in year 2006 with the predicted ownership according to parameters of year 2000. The driving idea was to explore correlations between the increased availability of the durable goods (isolated from income effects) and the voting behavior. All the variables of the econometric model were very similar to the previous specification, with the difference that now everything is at the household level, making possible to work with the full ENIGH sample and its expansion factors. In this specification, the central variable of the study, the index built that measures the evolution in possession of electric appliances during the last six years, was correlated with the incumbents votes (the PAN candidate), being both statistically and economically significant. The other variables remain more or less the same as the previous specification. The differences were: income correlates significantly with voting with PAN (in the other specification the differences income is employed), paying a house mortgage stays statistically significant but with a reduced economic importance, and ProCampo is not significant anymore. Among the limitations of this specification is the employment of a two stage procedure with disjoint covariance matrices.

This paper began with the question if the increased consumption of durable goods -associated in the media with an emerging middle class- could have aided the incumbent party to retain the Mexican presidency in 2006 -again, associated in the media with the backing of the economic model by voters. Important data limitations forced to employ indirect tests and rely on correlations rather than causalities, with the associated identification problems. Nonetheless, the analysis was not able to reject the hypothesis that an increased in consumption of these goods was correlated with voting for the election winner. Though, in a tight election, a small effect could make the difference, and this paper suggests this probably happened.
References


