The Effects of Migration on Political Clientelism in Mexico

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Abstract

Most research on the effects of international migration on democratic institutions in sending countries focuses on how emigration changes the civic and democratic values of those left behind. Very little has been written on how the additional income provided by migrant remittances alters the incentive structure of the political actors involved, and how this will affect political outcomes. This paper develops a voting model that accounts for the role of civic values, as well as, higher income, and shows that the two have very different predicted effects on electoral outcomes. Taking these predictions to the data it is then shown, for the case of Mexican municipal elections over the year 2000-2002 period, that the empirical evidence strongly supports the notion that international migration had a positive effect on electoral competitiveness in Mexico by reducing the clientelistic power of the formerly dominant state party PRI. There is also some evidence for a positive effect on democratic values. The latter result, however, is not robust to the use of instrumental variables, while the former is.

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1 Introduction

Over the course of the last few years the political consequences of international migration have become the focus of an emerging academic literature. The topics under study vary widely, from the effects of migrant remittances on the levels of corruption in the recipient country (Abdih, Chami, Dagher, and Montiel (2008)), to the exchange rate policies chosen by the Central Bank (Singer (2010)). One of the aspects that has garnered most attention, however, are the potential effects of international migration on the sending countries' electoral institutions. That is, on the functioning of its democratic institutions (if existing) or on the democratization process itself.

Reflecting the broader literature on democratization, this discussion can be roughly subdivided into to main strains. On the one hand, a mostly qualitative approach focusing on citizens' civic and democratic values, and, on the other, a more quantitative literature on the political economy of formal institutions and how clientelistic arrangements can interfere with their proper functioning. The vast majority of research in this area falls into the first category. The most common argument is that migrants learn the political values of their host countries and transmit them back to their communities of origin. As most host countries are advanced democracies, migration will have a positive effect on the functioning of democratic institutions in the sending countries.This argument largely ignores the potentially important role played by remittances in making voters less dependent on clientelistic transfers. In many cases, this would have effects observationally very similar to improved democratic values.

This paper develops a voting model with clientelistic transfers that also incorporates the idea of democratic values. This is, to my knowledge, the first time that the two effects are simultaneously accounted for in a formal framework. It is shown that the expected effect of an increase in democratic values on the respective turnout for two parties (one clientelistic, the other non-clientelistic) is very different from the expected effect of higher incomes. Based on the model's predictions, the empirical section then shows that for the case of Mexico-U.S. migration the observed increase in electoral competition is more likely to be due to the higher income provided by remittances, rather than to the transfer of democratic values. Using data from municipal elections for the period 2000-2002, it is shown that migration significantly lowers turnout for the dominant former state party PRI, but does not have a significant effect on the turnout for its locally strongest opponent. This effect can only be found in municipalities which have been continuously PRI ruled since at least 1980 and can therefore be assumed to suffer from worse democratic institutions.

The notion that civic values are front and center in explaining the process of democratization has been around ever since Tocqueville's exploration of democracy in the early United States. The seminal work by Almond and Verba (1963), comparing the civic culture in five different nations, among them Mexico,

probably lay the foundations for the modern research agenda on the subject. A highly influential study of more recent vintage is the work by Putnam, Leonadi, and Nanetti (1994), which compares civic institutions in the north and south of Italy and concludes that their differing quality is largely explained by different endowments of social capital. Generally speaking, this strain of literature argues that citizens' knowledge and acceptance of, and identification with, the polity they live in determines a nation's political system. It is claimed that a nation will be more democratic to the degree that citizens identify more with their country and compatriots, are more familiar with the workings of the political system, feel that they are affected by political decisions and believe that they have the means to influence them.

The literature exploring the political economy of clientelism, on the other hand, implicitly assumes that democratic values are relatively well developed, but can be strategically undermined by strong enough economic incentives. It has its origins in the early research on urban machine politics in the first half of the 20th century. As noted by Scott (1969), the necessary precondition for such a setting to arise is the existence of a formal, relatively competitive, electoral process, combined with possibility for political actors to redirect public funds to constituents in return for political favors. This system will become unsustainable as constituents' income and opportunities increase relative to a limited amount of public funds that can be redirected towards clientelistic ends. In more recent contributions to the literature, several authors have argued that higher incomes cause a country to democratize (e.g. Londregan and Poole (1996), Ross (1999), Barro (1999) Acemoglu and Robinson (2005), Boix (2003), Przeworski and Limongi (1997), Przeworski (2005)). A related strain of the literature argues, however, that higher incomes derived from natural resources will have a detrimental effect on democratic institutions (Ross (1999), Wantchekon (2002), Jensen and Wantchekon (2004)). The crucial difference is that incomes derived from natural resources are captured directly by the government and therefore enhance its clientelistic power, while the income derived from more traditional forms of economic growth accrues directly to citizens.

The most common argument linking international migration to the functioning of democratic institutions is that migrants affect home country politics by acting as conduits for new political ideas. In a recent paper Rother (2009) shows that the political attitudes of temporal migrants from the Philippines systematically differ from non-migrants and that this difference depends on the destination country - even though the results presented are not always statistically signifcant. In Mexico the discussion on knowledge spillovers has focused on the role played by home town associations (HTAs) in shaping political and civic opinions in their places of origin (see, for example, de-la Garza and Hazan (2003), Smith (2001), Smith (2005)). The most common argument in this context is that migration has a positive impact on the quality of political institutions by empowering formerly marginalized sectors of the population and nurturing democratic values in the sending communities. Using survey data,

Perez-Armendariz and Crow (2009) find indeed that Mexican citizens who have personal ties to a migrant abroad or simply live in a high migration community show higher levels of civic and political engagement.

This point of view has been contested by Goodman and Hiskey (2008) as well as Bravo (2007), who point to the possible negative consequences of migration. It is argued that as international migration becomes entrenched in a community, transnational social networks will start to replace local polities as the principal provider of safety nets and public goods. As a result, citizens will become ever more politically disengaged. Furthermore, as one's fortunes become more dependent on events in a different country, and with the possibility of migration being constantly on the table, interest in home country politics is diminished. It is also argued that knowledge transfers are unlikely to play any important role in Mexican politics, given the very limited exposure of Mexican migrants to US political culture. Goodman and Hiskey (2008) find that voter turnout in the year 2000 federal elections is lower in high migration municipalities and that their inhabitants are less likely to participate in political events. Bravo (2007) presents similar results based on his own survey data. He shows that individuals who are highly exposed to international migration (either through close relatives or because they have lived in the US themselves or plan to do so in the future) are politically less informed, tend to talk less about politics and are less likely to have voted in the year 2006 elections.

While these arguments are very compelling, they largely ignore the potentially important role played by migrant remittances. As remittances constitute a source of additional income that accrues directly to citizens (and is mostly non-taxable by governments) they should, following a standard political economy argument, make clientelistic arrangements more difficult to sustain. This mechanism could, in turn, reconcile the evidence that international migration reduces political participation with an overall positive effect on electoral competition. Yet research on how remittance flows change the incentive faced by political actors and its consequences is almost non-existent. One of the few exceptions are a number of papers by Aparicio and Meseguer that analyze the use for political ends of collective remittances (mostly channeled through HTAs) through a governmental matching scheme in Mexico (Aparicio and Meseguer (2009), Aparicio and Meseguer (2011)).

The Mexican political system under the hegemony of the Institutional Revolutionary Party (PRI) has been characterized, among other definitions, as a "dominant party system" (Greene 2007) or an "electoral authoritarianism" (Magaloni 2006). Its most important aspect for the present paper is that, while formal elections were held on a rigid schedule, the PRI emerged reliably as the winning force. In a previous paper (Pfutze 2009), it was shown that a higher proportion of migrant households in a municipality increases the probability that the PRI loses a municipal election *for the first time*, while it has no effect on the outcome in municipalities which had already been governed by a party

other than the PRI. This result is, of course, equally compatible with the idea that international migration has a positive effect on democratic values, as it is with the possibility that the receipt of remittances, by raising households' disposable income, undermines the sustainability of clientelistic arrangements. For this reason, the present paper takes the analysis one step further and derives a number of testable implications of the two theories. It has been argued before by Klesner and Lawson (2001),that turnout for the formerly dominant state party PRI decreased as its power to redistribute wealth to favored groups waned. The empirical part of this paper provides strong evidence that remittances exert a similar effect.

The paper consists of six sections: The next section will present a voting model that accounts for the differential effects of higher income and improved civic values and derives a number of empirically testable predictions. This is followed by a description of the estimation strategy in section three., section four discusses the data, section five presents the empirical results and section six concludes.

2 A Voting Model with Clientelistic Transfers and Democratic Values

This section first develops a general voting model that accounts for civic values and income. It then shows how changes to either will have very different effects on voting patterns. Importantly, the model explicitly takes abstention by voters into account. It therefore allows to distinguish between different clientelistic practices, vote buying and turnout buying, as proposed by Nichter (2008). Vote buying refers to the case where someone disinclined to vote for a certain party or candidate is swayed to do so in return for a political favor or payment, while turnout buying refers to the situation in which potential voters already sympathetic to a party or candidate are compensated for showing up to vote.

The objective is to model the distinct effects of higher income and higher democratic values on voters' electoral behavior. For the case of international migration, the model does therefore not account for the separate effect of migrants dropping out of the electorate. This can be thought as an implicit assumption that the migration decision is independent of a voter's position in the policy space, in which case it would have no bearing on expected electoral outcomes. Alternatively, one could think of the model as defining each household as a single voter who decides whether or not to send a migrant. In either case, a voter who is affected by migration has to be thought of as someone in close contact to a migrant.

It is assumed that voters are distributed over a one dimensional policy space on the interval $[0, 1]$, where voter i's position is denoted by x_i. There are two parties, Left (L) and Right (R), with their respective positions x^L and x^R on the policy space. These positions are exogenous and it can be assumed that $x^L < x^R$. Without loss of generality, let party L be the dominant party that engage in clientelistic practices by paying a transfer t_i^L to voter i.

For simplicity, voters are assumed to be identical, except for their position on the policy space x_i and whether or not they live in a migrant household. The latter will either change their democratic values or increase their disposable income by the amount of remittances received. Let $f_i \in (L, R)$ denote voters i's favorite party (i.e. the one that is closest to her position on the policy space), and $v_i \in (L, R)$ the party she actually votes for. Her utility function is then defined as follows:

$$U(v_i) = I_{(v_i=f_i)}b_i - |x^{v_i} - x_i| - c + v(I + r_i + t_i^L) \tag{1}$$

Each voter's only choice variable is for who to vote, with abstention being an option. $I_{v_i=f_i}$ is an identity function equal to one of the vote casts her ballot for the preferred party and zero otherwise, and b_i denotes the utility she receives from doing so. This first term captures the idea of democratic values as voters are assumed to receive a positive payoff from voting for the party closest to their

ideological position. A higher value of b_i will be interpreted as voter i having stronger democratic convictions.

The second term, $|x^{v_i} - x_i|$, denotes the ideological distance between voter i and the party she actually votes for; $c > 0$ is simply the cost of voting, which is assumed to be non-pecuniary (e.g. the opportunity cost and inconvenience of casting one's ballot) and identical for all voters. The last term, $\upsilon(I + r_i + t_i^L)$, represents voter i's utility function of total income, which is assumed to be continuous, differentiable, strictly increasing and concave (i.e. $\upsilon'(.) > 0$, $\upsilon''(.) < 0$), and to enter total utility additively. Total income consists of an exogenous component I, (assumed to be identical for all voters), remittances received r_i (where $r_i = 0$ if voter i lives in a non-migrant household and $r_i = R$ if she does), and a clientelistic transfer t_i^L she may or may not receive from the dominant party L.

If voter i chooses to abstain she will simply receive the utility from her income. In the absence of any transfer payments her participation constraint to cast her ballot is then:

$$I_{(v_i=f_i)}b_i - |x^{v_i} - x_i| - c \geq 0 \tag{2}$$

One can now define a minimum transfer t_i^{Lmin} necessary in order to make voter i cast her ballot for party L. It is trivial to see from (2) that if $f_i = L$ and $b_i - |x^L - x_i| \geq c$, no such transfer needs to be paid (i.e. $t_i^{Lmin} = 0$). If, on the other hand, the cost of voting exceeds the utility derived from it, the voter needs to be compensated for that differential. Define the difference in the utility from income as:

$$\tau(I_i, t_i^{Lmin}) = \upsilon(I + r_i + t_i^{Lmin}) - \upsilon(I + r_i) \tag{3}$$

the necessary minimum transfer if $f_i = L$ is then implicitly determined by:

$$\tau(I_i, t_i^{Lmin}) = c + |x^L - x_i| - b_i$$

Turning to the case of $f_i = R$, the transfer has to be big enough to be able compensate her for voting against her political convictions. This implies that it has to satisfy the following two constraints, one of which will be binding:

$$\begin{aligned} &- |x^L - x_i| - c + \upsilon(I + r_i + t_i^L) \geq \upsilon(I + r_i) \\ &- |x^L - x_i| - c + \upsilon(I + r_i + t_i^L) \geq b_i - |x^R - x_i| - c + \upsilon(I + r_i) \end{aligned} \tag{4}$$

The first constraint will be binding if the inequality in (2) holds, which corresponds to a voter who prefers party R to party L, but would abstain from voting. The second constraint will be the binding one if (2) is not fulfilled, i.e. if voter i would turn out to vote for R. Rearranging and using the same definition of the function $\tau(.,.)$ as above expression (4) becomes:

$$\tau(I_i, t_i^{Lmin}) = c + |x^L - x_i|$$
$$\tau(I_i, t_i^{Lmin}) = |x^L - x_i| - |x^R - x_i| + b_i$$

Putting everything together, the necessary minimum transfer that needs to be paid to voter i in order to persuade her to vote for party L ,t_i^{Lmin}, implied by $\tau(I_i, t_i^{Lmin})$ is defined as:

$$\tau(I_i, t_i^{Lmin}) = max\left(0, c + |x^L - x_i| - b_i, |x^L - x_i| - |x^R - x_i| + b_i, c + |x^L - x_i|\right) \tag{5}$$

This result can be stated in terms of the different forms of clientelism mentioned before, where a transfer of zero corresponds to an non-clientelistic vote. The second transfer in (5) corresponds to turnout buying, meaning that a voter who already prefers L to R only needs to be compensated to turn out to vote. The third transfer is pure vote buying, where a payment is made to change a vote that would have been cast for R into one for L. The last transfer represents what Nichter (2008) has termed "double persuasion". That is, a voter who has to be compensated for both, turning out to vote and to switch parties.

Figure (6) graphically illustrates the function in expression (5). The ideological position of voter i, x_i is plotted on the horizontal axis, and the value of $\tau(.,.)$ corresponding to the implied value of t_i^{Lmin} on the vertical one. It is assumed that b_i is large enough, or the positions of the two parties are close enough to one another, such that there is no abstention in the absence of transfer payments between the positions of the two parties. Formally: $b_i \geq \frac{|x^L - x^R|}{2} + c$. Relaxing this assumption has no bearing on the results discussed below. The graph gives an idea of the transfer payment going to a voter casting her ballot for L. In the absence of any such payments voters would turn out to vote for party L or R if they are located between the respective limiting values, defined by the participation constraint in expression (2), $(\underline{x}_i^L, \overline{x}_i^L)$ or $(\underline{x}_i^R, \overline{x}_i^R)$. Given that the function $\tau(I_i, t_i^{Lmin})$ is strictly increasing in t_i^{Lmin}, a lower value of $\tau(.,.)$ implies a lower minimum transfer for a given income I_i. As one would expect, the lowest transfers have to be paid for turnout buying. It is only for voters far removed to the left of $\underline{x}_i^L$ that vote buying can become more expensive than turnout buying or double persuasion. Double persuasion is still more expensive than vote buying [1] [2].

(Figure 6 about here)

[1] It was assumed that the cost of voting c is the same for all voters. As shown by Gans-Morse, Mazzuca, and Nichter (2009), if one allows for different costs of voting, double persuasion may sometimes be cheaper than pure vote buying.

[2] Allowing for abstention before transfer between the positions of the two parties will, however, result in double persuasion being cheaper for some voter than pure vote buying

Going back to the initial question, one can now analyze the effect an increase in democratic values, b_i, and remittances, r_i, would have on the necessary transfer payment and turnout rates for the dominant party L and its opponent R. It will be assumed that party L wants to maximize votes subject to a binding budget constraint $\sum_{i=1}^{N} t_I^L = T$, where N is the total number of voters. This implies that optimally each voter i who receives a strictly positive transfer will receive her t_i^{Lmin} and that transfers will be paid to voters with the lowest t_i^{Lmin}.

2.1 The effect of higher income

One is now in the position to analyze the effect of higher income on the necessary minimum transfer payments. It is a standard argument in the migration literature that remittances are non-taxable, or taxable only in a negligible way (see, for example, Abdih, Chami, Dagher, and Montiel (2008) or IBRD (2006)). Taxes on remittances would quickly undermine the sender's willingness to send any money, or cause remittances to be send through informal channels or in kind. In addition, the only way to impose such a tax would be to effectively tax all cross-border money transfers. The huge efficiency losses that this would entail may well result in a lower tax revenue overall.

Hence, under the assumption that the additional income does not increase the government's ability to pay transfers, which is likely to be met for the case of remittances, it can be shown that in order to keep $\tau(I_i, t_i^{Lmin})$ at a constant value, t_i^{Lmin} will have to increase as I_i increases. To see this, fix $\tau(I_i, t_i^{Lmin})$ at any given value $\overline{\tau}$. The necessary minimum transfer as a function of income $t_i^{Lmin}(I_i)$ is now implicitly defined by:

$\upsilon(I_i + t_i^{Lmin}(I_i)) - \upsilon(I_i) = \overline{\tau}$

Taking the total differential and rearranging then yields:

$$\frac{dt_i^{Lmin}(I_i)}{dI_i} = \frac{\frac{d\upsilon(\iota)}{d\iota}\Big|_{\iota=I_i}}{\frac{d\upsilon(\iota)}{d\iota}\Big|_{\iota=I_i+t_i^{Lmin}}} - 1 > 0$$

It follows that any increase in the income of a transfer receiving voter will unambiguously increase the total amount that needs to be paid to keep the same number of citizen in the clientelistic relationship. Since party L's budget constraint is binding, this outcome is not any longer affordable. Therefore, the total number of transfer receiving voters, and the number of votes cast for L, will need to decrease.

The expected effect on party R is not as straightforward and depends on the ideological position of the voter who ceases to receive a clientelistic transfer as citizens start to migrate. This will be the voter who would need to be paid the highest transfer after the increase in remittances and need not necessarily

be the one receiving them. Denote this voter by $\overline{j}$. The overall effect on the turnout for party R depends on the position of voter $\overline{j}$. Only in the case that $\overline{j}$ received a vote buying transfer (and would hence vote for party R in its absence) will turnout for party R increase, otherwise it will be unaffected.

Taken together, the model predicts the following effects on voting patterns from a higher income: i) Votes cast for L will decrease, ii) Votes cast for R may increase, but by no more (and most likely less) than the decrease in votes for L, and, as a result, iii) total electoral participation will decrease or, at best, stay constant.

2.2 The effect of democratic values

The strength of democratic values is captured by the parameter b_i in expression (1). For simplicity, it can be assumed that its only two manifestations are high or low: $b_i \in (b^L, b^H)$ where $b^H > b^L$. Furthermore, assume that voters in migrant households have b_H, while voters in non-migrant households have b_L. As follows directly from equation (5), the value of $\tau(I_i, t_i^{Lmin})$ necessary for a voter to accept the clientelistic transfer is negatively related to b_i in the case of turnout buying and positively for vote buying, i.e. the transfer t_i^{Lmin} decreases in the former case and increases in the latter. It has no bearing on the transfer necessary for double persuasion. This is shown graphically in figure 6.

(Figure 6 about here)

The overall effects of increased migration on voting patterns is much more ambivalent, as it depends on the nature of $\overline{j}$, as well as, the transfer receiving voter that switches from b_L to b_H. It is therefore perfectly possible for the clientelistic potential of L to increase, as well as, decrease. An increase in democratic values will also affect voters to the right of x^R who previously abstained, resulting in an additional increase in turnout for R. One can even construct a scenario in which turnout for L would decrease, but turnout for R would be unaffected. This would be the case in which the increase in b_i accrues to a voter who receives a pure vote buying transfer, but $\overline{j}$ receives a double persuasion transfer.

Barring the highly unrealistic scenario under which all migration would correspond to this last case, the model therefore predicts that higher migration will increase total electoral participation. The precise composition of that increased turnout cannot be determined. Both, L and R, will increase the number of voters willing to turn out in their favor, while the extend of pure vote buying may go either way. Turnout for both parties may therefore increase, as well as, decrease. Compared to the effect of higher income described above, the decline in turnout for L would, however, be much smaller.

3 The Estimation Framework

The model developed in the previous section provides a number of clear predictions on how the two different causal channels will manifest themselves in electoral outcomes. If migration improves democratic institutions by undermining clientelistic arrangements, it should have a negative effects on total participation that is driven by a lower turnout for the dominant clientelistic party. Turnout for other parties should be either unaffected or somewhat increase as a result of higher migration. If, one the other hand, migration affects democratic institutions by improving civic values through knowledge spillovers, it should have a positive significant effect on participation. Turnout for the different parties may either increase across the board, or may decrease slightly for one of the parties. But these decreases should be rather small in magnitude.

Ideally, one would like to have a panel data set at the municipal level in order to determine the effect of changes in migration intensity on electoral outcomes. While a number of surveys have collected migration data over the course of the 1990s at the household level,unfortunately, only the year 2000 census provides data that is representative at the municipal level during the period of interest. This restricts all possible analysis to the cross-sectional level.

The task is therefore to determine the effect of migration on the turnout for different political parties (i.e. their votes as a fraction of *the total of registered voters*), taking into account abstention as a separate category. The estimation presented here will do so for the formerly dominant and autocratic Mexican state party PRI and its locally strongest opponent in municipal elections during the year 2000-2002. It is important to realize that during that time the country was still in the later stages of a long term democratic transition. The PRI still maintained autocratic structures at the local level in many places. In the elections analyzed, almost exactly half of all municipalities that hold party based elections never have been governed by another party since at least 1980 (and most likely since the 1930s). It is therefore straightforward to treat the PRI as the dominant party, at least in the places were it has been continuously in power, in order to analyze the differential effect of migration on electoral results.

It has to be kept in mind that between 1946 and 1970 the PRI lost less than 40 out of more than 27,000 municipal elections held (Krauze 1997), and it was only in the late 1980s that opposition parties started to win municipal elections more frequently, albeit still rarely. The first serious challenge to its presidential candidate since 1940 came in 1988 (by a PRI defector). It lost the first govenorship in 1989 (in the relatively small state of Baja California), its majority in the lower house of the Mexican Congress in 1997, and, finally, the presidency in 2000. It has been widely acknowledged that even after the PRI lost power at the federal level, it was able to retain its dominant position in many subnational areas. For example, Lawson (2000) includes local fiefdoms as one of Mexico's persistent authoritarian enclaves, pointing out that even a few

new ones have been recently established. Some authors, such as Bizberg (2003) or Snyder (1999), go further to argue that the retreat of the old authoritarian centralized structures led in many cases to their replacement by similar structures at the regional and local levels.

In order to further confirm the results, municipalities will therefore be split conditioning on their electoral history since 1980 (which is as far back as data is available). It is a fair assumption that municipalities which already had an non-PRI government in recent times are likely to have relatively well functioning democratic institutions[3]. For municipalities which have been continuously governed by the PRI, on the other hand, it is quite likely that clientelism and patronage are well entrenched. If the model is correct, any results supporting the idea that migration acts primarily through the income effect of remittances should only be identifiable in the latter group. But if knowledge spillovers are at play, they should still show up in a higher turnout for at least one party in the first group.

This division of the sample based on a binary variable indicating whether or not a municipality has been ruled by the PRI without interruption is equivalent to including that dummy in the original regression and to interact it with all the independent variables. This approach is valid as long as the binary variable is not endogenous due to some omitted variable. Such an omitted variable would, however, need to i) have an effect on past electoral outcomes, and ii) have an additional effect on the current electoral that is not captured by past outcomes. It is hard to think of any omitted variable that would fit this bill.

The outcomes of interest are three: Share of votes for the PRI, share of votes for the largest party other than the PRI in the municipality, and share of voters who abstain. The focus on the vote for only two parties is adequate because municipal elections are won by simple majority. So votes cast for smaller parties should not affect the binary outcome of who wins an election and can therefore be regarded as irrelevant. Furthermore, as explained below, in almost all cases local elections consist of the PRI running against the locally strongest opponent. Votes cast for the remaining parties in an election will therefore be treated as abstentions and put in the baseline category. The empirical model therefore has to allow for the estimation of the effect of the variable of interest on a series of jointly determined fractional outcomes that sum to one. This can be achieved by estimating several logistic functions of the form:

$$y_i = \frac{e^{X_i\beta+\nu}}{1+e^{X_i\beta+u}}$$

[3]There are possibly a few municipalities in this group which have been won in the 1980s by small parties set up by the PRI to enhance the system's democratic credentials (such as the PPS or PARM among others), but their contribution should be very small in any case

where y is the fractional dependent variable, X the vector of independent variables and u the error term. This corresponds to a linear regression of the log-odds ratios of y on X. From the three outcomes in question, abstention can be defined as the baseline, yielding a system of two equations for the turnout for the PRI and its strongest opponent:

$$\begin{aligned} log\left(\frac{y_{i,1}}{1-y_{i,1}-y_{i,2}}\right) &= X_i\beta_1 + u_{i,1} \\ log\left(\frac{y_{i,2}}{1-y_{i,1}-y_{i,2}}\right) &= X_i\beta_2 + u_{i,2} \end{aligned} \tag{6}$$

Where subscript one denotes the PRI and two its opponent. The error terms are allowed to be correlated for the two equations corresponding to each observation, but are assumed to be independent between different observations. This yields essentially a seemingly unrelated regression (SUR) framework and will be estimated with a two-step FGLS approach.

The principal drawback with this specification is that the ratios $y_{i,j}$ cannot have values of zero or one. A few observations, cases where a party ran unopposed, willtherefore need to be dropped from the estimation. As discussed in Papke and Wooldridge (1996), another problem with this specification is that due to the non-linearity in the error terms only the expected value of the log-odds ratio, $E(log[y/(1-y)]|X)$, can be recovered directly from the parameter values. This expression is of no direct interest, as one would want to recover $E(y|X)$ instead. This requires to specify the distribution function of the error term $f(u|X)$ over which the above expression would need to be integrated:

$$E(y_j|X) = \int_{-\infty}^{\infty}\left(\frac{e^{X\beta_j+\nu_j}}{1+e^{X\beta_1+\nu_1}+e^{X\beta_2+\nu_2}}\right)f(\nu|X)d\nu \tag{7}$$

The marginal effects of any given continuous independent variable x_k are then:

$$\begin{aligned} \frac{\partial E(y_1|X)}{\partial x_k} &= \int_{-\infty}^{\infty}\left(\frac{\beta_{1,k}x_k e^{X\beta_1+\nu_1}+(\beta_{1,k}-\beta_{2,k})e^{X(\beta_1+\beta_2)+\nu_1+\nu_2}}{(1+e^{X\beta_1+\nu_1}+e^{X\beta_2+\nu_2})^2}\right)f(\nu|X)d\nu \\ \frac{\partial E(y_2|X)}{\partial x_k} &= \int_{-\infty}^{\infty}\left(\frac{\beta_{2,k}x_k e^{X\beta_2+\nu_2}+(\beta_{2,k}-\beta_{1,k})e^{X(\beta_1+\beta_2)+\nu_1+\nu_2}}{(1+e^{X\beta_1+\nu_1}+e^{X\beta_2+\nu_2})^2}\right)f(\nu|X)d\nu \end{aligned} \tag{8}$$

The marginal effects will be recovered by a bootstrap with repeated joint draws from the n by 2 matrix of residuals $\hat{u}$. More precisely, 10,000 repeated

draws will be taken from the estimation residuals, where each draw consists of the two residuals $(\hat{u}_{i,1}, \hat{u}_{i,2}) = \hat{u}_i$ from the randomly selected observation i. The procedure is straightforward: First X is evaluated *at its sample mean.* Then each draw of $\hat{u}_l$, for l=1,...,10,000, gives a value of $\frac{\partial E(y_l|X)}{\partial X_k}$. Finally, averaging over all these values yields the marginal effects evaluated at the sample means. For binary independent variables the bootstrap yields expected values of the ratios y_l with the variable being either set to zero or one. Substracting $E(y_l|x_k = 1) - E(y_l|x_k = 0)$, where all other independent variables are evaluated at their means, provides the marginal effects.

Endogeneity is naturally a concern here. Unobserved characteristics or temporary shocks might affect the likelihood of migration as well as political outcomes. A negative shock, such as a drought can force people to migrate, and, at the same time, increase their dissatisfaction with the political arrangements. The prevalent social values in a household might make it more inclined to send migrants and to be politically less engaged. Another endogeneity problem, reverse causation, might arise due to the high temporal persistence of the outcome variable and the possibility that more authoritarian places might eject more migrants. These concerns will be addressed using a set of instrumental variables described in the next section as a robustness check.

This pose an additional complication for the computation of marginal effects. As long as the independent variables can be assumed to be independent of the error term, the conditional distribution is $f(u|X) = f(u)$, and the bootstrap over the residuals should approximate the true distribution reasonably well. For the IV estimation the potential correlation of migration, say $x_{i,1}$, with the error terms u_i needs to be taken into account, however. This is done by assuming a simple linear relationship of the form:

$$u_{i,1} = \alpha_{0,1} + \alpha_{1,1} x_{i,1} + \eta_{i,1}$$
$$u_{i,2} = \alpha_{0,2} + \alpha_{1,2} x_{i,1} + \eta_{i,2}$$

where the error terms η_i are assumed to be uncorrelated with X_i. Marginal effects will be recovered through a two step procedure. First, the usual residuals are obtained from the IV estimation. Then these residuals are regressed on the migration variable in order to obtain residuals on η. The bootstrap will then be conducted by taking the same number of random draws out of $\hat{\eta}$, taking into account the endogenous part of the error terms u, and using the parameter estimates from the second regression. The expressions corresponding to the expected values and marginal effects in (7) and (8) are now:

$$E(y_j|X) = \int_{-\infty}^{\infty} \left(\frac{e^{X\beta_j + \alpha_{1,j} x_1 + \varepsilon_j}}{1 + e^{X\beta_1 + \alpha_{1,1} x_1 + \varepsilon_1} + e^{X\beta_2 + \alpha_{1,2} x_1 + \varepsilon_2}} \right) f(\varepsilon|X) d\varepsilon$$

$$\frac{\partial E(y_1|X)}{\partial x_k} = \int_{-\infty}^{\infty} \left(\frac{\beta_{1,k} x_k e^{X\beta_1 + \alpha_{1,1} x_1 + \varepsilon_1} + (\beta_{1,k} - \beta_{2,k}) e^{X(\beta_1+\beta_2) + (\alpha_{1,1}+\alpha_{1,2}) x_1 + \varepsilon_1 + \varepsilon_2}}{(1 + e^{X\beta_1 + \alpha_{1,1} x_1 + \varepsilon_1} + e^{X\beta_2 + \alpha_{1,2} x_1 + \varepsilon_2})^2} \right) f(\varepsilon|X) d\varepsilon$$

$$\frac{\partial E(y_2|X)}{\partial x_k} = \int_{-\infty}^{\infty} \left(\frac{\beta_{2,k} x_k e^{X\beta_2 + \alpha_{1,2} x_1 + \varepsilon_2} + (\beta_{2,k} - \beta_{1,k}) e^{X(\beta_1+\beta_2) + (\alpha_{1,1}+\alpha_{1,2}) x_1 + \varepsilon_1 + \varepsilon_2}}{(1 + e^{X\beta_1 + \alpha_{1,1} x_1 + \varepsilon_1} + e^{X\beta_2 + \alpha_{1,2} x_1 + \varepsilon_2})^2} \right) f(\varepsilon|X) d\varepsilon$$

4 Data

The data used come from a number of different sources. Most of the independent variables were computed using the Mexican year 2000 census, partly from the dataset on municipal characteristics SIMBAD (which shows municipal level data for the entire population) and partly from the household level ten percent public use micro data sample, which applied an extended questionnaire. All data sources so far discussed can easily be found on the webpage of the Mexican statistical Institute INEGI [4]. The fractional dependent variables were constructed using a database on municipal elections since the year 1980, which is provided by the Mexico City based think tank CIDAC (Centro de Investigacion para el Desarrollo) and can be accessed through its webpage [5]. The same source was used to construct the indicator variable whether a municipality had any opposition government since 1980. The data on the total number of registered voters by year were provided by the Mexican Federal Electoral Institute. Finally, one of the instruments was constructed, following McKenzie and Rapoport (2007), using historic estimates if state level migration data published in Foerster (1925) and the corresponding state-level population in the year 2000. The other instrument required the help of a Mexican Railroad timetable dating from 1905, a map of the railroad network in 1942 and the interactive map of Mexico on the INEGI home page. These were then used to determine the distance one had to travel by rail from each municipality to the principal point of entry into the United States.

4.1 Dependent Variables

The two simultaneously determined dependent variables are turnout for the PRI and for its locally strongest opponent in municipal elections between 2000 and 2002. The PRI's strongest opponent is usually the conservative National Action Party (PAN) in the north, west and parts of the center regions (with the exception of the states of Zacatecas and Baja California Sur). In the center and south the main opposition party is the left wing Party of the Democratic Revolution (PRD). In a few cases it might be a different smaller party. Since different states hold local elections in different years, with a municipal legislature always lasting three years, three consecutive years have to be treated as one single electoral process at the municipal level. The dependent variable will therefore denote the electoral outcomes of elections conducted in the years 2000, 2001 and 2002. Most of the right hand side variables, discussed below, were collected from February 7th-18th 2000, i.e. at the very beginning of the electoral period under study.

Turnout for a given party is defined as the number of votes cast in its favor divided by the total number of registered voters. The principal problem is that international migration, in addition to the mechanisms under study here, will

[4] See www.inegi.gob.mx

[5] See http://www.cidac.org

also reduce total participation since the migrants themselves cannot turn out to vote. To the extend that migration itself is correlated with political preferences, this will also influence the relative effects of migration on turnout for the different parties. This problem was already acknowledged by Goodman and Hiskey (2008), who propose that the number of registered voters be adjusted by subtracting the amount of international migrants in the five years prior to the elections. The downside with this procedure is that it might overcompensate for migration and introduce additional noise. The adjustment implicitly assumes that prospective migrants register as voters with the same likelihood as non-migrants, which is debatable.

Another way to get around this problem is to simply define the total population 18 years of age (Mexico's voting age) or older as the total electorate. Over the 1990s Mexico's voter registration system was updated with the introduction of a voter registration card, which became the sole form of voter identification only in 1997. To the extend that migrants registered with this system before leaving, the number of total registered voters will overestimate the total number of potential voters in an election. But if future migrants were less likely to register in first place than non-migrants, the adjustment by total migrants will very likely overcompensate. Lastly, to the extend that citizens select into voter registration, the use of the total adult population will overestimate the size of the electorate and may introduce a new source of bias.

Given that all measures of the total electorate have their problems, estimation will be conducted for all three. If results do not differ by too much, it can safely be concluded that the measurement problems discussed here do not pose too much of a problem. Differences in the results, on the other hand, would allow to make some conjectures about the nature of selection of migrants and voters.

4.2 Independent Variables

The variable of interest is the proportion of migrant households (*Migration*) in a given municipality. It was constructed using the year 2000 census public use micro sample, which is representative at the municipal level. A migrant household is defined as having i) sent an international migrant in the five years prior to the census interview, or ii) having received a return migrant during the same five years, or iii) having at least one member who receives international remittances.

A number of control variables will be included in all specifications. The first one measures the distance to the U.S. border (*Distance Border*), calculated as the Euclidean distance between the each municipality and the closest municipality that shares a border with the United States (i.e. all border municipalities have a value of zero), using the location of the municipal seat as the point of reference. This will be an especially important control in the IV estimations. Next are two binary variables for the election year (*Year 2001*,

Year 2002), taking the year 2000 as the baseline. These are meant to capture year specific effects, but are likely to also pick up some characteristics of the limited number of states that hold their elections in each given year. Lastly, all specifications include a regional dummy variable for the North of Mexico (*North*), accounting for the region's ideosyncratic political dynamics.

For each set of dependent variables, results for two specifications will be presented. The first one will only include the controls just discussed. The second one will add a number of additional control variables. These are the log of average household income excluding transfers (*Average Labor Income*), its standard deviation (*Std Dev Labor Income*), the proportion of the population that is illiterate (*Illiterate*), the proportion of the population that belongs to an indigenous group (*Indigenous*), and the logarithm of the municipality's total population (*Population*). All the additional variables are taken from the year 2000 census.

4.3 Instrumental Variable

As already mentioned, the proportion of migrant households may potentially be endogenous due to omitted variables or reverse causation. Several authors have already faced the problem of finding suitable instruments for migration and have come up with a series of valid solutions. The most common approach is to use historic migration flows, which will influence current flows through the importance of social interactions (see, for example, Massey and Espinosa (1997)), but are far enough back in time not to influence the outcome variable. This approach was taken by McKenzie and Rapoport (2007) to identify the effect of migration on inequality, using data on border crossings at the state level from the year 1924. At the beginning of the 20th century migration from Mexico to the United States increased sharply as a result of labor shortages north of the border during World War I. Mexican workers were recruited by contractors following the rail lines leading into Mexico from the border, with El Paso, Texas being the principal point of entry. For that reason, in their work on micro enterprises in Mexico, Woodruff and Zenteno (2007) used distance from one of the three principal north-south lines at the state level as their instrument of choice.

Here two different instruments will be used jointly. The first one (*Historic Migration*) follows McKenzie and Rapoport (2007), and consists of data on the state of origin of legally admitted migrants to the United States in April 1924. This number is then divided by each state's population in the year 2000, in order to arrive at a measure of relative importance of early migration flows. This instrument may violate the exogeneity condition, since it only captures legally admitted migrants which might have been selected based on unobservable characteristics at the level of the state.

In order to account for this problem, and to arrive at a stronger set of instruments, a measure for the travel distance to Ciudad Juarez, Chih, El Paso's

sister city across the border in Mexico, was constructed as a second instrument (*Distance Juarez*). Travel distance means the distance by rail from Cd. Juarez to the station closest to each municipality. I used a 1905 timetable for the Mexican railroad network, which also provides distance between stations in kilometers, to establish which lines were already present at that point in time. I then determined which municipalities had a railroad connection and at which distance from Ciudad Juarez. Those not directly connected by railroad where matched with the closest municipality that is [6]. I only account for the distance to Cd. Juarez as it was by far the most important crossing point thanks to its geographical position and El Paso's role as a rail hub. This made it the closest and best connected point of entry to the major labor market in the American West and Mid-West, dwarfing the importance of any other possible point of entry.

The biggest concern regarding the instrument's exogeneity is that it might just capture the effect of geographical closeness to the United States and hence be correlated with the error terms. This is addressed by adding the direct distance to the US border as a control variable. It could also be argued that even after controlling for the distance to the border the instrument still captures how well a municipality is connected to the US and could therefore be correlated with a number of unobserved characteristics which are influenced by that connectedness. In this regard, it has to be kept in mind that the instrument measures access to the US labor market *at the beginning of the 20th century.* Once roads transportation became widely available the importance of the instrument in determining access to the border was significantly diminished. It is therefore unlikely to be a determinant of any unobserved contemporaneous characteristics. It is also important to note that the instrument dates from a moment in time before the PRI dominated political system even emerged and hence cannot be the product of any relevant political characteristics.

4.4 Variable of Electoral History

The data set will be split based on electoral history: municipalities which never had an opposition government since 1980 and those that did. The only potential problem with this approach is that this division could contain a large amount of spatial correlation. The estimates might then pick up geographical differences rather than different institutional environments. Table (1) addresses this concern. It shows the number of municipalities which fall into each of the two categories by state. For most states the picture is pretty even and only the traditional high migration states of Jalisco, Michoacan and Guanajuato show a significant concentration of municipalities which already had an opposition government. Only a couple of very small states (Campeche, Quintana Roo) show the opposite concentration. High degrees of spatial correlation therefore appear not to be a problem. Another aspect that stands out is that this division

[6] Using direct distance, measured in the same way as the distance to the US border

results in two groups of almost exactly the same size. This implies that different results in the two groups cannot be a consequence of differing sample sizes and facilitates comparisons between the two.

(Table 1 about here)

4.5 Summary Statistics

Table (2) shows the summary statistics for all municipalities included. The numbers on total population and labor income are presented at levels (and not logs). In the year 2000 Mexico had 2443 municipalities (not counting the boroughs of Mexico City) for which complete data is available on exactly 1985. The difference is mainly explained by the 418 municipalities in the state of Oaxaca that do not hold party based elections, but are governed according to their own local traditions (*usos y costumbres*). For the remaining missing observations, electoral results were either not observed (because the municipality was just incorporated or elections were annulled), or uncontested (resulting in a value of zero in one of the dependent variables and one in the other), or errors in data coding were apparent by yielding a combined value of the two independent variables larger than one. Overall, total attrition due to these factors constitutes only around 5% of the entire population of interest and should therefore not be of a big concern.

(Table 2 about here)

As can be seen from the table, the average turnout for the PRI was 26.45% and that for its locally strongest opponent 23.68%. Almost exactly half of municipalities never had a non-PRI local government by the year 2000. The average proportion of migrant households in the year 2000 was 12.37% with a standard deviation of roughly the same size. Close to a quarter of all municipalities are located in the north of the country, and almost half had municipal elections in the year 2001, while only 11.63% did so in 2002 (implying that 39.46% had elections in 2000). The statistics on the additional control variables should be self-explanatory and are of no particular interest here. As far as the instrumental variables are concerned, the distance to the border in Cd. Juarez ranges from 1 km (the station in Cd. Juarez itself) to a maximum of 2917 km. The values on historic migration are necessarily very small, since the number of crossings for one month in 1924 are divided by a state's total population in the year 2000.

5 Estimation Results

Tables (3) and (5) present results for the estimation of the model in (6) and its instrumental variable version. Table (4) shows first stage statistics on instruments strength. Results are shown for various groups and specifications. The first two columns in each table refer to estimations on the whole sample, including all 1926 municipalities. The following two columns do so for the group of continuously PRI ruled ones, and the last two for the group which already had a non-PRI local government at some point. For each of these pairs, the first column shows results for the basic specification, and the second column for the inclusion of additional controls. In order to keep the tables at a manageable size, control variables are omitted.

Being first stage statistics, the results in table (4) are valid for all three groups of dependent variables. In tables (3) and (5) results are presented for the three different pairs of dependent variables. In the top one, the total number of votes cast in favor of either party is divided by the official list of registered voters. In the center, the list has been adjusted for the estimated number of adult international migrants. The results at the bottom of the tables divide votes by the number of inhabitants 18 years of age or older in the year 2000.

In order to present a complete set of results, the tables report marginal effects, the corresponding parameter estimate (β-coeff), as defined in expression (6), and the t-statistic on that parameter.The marginal effects have to be interpreted as the expected change in turnout for either party in *percentage points* in response to an increase in the proportion of migrant households by 1 percentage point. This corresponds to the expected effect at the sample mean. As sample means will be different for the two groups of municipalities, which would complicate comparison of results, all marginal effects are computed based on the mean value for all municipalities.

5.1 Results for joint logistic regression

Table (3) presents the results for a joint logistic regression defined in (6). Across all municipalities, an increase in the proportion of migrant households by one percentage point, decreases turnout for the PRI by around 0.1 percentage points for the first set of dependent variables. This number drops to 0.3-0.6 percentage points if the dependent variables are defined over the adjusted list or the population over 18 years of age. These effects look fairly small in magnitude, but it has to be kept in mind that these are percentages of turnout, not over votes cast. As reported in table (2), average turnout for the PRI is 26.45% and for its principal opponent 23.68%. So, with a combined turnout of around 50%, the effect on winning margins will be double the numbers reported here. That said, with the exception of the first set of dependent variables, it also appears that votes cast for the PRIs strongest opponent almost exactly offset the effect on the PRI itself, but also that none these results is statistically very significant.

(Table 3 about here)

The second and third columns are of much more interest, presenting results for continuously PRI ruled municipalities. As discussed before, this is the group in which one would suspect clientelistic practices to be most common. In all six estimations, the expected marginal effect of migration on PRI turnout roughly doubles. A one percentage point increase in migration is now estimated to reduce turnout for the PRI by around 0.15 percentage points for the dependent variables based on all registered voters, and by 0.06-0.1 for the other dependent variables. The t-stats on the corresponding parameter are highly significant throughout (with one exception at the 1%-level). The marginal effect on turnout for the largest non-PRI party also tend to be somewhat lower than in the case of the whole sample. The t-statistics on the corresponding parameters are highly significant in the case of the first pair of dependent variables, insignificant in the case of the second pair and borderline significant for the last pair.

Two things stand out. The first is the similarity of results between the estimations that use the adjusted voter list and the total adult population as measures of the electorate. The second is that the difference of the marginal effects between the PRI and its strongest opponent are roughly similar in size for all three pairs of dependent variables. These differences are 0.066, 0.059, and 0.056 percentage points for the specification with only the basic controls, and 0.098, 0.07, and 0.086 percentage points if the additional control variables are added. Taken together, this implies that using the whole voter list significantly overestimates the total size of the effective electorate (i.e. without migrants), while the adjustment for past migration as proposed by Goodman and Hiskey (2008) does indeed provide a fairly good approximation for the size of the electorate. The concern with the adjusted figures was that they may underestimate the size of the electorate, while using the total adult population may overestimate it. But given that the two measures yield very similar results, it can be concluded that their respective biases are negligible. Results will therefore be discussed focusing on specifications using these dependent variables.

Another, no less important, conclusion can be drawn from the result that the estimations based on all registered voters systematically yield lower marginal effects, while the differences in marginal effects are similar to those using different dependent variables. This implies that migration patterns are not strongly correlated with voting behavior, removing one of the principal concerns about omitted variable bias in these estimations.

Table (2) shows that the standard deviation on the migration measure is 0.1225, or be it 12.25 percentage points. Combining this with the estimated marginal effects (under the assumption of a roughly linear effect around the

mean) provides a better gauge for the magnitude of the estimated effects. Based on the estimates for the adjusted list, a one standard deviation in the migration variable decreases turnout for the PRI by 0.748 percentage points if only basic controls are included and by 0.976 percentage points for the full set of controls. In terms of differences in turnout the respective numbers are 0.72 and 0.832. Assuming a 50% participation rate, the effect on the voting margin would be twice these numbers and could potentially change the electoral outcome.

Turning to the last two columns in table (3), the results indicate that migration had a positive effect on turnout for both parties, but more so for the locally strongest non-PRI party. As before, results for the first set of dependent variables are lower across the board than for the other specifications, while results for "Adjusted list" and "18 years of age and older" are very similar to one another. Focusing on the last two, the estimated marginal effect on PRI turnout becomes very small, and the corresponding parameters become insignificant once the additional controls are added. The estimated marginal effect on turnout for the non-PRI party of a one standard deviation increase in migration ranges from 0.9 to 1.07 percentage points. Given that the estimates indicate a slight increase in turnout for the PRI, the corresponding differences in marginal effects are between 0.5733 and 0.895 percentage points for a one standard deviation increase in migration.

Returning to this paper's principal question, the effects of migration on electoral behavior seem to be twofold. On the one hand, in the subset of municipalities in which clientelistic practices can be assumed to be prevalent, that is municipalities that have been continuously PRI ruled, the result strongly suggest that international migration undermines clientelistic arrangements, which would be the effect expected from international remittances. On the other hand, there is a strongly positive effect of migration on turnout for both parties, but much more so for PRI opponents, in municipalities that already had a non-PRI party in office at some point in time and can therefore be assumed to posses better democratic institutions. This indicates that migration may indeed have positive effect on democratic values. This effect seems however not to be present in the group of continuous PRI ruled places, as one would expect it to increase the turnout for the PRI stongest opponent.

5.2 IV Results

In order to test the robustness of the results just presented, all the models were estimated using the instrumental variable approach discussed in section(3) and (4). Table (4) establishes the relevance and strength of the instruments used. It can be seen that both instruments are highly significant in the first stage regression and enter with the expected sign. The low point estimates on the the variable estimating the distance to Ciudad Juarez are to be expected, given that it is scaled in kilometers while migration is measured as a fraction. The Cragg-Donald and Partial R^2 statistics are measures of instrument strength. The first

one, proposed by Stock, Wright, and Yogo (2002), is a version of the first stage F-statistic adjusted for the number of instruments and other covariates. In the present case, one endogenous variable and two instruments, it should ideally be above 19.93- which is consistently the case. The Partial R^2, proposed by Shea (1997), is not precisely a test statistic, but rather indicates the maximum amount of correlation between the instruments and the endogenous variable (i.e. of a violation of the exclusion restriction) that would still make the IV estimates less biased than OLS. A value around 0.2 also indicates a very strong set of instruments.

(Table 4 about here)

In table (5) each entry can be directly compared to the corresponding entry in table (3). In addition, it provides the statistic on the overidentification restriction (OIR) test. This indicates that the OIR-test can mostly not be rejected, with exception of the specification with all control variables for the subset of municipalities that already had been non-PRI governed. It seems reasonable to assume that this group is also behind the rejection of the OIR test for the same specification in the whole sample. These specifications should therefore be excluded from the comparison of results. As before, the estimates on the first pair of dependent variables are consistently lower than for the other two, which in turn are very similar to one another.

(Table 5 about here)

The general picture is that the IV estimates largely confirm the conclusion from the simple logistic regression models. The estimated marginal effects on PRI turnout double in size, reinforcing the conclusion previously drawn on the effect on clientelistic practices, while the estimated effect on turnout for the PRI's largest opponent stay mostly the same, but the corresponding parameter estimates lose considerably in significance. For the group of continuously PRI ruled places, Migration significant lowered turnout for the PRI, with a one standard deviation increase in migration reducing PRI turnout by now roughly 2.67 percentage points, while the effect on turnout for its largest opponent is negligible. For the other group, it now appears, based on the partial effects, that there is a movement from the PRI to its opponent that leaves total turnout largely untouched (or, alternatively, new non-PRI voters starting to turn out in the same magnitude as former PRI supporters start to abstain). But the parameter estimates that correspond to both outcomes are not statistically significant.

Overall, it can be said that the IV results lend additional support to the notion that international migration undermine clientelistic practices. If anything, the expected marginal effect had been underestimated in the simple logistic regression. The previously identified effect that migration also raises overall turnout, and more so for the PRI's opponent, in places that can be assumed to

have better democratic institutions, on the other hand, is significantly weakened by the IV results. It is well known that IV estimates tend to have larger standard errors than OLS, which may explain the insignificance of the parameter estimates in this group. But based on the estimated marginal effects, it seems that instead of an increase in participation, there is merely a shift in voters from the PRI to its opponent. This may rather be the result of migration affecting political preferences than increasing political awareness.

6 Conclusions

Democratization, understood as an improved functioning of electoral institutions and more competitive elections, has been studied extensively over the last few decades. Two principal areas of study have emerged: On the one hand, concepts relating to the political economy of electoral institutions, with a focus on the functioning of clientelistic arrangements that undermine electoral competitiveness, and, on the other, the idea that democracy takes hold as citizens recognize its benefit and democratic values become entrenched. While not mutually exclusive, the two causal channels are hard to distinguish empirically as they will give rise to similar observable outcomes. International migration is a case in point: while several studies have established a positive effect on the functioning of democratic institutions, the observed effect could be caused by the accelerated adoption of democratic values, transmitted through the migrant community abroad, as well as, through the income effect of remittances, which should make it more costly to sustain clientelistic relations.

This paper presented a model that helps to understand how increased income and improved democratic values should affect voting behavior. It was found that increases in income will make clientelism unambiguously more costly and, therefore, reduce turnout for the party engaging in clientelistic arrangements. The effect on turnout for other parties will be either nil or slightly positive. If democratic values increase, it should be expected that total participation increases, while it is unclear how this increases affects different parties. Any loss in votes for the dominant party, however, will result in a direct increase in turnout for its opponent and vice-versa.

The model's predictions allowed the formulation of an empirical strategy in order to distinguish between the two possible causal channels by which migration can improve electoral competitiveness. The subsequent results provided strong evidence that migration helps to undermine clientelistic relationships in places where the Mexico's formerly dominant party PRI continued to be entrenched. No such effect could be found in municipalities in which the PRI had already been out of power at some point in time before the elections, as would have been expected. These results were shown to be robust the use of instrumental variable methods.

The evidence on the workings of knowledge spillover through international migration is more mixed. It was found that migration is associated with a strong increase in turnout for both parties, but significantly more so for the PRI opponent, in municipalities that already experienced alteration in power. These results, however, were not robust to use of IV techniques, which turned them insignificant.

The main contribution of the this paper lies in proposing a new way to analytically think about two very different ideas of democratization in one sin-

gle framework, and in deriving a number of empirically testable implications from it. It also reconciles the seemingly contradictory results in the literature that find a negative impact of migration on political participation (Goodman and Hiskey (2008), Bravo (2007)) with the mainstream opinion that it improves democratic institutions by showing that the principal effect of migration is to lower turnout for the dominant clientelistic party. Future research on this topic needs to come up with new ways to further test different causal channels that in many cases produce observationally equivalent outcomes. One especially important contribution would be to find a way to directly test for the adoption of democratic values by the migrant community, as well as, for their transmission to the places of origin.

Figures & Tables

Figure 1: $b_i \geq \frac{|x^L - x^R|}{2} + c$

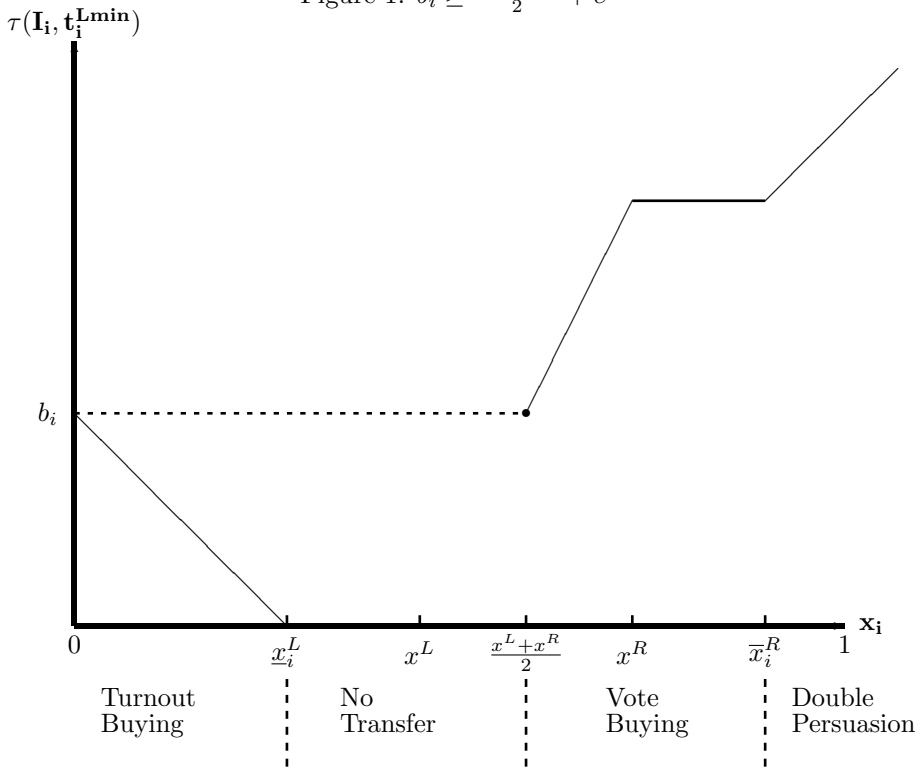

Figure 2: Effect of an increase in b_i if $b_i \geq \frac{|x^L - x^R|}{2} + c$

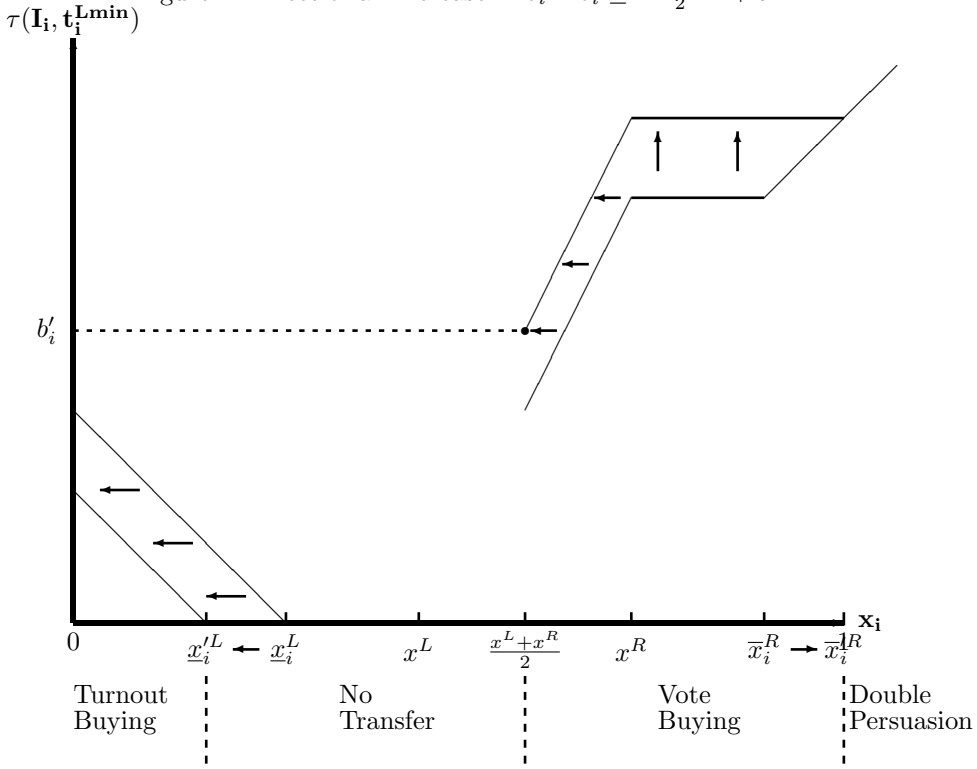

Table 1: Continuously PRI governed municipalities since 1980 by state.

	Continuous PRI	Had Non-PRI	No. Continuous PRI	No. Had Non-PRI	No. Municipalities
Aguascalientes	27%	73%	3	8	11
Baja California	0%	100%	0	5	5
Baja California Sur	0%	100%	0	5	5
Campeche	89%	11%	8	1	9
Coahuila	54%	46%	19	16	35
Colima	50%	50%	5	5	10
Chiapas	48%	52%	48	51	99
Chihuahua	50%	50%	32	32	64
Durango	42%	58%	16	22	38
Guanajuato	26%	74%	12	34	46
Guerrero	53%	47%	40	35	75
Hidalgo	64%	36%	52	29	81
Jalisco	27%	73%	33	91	124
Mexico	54%	46%	66	56	122
Michoacan	17%	83%	19	93	112
Morelos	47%	53%	14	16	30
Nayarit	65%	35%	13	7	20
Nuevo Leon	63%	37%	32	19	51
Oaxaca	50%	50%	64	65	129
Puebla	69%	31%	142	64	206
Queretaro	83%	17%	15	3	18
Quintana Roo	100%	0%	8	0	8
San Luis Potosi	53%	47%	30	27	57
Sinaloa	56%	44%	10	8	18
Sonora	53%	47%	36	32	68
Tabasco	71%	29%	12	5	17
Tamaulipas	67%	33%	28	14	42
Tlaxcala	58%	42%	34	25	59
Veracruz	35%	65%	73	135	208
Yucatan	72%	28%	74	29	103
Zacatecas	48%	52%	27	29	56
TOTAL	50%	50%	965	961	1926

Table 2: Summary Statistics for all included municipalities.

	Obs	**Mean**	**StDev**	**Min**	**Max**
Turnout PRI	1926	0.2645	0.0903	0.0058	0.5897
Turnout Non-PRI	1926	0.2368	0.0805	0.0073	0.5210
Non-PRI since 1980	1926	0.4990	0.5001	0	1
Migration	1926	0.1237	0.1235	0	0.6257
Distance Border	1926	658	264	0	1358
North	1926	0.2383	0.4262	0	1
Year 2001	1926	0.4891	0.5000	0	1
Year 2002	1926	0.1163	0.3207	0	1
Average Labor Income	1926	2405	1768	88	26949
Std Dev Labor Income	1926	6762	11979	607	196658
Illiterate	1926	0.1689	0.1109	0.0107	0.7179
Indigenous	1926	0.1470	0.2720	0	0.9962
Population	1926	44743	119047	416	1646319
Distance Juarez	1926	1958	621	1	2917
Historic Migration	1926	0.0001	0.0002	0	0.0007

Table 3: Marginal effects of migration on turnout for PRI and principal other party in joint logistic regressions.

	All	**All**	**PRI**	**PRI**	**Oppo**	**Oppo**
List						
PRI:						
Marginal	-0.0964	-0.1184	-0.1333	-0.1534	-0.0298	-0.0490
β-coeff	0.67	-0.74	-0.96	-1.03	-0.16	-0.26
t-stat	*-6.15*	*-7.40*	*-6.43*	*-7.66*	*-1.09*	*-1.66*
non-PRI:						
Marginal	-0.0283	-0.0091	-0.0674	-0.0554	0.0126	0.0210
β-coeff	-0.40	-0.33	-0.76	-0.71	0.01	0.02
t-stat	*-3.66*	*-2.96*	*-4.60*	*-4.35*	*0.08*	*0.12*
Adjusted List						
PRI:						
Marginal	-0.0333	-0.0524	-0.0611	-0.0797	0.0267	0.0075
β-coeff	-0.12	-0.19	-0.37	-0.44	0.34	0.22
t-stat	*-1.03*	*-1.77*	*-2.29*	*-3.04*	*2.13*	*1.39*
non-PRI:						
Marginal	0.0359	0.0527	-0.0023	0.0100	0.0735	0.0745
β-coeff	0.15	0.21	-0.17	-0.13	0.52	0.48
t-stat	*1.26*	*1.74*	*-0.94*	*-0.73*	*3.37*	*3.01*
Aged 18 and older						
PRI:						
Marginal	-0.0334	-0.0588	-0.0797	-0.1052	0.0393	0.0144
β-coeff	-0.13	-0.25	-0.54	-0.67	0.45	0.30
t-stat	*-1.06*	*-2.15*	*-3.05*	*-4.13*	*2.64*	*1.71*
non-PRI:						
Marginal	0.0322	0.0452	-0.0242	-0.0198	0.0857	0.0875
β-coeff	0.13	0.15	-0.36	-0.38	0.63	0.58
t-stat	*1.00*	*1.15*	*-1.81*	*-1.99*	*3.79*	*3.38*
All controls	No	Yes	No	Yes	No	Yes

Table 4: Instrument relevance.

	All	**All**	**PRI**	**PRI**	**Oppo**	**Oppo**
Cragg-Donald	421.82	354.64	132.76	108.59	298.47	232.84
Partial R2	0.31	0.27	0.22	0.19	0.38	0.33
First Stage:						
Distance Juarez	-0.0001	-0.0001	-0.0001	-0.0001	-0.0001	-0.0001
	-8.15	*-8.23*	*-6.15*	*-5.19*	*-5.41*	*-6.24*
Historic Migration	380.81	335.42	368.11	329.14	398.35	330.61
	21.49	*20.14*	*12.14*	*11.54*	*18.14*	*16.04*
All controls	No	Yes	No	Yes	No	Yes

Table 5: Marginal effects of migration on turnout for thr PRI and principal other party in joint instrumental variable logistic regression.

	All	**All**	**PRI**	**PRI**	**Oppo**	**Oppo**
List						
PRI:						
Marginal	-0.2670	-0.2037	-0.2768	-0.2758	-0.1538	-0.1010
β-coeff	-1.63	-1.02	-1.77	-1.59	-0.91	-0.42
t-stat	*-7.68*	*-4.90*	*-5.48*	*-5.08*	*-3.40*	*-1.46*
non-PRI:						
Marginal	0.0077	0.0822	-0.0493	0.0053	0.0318	0.0909
β-coeff	-0.52	0.09	-0.94	-0.58	-0.11	0.36
t-stat	*-2.86*	*0.45*	*-3.01*	*-1.73*	*-0.49*	*1.41*
OIR	0.4039	0.0404	0.0788	0.1567	0.2884	0.0346
Adjusted List						
PRI:						
Marginal	-0.2137	-0.1436	-0.2203	-0.2163	-0.0988	-0.0415
β-coeff	-1.18	-0.53	-1.32	-1.13	-0.44	0.06
t-stat	*-5.37*	*-2.50*	*-3.93*	*-3.45*	*-1.60*	*0.22*
non-PRI:						
Marginal	0.0624	0.1349	0.0026	0.0561	0.0858	0.1414
β-coeff	-0.07	0.54	-0.49	-0.13	0.33	0.80
t-stat	*-0.39*	*2.69*	*-1.51*	*-0.38*	*1.41*	*3.06*
OIR	0.6067	0.0529	0.0808	0.1098	0.1653	0.0115
Aged 18 and older						
PRI:						
Marginal	-0.1933	-0.1184	-0.2217	-0.2159	-0.0807	-0.0123
β-coeff	-1.06	-0.36	-1.38	-1.18	-0.30	0.31
t-stat	*-4.40*	*-1.53*	*-3.58*	*-3.11*	*-1.00*	*0.99*
non-PRI:						
Marginal	0.0725	0.1525	-0.0045	0.0473	0.1028	0.1720
β-coeff	0.06	0.74	-0.52	-0.17	0.50	1.09
t-stat	*0.30*	*3.34*	*-1.41*	*-0.43*	*1.88*	*3.82*
OIR	0.7590	0.0490	0.1074	0.0953	0.2281	0.0123
All controls	No	Yes	No	Yes	No	Yes

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